

Index

- abstractions
 - of algorithms, 27
 - of data-driven systems, 37–38, 40
 - for welfare fraud, 37–38
 - of knowledge-driven systems, 32–33
 - for welfare fraud, 33
- accountability
 - algorithmic rule by law and, 206, 211–13, 218–21, 226–27
 - diminished accountability, 218–22
 - transparency and, 218, 226–27
 - non-arbitrariness principle and, 173
- actio popularis*, 142
- actor-network theory, 51–52
- administrative acts
 - adoption of, 84
 - algorithmic regulation and, 78–82
 - automation of legalism and, 213–18
 - judicial review principle and, 142, 190
 - algorithmic regulation and, 190, 195–96
 - opacity in, 59–61
 - transparency in, 59–61, 128–29, 131–32, 145–46
- administrative justice, 16, 106
- agency
 - algorithmic systems' impact on, 66–69
 - in Milgram experiment, 67–69
 - obedience to authority in, 67
- AI. *See* artificial intelligence
- AI Act, 14, 47–49, 264–96
- AI Advisory Forum, 273
- AI Office. *See* European AI Office
 - algorithmic regulation under, 274–82
 - high-risk requirements, 278–94
 - algorithmic rule by law, 289–95
 - algorithmic systems under, 264–96
- analysis of, 294–96
- conformity assessment, 271–72, 286, 293
- database of high-risk systems, 273–74, 282, 284, 287
- definition of AI under, 268–70
- discretion in, 280–84
- European AI Board, 272
- enforcement of, 272–74
- exceptions under, 270
- fundamental rights impact assessment, 274–75, 284, 287–88, 304
- future-proofness under, 295
- general purpose AI models, 276–78
- harmonisation approaches to, 288–91
- innovation under, 273, 296
- list-based approach, 271–82
- market surveillance authorities, 272, 287
- objectives of, 266–68
- public authorities' requirements under, 274–76, 287–88
- record-keeping requirements under, 284–85
- risk-based approach to, 265–66, 270–88
 - disclosure requirements in, 273–78
 - high-risk systems, 278–88
 - minimal-risk systems, 271
 - prohibited practices, 274–76
- rule of law and, 16, 265–68, 288–96
- Scientific Panel of Independent Experts, 273
- scope of, 265–72
- social scoring under, 274–75
- standards, 273, 293
- techno-supremacy in, 291–94
 - in New Legislative Framework, 293
- transparency obligations, 266, 270–77, 284–85, 291–92, 303–5
- deep fakes, 276

- AI Office. (cont.)
 - Treaty on the Functioning of the European Union and, 267–68
 - Trustworthy AI, 265–66, 288
- AI Advisory Forum, 273
- AI Convention, Council of Europe and, 23, 290–91
- AI Board. *See* European AI Board
- AI effect, 45
- algoracry
 - algorithmic regulation and, 82–87
 - algorithmic rule by law and, 212
- algorithmic regulation, 1–18, 26–93.
 - See also* algorithmic rule by law;
 - algorithmic systems; *specific topics*
 - under administrative law, 3–4
 - under AI Act, 274–88
 - high-risk requirements, 278–88
 - algocracy and, 82–87
 - bias and, 57–59, 68, 89, 181–84
 - conceptualisation of, 26–95
 - harms and risks of, 5–6, 151–229
 - hypermudge by, 50
 - legal certainty principle and, 164–73
 - correlations in, 168
 - in data-driven systems, 168–69
 - foreseeability and, 165–69
 - in knowledge-driven systems, 168
 - means-testing algorithmic systems, 169
 - legalism and, 157–61, 170, 213–18
 - non-arbitrariness principle, 173–81
 - discretion and, 177–81
 - efficiency and, 174–76
 - explainability reduction, 176–77
 - government accountability and, 180
 - by public authorities, 69–93
 - bureaucracy, 82–87
 - discretion by, 78–82
 - rationale of, 87–93
 - research approach to, 18–25
 - hypotheses and questions in, 18–19
 - objectives in, 18–19
 - relevance of, 24–25
 - rule of law and, 6–10, 151–225
 - collective harm under, 7
 - individual harm under, 6–7
 - societal harm under, 7–8
 - separation of powers principle and, 199–205
 - citizen surveillance, 202–5
 - executive branch and, 200–1
 - privatisation of legal infrastructure, 201–2
 - public and private power, 201–2
 - technical aspects of, 26–50
 - algorithmic rule by law, 15–18, 95, 108–9, 205–25
 - accountability and, 206, 218–21
 - diminished, 218–21
 - external/internal review of, 213, 219–21, 263, 294
 - transparency and, 218–19, 226
 - administrative justice and, 16
 - AI Act and, 291–96
 - algocracy and, 212
 - analysis of, 151–229
 - automation of legalism, 206, 213–18
 - creative compliance and, 215
 - discretion and, 214–16
 - coder supremacy and, 206, 210–13
 - bureaucratic justice, 211
 - outsourcing of discretion, 213
 - public authorities and, 211–12
 - conceptualisation of, 17
 - due process and, 16
 - harm theory and, 205–29
 - individual justice and, 207–9, 214
 - legality principle and, 152–64, 210, 227
 - opacity and, 176–77, 206, 215, 218, 224
 - primacy of techno-rationality and, 207–10
 - public authorities and, 211–12, 218
 - public participation and, 228
 - systemic vulnerability and, 206, 221–25
 - constitutional retrogression and, 224, 226
 - LGBTQ+ persons and, 222
 - threshold for deficiency, 223–24
 - Treaty on the Functioning of the European Union and, 222–23
 - technological management and, 212
- algorithmic systems. *See also specific topics*
 - abstractions of, 27–41
 - under AI Act, 264–91
 - artificial intelligence and, 2–3, 44–50
 - narrow, 22
 - benefits of, 4–5, 87
 - classifications of, 30
 - consistency of, 166–68
 - data dependency in, 62–66
 - data-driven systems, 34–43
 - errors and, 9, 42, 55–61, 162–64
 - opacity and, 60–61, 162–64
 - ethics guidelines for, 46–47, 265–66, 288
 - in France, 24, 89, 172–73, 278
 - harms and risks of, 6–10, 151–229
 - human rights violations and, 15, 22, 24, 206, 213, 220–26, 273–74, 309
 - knowledge-driven systems, 30–34, 41–43
 - ‘many hands’ problem, 68–69, 181
 - means-testing, 169
 - opacity in, 6, 9, 50–51, 59–61, 69, 161–62, 172, 218
 - in Poland, 166–67, 176, 196–97, 203

- proxies in, 62–66, 154–55, 162, 183–84, 222, 284
- public authorities and, 64–65
- public sector use of, 6
- societal aspects of, 50–69
 - bias, 57–59
 - human error, 55–57
 - impact on human agency, 66–69
 - opacity, 59–61
- as socio-technical infrastructure, 51–55, 93
 - affordances, 52
 - authoritarian technics, 51–52
 - democratic technics, 51–52
 - neutrality of, 52
- STIR system, 196–97
- in Sweden, 167, 172
- systemic effects of, 55, 288
- algorithms. *See also* algorithmic regulation;
 - algorithmic systems
 - abstractions of, 27–41
 - classifications of, 30
 - data-driven systems, 34–41
 - decision-making by, 28–29
 - support systems, 29
 - definition of, 27
 - as historical concept, 27
 - inputs and, 27–29, 35–36, 39–40, 54
 - instructions for, 27–28, 31, 36, 45
 - knowledge-driven systems and, 30–34, 41–43
 - outputs and, 27–29, 35–43, 47, 49, 53–54, 62
 - reasoning and, 30–35, 41–43, 156
 - recommendation system, 29
- Arendt, Hannah, 65, 67, 74–75, 217
 - on banalisation of evil, 67, 217
 - on bureaucracy, 74–75
- Aristotle, on rule of law, 96–97
- artificial intelligence (AI), 44–50
 - under AI Act, 14–15, 47–50, 264–96
 - AI Convention, 23, 290–91
 - AI effect, 45
 - algorithmic systems and, 2–3, 44–50
 - narrow AI, 22
 - bias and, 57–59, 68, 89, 181–84
 - Coordinated Plan on AI, 5, 91–92
 - Council of Europe, 23, 290
 - Council of the European Union and, 48, 264, 272, 276
 - Dartmouth Workshop and, 44
 - data-driven systems and, 46–47
 - definition of, 29, 45–50, 268–70
 - under AI Act, 268–70
 - by European Commission, 47–50
 - by OECD, 49
 - Delvaux Report, 45–47
 - ethics guidelines for, 46–47, 265–66, 288
 - European Commission and, 46–50, 91–92, 263–78, 290–91
 - European Parliament and, 44–46, 48
 - general purpose, 276
 - generative, 22, 41–42, 264, 269
 - under AI Act, 276–78
 - High-Level Expert Group on AI, 46–47, 265–66, 270
 - definition of AI, 46–47
 - ethics guidelines for trustworthy AI, 46–47, 265–66, 288
 - policy recommendations, 265
 - high-risk systems, 268–88, 290, 293
 - minimal-risk systems, 271
 - prohibited practices, 274–76
 - standardisation of, 293–94
 - traditional, 31
 - Trustworthy AI, 266–67, 281, 288
- artificial neural networks, 37
- authoritarian technics, 51–52
- authoritarian tendencies
 - expansion of, 107
 - liberal democracies and, 107, 131, 220
 - rule of law and, 9–18
 - constitutional retrogression and, 12–13
- authoritarianism
 - competitive, 107
 - in hybrid regimes, 107
 - rule by law and, 105, 107
- autocratic regimes, 105, 107, 152, 292, 310
- automation
 - bias, 68, 178, 199, 285
 - in General Data Protection Regulation, 259–61
 - in Law Enforcement Directive, 259–61
 - of legalism, 206, 213–18
 - creative compliance and, 215
 - discretion and, 214–16
- Bard, 40–41
- Bauman, Zygmunt, 75, 136
- Belgium. *See also* Flanders, Belgium
 - administrative law in, 134, 140, 142–43, 197, 292
 - algorithmic regulation and, 53, 162, 172, 203–4, 221, 262
 - judicial review principle in, 142–43, 197
 - legality principle in, 142
 - migration law in, 81, 154
- Benzécri, Jean-Paul, 35
- Berlin, Isaiah, 225
- bias. *See also* discrimination
 - artificial intelligence and, 57–59, 68, 89, 181–84
 - in automation, 68, 178, 199, 285
 - errors from, 57–59

- bias. (cont.)
 algorithmic regulation and, 57–59, 68, 89, 181–84
- big data, 35
- Bing Chat, 40–41
- Bingham, Lord, 99, 101, 144
- black-box systems, 59–61
- bureaucracy
 Arendt on, 74–75
 Bauman on, 75, 136
 development of, 75–76
 digital, 84–85
 limitations and pitfalls of, 73–77
 procedural rationality and, 74, 77
 by public authorities, 39–73
 rational-legal, 75
 street-level, 84
 substantive rationality and, 74, 76–77
 Weber on, 71–78
- bureaucratic justice, 211
- CAI. *See* Council of Europe's Committee on AI
- CAHAI. *See* Council of Europe's Ad Hoc Committee on AI
- Charter of Fundamental Rights of the European Union (CFREU), 66, 112, 118, 127
 equality before the law principle in, 138
 non-arbitrariness principle and, 133–34
- ChatGPT, 40–41
- Child Risk Assessment System, 172–73
- citizenship, rule of law and, 95
- CJEU. *See* Court of Justice of the European Union
- Code of Hammurabi, 96
- collective harm, 7
- common good, rule of law and, 103
- competitive authoritarianism, 107
- compliance
 creative, 215
 with General Data Protection Regulation, 259–60
 with Law Enforcement Directive, 259–60
- computers
 as information highways, 54
 screen-level bureaucracy and, 84
- Conditionality Regulation, 237–46
 contested, 238–41
 against Hungary, 240–41
 legal basis, 238–39
 multi-annual financial framework (MFF), 239
- constitutional retrogression, 12–13
 algorithmic rule by law and, 224, 226
- conformity assessment
 under AI Act, 271–72, 286, 293
- New Legislative Framework, 293
- notified bodies, 272
- standardisation, 273
- high-risk systems, 282–86
- Coordinated Plan on AI, 91–92
- correlations
 algorithmic regulation and, 168
 in data-driven systems, 36
 spurious correlations, 38, 42–43
- errors and, 56–57
- legal certainty principle and, 168
- spurious
 in data-driven systems, 38, 42–43
- errors and, 56
- Council of Europe, 23–24, 96, 104, 110–15, 119, 121, 290–91. *See also* European Convention for the Protection of Human Rights and Fundamental Freedoms
- AI Convention, 23, 290–91
- Committee of Ministers, 23, 106, 111, 128, 135, 146
- rule of law and, 110–12
- Venice Commission, 106–8, 110–11, 119, 127, 133, 140, 144, 160
- Council of Europe's Committee on AI (CAI), 23, 290
- Council of Europe's Ad Hoc Committee on AI (CAHAI), 23
- feasibility study and, 195
- Council of the European Union, 13, 49, 120, 223, 233–35, 238–39, 241, 243, 264, 268, 272
- Court of Justice of the European Union (CJEU)
 rule of law cases, 112–13, 117–20
- Les Verts* case, 113
- courts. *See specific courts*
- creative compliance, 215
- curse of dimensionality, 43
- Dartmouth Workshop, AI and, 44
- data
 big data, 35
- dataism, 62
- General Data Protection Regulation, 255–63
- personal, 14, 65, 146, 255–63
- proxy, 184, 284
- data dependency, in algorithmic systems, 62–66
- data pollution, 8
- Data Retention Directive, 249
- data-driven methods and systems, 34–41
 abstraction of, 37, 40
- algorithmic bias and, 57–59
- legal certainty principle and, 168–69
- automated profiling and, 162
- artificial neural networks and, 37

- bias in, 58–59
 - big data and, 35
 - as black-box systems, 42, 59–61
 - correlations in, 36, 65, 168, 196
 - spurious, 38, 42–43, 56
 - curse of dimensionality, 43
 - hypermudge and, 50
 - Internet of Things and, 35
 - knowledge-driven systems compared to, 41–43
 - large language models, 40–41
 - learning, 34–35
 - deep, 37, 42
 - reinforcement, 39
 - semi-supervised, 38
 - supervised, 36–92
 - unsupervised, 37–38
 - legal certainty principle and, 165–69
 - legality principle and, 156
 - limitations of, 42–43
 - transparency in, 59–60
 - welfare fraud and, 37–38
 - abstraction of, 38
 - dataism, 62
 - decision-making, 58, 66
 - discretion and, 78–82
 - public authorities and, 70–73
 - algorithmic support systems, 29
 - deep fakes, 276
 - deep learning, 37, 42, 47, 59, 61, 177
 - Degrave, Elise, 141, 162–63
 - Delvaux Report, 45–47
 - democracy, democracies and
 - illiberal tendencies, 105–9
 - constitutional retrogression and, 12–13
 - rule of law and, 10, 12–13, 101–5
 - rule by law, 105–9
 - algorithmic rule by law, 151–205
 - in EU, 121–25
 - executive branch of power in, 8
 - tyranny of the majority, 106, 301
 - de Tocqueville on, 106–7
 - democratic technics, 51–52
 - Dicey, A. V., 97–98
 - digital bureaucracy, 84–85
 - Digital Markets Act, EU, 273
 - Digital Services Act, EU, 255, 267
 - diminished accountability, 218–21
 - disclosure requirements, in AI Act, 276, 277, 284, 287
 - discretion
 - in AI Act, 280–84
 - algorithmic regulation and, 177–81
 - automation of legalism and, 214–16
 - non-arbitrariness principle and, 177–81
 - by public authorities, 78–82
 - supremacy of coders and, 213
 - discrimination, 38, 58, 111, 135, 138–40, 183, 188, 192–94, 222, 251, 294
 - due process, 16
 - Dutch Childcare Allowance case
 - equality before the law principle and, 184
 - legality principle and, 159–61
 - Dworkin, Ronald, 102
 - EC. *See* European Commission
 - ECHR. *See* European Convention for the Protection of Human Rights and Fundamental Freedoms
 - ECJ. *See* European Court of Justice
 - Economy and Society* (Weber), 71–72
 - ECTHR. *See* European Court of Human Rights
 - EEC. *See* European Economic Community
 - eGovernment Action Plan 2016–2020*, 91
 - eGovernment Action Plan 2011–2015*, 91
 - Eichmann, Adolf, 67
 - EP. *See* European Parliament
 - EPPO. *See* European Prosecutor's Office
 - Equality Act 2010, U.K., 193
 - equality before the law principle, 138–40
 - algorithmic regulation and, 181–90
 - In Allegheny's child welfare system, 183, 185
 - comparability loss, 187–90
 - Dutch Childcare Allowance case and, 184
 - Ofqual algorithm, 188
 - scaled bias risks, 181–84
 - social inequality influenced by, 184–87
 - transparency and, 189–90
 - challenges to, 139–40
 - in Charter of Fundamental Rights of the European Union, 138
 - in European Convention on Human Rights, 139
 - requirements of, 138–39
 - in Treaty on European Union, 148
- errors, 55–57
 - algorithmic systems and, 55
 - from bias, 57–59
 - algorithmic regulation and, 59
 - in data-driven systems, 58–59
 - correlations and, 56–57
 - spurious, 38, 56, 196
 - opacity and, 59–61
- ethics
 - German Data Ethics Commission, 271
 - guidelines for Trustworthy AI, 46–47, 265–66, 288
 - Levinas on, 79

- ETIAS. *See* European Travel Information and Authorisation System
- EU. *See* European Union
- Eubanks, Virginia, 158, 174, 185
- Euclid, 27
- European AI Board, 272
- European AI Office, 273, 277, 288
- European Anti-Fraud Office (OLAF), 236, 242
- European Commission (EC). *See also* AI Act
 artificial intelligence and, 264–94
 definitions of, 44
 ethics guidelines for, 46
 rule of law and, 11, 13, 146
- European Convention for the Protection of Human Rights and Fundamental Freedoms (ECHR), 110–12, 115
 equality before the law principle in, 139
- European Court of Human Rights (ECtHR)
 judicial review principle and, 140–42, 191
 rule of law case law, 112, 115, 118–20, 139, 141
- European Court of Justice (ECJ). *See* CJEU
- EU database of high-risk systems, 273, 282, 284, 287, 291
- European Parliament (EP), 13, 49, 120, 233–34, 238–39, 244, 264
- European Public Prosecutor's Office (EPPO), 236, 242
- European Travel Information and Authorisation System (ETIAS), 308
- European Union (EU). *See also* legal order; *specific countries; specific treaties*
 algorithmic regulation governance in, 230–97
 administrative law and, 49
 Council of Europe and, 109–12
 Charter of Fundamental Rights of the European Union, 66, 112, 118, 127, 133, 138, 146, 243, 250, 256
 Council of the European Union, 13, 49, 120, 223, 233–35, 238–39, 241, 243, 264, 268, 272
 digital agenda of the EU, 5, 15, 230, 302
 Digital Markets Act, 277
 Digital Services Act, 255, 267
eGovernment Action Plan 2016–2020, 91
eGovernment Action Plan 2011–2015, 91
 General Data Protection Regulation, 187, 255–63, 275, 280, 292, 305
 legality principle in, 128–29
Malmo Declaration on eGovernment, 91
 recovery plan in, 5, 25, 92, 243
 rule by law in, 3–14, 121–25
 rule of law in, 109–25
- AI Act and, 264–94
 in CJEU cases, 112–13, 117–20
 conceptualisation of, 109–25
 under Conditionality Regulation, 120, 140, 237–46
 Copenhagen criteria for, 113–14
 as crisis, 4–10, 121, 144
 European Commission, 11, 13, 146
 European Parliament and, 13, 49, 120, 233–34, 238–39, 244, 264
 fragility of, 121–25
 horizontal dimensions of, 114–17
 as normative legal framework, 125–48
 origins of, 112–14
 promotion initiatives for, 109
 under Treaty of Amsterdam, 114
 under Treaty of Lisbon, 114
 vertical dimensions of, 114–17
Les Verts case, 113
- Treaty on European Union, 3–14, 110, 114
- Treaty on the Functioning of the European Union, 114–15, 117–18, 239
 values in, 11, 114, 117, 120–25, 266–67
- evil, banality of, 67, 217
- executive branch, of power
 algorithmic regulation and, 9, 69–93
 judicial branch and, 199
 in liberal democracies, 2–4, 8
 public authorities and, 3–4, 21, 70–71
 separation of powers principle and, 147–48, 200–1
- facial recognition systems, 58, 193, 275
- Feinberg, Joel, 5, 7
- Flanders, Belgium, 53
- formalism, 214
- France
 algorithmic systems in, 24, 89, 173
 Council of State in, 121–22
- fraud. *See* tax fraud; welfare fraud
- Fuller, Lon, 99, 144
- fundamental rights. *See* human rights
- fundamental rights impact assessment, 274–75, 284, 287–88, 304
- future-proofness, under AI Act, 295
- Gallie, W. B., 103
- General Data Protection Regulation (GDPR), 187, 255–63, 275, 280, 292, 305
 automated decision-making in, 259–61
 enforcement of, 292–93
 evaluation of, 261–63
 legal basis, 257–59

- in the Netherlands, 257–58
- profiling in, 259
- general purpose AI system, 276
- general purpose AI model, 269, 271, 273, 276–78
- Germany, Constitutional Court in, 121–23
- Glasius, Marlies, 10, 16
- Grosman, Vasily, 79
- Hallstein, Walter, 112
- handcrafted knowledge, 34
- harm, harms and
 - AI Act, 264–94
 - algorithmic rule by law, 205–25
 - citizen surveillance, 202–5
 - collective, 7
 - individual, 6–7
 - societal, 7–8
 - systemic, 198
- Harm Assessment Risk Tool (HART), 185–87
- harmonisation approaches, in AI Act, 288–91
- HART. *See* Harm Assessment Risk Tool
- Hart, H. L. A., 102, 136–37, 159, 214, 216
- Hayek, Friedrich, 98, 132, 137
- High-Level Expert Group on AI, 46–47, 265–66, 270
- Hildebrandt, Mireille, 4, 150, 153, 178, 221
- HMRC. *See* Revenue and Customs service
- Hobbes, Thomas, 1–2
- Horizon, 57. *See also* Post Office scandal
- human rights. *See also* fundamental rights
 - AI Act and, 265–68
 - under Charter of Fundamental Rights
 - of the European Union, 66, 112, 118, 127, 133, 138, 146, 243, 250, 256
 - European Convention for the Protection of Human Rights and Fundamental Freedoms, 110–12, 115
 - legality and, 126
 - standardisation and, 127, 273–74, 293
- Human Rights Watch, 204–5
- human-chosen opacity, 61
- Hungary
 - LGBTQ+ rights in, 123–24
 - rule of law in, 123, 222, 234
- Huq, Aziz, 122–23, 124–25, 224–26, 260
- hybrid regimes, 107
- Hypereides, 97
- Idaho, algorithmic systems in, 55–56, 157
- illiberal tendencies and practices
 - constitutional retrogression and, 12–13
 - definition of, 10
- individual harm, 6–7
- individual justice, 207–9, 214
- infrastructure, socio-technical, 51–55
- infringement actions, 246–55
 - under Treaty on European Union, 246–47
 - under Treaty on the Functioning of the European Union, 246–55
- innovation, under AI Act, 273, 296
- intelligence. *See* artificial intelligence
- Internet of Things (IoT), data-driven systems and, 35
- Israel, rule of law crisis in, 12
- Jasanoff, Sheila, 129
- judicial branch, 21, 145, 147, 220, 228
 - separation of powers principle and, 145
- judicial review principle, 140–44
 - algorithmic regulation and, 190–99
 - in ECtHR cases, 191
 - informational limitations in, 191–95
 - jurisdictional limitations in, 199
 - remedy access and, 195–98
 - systemic review and, 198–99
 - challenges to, 142–44
 - requirements of, 140–42
- judiciary. *See* judicial branch; *specific courts*
- justice. *See* administrative justice; bureaucratic justice; individual justice
- al-Khwārizmī, Muḥammad ibn Mūsā, 27
- knowledge manipulation, 30–31
- knowledge representation, 30–31
- knowledge-driven methods and systems, 30–34
 - abstraction of, 32
 - for welfare fraud, 33
 - data-driven systems compared to, 41–43
 - handcrafted knowledge, 34
 - reasoning and, 30–32
- Krygier, Martin, 99–100
- labelling, 36–39, 275
- large language models (LLMs), 40–41
- Law Enforcement Directive (LED), 255–63, 305
- lawfulness. *See* legality
- learning
 - through data-driven systems, 34–41
 - deep learning, 37, 42, 59
 - reinforcement learning, 39
 - semi-supervised learning, 38
 - supervised learning, 36–37
 - unsupervised learning, 37–38
- LED. *See* Law Enforcement Directive
- Lefort, Claude, 72, 75–76
- legal certainty principle, 131–33

- legal certainty principle (cont.)
 - algorithmic regulation and, 164–73
 - means-testing algorithmic systems, 169
 - challenges to, 132–33
 - requirements of, 131–32
- legal order, in EU. *See also* AI Act; *specific topics*; *specific treaties*
 - as autonomous, 10–11, 112–16
 - competences in, 231–32
 - Conditionality Regulation and, 237–46
 - Article 4, 242–43, 245
 - Data Retention Directive, 249
 - equality before the law principle, 250
 - European Anti-Fraud Office, 236, 242
 - European Parliament and, 13, 49, 120, 233–34, 238–39, 244, 264
 - European Public Prosecutor's Office, 236, 242
 - infringement actions, 246–55
 - regulation of personal data, 255–63
 - rule of law in, 109–25
 - Treaty on European Union and,
 - Article 2, 11, 127, 138, 232–37, 251–52
 - Article 7, 223, 233–37, 239–40, 252–55
 - Treaty on the Functioning of the European Union and, 239–40, 246–47, 254–55
- legalism
 - algorithmic regulation and, 157–61, 170
 - automation of, 213–18
 - administrative acts and, 217–18
 - creative compliance and, 215
 - discretion and, 214–16
 - definition of, 158
 - legality principle and, 157–61
- legality, principle of, 126–31
 - algorithmic regulation and, 152–64
 - in Belgium, 162
 - codification of legal rules, 153–57
 - data-driven systems and, 156
 - Dutch child allowance case, 159–61
 - legalism and, 157–61
 - proportionality tests, 160
 - transparency and, 161–64, 171–73
 - in U.K., 163–64
 - Council of Europe and, 128–29
 - public participation in, 129
 - rule of law and, 126–31
 - challenges to, 129–31
 - requirements of, 126–29
 - transparency and, 128–29
 - Treaty on European Union and, 127
- legislative branch, of power
 - algorithmic regulation and, 220
 - public authorities and, 70, 145–47
 - separation of powers principle and, 145, 147–48
- Lessig, Lawrence, 3
- Leviathan
 - administrative state and, 98
 - definition of, 2
 - symbolic meaning of, 1–2
- Leviathan* (Hobbes), 1–6
 - characterisation of, 2
 - social contract in, 1–2
- Levinas, Emmanuel, 79, 214, 225
- LGBTQ+ populations
 - algorithmic rule by law and, 222
 - rights for, 123–24
- Life and Fate* (Grosman), 79
- Llama, 40–41
- LLMs. *See* large language models
- Loughlin, Martin, 97, 103, 109
- Lovelace, Ada, 27
- Malmo Declaration on eGovernment*, 91
- manipulation, 274
- 'many hands' problem, 68–69, 181
- means-testing algorithmic systems, 169
- market surveillance authorities in AI Act, 272, 287
- Milgram, Stanley, 67–69, 180
 - obedience to authority in, 67
- mistakes. *See* errors
- Modernity and the Holocaust* (Bauman), 75
- The Morality of Law* (Fuller), 99
- Moses, Robert, 52
- Mumford, Lewis, 51–52. *See also* infrastructure
- mutual influencing processes, in algorithmic systems, 51
- naturalism, rule of law and, 101–2
- the Netherlands
 - General Data Protection Regulation violation in, 257–58
 - welfare fraud in, 187
 - Dutch Childcare Allowance case, 108, 159, 184, 198, 262
- New Legislative Framework (NLF), 293
- New Public Management movement (NPM), 90–91, 179
- NLF. *See* New Legislative Framework
- non-arbitrariness principle, 133–38
 - algorithmic regulation and, 173–81
 - discretion and, 177–81
 - efficiency of, 174–76
 - explainability reduction, 176–77
 - government accountability and, 180
 - challenges to, 135–38
- Charter of Fundamental Rights of the European Union and, 133–34
- notifying authorities, in AI Act, 272

- public authorities and, 133–38
- public interest and, 137–38
- requirements of, 133–35
- NPM. *See* New Public Management movement
- OECD. *See* Organisation for Economic Co-operation and Development
- OLAF. *See* European Anti-Fraud Office
- opacity
 - algorithmic rule by law and, 218–21
 - errors and, 59–61
 - in algorithmic systems, 59–62
 - human-chosen opacity, 60
- Organisation for Economic Co-operation and Development (OECD)
 - artificial intelligence defined by, 49
- personal data. *See also* General Data Protection Regulation
 - definition of, 256
 - EU regulation of, 255–63
 - under Law Enforcement Directive, 255–63
- plurality of values, 76
- Poland
 - algorithmic systems in, 166–67, 196
 - Constitutional Court in, 121–23
 - LGBTQ+ rights in, 123–24
 - STIR system in, 196–97
- policy recommendations, 302–9
 - for algorithmic rule by law, 225–29, 302–4
 - for future research, 307–9
 - High-Level Expert Group on AI, 265
 - legal safeguards, 304–6
- Politics* (Aristotle), 96
- positivism, 101–2
- Post Office scandal, in U.K., 57, 198
- power. *See also* separation of powers principle
 - algorithmic regulation and, 199–204
 - public and private, 146–47, 201–2
- principle of lawfulness. *See* legality
- principle of legality. *See* legality
- procedural rationality, 74–80, 136, 207–9
- profiling, in General Data Protection Regulation, 259
- proportionality tests, legality principle and, 160
- proxies, in algorithmic systems, 62–66, 283
- public authorities
 - accountability and, 218–21
 - AI Act and, 274–88
 - definition and scope of, 21
 - systemic vulnerability and, 221–25
 - supremacy of coders and, 210–13
- public interest, non-arbitrariness principle and, 133–38
- public participation, in legality principle, 128–29
- public sector
 - algorithmic regulation in, 69–93
 - administrative acts, 78–82
 - algorithms, 82–87, 212
 - bureaucracy and, 70, 82–87
- Public Sector Equality Duty, 193–94
- rationality. *See also* techno-rationality
 - procedural, 74–80, 136, 207–9
 - substantive, 74–80, 136–37, 149, 207, 211
- rational-legal bureaucracy, 75
- Raz, Joseph, 98, 102–3, 171
- reasoning
 - algorithms and, 30
 - knowledge-driven systems and, 30–32
- reinforcement learning, 39
- representation. *See* knowledge representation
- Revenue and Customs service (HMRC), U.K., 219
- Road to Serfdom* (Hayek), 137
- Romania, LGBTQ+ rights in, 123–24, 222
- rule by law. *See also* algorithmic rule by law
 - authoritarianism and, 105, 107
 - rule of law and, 105–9
 - formal notions of law, 105–6
- rule of law. *See also* equality before the law;
 - European Union; legal certainty; legality; non-arbitrariness; separation of powers
- AI Act and, 16, 265–80, 295
- analysis of, 95–150
- Aristotle on, 96–97
- aspirational quality of, 103–4
- authoritarian tendencies and, 9, 12, 17, 105–9, 121–25
- constitutional retrogression and, 12–13, 224–26
- in British constitutional theory, 97–98
- citizenship and, 95
- Code of Hammurabi and, 96
- common good and, 103, 137–38
- conceptualisation of, 95–109
- Anglo-American, 97–98
- in EU, 109–25
- history of, 96
- contestation of, 103, 109
- Council of Europe and, 106–8, 110–12
- crisis
 - in EU, 121–25, 144
 - in Israel, 12
- critiques of, 102–3
- definitions of, 96–109
- Dicey on, 97–98
- EU legal order and, 104, 112–25, 232–55
- formal notions of, 101–5
- as thin notion, 101

- rule of law. (cont.)
 - Fuller on, 99, 144
 - human rights protections under, 9, 11, 102
 - in hybrid regimes, 107
 - illiberal tendencies and, 16, 121–25
 - constitutional retrogression and, 12–13
 - judicial review principle, 140–44
 - for administrative acts, 142
 - in Belgium, 142–43
 - challenges to, 142–44
 - requirements of, 140–42
 - list-based approaches to, 99–100
 - naturalism and, 101–2
 - as normative legal framework, 125–48
 - positivism and, 101–2
 - Raz on, 98, 102–3, 171
 - rule by law and, 105–50
 - spirit of, 96, 99–101
 - substantive notions of, 101–5
 - as thick notion, 101
 - teleological approach to, 99–101
 - as theatre, 103
 - theoretical approaches to, 96–109
- Schmitt, Carl, 102–3
- Scientific Panel of Independent Experts, 273
- self-assessment,
 - in AI Act, 272, 281–82, 292
- separation of powers principle, 144–49
 - algorithmic regulation and, 199–205
 - citizen surveillance, 202–5
 - executive branch and, 200–1
 - privatisation of legal infrastructure, 201–2
 - public power, 201–2
 - media and, 145–46
 - trias politica* doctrine, 145, 201
- Shklar, Judith, 98, 103, 158, 170
 - legalism defined by, 158
- societal harm, 7–8, 15, 50, 142, 220, 228
- socio-technical infrastructure. *See* infrastructure
- speech acts, 153
- spurious correlations, 38, 42–43, 56, 196
 - errors and, 56
- standardisation
 - in AI Act, 273, 293
 - organisations, 273
- Stalinism, 79, 225
- Star, Susan, 54
- STIR system, in Poland, 196–97
- storage limitation principle, 256–58
- Strasbourg case law, 118, 127–29, 139, 141, 144, 191
- substantive rationality, 74–80, 136–37, 149, 207, 211
- supervised learning, 36
- supremacy of coders, 210–13, 222, 294
 - bureaucratic justice, 211
 - outsourcing of discretion, 213, 283
 - surveillance, 66, 202–5
- Sweden, algorithmic systems in, 167, 172
- symbolic rules, 31–32, 41–43, 46
- systemic harm, 198
- tax fraud, 196–97, 242–45
 - knowledge-driven systems and, 32–34
- techno-rationality, primacy of, 207–10, 294
 - interpretation of legal rules and, 208
- testing phase, of data-driven systems, 36, 62, 277
- TEU. *See* Treaty on European Union
- TFEU. *See* Treaty on the Functioning of the European Union
- Tocqueville, Alexis de, 106–7
- traditional AI, 31
- training phase, of data-driven systems, 62, 183, 277, 283
- transparency. *See also* opacity
 - accountability and, 218–19
 - in administrative acts, 60, 163, 172
 - under AI Act, 266, 270–77, 284–85, 291–92, 303–5
 - deep fakes, 276
 - in data-driven systems, 59–60
 - judicial review principle and, 191–92
 - legality principle and, 128–29, 161–64
- Treaty on European Union (TEU), 11–14, 114–19, 148, 231–32, 247
 - Article 2, 11, 127, 138, 232–37, 251–52
 - Article 7, 223, 233–37, 239–40, 252–55
 - conferral principle in, 115, 231
 - national identity in, 148
 - legality principle and, 127
- Treaty on the Functioning of the European Union (TFEU), 239–40, 244–55
 - AI Act and, 267–68
 - infringement actions under, 13, 246–55
- trias politica* doctrine, 145, 201
- Trustworthy AI, 266–67, 288
- United Kingdom (UK)
 - British constitutional theory, 97–98
 - Equality Act 2010, 193
 - legality principle in, 163–64
 - Post Office scandal in, 57, 198
 - Public Sector Equality Duty in, 193–94
 - Revenue and Customs services in, 219
 - welfare benefits in, 169
- unsupervised learning, 37–38, 42

- United States (US)
 - algorithmic regulation in, 55, 157–58, 174, 183, 185, 200
- value-added tax (VAT), 244–45
- values
 - in European Union, 11, 114, 117, 120–25
 - plurality of, 76
- VAT. *See* value-added tax
- Venice Commission, Council of Europe and, 108, 110–11, 119, 127, 133, 141, 144, 160
- Weber, Max, 71–78, 208
- Weiler, Joseph, 106
- welfare benefit allocation, 158, 174
 - knowledge-driven systems and, 32
 - in U.K., 169
- welfare fraud
 - data-driven systems and, 37–38
 - in Indiana, 158
 - knowledge-driven systems and, 33
 - in the Netherlands, 187
 - Dutch Childcare Allowance case, 108, 159–61, 184, 198, 262
- welfare state, development of, 136. *See also* welfare benefit allocation
- Yeung, Karen, 180, 212

