

Index

- Aarts, Emile 60
- AB research/ testing 87, 260
- absolutism 164
- abstract thought 162–3
- accountability
- data controllers, of 189, 212
 - government, of 155–8, 189
 - harm approach 202
 - human agency 53, 56, 58–9
 - purpose binding 155–8, 202–3, 212
- action vs. behaviours 86, 185, 260
- actor network theory (ANT) 169
- advertising, and consumer manipulation 89–91
- affective computing 70–71, 184–5, 260
- affordances 260
- definition 47–50, 170–71
 - onlife world, of 47–50, 183–5
 - printing press, of 180–81
 - script, of 177–81
- agency
- affordances, and 47–50
 - animism 128–30
 - autonomy, and 22–3
 - complete agents 27–30
 - definition 22–3, 30, 260
 - deterministic algorithms, and 23–4, 185
 - enaction 28, 40, 57, 225, 261
 - global agency 26
 - machine learning, and 24–6
 - mindless agency vs. ‘mindness’ 22–3
 - multi-agent systems (MAS) 26–7
 - perception, role of 28, 47
 - relational nature of 47–8
 - self-organization 26–7
 - smart agents vs. smart environments 27
 - see also* artificial agency; data-driven agency; human agency; smartness
- Agre, Philip E. 80, 118
- aida* (inbetween) 114–15
- algorithms
- agency, and 23–6, 185
 - bias 34
 - Big Data Space, and 30
 - data mining 24–5
 - definition 23–6
 - deterministic algorithms 23–6, 185
 - knowledge discovery in databases (KDD) 33–4
 - machine learning 24
 - training sets 24–5
 - unpredictable outcomes, impact of 23–4, 26
- Altman, Irwin 79–80, 103, 105
- amae* (indulgence, dependence) 121–2
- ambient intelligence (AmI) 7–8, 27, 46–7, 60
- see also* ubicomp
- ambiguity 67, 142–3, 149, 188
- analytics, benefits of 196–7
- Anderson, Chris 25, 37–8
- Animism 112–13, 128–30
- ‘anyware’ 9
- Arendt, Hannah 85–6, 114
- Aristotle 150
- artificial agency
- action and perception 28
 - autonomous computing, and 55–7
 - cognitive resources, and 28
 - definition 22–3, 260
 - legal personhood, and 73
 - legal subjectivity, and 12–13
 - liability of 73
 - machine learning, and 24–6

- multi-agent systems (MAS) 26–7
- supervised learning 24–6
- unsupervised learning 24, 33
- artificial intelligence (AI) 22, 34, 195–6, 224–5
 - see also* Japan
- artificial neural networks 34–6
- Asimo (robot) 112
- Astroboy (robot) 112
- atoms vs. bits 42–4, 109
- attention-management 69–72
- audience management 84
- Austin, J.L. 145–6
- Austin, John 137–8, 140
- autonomic behaviour, computing, action 55–7
- autonomy
 - accountability, and 58–9
 - autonomous law 167–9
 - autonomous technology 165–7
 - autonomy trap 90
 - consumer manipulation, and 89–91
 - digital sorting, and 92–3
 - emotions and feelings, importance of 71–2
 - first and second order beliefs and desires 91–2
 - identity, and 65–76
 - personhood and freedom 91–3
 - privacy, and 190–91
 - social sorting, and 88–9, 92–3
 - threats against 87
- avatar 29, 261
- basho* (place) 114–17
- Baxter (robot) 110–12
- behaviour
 - accountability, and 58–9
 - audience management 84
 - automated action programs, and 70–71
 - autonomic behaviour 55–6
 - autonomous action, and 56–7
 - bounded rationality, and 55–6
 - criminal profiling 97–8
 - emotions 70–72
 - herding behaviours 87, 262
 - human instinct, and 57
 - observed data 32
 - personhood and freedom 91–3
 - prediction, and 58–61
 - regulation, approaches to 165
 - ‘the social’ (Arendt), and 85–6
 - vs. actions 86, 185, 260
- behavioural data 32, 61, 84, 87, 90, 92, 135, 191, 204
- behavioural economics 191
- Being Digital* 42–3
- Big Data Space 226
 - algorithms 30
 - analytics of 31–6, 196–7
 - atoms vs. bits 42–4
 - bias 34
 - characteristics of 30, 45–6
 - cloud computing 44–5
 - data aggregation 33, 92–3
 - data dictatorship 40
 - data doubles 92–3
 - data-driven agency 15, 30–40, 46–7
 - data mining 25
 - data monetization 59
 - data storage 33
 - definition 45–6, 261
 - digital unconscious 40, 113, 194–6, 204, 225
 - distributed access 45–6
 - networked timespace 42–7
 - non-homogeneous 45
 - open data 194–5
 - terminology 42–4
 - transparency and opacity
 - implications 74–5
 - volunteered vs. observed data 32
- bits vs. atoms 42–4, 109
- Bongard, Josh 29, 108
- Bradford, Anu 206–7
- brain 29, 49, 56
- Brooks, Rodney 110–11
- Brussels effect 206–11
- Butler, Judith 56–7
- California effect 207
- cars, self-driving 1, 9, 22, 68, 122–3
- categorization 191–2, 196–7
- causality 12–13, 37–40

- Charter of Fundamental Rights of the EU 140–41, 186–7, 209–11, 261
 Clark, Andy 28–9, 108
 classification 178
 cloud computing 16, 44–5
 clustering 25
 cognitive science 55–6, 103, 114
 Cohen, Julie 14
 Coke, Edward 179
 complete agents 27–30, 110, 224–5
 compliant robotics 261
 cookies 12, 215–16, 261
 copyright 139, 186, 202
 corrective justice 150–52, 157
 correlation 37–40
 counter-profiling 214, 222–4
 criminal law 138, 179
 profiling, and 97–100, 198–9
 due process rights 100–102, 198–9
 equality of arms, and 100–101
 presumption of innocence, and 97–100, 198–9
 purpose 100–101
 surveillance, conflicts with 98–100
 criminal profiling 97–100, 198–9
 Cukier, Kenneth 31, 39–40
 consumer manipulation 89–91, 95
 cybersecurity 12–14, 138

 Damasio, Antonio 70
 data aggregation 33
 data dictatorship 40
 data doubles 92–3
 data-driven agency
 analytics 31–6
 autonomous and autonomic computing 55–7
 Big Data Space, in 15, 30–40, 46–7
 causality vs. correlation 37–40
 characteristics 30
 constructive distrust 36
 datafication and data science 39–40
 determinism, and 185
 invisible manipulation, vulnerability to 15
 knowledge discovery in databases (KDD) 31–5
 machine learning 35–6
 data filtering 69–72
 see also emotional targeting
 data mining 24–6, 34, 46, 90, 193
 data processing 190, 204–6, 209–13
 data protection
 conflicts 211–13
 consent 203
 counter-profiling 214, 222–4
 countervailing powers 187
 criminal offences, data on 197–9
 data controller, role of 222–3
 data security, and 212
 data sharing 211–13
 default, by 220
 definition 186
 discriminate-aware data mining 193
 due process, right of 198–9
 EU judicial interpretation 186–7
 exceptions 192, 194
 fundamental right, as 186–7
 legal certainty, and 195
 legality principle, and 189–90
 necessity, and 203
 negative rights 190
 non-discrimination, and 191–5
 opacity, and 189–90
 presumption of innocence, and 197–9
 privacy protection, and 186–8
 purpose binding principle 156, 204–6, 212–13
 right to be forgotten 209–11, 221
 self-determination, and 79, 190–91
 sensitive data 192–4
 transparency rights 190
 see also data processing; privacy
 Data Protection by Design (DpBD) 214, 219–22, 261
 Data Protection Directive 186, 192, 197–9, 261
 data science 39–40
 data security 78–9
 Davies, Roger J. 106, 120
 degrees of freedom 261
 Delaware effect 207
 democracy 10
 equal treatment principle 94
 legal relativism, and 154–5
 legality and legalism 155–8, 173–4

- sovereign power, role of 114, 152–3, 173–4
- written law, role in 177–81
- Derrida, Jacques 149
- design, definition of 170
- determinism
 - deterministic algorithms, and agency 23–6
 - technological determinism 11, 165–7, 185, 208–9
- diagnosis by machines 65–8
- digital data 194–7
 - see also* data processing; data protection
- digital sorting 89–93
 - see also* social sorting
- digital unconscious 40, 65–8, 196–7, 261
- discrimination *see* non-discrimination
- distributive justice 150–52, 209
- double contingency 15, 53–4, 67, 93, 222–3, 261
- due process, right of 100–103, 198–9
- Dworkin, Ronald 136, 140–41, 152
- Dwyer, Catherine 103
- dystopian determinism 165–7

- eccentricity (Plessner) 53
- eCommerce Directive 186
- Eisenstein, Elizabeth 48, 178
- Ellul, Jacques 167
- emotional targeting 69–72
- emotions
 - music, influences of 1, 3, 59–60, 68
 - synthetic 184, 264
 - vs.* actions and feelings 70–72
- enaction 28, 40, 57, 225, 261
- engineering 170–71
- enryo-sasshi* 121–2
- environment 28
 - Welt* and *Umwelt* 50–54, 57–8
- ePrivacy Directive 186
- equality
 - equal respect, right to 87, 152
 - justice, and 150–52, 209
 - proportionality, and 152
 - see also* non-discrimination
- Esposito, Elena 25

- European Convention on Human Rights 186
- extended mind 16, 29, 46–7, 262
 - see also* digital unconscious
- face, politeness and 115–17
- Facebook 121
- fair information principles 103, 262
 - balancing private and public interests, and 201
 - burden of proof implications 202
 - harm-based approach 202–3, 206, 212
 - limitations 200–201
 - multiple legal regimes, applicability 201–2
 - OECD Guidelines 200
 - property-based approach 201–2, 206
 - purpose binding principle, and 156, 204–6, 212–13
- fair trial, right to *see* due process
- Floridi, Luciano 228–9, 238
- forgotten, right to be 209–11, 221
- France, Anatole 128
- Frankfurt, Harry 91
- fundamental rights
 - counter-profiling, and 223–4
 - data protection 186–7, 189–90, 211–13
 - freedom from unlawful interference 189–90
 - freedom of contract restrictions, and 94
 - pre-emption computing, and 93–7, 216–17
 - privacy conflicts 211–13
 - privacy, judicial interpretation 188
 - right to conduct a business, conflicts with 94
 - right to non-discrimination 192–4
 - social sorting prohibitions 93–7
- Future of Identity in the Information Society* 8

- Gallie, W.B. 134–5
- General Data Protection Regulation (proposed) 77–9, 197–9, 219–20, 263

- Gibson, J. 170
 Gleick, James 71
 Glenn, H. Patrick 176–7
 global agency 26
 Goffman, Erving 83–4, 115
 Google 207–11, 221
 Grotenhuis, Frits 60
 Grotius, Hugo 127
 groupism 116–17
 Gutwirth, Serge 236–7
- Habermas, Jürgen 84–5, 191
 Harcourt, Bernard 97
 harm-based data protection 202–3, 206, 212
 proof, required for 193–4
 Hart, H.L.A. 139–40
 Haugh, Michael 116
 Heidegger, Martin 167
 herding behaviours 87, 262
 Hert, Paul De 236–7
 Holmes, Oliver Wendell 142
honne (truthful) 119–20
hotoke (ancestors) 106–7
 human agency
 action and perception, interaction of 28–9
 ambiguity, role of 67
 awareness of data use, development of 103–5, 123–5
 biological agency, and 51–3
 bounded rationality 165
 co-determination, importance of 102–3, 123–5
 cognitive resources, artificial uses of 28–9
 counter-profiling 214, 222–4
 definition 73, 260
 embodiment of 28–9
 human subjectivity, and 73
 intuition 35
 knowledge of unfairness, need for 101–3
 personhood and freedom 91–3
 pre-emption, implications of 60–61
 prediction, role of 57–8
 trust development, and 125
 human dignity, right of 79
 human machine interaction or interfacing (HMI) 112, 221–2, 262
 human mind *see* brain; human agency; unconscious mind
 human privacy, definition of 105
 human rights 126–8, 133, 191
 see also fundamental rights
 hyperconnectivity 50, 182, 262
- ichi* or *tachiba* (position) 116
 identity
 audience segregation, and 83–4
 data filtering, and 69–72
 double contingency 15, 53–4, 67, 93, 222–3, 261
 emotional targeting 69–72
 idem and *ipse* 81
 identity building 80, 82–3
 impression management 84
 interpretation 80–82
 persona 83–4
 personal identity or selfhood 80–82
 privacy, and 80–83, 190–91
 publicness, and 84–5
 social sorting, and 88
 technological vulnerability 15
 third person perspective, and 81–2
 transparency and opacity challenges 73–5
 virtual reconfiguration 66–7
- Ihde, Don 171
 Ikeno, Osamu 106, 120
 impact assessments 77
 inbetween, of human society 114–15
 information and communication infrastructure (ICI)
 affordance, concept of 47–50, 170–71
 agency, importance of 60–61
 anthropomorphization, and 185
 behaviour predictions, and 59–61
 brain and mind development, influences on 49
 Data Protection by Design 219–22
 definition 174–5, 262
 freedom from local constraints, and 182
 hidden complexities 181

- human understanding, relevance of 11–12
- Legal Protection by Design, and 216–17
- multistability 169–72
- online world, emergence of 47–50, 181–3
- oral culture transition to script culture, and 175–6
- parallel vs. sequential processing 50
- printing press, influences of 176–81
- regulatory impacts 11–12
- regulatory paradigm, and 183, 185
- revolutionization of 195–6
- script, influences of development of 175–6
- spatial impacts 11–12
- information, mathematical theory of 195–6
- institutional theory of law 145–6
- institutions 127–8, 262
- instrumentalism 155, 160, 162–3, 184–5
- instrumentality 154–7, 164, 172–3
- insurance 6–7, 65–9, 194
- intelligence 29–30
 - see also* artificial intelligence (AI)
- Internet, jurisdictional interpretations 207–11
- Internet of Things (IoT) 8–9, 27, 47
- intertextual reference (semiotics) 89
- intervention by machines 68–9
- ittoko-dori* 106
- Japan, privacy concept in
 - alternate conceptions of 104–5
 - animism 112–13, 128–30
 - ‘as-if’ culture 118–21
 - audience segregation practices 120–21
 - axiological orientations 107, 113
 - Confucian and Buddhist influences 106, 112–13
 - cultural influences 106–7, 118–22
 - deference 117
 - duty or gift, privacy as 115, 125–6
 - embodied moral order 107
 - environment influences 104–5
 - foreign elements, adaptation processes 106–7
 - groupism, and 116–17
 - identity/ image (*ura/ omote*) model of self 119–23
 - inbetween concept (*aida*), and 114–15
 - inclusion/ exclusion (*uchi/ soto*) relationships model 119–23
 - indulgence, presumption of 121–2
 - legislative developments 104
 - normative privacy 118–21
 - oral tradition 106
 - place, concept of 115–17
 - politeness, as face or place (*basho*) 114–17
 - privacy recognition and non-disclosure 121–2
 - reading humans, restrictions on robotics/ ubicomp abilities 123–5
 - relational concepts 104–5, 114–15, 118–23
 - restraint and acuity concepts (*amaes/ enryo-sasshi*) 121–3
 - robotics 110–13, 122–5, 128–30
 - self, perceptions of 118
 - situated discernment (*wakimae*) 116–21
 - truthful/ deceitful (*honne/tatema*) model of speech 119–23
 - ubicomp 107–10, 123–5, 128–30
 - Western influences 104
- jurisdiction
 - Brussels effect 206–11
 - Internet, judicial interpretations of 207–11
 - modern law, relation to 10
- justice
 - corrective justice 150–52, 157
 - definition 136, 149–50
 - distributive justice 150–52, 209
 - equality, and 150–52, 209
 - legal certainty, and 148–9, 152–4
 - reconstructive justice 152
 - theory of 135–6

- Kafka's *Trial* 13
kami (spirits) 106–7, 113
karakuri ningyo (mechanical dolls) 112
 Kelsen, Hans 138–40
 knowledge discovery in databases
 (KDD) 31–6, 262
 see also artificial intelligence
 Kranzberg, Melvin 162
 Kurzweil, Ray 166–7
- LaMonte, Karen 223–4
 language 53–5, 175
 Latour, Bruno 108, 145–6, 149, 160–61
 law *see* Legal Protection by Design;
 modern law
 Lefort, Claude 114
 legal certainty 148–50, 152–4, 189, 195,
 208–9
 legal hermeneutics 140–42
 legal personhood 12–13, 73, 144–5
 legal positivism 137–40, 142, 152–4,
 168
 legal pragmatism 142–3
 Legal Protection by Design (LPbD) 263
 compensation objective 215–16
 contestability requirement 10–12,
 218
 Data Protection by Design (DpbD)
 214, 219–22, 261
 democratic participation requirement
 10–12, 216, 218–19
 importance 17, 214
 resistance or disobedience
 requirement 10, 12, 17, 218
 technologically neutral law 217–18
 technology neutral law 215–17
 techno-regulation, difference with
 11–12, 165, 184, 214, 218–19
 legal realism 142
 legal relativism 154–5
 legalism 155–6, 173–4, 262
 legality 155–8, 173–4, 189, 263
 Lessig, Lawrence 165, 177
 Luhmann, Niklas 191
- Macfarlane, Alan 106–7
 machine learning (ML) 24–6, 35–8,
 142–3, 263
 see also artificial intelligence
 McLuhan, Marshall 49–50
 Manifesto on Being Human in a Digital
 World 41
 mass media 49–50
 Mayer-Schönberger, Viktor 31, 39–40
 Mead, George Herbert 53
 media studies 47–8, 167
 medical and life insurance *see*
 insurance; medical diagnosis
 medical diagnosis by smart
 technologies 6–7, 65–6, 68–9, 184
 Mitchell, Tom M. 35
 modern law 10
 absolutism 164
 ambiguity in 142–3, 149
 autonomous conception of 168–9
 balance, challenges of 136
 basic norm (*Grundnorm*) 138–9
 behaviour, influences on 165
 challenges of 17, 217–18
 character of 10, 139, 148–9
 classification and codification 178–9
 command theory of law 137–8
 contested concept, as 134–7
 cultural artefact, as 148–9
 definitions 134–7, 217
 force of law concept 149
 functions of 143, 157–8
 goals and objectives of 143–6, 148–9
 hermeneutic conception of 140–42
 institutional theory of law 145–6
 instrumentalist conception of 164–6
 instrumentality, and 154–6, 154–7,
 172
 instrumentalization of 184–5
 integrity 136, 141
 interpretation 140–43, 180–81, 188
 jurisdictional challenges to 138
 legal certainty, and 148–50, 152–4
 legal effect 142, 144–5, 168–9
 legal order, importance of 144
 legal personhood 12–13, 73, 144–5
 legal positivism 137–40, 143, 152–4,
 168
 legal pragmatism 142–3
 Legal Protection by Design 218–19
 legal realism 142

- legal relativism 154–5
- legality vs. legalism 155–8, 173–4, 262–3
- legitimacy, and 164
- litis finiri oportet* 153
- mode of existence 133, 146–9, 160–61, 163–5, 167–9, 172–4
- natural law 127, 137–8
- neutrality of 164, 168–9
- politics, and 168–9
- preconditions for 141–2
- primary and secondary legal rules 139–40
- printing press, precondition for 133, 141–2, 176–81
- proportionality 140, 152–4, 188
- pure theory of law 138–9
- purpose binding principle 156–8, 204–6, 212–13
- purpose of 161–2, 226
- purposiveness 154–6
- regime of veridication 145–7, 161, 219
- regulatory paradigm, and 164–5, 183
- relational conception of 172–4
- res iudicata est* 153
- Roman Law, interpretation of 180–81
- script and text, influences on 141–2, 174, 176–82
- self-regulation, as 10
- separation of powers 137–8, 163–4, 168–9, 173–4
- separation thesis 137–41, 168–9
- sovereignty, and 114, 152–3, 168, 173–4
- speech act theory, and 145
- technologically neutral law 174–83, 217–18
- technology neutral law 128, 174, 199, 215–17
- ultimate rule of recognition 139–40
- unilateral decision-making, and 153–4
- value-laden concept, as 146–9
- written law, externalization by 177–81
- see also* justice; modes of existence; Rule of Law
- modes of existence 133, 160–61, 181
 - of law
 - as independent autonomous discipline or practice 167–9
 - law as relational 172–4
 - as neutral instrument for social engineering 163–5
 - of technology
 - as autonomous and independent force 165–7
 - as multistable 169–72
 - as neutral instrument 162–3
- Montesquieu 179
- morality 112–13, 125, 137–40, 169
- Morozov, Evgeny 14
- morphological computation 111–12, 214–15, 224–5
- multi-agent systems (MAS) 26–7
- music, influences on mood 1, 3, 59–60, 68
- Negroponte, Nicholas 42–3
- neural networks 34–6, 40, 199
- ningen* (human being, society) 114
- Nissenbaum, Helen 83, 216
- non-discrimination
 - data protection, and 191–5
 - direct discrimination 95–6, 192–3
 - discriminate-aware data mining 193
 - distributive vs. corrective justice 151
 - due process rights, and 102
 - equal treatment, right to 94
 - freedom of contract, and 94
 - hidden discrimination 96–7
 - indirect discrimination 96, 192–3
 - legal rights to 192–4
 - open data 194–5
 - pre-emptive targeting, and 96–7, 102
 - preferential treatment justifications 95–6
 - prevention challenges 103
 - price discrimination 95
 - proportionality 95–6
 - social sorting 93–7
 - stereotyping 191
- Norman, Donald 170
- Norvig, Peter 30

- observed (behavioural) data 32
- Odysseus metaphor 156, 194, 199, 220
- OECD fair information principles 200
- omote* (projected image) 119–20
- onlife world 263
- affordances of 47–50, 183–5
 - autonomic behaviour 53–7
 - autonomous actions 53–7
 - blurring boundaries 41–2
 - computational infrastructures 55, 88, 91, 97, 102
 - digital sorting, and 89–91
 - emergence of 47–58
 - hyperconnectivity 50, 182
 - imagining future realities 8–9
 - information and communication infrastructure (ICI) 181–3
 - instrumentalization of law, and 184–5
 - legal challenges of 138, 181–3
 - multi-tasking, and 50
 - observer, role of 52–3
 - pre-emptive computing 47, 60, 67, 96
 - privacy, value as isolation or seclusion 83
 - private enterprise role in 182
 - profiling 51–7
 - theory of mind, and 54–5
 - vs. offline world 50
 - Welt* and *Umwelt* 50–54, 57–8
- online personas 41
- opacity 73–5, 189–90
- open data 194–5
- oral language 48, 175–6
- Packer, Herbert 100–101
- pattern recognition technologies 9, 22, 24, 28, 34, 51, 88
- personal data ecosystems (PDE) 202
- personal digital assistant (PDA) 263
- agency status, legal implications of 73
 - alarm, interruption by 3–4, 73–4
 - benefits, interpretation of 72
 - health and wellbeing, influences on 1–7
 - inference or instruction, based on 72–3
 - passive mode 4, 73–4
 - privacy and liberty implications of 72–3
 - relationship with 1–7, 72–3
 - translucency and opacity 73–5
 - unplugging 73–5
 - use vs. interaction 47
- personalization 42–3, 61, 69–72
- personhood, and freedom 91–3
- Pfeifer, Rolf 29, 108
- philosophy of law
- conceptions of law 147–9, 160
 - instrumentalism 155, 160
 - law as instrument for social engineering 163–5
 - law as multistable 172–4
 - law as relational concept 172–4
- philosophy of technology
- technology as autonomous and independent force 165–7
 - technology as mere instrument 162–3
 - technology as multistable 169–72
 - utopian and dystopian determinism 165–7
- Picard, Rosalind 70
- Plessner, Helmuth 53
- pluralism, relational 171–2
- politeness theory 115–17
- political economy 14–15
- pre-emption 263
- benefits of 60
 - discrimination, and 96–7, 102
 - due process rights, and 101–2
 - fundamental rights affected by 102–3
 - human agency implications 15, 60–61, 216–17
 - ‘inbetween’ concept, and 115
 - individual freedoms, conflicts 211–13
 - interactions, constitutive impact on 11–12
 - invisible manipulation, vulnerability to 15, 216–17
 - personalization, and 42
 - prediction, and 59–61
 - profiling, and 51
 - transparency and opacity, reconfiguration of 75
 - trends 60–61

- prediction 58–61
- presumption of innocence 97–100, 197–9
- price discrimination 95
- printing press 49–50, 88
- affordances of 180–81
 - education, influences on 58
 - modern law, contingent upon 141–2, 176–81
 - Rule of Law, impact on 17, 177
 - shift from oral language and written text to 48
- privacy
- access control, as 78–9
 - ambiguity of 188
 - animated things, and 105
 - anonymity, as 83
 - appropriateness of data flows 83
 - ‘as-if’ concepts of 118–21
 - attention-management 69–72
 - audience segregation 83–4, 86–7
 - autonomy 190–91
 - boundary negotiation, as 79–87, 103, 105, 115
 - conceptions of 79–80
 - confidentiality, as 78–9, 83
 - contextual integrity, as 83–4
 - control over personal data, as 102–3
 - definitions 103, 188
 - descriptive and normative privacy 118
 - due process rights 102
 - duty, as 105, 115, 125–6
 - emotional targeting 69–72
 - freedom from unlawful interference 189
 - freedom from unreasonable constraint 80, 86–7
 - freedom vs. liberty 189
 - gift, as 105, 115, 125–6
 - habit, as 105
 - human privacy, specifics of 105
 - identity, and 80–83, 190–91
 - informational self-determination, and 79, 190–91, 212–13
 - institutional privacy 86–7, 120–21
 - interpretations of 78–88
 - isolation or seclusion, as 83
 - judicial interpretation of 188
 - legal certainty, and 189
 - legitimate expectations, and 189
 - machine diagnoses that infringe 65–9
 - machine interventions that infringe 68–9
 - monetary value of 77
 - normative privacy 118–21
 - opacity right, as 189
 - participatory nature of 79–80
 - private interest or public good, as 79, 82–5, 87
 - protection, development of 75
 - reasonable expectation of 83
 - reciprocal process, as 79
 - right to 80–83, 105, 115, 125–8
 - self-identity, and 80
 - situated discernment (*wakimae*) 116–21
 - social privacy 86–7, 120–21
 - social sorting, and 88
 - subliminal intervention 69
 - substance of 128
 - things, granted by 105–6
 - third party doctrine 189
 - transparency and opacity, implications of 73–5
 - tyranny of the social, as 85–6
 - ubiquitous monitoring, and 98–9
 - US legal framework 189
 - see also* data protection; Japan
- privacy by design 220–21
- see also* Data Protection by Design
- privacy settings 11, 68, 84, 92–3, 121
- profiling
- abstraction 53–4
 - animal vs. human 51–2
 - anti-profiling 222–3
 - anticipation of expectations 58–9
 - autonomic behaviour and autonomous actions 54–7
 - consumer manipulation, and 89–91
 - counter-profiling 214, 222–4
 - data doubles 92–3
 - data protection, and 197–9
 - detection and application 57–61
 - digital sorting 89–91

- double contingency 15, 53–4, 67, 93, 222–3, 261
- due process, right to 198–9
- enaction of action and perception, as 57
- language, relationship with 53–4
- mutual anticipation, and 222–4
- neural networks, role in 199
- non-distributive profiles 66
- observer, role of 53–4
- outsourcing 89–91
- personalization 66
- pre-emption, and 51
- prediction, and 57–61
- presumption of innocence, and 197–9
- privacy and liberty implications 65–8
- right to object 221–2
- self-reflection capabilities 52
- social sorting, and 88
- transparency, and 17, 198–9
 - Welt* and *Umwelt* 50–54, 57–8
- property based protection 201–2, 206
- proportionality 95–6, 140, 152–4, 188
- public good 82–3, 85, 87
- public interest 85
- public sphere 82–7, 151–2
- puraiabashi* (privacy) 104
- purpose binding principle 156–8, 204–6, 212–13
- purposiveness 154–6

- Radbruch, Gustav 147–55
- radio frequency identification (RFID) 9, 263
- Rawls, John 135–6
- reading and writing 43, 49, 89, 184, 263
- Real-time Operating system Nucleus (TRON) Intelligent House 108
- reconstructive justice 152
- regime of veridiction 145–7, 161, 219
- regulatory paradigm 164–5, 183, 185, 219
 - Brussels effect, and 207–8
- Reidenberg, Joel R. 208
- Ricoeur, Paul 48, 81
- right to be forgotten 209–11, 221
- rights *see* fundamental rights
- risks 77–8

- robotics
 - acuity and restraint, need for 123–5
 - agency, identification challenges 124
 - Animism 112–13, 128–30
 - Asimov's Laws of 122–3
 - behavioural robotics 110–11
 - cloud technology 9
 - complete agents 27, 30, 110
 - definition 110, 263
 - human machine interaction (HMI) 112
 - Japan, developments in 110–13, 122–5, 128–30
 - morality, and 112–13, 122–3
 - morphological computation 111, 214–15, 224–5
 - numerical computation 111–12, 225
 - public perception limitations 110
 - reading humans, restrictions on abilities 123–5
 - service or companion robots 112
 - soft or compliant robotics 6–7, 112, 224–5
 - ubicom, differences from 110
- Rotenberg, Marc 80–118
- rule by law 163–4, 178–9
- Rule of Law 219
 - action and behaviour, responsibility for 185
 - data science, challenges for 40
 - development of 179–81, 183
 - equal treatment principle 94
 - formal conception of 169, 237
 - Legal Protection by Design (LPbD), required by 193, 214, 217–18
 - legalism of 169, 173–4
 - legality, and 155–6, 173–4
 - legality *vs.* legalism 155–8, 173–4, 262–3
 - paradox of 126–7
 - printed text, constitutive relationship of 17, 177
 - procedural conception of 173, 237
 - public good, and 85
 - purpose binding, 155–8, 203–6
 - regulatory paradigm *vs.* 164–5, 183–5, 218–19, 226

- separation of powers 163–4, 168–9, 173–4
- sovereignty, and 180–81
- substantive conception of 141, 155, 168–9, 237
- vs. rule by law 163–4, 178–9
- Russell, Stuart 30
- Sakamura, Ken 108
- scenario studies 8
- Schauer, Frederick 191
- Schmitt, Carl 147
- scientific research 25–6, 36–7
- script
 - importance 43
 - interpretation 88
 - modern law, constitutive relation with 141–2, 176–82
 - orality, difference with 48, 175–6
 - printing press, differences with 141–2, 176–81
 - society, constitutive relation with 41–2, 175–6
 - technological character of 48
- security and resilience, of technology 13–14, 212
- self-determination, informational 79, 190–91
- separation of powers 137–8, 168–9
 - Rule of Law, and 163–4, 173–4
- shintō* (indigenous oral tradition) 106
- shudan-shugi* (groupism) 116–17
- situated discernment (*wakimae*) 116–21
- smart energy grid 13, 23, 26–8, 263
- smartness
 - agency, and 22–30
 - complete agents 27–30
 - embedded systems 44
 - interpretation 15, 21–2
 - levels of 22–30
 - self-organization 26–7
 - smart agents vs. smart environments 27
 - see also* agency
- Snowden, Edward 13–14
- social construction of technology (SCOT) 169
- social networks (online) 41, 121, 263
- social shaping of technology (SST) 169
- social sorting 88–9, 92–3
 - discrimination, prohibited 93–7
 - see also* digital sorting
- socio-technical infrastructure (STI) 11, 47–8, 216, 219, 223
- soft or compliant robotics 112, 224–5
- Solove, Daniel, J. 13
- Sontag, Susan 67
- soto* (outside) 119–20
- Stengers, Isabelle 128–30
- stereotyping 191
- subliminal intervention 69
- subliminal regulation 9–10, 13–14
- surveillance
 - criminal law, conflicts with 98–100
 - governmental security, and 13–14
 - ubiquitous monitoring 98–9
 - universal and non-discrimination 98
- synthetic emotions 184, 264
- tanin* (beyond outside) 119–21
- Target 89–90
- tatema* (deceitful) 119–20
- techniques, definition 160
- techno-regulation 165
 - cookies 12, 215–16, 261
 - law, differences from 11–12, 218
 - regulatory paradigm, and 183–5, 219
 - see also* technologically neutral law; technology neutral law
- technological determinism 11, 165–7, 185, 208–9
- technologically neutral law 174–83, 217–18
- technology
 - autonomous conception of 165–7
 - definition 160–61, 165–7
 - embodiment of law, and 174–6
 - instrumentalist conception 162–3
 - mode of thinking, as 161
 - moral evaluation 162–3
 - multistability 169–72
 - neutrality of 162–3
 - normative impact of 162–3
 - pluralist conceptions, need for 171–2
 - security and resilience 13–14, 212

- technology neutral law 128, 174, 199, 215–17
- theory, definition of 38–9
- thermostats, smart 23
- threats 9, 77–8, 187
- tokoro* or *uchi* (location) 116
- transparency
- challenges 73–5
 - counter-profiling 222–4
 - data protection rights 190
 - hidden discrimination 96–7
 - law, purpose of 73–5, 155, 157
 - privacy as opacity right, and 189
 - profiling, and 198–9
 - Rule of Law, and 73–5, 101, 157, 189–90
- ubicomp 7–8, 264
- agency, identification challenges 124
 - Animism, and 128–30
 - Big Data Space, and 47
 - dangers of 27
 - digital unconscious 125
 - due process rights, and 102
 - embedded systems and agents 109
 - Japan, developments in 107–10, 123–5, 128–30
 - prediction *vs.* pre-emption 60
 - privacy implications 123
 - reading humans, restrictions on abilities 123–5
 - robotics, differences from 110
 - traditional computing, differences from 108–9
- ubiquitous computing *see* ubicomp
- uchi* (inclusion) 119–20
- Umwelt* 50–52, 57–8, 88, 264
- unconscious mind 40, 42, 51–2
- Welt* and *Umwelt* 50–54, 57–8
- see also* digital unconscious
- United States 189, 209–11
- ura* (core identity) 119–20
- utopian determinism 165–7
- Varela, F.J. 28
- volunteered data 32
- wakimae* (situated discernment) 117–21
- wearable technology 113
- Web of Things 9
- webbots 27, 29, 264
- Weiser, Mark 108
- Welt* 50–54, 57–8, 264
- complexity reduction 191–2
 - culture 148
 - double contingency 15, 53–4, 67, 93, 222–3, 261
 - epistemic trust, and 222
 - Husserl 229
 - language, text, and 50–54, 93
 - life world 51, 146
 - Mead, George Herbert 53
 - mode of existence, and 146
 - onlife world, and 195–6
 - Plessner, Helmuth 53, 229
 - printing press, and 58
 - Ricoeur, Paul 56, 229
 - social sorting, in 88–9, 93
 - tradition 106
 - Wittgenstein, Ludwig 229
- Wesel, Uwe 134
- Wolf, Maryanne 49, 184
- Yahoo *vs.* Google 207–9
- Zarsky, Tal 90–91

Between the covers

While meandering through San Francisco's *de Young* Museum of modern art, I encountered a large cast-glass statue of a woman. The statue shows the form and inclination of her body by the folds and draping of her dress. Upon inspection, the woman herself has evaporated into thin air; there is only the dress that traces the imprint of her delicate and lush bodily appearance, thus highlighting her disappearance. The dress is an empty mould that stands around the empty space of the woman, drawing the contours of her physical absence, thus preserving the memory of her evanescent being in the flesh. Like any work of art, Karin LaMonte's *Dress 3* invites onlookers to muse about the meaning of the work.¹ Its opacity and robustness disrupt the association of glass with transparency and fragility, confronting the spectator with the materiality of absence and the tangibility of memory. Some have suggested that the statue reminds us of the decay of the flesh and the loss of youth and beauty;² the dress has thickened into a relic of what the absent woman once looked like, highlighting the merciless process of aging and death.

For me *Dress 3* evokes the materiality of the immaterial, the contours of what cannot be defined, the casting of a person of flesh and blood in the costume that covers her role. It relates to privacy, to the hiding of the body, but also to the freedom to display and accentuate the curves of a woman who dresses up to show her self. It relates to role-playing, to the projection of an image, to staging a persona, while still masking the living body that breathes life into the mould. Like legal personhood, the dress enables a person to act her role while also protecting her from overexposure. In evoking elegance and the luscious enjoyment of being alive the statue – a *contrario* – reminds me of the rigidity of conventional robots, caught up in the limited degrees of freedom (DOF) that restrict their motoric skills to mechanical iterations. It raises the question of whether compliant robots will soon persuade us into taking an intentional stance, guessing there is something like a living entity on the inside, expressing itself in the embraceable softness of its approach.

The link with privacy, identity and persona became even more evident when I discovered LaMonte's *kinstugi* sculptures of Japanese kimonos.³ They confirm the idea that privacy can be designed into an environment

up to the point where one's clothes form an environment that helps to protect against the gaze of the other; against being read by significant others whose proximity makes impossible to *not-read* whatever one's body gives away. Different kimonos are used for different situations, during the course of a lifetime, depending on one's status, rank or community. A kimono therefore carries a message, projects a role, situates the person it envelops; it hides curves and movement, it suppresses enjoyment and spontaneity, requiring training to drape the garment and to move with dignity while keeping the folds in place. The affordances of the kimono differ from those of the lush dress typified by *Dress 3*. They are part of another tradition where politeness, rank and groupism keep people in check while requiring them to respect each other's privacy without necessarily translating this into a right to privacy.

If the technological landscape changes course, we cannot assume that the protection it affords remains unchanged. A dress is a technology; a tool used for a specific function, incorporating and generating a web of meaning. To preserve privacy, non-discrimination, due process and the presumption of innocence, we may have to 'dress up' differently, reconsidering the affordances of the covers we need to present *and* to shelter ourselves in view of the intrusions of hot and cold weather – and impertinent surveillance.

NOTES

1. See <<http://www.karenlamonte.com/>>.
2. Arthur Danto, *Karen LaMonte: Absence Adorned*, Tacoma, WA, Museum of Glass International Center for Contemporary Art, 2005.
3. Laura Addison en Karen LaMonte, *Karen LaMonte Floating World*, Los Angeles, Art Works Publishing, 2013. Kinstugi is the Japanese technique of repairing broken ceramics while using gold. It entails that fractures are repaired by emphasizing rather than hiding their faultlines. See e.g. Chana Bloch. 'The Joins' *Southern Review* 50.1 (2014): 1-1, available at http://muse.jhu.edu/login?auth=0&type=summary&url=/journals/southern_review/v050/50.1.bloch.pdf.