

Concepts, Techniques, Idea & Proofs

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3. 3-colorability
4. 3-SAT
5. Abstract complexity
6. Acceptance
7. Ada Lovelace
8. Algebraic numbers
9. Algorithms
10. Algorithms as strings
11. Alice in Wonderland
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15. Ambiguous grammars
16. Analog computing
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18. Aperiodic tilings
19. Approximate min cut
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21. Approximate vertex cover
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57. Chomskyan linguistics
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Concepts, Techniques, Ideas & Proofs

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| 127. | Entropy | 147. | Fibonacci numbers | 167. | Generalized colorability |
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| 130. | Equivalence relation | 150. | Finite automata minimization | 170. | Generalized venn diagrams |
| 131. | Euclid's "Elements" | 151. | Fixed-point theorem | 171. | Generative grammars |
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| 187. | Gravitational systems | 207. | Identities | 227. | Kissing number |
| 188. | Greibach normal form | 208. | Immerman's Theorem | 228. | Kleene closure |
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| 190. | Guess-and-verify | 210. | Incompressibility | 230. | Lambda calculus |
| 191. | Halting problem | 211. | Independence of axioms | 231. | Language equivalence |
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| 193. | Hardness | 213. | Induction & its drawbacks | 233. | Law of the excluded middle |
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| 196. | Hilbert's 23 problems | 216. | Infinite loops | 236. | Linear-bounded automata |
| 197. | Hilbert's program | 217. | Infinity hierarchy | 237. | Local minima |
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| 199. | Historical perspectives | 219. | Inherent ambiguity | 239. | Low-deg graph colorability |
| 200. | Historical computers | 220. | Initial state | 240. | Machine enhancements |

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| 243. | Manhattan project | 263. | Newtonian mechanics | 283. | Parallel simulation |
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| 246. | Mechanical calculator | 266. | Non-closures | 286. | Parity |
| 247. | Mechanical computers | 267. | Non-determinism | 287. | Parsing |
| 248. | Memes | 268. | Non-Euclidean geometry | 288. | Partition problem |
| 249. | Mental poker | 269. | Non-existence proofs | 289. | Paths in graphs |
| 250. | Meta-mathematics | 270. | NP | 290. | Peano arithmetic |
| 251. | Millennium Prize | 271. | NP completeness | 291. | Penrose tilings |
| 252. | Minimal grammars | 272. | NP-hard | 292. | Physics analogies |
| 253. | Minimum cut | 273. | NSPACE | 293. | Pi formulas |
| 254. | Modeling | 274. | NTIME | 294. | Pigeon-hole principle |
| 255. | Multiple heads | 275. | Occam's razor | 295. | Pilotless planes |
| 256. | Multiple tapes | 276. | Octonions | 296. | Pinwheel tilings |
| 257. | Mu-recursive functions | 277. | One-to-one correspondence | 297. | Planar graph colorability |
| 258. | MAD policy | 278. | Open problems | 298. | Planarity testing |
| 259. | Nanotechnology | 279. | Oracles | 299. | Polya's "How to Solve It" |
| 260. | Natural languages | 280. | P completeness | 300. | Polyhedral dissections |

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| 301. | Polynomial hierarchy | 321. | Quantifiers | 341. | Rejection |
| 302. | Polynomial-time | 322. | Quantum computing | 342. | Relations |
| 303. | P-time reductions | 323. | Quantum mechanics | 343. | Relativity theory |
| 304. | Positional # system | 324. | Quaternions | 344. | Relativization |
| 305. | Power sets | 325. | Queue automata | 345. | Resource-bounded comput. |
| 306. | Powerset construction | 326. | Quine | 346. | Respect for the definitions |
| 307. | Predicate calculus | 327. | Ramanujan identities | 347. | Reusability of space |
| 308. | Predicate logic | 328. | Ramsey theory | 348. | Reversal |
| 309. | Prime numbers | 329. | Randomness | 349. | Reverse Turing test |
| 310. | Principia Mathematica | 330. | Rational numbers | 350. | Rice's Theorem |
| 311. | Probabilistic TMs | 331. | Real numbers | 351. | Riemann hypothesis |
| 312. | Proof theory | 332. | Reality surpassing Sci-Fi | 352. | Riemann's zeta function |
| 313. | Propositional logic | 333. | Recognition and enumeration | 353. | Robots in fiction |
| 314. | PSPACE | 334. | Recursion theorem | 354. | Robustness of P and NP |
| 315. | PSPACE completeness | 335. | Recursive function theory | 355. | Russell's paradox |
| 316. | Public-key cryptography | 336. | Recursive functions | 356. | Satisfiability |
| 317. | Pumping theorems | 337. | Reducibilities | 357. | Savitch's theorem |
| 318. | Pushdown automata | 338. | Reductions | 358. | Schmitt-Conway biprism |
| 319. | Puzzle solvers | 339. | Regular expressions | 359. | Scientific method |
| 320. | Pythagorean theorem | 340. | Regular languages | 360. | Sedenions |

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- 361. Self compilation
- 362. Self reproduction**
- 363. Set cover problem
- 364. Set difference
- 365. Set identities
- 366. Set theory
- 367. Shannon limit
- 368. Sieve of Eratosthenes
- 369. Simulated annealing
- 370. Simulation**
- 371. Skepticism
- 372. Soundness
- 373. Space filling polyhedra
- 374. Space hierarchy**
- 375. Spanning trees**
- 376. Speedup theorems
- 377. Sphere packing
- 378. Spherical geometry
- 379. Standard model
- 380. State minimization**
- 381. Steiner tree
- 382. Stirling's formula
- 383. Stored program
- 384. String theory
- 385. Strings**
- 386. Strong AI hypothesis
- 387. Superposition
- 388. Super-states**
- 389. Surcomplex numbers
- 390. Surreal numbers
- 391. Symbolic logic
- 392. Symmetric closure
- 393. Symmetric venn diagrams
- 394. Technological singularity
- 395. Theory-reality chasms
- 396. Thermodynamics
- 397. Time hierarchy**
- 398. Time/space tradeoff**
- 399. Tinker Toy computers
- 400. Tractability**
- 401. Tradeoffs
- 402. Transcendental numbers
- 403. Transfinite arithmetic**
- 404. Transformations**
- 405. Transition function**
- 406. Transitive closure
- 407. Transitivity
- 408. Traveling salesperson
- 409. Triangle inequality**
- 410. Turbulence
- 411. Turing complete**
- 412. Turing degrees**
- 413. Turing jump
- 414. Turing machines**
- 415. Turing recognizable**
- 416. Turing reduction
- 417. Turing test**
- 418. Two-way automata
- 419. Type errors
- 420. Uncomputability**

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INFLUENCES

- 421. Uncomputable functions
- 422. Uncomputable numbers
- 423. Uncountability
- 424. Undecidability
- 425. Universal Turing machine
- 426. Venn diagrams
- 427. Vertex cover
- 428. Von Neumann architecture
- 429. Von Neumann bottleneck
- 430. Wang tiles & cubes
- 431. Zero-knowledge protocols



s.harris

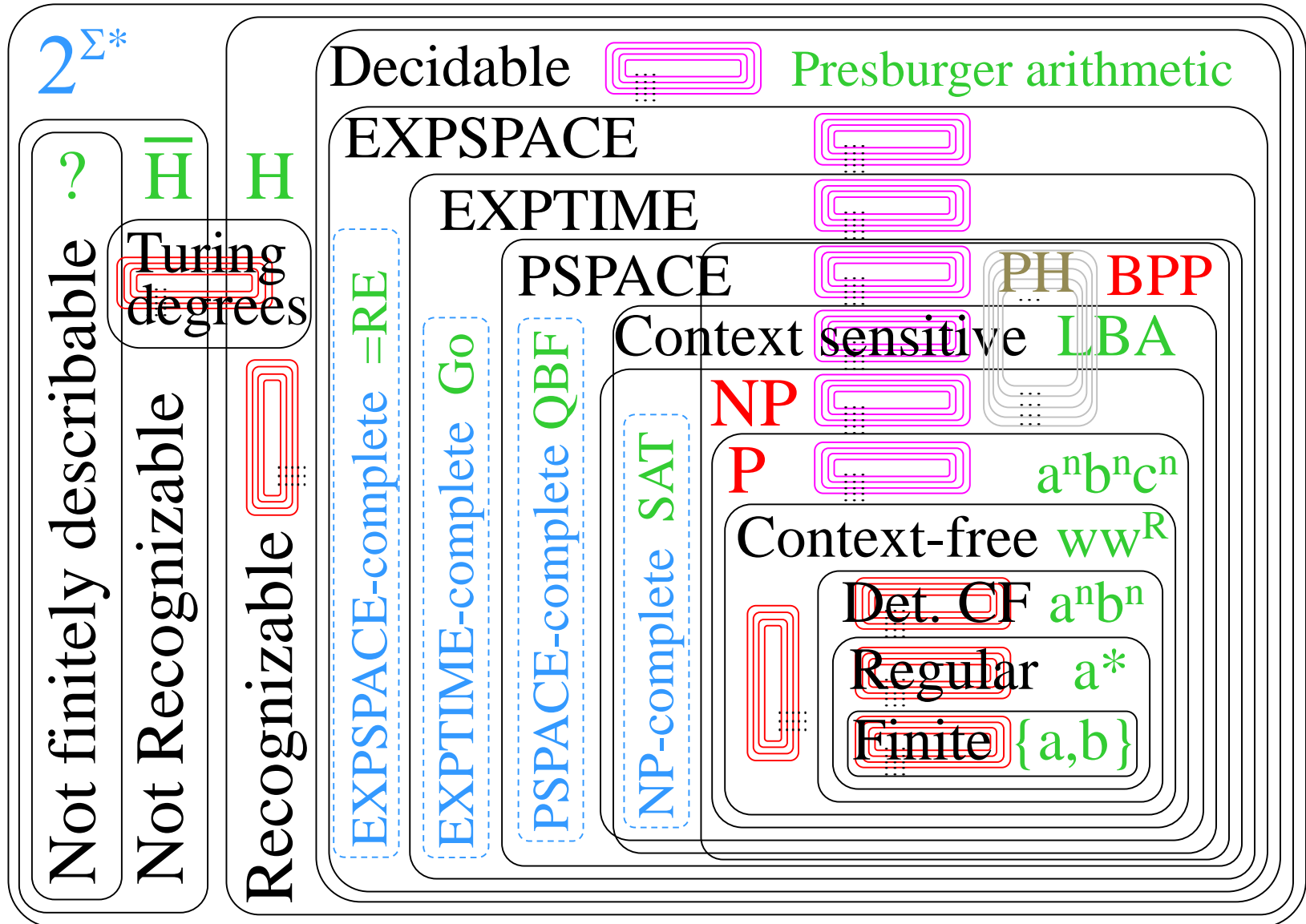
EINSTEIN SIMPLIFIED

“Make everything as simple as possible, but not simpler.”
- Albert Einstein (1879-1955)



Occam's razor!

The Extended Chomsky Hierarchy Reloaded



Dense infinite time & space complexity hierarchies 

Other infinite complexity & descriptive hierarchies 