
Index

- 2-category, 370
- a priori*, 114
- Abelian, 267
- absolute, 304
- abstract algebra, 33
- abuse of notation, 255
- additive identity, 207
- additive inverse, 129
- adjoint equivalence, 338
- Affordable Care Act, 75
- anarchy, 18
- antisymmetry, 118
- apples, 28
- arithmetic
 - modular, 56
- arrows, 96
- Art of Logic, The*, 28, 42, 224
- associativity, 31, 101
- associativity pentagon, 382
- Axiom of Choice, 202

- Baez, John, 186
- bagel, 268
- bait-and-switch, 290
- bananas, 28
- base, 36
- basepoint, 306

- bicategory, 383
- bijection, 175
- bijective, 191
- bikini body, 206
- binary operation, 31, 131
- binary relation, 84
- black-and-white, 165
- BOGOF/BOGO, 173, 232, 356
- braiding, 387

- cake, 29
- calculus, 135
- candy, 51
- cardinality, 175
- cartesian, 243
- cartesian product, 245
- categorification, 185, 326, 378
- Cayley table, 131
- chaotic category, 342
- chase, 277
- chessboard, 246
- chimney, 133
- cisgender, 42, 223
- clique, 342
- closure, 204
- closure (groups), 131
- co-author, 230
- codimension, 378

- codomain, 96
- coequalizer, 289
- coffee, 230
- coherence, 381, 383
- cohomology, 307
- colexicographic, 255
- commutative diagram, 107
- commutativity, 31
- component, 329
- componentwise, 314
- composite
 - function, 143
- composition, 97
- concrete, 24
- cone, 271, 334
- connected component, 311
- constant functor, 334
- contravariant, 308
- converse, 76
- conveyor belt, 273
- cookie, 15
- coproduct, 261
- coprojection, 262
- countable, 115
- covariant, 308
- COVID-19, 43, 69, 72
- cubical, 331

- data, 95
- Davis, Lisa S, 192
- decimal, 36
- degenerate, 384
- degenerate square, 296
- density, 204
- diagram, 296
- dimension, 62
- dimension shift, 113, 126, 379
- dinner, 324
- directed graph, 235
- disconnected, 120
- disconnected component, 316
- discrete category, 124
- disjoint union, 263
- distance, 45
- distributive law, 298
- domain, 96
- double category, 391
- double-edged sword, 26
- dual, 116
- dual category, 228

- Eckmann–Hilton argument, 385
- elephant, 218
- embedding, 360
- empty function, 193
- enrichment, 371, 390
- epic, 230
 - split, 200, 304
- epimorphism, 197
- equalizer, 289
- equations, 165
- equivalence of categories, 338, 377
- equivalence relation, 91, 112
- essentially surjective, 326
- Etch-a-Sketch, 245
- evil, 184
- existence, 118
- exponentiation, 69
- externally motivated, 186

- factors, 60, 114
- faithful, 322
- fake news, 14
- ffee, 230
- fibered product, 273
- flower, 15
- FOMO, 376
- forest, 102
- forgetful functor, 298

422

Index

- fork, 194
- free category, 312
- free functor, 299
- free monoid, 127
- friendship, 91
- full, 322
- functor, 159
 - contravariant, 308
- functor category, 332
- fundamental group, 288, 306

- globular, 331
- globular set, 375
- graph, 235, 292
- group, 128
- groupoid, 133, 184, 288
- gut instinct, 27

- half-open, 182
- hierarchy, 65
- homeomorphism, 183
- homology, 307
- homomorphism, 96
- homotopy, 135, 330
- homotopy equivalence, 307
- homset, 96
- horizontal composition, 346
- horse riding, 14
- Humpty Dumpty, 168
- hungry, 49
- Hyland, Martin, 30, 358

- i , 207
- identity, 97
 - function, 143
- image, 197
- imaginary number, 207
- indiscrete category, 342
- infinity, 175
- infinity category, 369

- initial category, 313
- initial object, 209, 234
- injective, 189
- insertion, 262
- integers, 48
- interchange, 315, 346
- internalization, 374, 390
- internally motivated, 186
- interval, 318
- inverse, 113, 129, 169
- iteration, 69

- Lakeshore Drive, 68
- Latin square, 131
- lattices, 60, 81
- lexicographic, 254
- Liebestod, 300
- life, 33
- limit, 272
- linear algebra, 307
- linear map, 161
- locally small, 103
- locally small category, 310
- loops, 306

- marriage, 43, 82
- matrices, 307
- maypole dancing, 387
- memorization, 290
- metric, 47
- metric space, 70
- Miss Smilla's feeling for snow*, 388
- modular arithmetic, 56, 77
- Möbius strip, 287
- monad, 392
- monic, 194, 230
 - split, 196
- monoid, 125, 294
 - free, 203
- monoidal category, 269, 378

- monomorphism, 194
- Mornington Crescent, 352
- morphisms, 96
- multiplicative identity, 207
- n*-hour clock, 37
- natural isomorphism, 335
- natural numbers, 56
- natural transformation, 329
- naturality square, 329
- navel-gazing, 14
- null object, 221
- numbers, 165
 - natural, 56
 - rational, 72
 - real, 72
- nuts and bolts, 371
- Obama, Barack, 75
- ontogeny, 14
- ordered pair, 245
- ordered set, 66
 - partially, 120
 - totally, 117
- ordering, 117
- paint, 49
- Panama, 35
- parallel, 96, 217, 331
- partially ordered set, 120
- pedantry, 25
- people, 165
- periodic table, 388
- phylogeny, 14
- playdough, 158
- pointwise equivalence, 326, 341
- poset, 121, 293
- post-compose, 170
- post-composition, 354
- pound cake, 20
- power, 41
- power set, 123
- pre-compose, 170
- pre-composition, 354
- preservation, 297
- preserves, 183, 302
- presheaf/presheaves, 333, 356
- privilege, 65
- product
 - cartesian, 245
- projections, 245
- properties, 95
- pseudo-inverse, 338
- pullback, 272
- pumpkin spice, 20, 206
- pushout, 278
- putative, 247
- quadrilaterals, 57
- quantifier, 86, 404
- quintessential arrow category, 318
- quotient, 282
- rational numbers, 72
- real numbers, 72
- reflects, 183, 302
- reflexivity, 84, 118
- remain calm, 358
- representable functors, 354
- ring, 298
- Russell's Paradox, 103
- Schadenfreude, 300
- self-dual, 216
- self-love, 90
- semi-group, 301
- sense in which, 114
- serially commute, 292
- Set**, 145
- simplificating, 351

424

size, 103
 slinky, 268
 small, 103
 small category, 309
 souped-up, 242
 source, 96
 South Downs, 29
 split epic, 304
 strict, 380
 stripes, 38
 structure, 95
 structure isomorphism, 381
 sub-category, 159
 subobject, 204
 surjective, 190
 symmetry, 54, 112
 symmetry (of relations), 87
 target, 96
 taxi-cab distance, 45
 tennis, 49
 terminal category, 313, 342
 terminal object, 213, 234
 tetrahedron, 104
 tile, 35
 topology, 134
 torus, 268
 toset, 121
 totalitarian, 18
 totally ordered set, 117
 tourism, 67
 trans, 223
 transitivity, 88, 118

Index

trees, 102
 triangle inequality, 74
 trichotomy, 118
 trivial symmetry, 112
 Tupperware, 256
 type-checking, 229
 uh-oh, 321
 uncountable, 115
 underscore, 352
 uniqueness, 118
 unit laws, 100
 vacuous, 193
 vacuously satisfied, 140
 Van Kampen's theorem, 288, 307
 vector space, 161, 204, 307
 vending machine, 138
 Venn* diagram, 58, 122, 196, 200
 vertical composition, 332
 viruses, 69
 weak, 380
 weak associativity, 250
 whiskering, 347
 words, 300
 $X + Y$, 137
 Yoneda, 173
 Yoneda embedding, 359
 Yoneda, Nobuo, 351
 zero world, 52