

# HYPERNUMBERS AND OTHER EXOTIC STUFF



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Non-Diophantine Arithmetics in Mathematics, Physics and Psychology - Mark Burgin and Marek Czachor  
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A Fifth Fundamental Operation of Arithmetic and the Beauty of Parallel Calculus - Kasper Müller

<https://www.cantorsparadise.com/a-fifth-fundamental-operation-of-arithmetic-and-the-beauty-of-parallel-calculus-93a2dfe28dda?gi=3765a8e71fb4>

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## (2) NUMBERS, SUMMATION AND THE NUMBER-THEORETICAL

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<https://www.amazon.com/Index-Numbers-Economic-Theory-Practice/dp/020236254X>

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Boris A. Bondarenko (translated by Richard C. Bollinger)

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Trigonometric ratios and formulas using right angles - Ancient Greek Style!  
<https://www.youtube.com/watch?v=2Cn4jHSZXKA> (right angles measure or radical angle or radical units)  
[https://www.academia.edu/109334669/Ancient\\_Greek\\_trigonometric\\_formulas\\_better\\_than\\_anything\\_ever\\_known](https://www.academia.edu/109334669/Ancient_Greek_trigonometric_formulas_better_than_anything_ever_known)

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<https://web.evanchen.cc/handouts/SOS-Dumbass/SOS-Dumbass.pdf>

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[https://www.academia.edu/11576181/Using\\_Chinese\\_Dumbass\\_Notation\\_to\\_Find\\_Algebraic\\_Identities](https://www.academia.edu/11576181/Using_Chinese_Dumbass_Notation_to_Find_Algebraic_Identities)

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<https://amontes.webs.ull.es/otrashtm/HGTGlosarioJuntos.html>

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One-seventh area triangle - [https://en.wikipedia.org/wiki/One-seventh\\_area\\_triangle](https://en.wikipedia.org/wiki/One-seventh_area_triangle)

How Does One Cut a Triangle? - Alexander Soifer - <https://www.amazon.com/How-Does-One-Cut-Triangle/dp/0387746501>

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<https://www.amazon.com/Thomas-Harriots-Doctrine-Triangular-Numbers/dp/3037190590>

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<https://www.amazon.de/Fourier-Analysis-Polytopes-Geometry-Numbers/dp/1470470330>

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Automedian triangle - [https://en.wikipedia.org/wiki/Automedian\\_triangle](https://en.wikipedia.org/wiki/Automedian_triangle)

Hexagon - [https://capsncrunch.github.io/articles/esolangs\\_hexagony.html](https://capsncrunch.github.io/articles/esolangs_hexagony.html)

Application of Cayley geometry to the geometric study of the displacement of a solid around a fixed point - Émile Cotton (Translated by D. H. Delphenich) - [https://www.neo-classical-physics.info/uploads/3/0/6/5/3065888/cotton\\_-\\_cayley\\_geometry\\_and\\_rigid\\_motions.pdf](https://www.neo-classical-physics.info/uploads/3/0/6/5/3065888/cotton_-_cayley_geometry_and_rigid_motions.pdf)

Introduction to the geometry of the triangle - Paul Yiu  
[https://web.archive.org/web/20180422091419id\\_/http://math.fau.edu/Yiu/YIUIntroductionToTriangleGeometry130411.pdf](https://web.archive.org/web/20180422091419id_/http://math.fau.edu/Yiu/YIUIntroductionToTriangleGeometry130411.pdf)

Amit’s Thoughts on Grids - <http://www-cs-students.stanford.edu/~amitp/game-programming/grids/>  
A coordinate system for hexagonal pixels - Wesley E. Snyder, Hairong Qi and William Sander  
[https://www.researchgate.net/publication/2883527\\_A\\_Coordinate\\_System\\_for\\_Hexagonal\\_Pixels](https://www.researchgate.net/publication/2883527_A_Coordinate_System_for_Hexagonal_Pixels)  
Hex Grid Geometry for Game Developers - Herman Tulleken - <https://gamelogic.co.za/downloads/HexMath2.pdf>  
A Continuous Coordinate System for the Plane by Triangular Symmetry - Benedek Nagy and Khaled Abuhmaida - <https://www.mdpi.com/2073-8994/11/2/191>  
Conversion of Cartesian Coordinates from and to Generalized Balanced Ternary Addresses - Jan W. van Roessel

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Central Place Indexing: Optimal Location Representation for Digital Earth - Kevin M. Sahr  
<https://www.discreteglobalgrids.org/wp-content/uploads/2016/01/autocarto14.pdf>

Disentangling a Triangle - Jerzy Kocik and Andrzej Solecki  
[https://www.researchgate.net/publication/228780583\\_Disentangling\\_a\\_Triangle](https://www.researchgate.net/publication/228780583_Disentangling_a_Triangle)

The Doctrine of Triangles A History of Modern Trigonometry - Glen Van Brummelen  
<https://www.amazon.com/Doctrine-Triangles-History-Modern-Trigonometry/dp/0691179417>

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Carlos Zapata-Carratal, Xerxes D. Arsiwalla and Taliesin Beynon - <https://arxiv.org/pdf/2205.05456.pdf>

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Tensor Trigonometry - A. S. Ninul - <https://archive.org/details/tensor-trigonometry-by-ninul-a-s-2021>  
[https://ninul-eng.narod.ru/NinulAS\\_Tensor\\_Trigonometry\\_M\\_FM\\_2021\\_Eng-ebook.pdf](https://ninul-eng.narod.ru/NinulAS_Tensor_Trigonometry_M_FM_2021_Eng-ebook.pdf)

Generalized Tetrahedrons and Sculptural Variations - Robert J. Krawczyk Robert J. Krawczyk  
[https://www.academia.edu/10204737/Generalized\\_Tetrahedrons\\_and\\_Sculptural\\_Variations](https://www.academia.edu/10204737/Generalized_Tetrahedrons_and_Sculptural_Variations)

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Rational Trigonometry through the Lens of Geometric Algebra - Francisco G. Montoya  
[https://www.researchgate.net/publication/376654223\\_Rational\\_Trigonometry\\_through\\_the\\_Lens\\_of\\_Geometric\\_Algebra](https://www.researchgate.net/publication/376654223_Rational_Trigonometry_through_the_Lens_of_Geometric_Algebra)

Sanjoy Nath's Geometrifying Trigonometry- <https://www.youtube.com/@sanjoynath4792/> && <https://github.com/SanjoyNath>  
[https://www.linkedin.com/posts/sanjoy-nath-70824618b\\_geometrifying-trigonometry-refers-to-a-activity-7339765126163505152-bBdD](https://www.linkedin.com/posts/sanjoy-nath-70824618b_geometrifying-trigonometry-refers-to-a-activity-7339765126163505152-bBdD)

The Metaphysics of the Pythagorean Theorem - Robert Hahn  
<https://www.amazon.com/Metaphysics-Pythagorean-Theorem-Engineering-Construction/dp/1438464894>

Compositional Data - [https://en.wikipedia.org/wiki/Compositional\\_data](https://en.wikipedia.org/wiki/Compositional_data) && <https://www.compositionaldata.com/>

Compositional Data Analysis in Practice - Michael Greenacre  
<https://www.amazon.com/Compositional-Analysis-Practice-Interdisciplinary-Statistics/dp/1138316431>

Analyzing Compositional Data with R - K. Gerald van den Boogaart and Raimon Tolosana-Delgado  
<https://www.amazon.com/Analyzing-Compositional-Data-Gerald-Boogaart/dp/3642368085>

The Statistical Analysis of Compositional Data - J. Aitchison  
<https://www.amazon.com/Statistical-Compositional-Monographs-Statistics-Probability/dp/0412280604>

Modeling and Analysis of Compositional Data - Vera Pawlowsky-Glahn, Juan José Egozcue and Raimon Tolosana-Delgado  
<https://www.amazon.com/Modeling-Analysis-Compositional-Statistics-Practice/dp/1118443063>

Geostatistical Analysis of Compositional Data - Vera Pawlowsky-Glahn and Ricardo A. Olea  
<https://www.amazon.com/Geostatistical-Analysis-Compositional-Studies-Mathematical/dp/0195171667>

Applied Compositional Data Analysis With Worked Examples in R - Peter Filzmoser, Karel Hron and Matthias Templ  
<https://www.amazon.com/Applied-Compositional-Data-Analysis-Statistics/dp/3319964208>

Super-mathematics functions - Mircea Eugen Şelariu (translated by Marian Nițu and Florentin Smarandache)  
[https://www.academia.edu/6783838/SUPER\\_MATHEMATICS\\_FUNCTIONS](https://www.academia.edu/6783838/SUPER_MATHEMATICS_FUNCTIONS)

Perspective Coordinates (Perspective Fields) - Chris van Tienhoven  
<https://chrisvantienhoven.nl/files/30/Perspective-Fields/4/Perspective-Fields-Part1.pdf>  
<https://chrisvantienhoven.nl/files/30/Perspective-Fields/5/Perspective-Fields-Part2.pdf>  
<https://chrisvantienhoven.nl/files/30/Perspective-Fields/7/Perspective-Fields---Concepts-and-Calculations.pdf>

## (14) SOFTWARE ZONE

DATA STRUCTURES\*

Treesheet (tree-like spreadsheet) - <http://strlen.com/treesheets/>

Blockchain (demo) - <https://andersbrownworth.com/blockchain/>

heimer (mind map) - <https://github.com/juzzlin/heimer>

DAS-UI <https://das-ui.firebaseioapp.com/> && <https://szymonkaliski.com/writing/2017-09-08-building-das-ui/>

Orca (procedural sequencers) - <https://github.com/Hundredrabbits/Orca>

Taichi (spatially sparse multi-level data structures) - <https://github.com/taichi-dev/taichi>

Rasdaman (datacube and arrays) - <http://www.rasdaman.org/wiki>

Categorical Data (data-related tasks using category theory) - <https://www.categoricaldata.net/>  
<https://pbs.twimg.com/media/E2UpelGXsAUrmT.jpg>

Ctrl+Shift+Enter: Mastering Excel Array Formulas - Mike ‘Excel-is-fun’ Girvin  
<https://www.amazon.com/Ctrl-Shift-Enter-Calculating-Excelisfun/dp/B011YT9AMO>

Enso (diagrammatic coding) - <https://enso.org/language>

Egison (efficient non-linear pattern matching with backtracking for non-free data type) - <https://www.egison.org/>

Eve (uniform data-processing) - <http://witheve.com/>

Habit (type-level programming) - <https://www.habit-lang.org/>

Fluidinfo (columnar shareable data) - <https://github.com/fluidinfo> && <https://en.wikipedia.org/wiki/Fluidinfo>

MentDB (world wide Data) - [https://www.mentdb.org/mentdb\\_weak.html](https://www.mentdb.org/mentdb_weak.html)

Obsidian (knowledge base on top of your local folder of plain text files) - <https://obsidian.md/>

LMQL (query language for large language models) - <https://github.com/eth-sri/lmql>

Koka (effect typing, effect handlers, Perceus memory management) - <https://koka-lang.github.io/koka/doc/book.html#why>

NewLang (computing tensors and rational numbers) - <https://github.com/rsashka/newlang>

Self - <https://selflanguage.org/>

Odin (data-oriented programming)- <https://odin-lang.org/>

Cairo (provable programs and nondeterministic jumps)  
[https://web.archive.org/web/20230207061031/https://www.cairo-lang.org/docs/how\\_cairo\\_works/cairo\\_intro.html](https://web.archive.org/web/20230207061031/https://www.cairo-lang.org/docs/how_cairo_works/cairo_intro.html)

Exo (exocompilation) - <https://exo-lang.dev/>

Marianne Bellotti - <https://fault.tech/> && <https://github.com/Fault-lang/Fault>

Primecoin - <https://en.wikipedia.org/wiki/Primecoin> && <https://primecoin.io/>

Bitcoin Knots - [https://en.bitcoin.it/wiki/Bitcoin\\_Knots](https://en.bitcoin.it/wiki/Bitcoin_Knots)

Bitcoin Core - [https://en.bitcoin.it/wiki/Bitcoin\\_Core](https://en.bitcoin.it/wiki/Bitcoin_Core)

Work with pipe query syntax - <https://cloud.google.com/bigquery/docs/pipe-syntax-guide>

Pipe query syntax - <https://cloud.google.com/bigquery/docs/reference/standard-sql/pipe-syntax>

Protecting Privacy through Homomorphic Encryption - Kristin Lauter, Wei Dai and Kim Laine (editors)  
<https://www.amazon.com/Protecting-Privacy-through-Homomorphic-Encryption/dp/3030772861>

Nillion (Blind Computation, decentralizes trust for high-value, sensitive, and private data) - <https://docs.nillion.com/what-is-nillion>

## STRUCTS\* WITH META

Bedrock (meta-distro) <https://bedrocklinux.org/>

Funtoo (meta-distro) - [https://t2sde.org/index.cgi](https://www.funtoo.org>Welcome</a></p><p>T2 System Development Environment (meta-distro) - <a href=)

DL Linux (meta-meta-distro) - <https://web.archive.org/web/20181221164035/https://www.sudosatirical.com/articles/dl-linux-0-0-1-released/>

Black (reflective) - <http://pllаб.ocha.ac.jp/~asai/Black/>

Terra (meta-programming) - <http://terralang.org/>

MetaL (meta-language) - <https://www.meta-language.net/faq.html#what>

Rinci (metadata specifications) - <https://metacpan.org/pod/Rinci#ABSTRACT>

Circle (meta-programming) - <https://www.circle-lang.org/>

Hackett (meta-programming) - <https://lexi-lambda.github.io/hackett/>

Elena (polymorphic code) - <https://github.com/ELENA-LANG/elena-lang/wiki/ELENA-Programming-Manual#overview>

Beluga (mechanizing meta-theory) - <https://www.cs.mcgill.ca/~compllogic/beluga/index.html>

Hazel (incomplete programs) - <https://hazel.org/>

Autohotkey (gui and scripting automation for windows) - <https://www.autohotkey.com/>

Rosie Pattern (beyond regex) - <https://rosie-lang.org/about/>

Antipurity (self-aware interpreter) - <https://github.com/Antipurity/conceptual>

Multicompiler (defensive compiler) - <https://immunant.com/blog/2018/09/multicompiler/>

Avail (articulate programming) - <https://www.availlang.org/about-avail/introduction/index.html>

Push (evolutionary computing) - <https://faculty.hampshire.edu/lspector/push.html>

Wyvern (built-in skill for large-scale design) - <https://wyvernlang.github.io/>

Gen (probabilistic) - <https://probcomp.github.io/Gen/>

Pyro (probabilistic) - <https://pyro.ai/>

Rascal (meta-programming) - <https://www.rascal-mpl.org/>

Pharo (software as objects, immersive) - <https://pharo.org/features>

DarklangGPT (Deployless cloud backends with AI-generated code) - <https://darklang.com/>

LangChain (simplify APP construction with LLMs) - <https://langchain.com/>

Scallop (neurosymbolic programming) - <https://scallop-lang.github.io/>

Mojo (AI oriented) - <https://docs.modular.com/mojo/why-mojo.html>

Mirror (An LLM-powered programming-by-example programming language)  
[&& https://austinhenley.com/blog/mirrorlang.html](https://github.com/AZHenley/Mirror)

AlphaEvolve: A Gemini-powered coding agent for designing advanced algorithms  
<https://deepmind.google/discover/blog/alphaevolve-a-gemini-powered-coding-agent-for-designing-advanced-algorithms/>

expMath: Exponentiating Mathematics - DarpaTV - <https://www.youtube.com/watch?v=pb4cZk4e2w>

V-JEPA: Video Joint Embedding Predictive Architecture - <https://github.com/facebookresearch/jepa>

Strandbeest - <https://de.wikipedia.org/wiki/Strandbeest>

## SOUND\*

Gwion - <https://gwion.github.io/Gwion/>  
Kronos vesaronilo - <http://kronos.vesanorilo.com/>  
Supercollider - <https://supercollider.github.io/>  
Faust - <https://faust.grame.fr/>  
Chuck - <http://chuck.cs.princeton.edu/>

## NETWORKING\*

Live Raizo (network simulation) - <https://sourceforge.net/projects/live-raizo/>  
P4 (implement specific network behaviours) - <https://p4.org/>  
Helena (browsing automation) - <https://helena-lang.org/>  
Volunia (rpg-like browser) <http://www.volunia.com/>  
Gather (rpg-like meetings) - <https://www.gather.town/>  
Lynx (textual browser) - [https://en.wikipedia.org/wiki/Lynx\\_\(web\\_browser\)](https://en.wikipedia.org/wiki/Lynx_(web_browser))  
Beaker Browser (peer-to-peer Web browser) - <https://beakerbrowser.com/>  
Nyxt browser (keyboard-driven browser) - <https://github.com/atlas-engineer/next>  
Jolie (microservices) - <https://www.jolie-lang.org/>  
Daphile (headless music server) - <https://www.daphile.com/>  
Skywave linux (software defined radio servers) - <https://skywavelinux.com/>  
Gotenna (off-grid mobile mesh) - <https://gotenna.com/>  
Manyverse (off-grid social networking) - <https://www.manyver.se/faq/what-is-manyverse>  
p2p networking - <https://www.gnunet.org/en/> <https://zeronet.io/> <https://freenetproject.org/>  
Eternal-september private news server (usenet) - <http://eternal-september.org/>  
Aioe.org public news server (usenet) - <https://news.aioe.org/>  
What is the Usenet improvement Project? - <http://twovoyagers.com/improve-usenet.org/>  
Nemoweb - <https://www.nemoweb.net/>  
HackRF One - <https://greatscottgadgets.com/hackrf/one/> (Software Defined Radio peripheral)  
Fediverse (federated servers for web-publishing) - <https://en.wikipedia.org/wiki/Fediverse>  
Assemblyscript (a TypeScript-like language for WebAssembly) - <https://www.assemblyscript.org/>  
Buzz (swarms robotics) - <https://github.com/buzz-lang/Buzz> && <https://the.swarming.buzz/wiki/doku.php>  
Dark World A Book on the Deep Dark Web - Atif Ali and Muhammad Qasim  
<https://www.amazon.com/Dark-World-Atif-Ali/dp/1032518898>  
Wing (entire cloud as the computer) - <https://github.com/winglang/wing>  
Meshtastic (open source grid) - <https://meshtastic.org/>

## OPERATING SYSTEM\*

XOD.IO (microcontrollers) - <https://xod.io/>  
Elemental Processor SIMulator - <https://wepsim.github.io/>  
Mikrocodesimulator MikroSim 2010 (microcode) - [http://www.mikrocodesimulator.de/index\\_eng.php](http://www.mikrocodesimulator.de/index_eng.php)  
Katai Struct (binary data structures) - <https://kaitai.io/>  
Snowdrop OS (16-Bit Operating System) - <http://sebastianmihai.com/snowdrop/>  
Turbo Rascal (design of 8-bit/16-bit games)- <https://lemonspawn.com/turbo-rascal-syntax-error-expected-but-begin/>  
NESFab (creating NES games) - <https://pubby.games/nesfab.html>  
Tunguska (a ternary computer emulator) - Viktor Lofgren - <http://tunguska.sourceforge.net/>  
The Trillium Architecture - Douglas W. Jones - <http://homepage.divms.uiowa.edu/~jones/ternary/trillium.shtml>  
Red (full-stack) - <https://www.red-lang.org/p/about.html>  
Racket - <https://racket-lang.org/> && Neverlang - <https://cazzola.di.unimi.it/neverlang2.html> (language creation)  
Storm (is a programming language platform (framework for creating languages) - <https://storm-lang.org/>  
An Elementary Introduction to the Wolfram Language - Stephen Wolfram  
<https://www.amazon.com/Elementary-Introduction-Wolfram-Language-ebook/dp/B0BWNF2Y4P>  
Rescatux - <https://www.supergrubdisk.org/rescatux/> && Parted Magic - <https://partedmagic.com/> (OSes for rescue and recovery)  
Minix - <https://www.minix3.org/> && ‘An Open Letter to Intel’ - <https://www.cs.vu.nl/~ast/intel/>  
Los Procesadores Intel tienen un Secreto Misterio - <https://www.youtube.com/watch?v=CaLb7waR6eo>  
U-root: A Go-based, firmware embeddable root file system with on-demand compilation - Ronald G. Minnich and Andrey Mirtchovski  
[https://www.researchgate.net/publication/280132636\\_U-root\\_A\\_Go-based\\_firmware\\_embeddable\\_root\\_file\\_system\\_with\\_on-demand\\_compilation](https://www.researchgate.net/publication/280132636_U-root_A_Go-based_firmware_embeddable_root_file_system_with_on-demand_compilation)  
U-root - <https://github.com/u-root/u-root>  
Exception Handling Fundamentals and Programming - Pedro Mejia Alvarez, Raul E. Gonzalez Torres and Susana Ortega Cisneros  
<https://www.amazon.com/Exception-Handling-Fundamentals-Programming-SpringerBriefs/dp/3031506804>  
Gren (error messages) - <https://gren-lang.org/>  
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<https://www.amazon.com/Theories-Geographic-Concepts-Ontological-Integration/dp/B01FGXPXNC>

Lo imposible en matemáticas - Carlos Prieto de Castro  
<https://www.amazon.com/impossible-matem%C3%A1ticas-Ciencia-Todos-Spanish/dp/6071652561>

Transition to Proofs - Simon Rubinstein-Salzedo  
<https://www.amazon.com/Transition-Proofs-Simon-Rubinstein-Salzedo/dp/9811272085>

New Infinitary Mathematics - Petr Vopěnka - <https://www.amazon.com/New-Infinitary-Mathematics-Petr-Vopenka/dp/8024646633>

Foundations of Algebraic Specification and Formal Software Development - Donald Sannella and Andrzej Tarlecki  
<https://www.amazon.com/Foundations-Algebraic-Specification-Software-Development/dp/3642173373>

Julio Di Egidio's Gist - <https://gist.github.com/jp-diegidio>  
Blog - <https://seprogrammo.blogspot.com/>

Algebraic Specification of Communication Protocols - S. Mauw, G. J. Veltink (editors)  
<https://www.amazon.com/Algebraic-Specification-Communication-Protocols-Theoretical/dp/0521088127>

Introduction to Algebraic System Theory - Michael K. Saln - <https://archive.org/details/introductio89ntoal0000sain>

Eva Zerz - Algebraic Systems Theory (update 2015) [Lecture notes] (2015)  
<https://www.amazon.nl/-/en/Eva-Zerz/dp/3832292195>

Epistemological Reduction of 'Reality' - Wolfgang W. Däumler  
[https://www.researchgate.net/publication/338941309\\_Epistemological\\_Reduction\\_of\\_Reality](https://www.researchgate.net/publication/338941309_Epistemological_Reduction_of_Reality)

Handbook of Constructive Mathematics - Douglas Bridges, Hajime Ishihara, Michael Rathjen and Helmut Schwichtenberg  
<https://www.amazon.com/Handbook-Constructive-Mathematics-Encyclopedia-Applications/dp/1316510867>

Government - [https://en.wikipedia.org/wiki/Government\\_\(linguistics\)](https://en.wikipedia.org/wiki/Government_(linguistics))  
Semantics From meaning to text - Igor Mel'cuk, David Beck and Alain Polguère (Government Pattern: Government in the Lexicon)  
<https://www.amazon.com/Semantics-meaning-Studies-Language-Companion/dp/9027268967>

Measurement, Mathematics and New Quantification Theory - Shizuhiko Nishisato  
<https://www.amazon.com/Measurement-Mathematics-Quantification-Theory-Behaviormetrics/dp/9819922941/>

Formal Verification of Control System Software - Pierre-Loïc Garoche  
<https://www.amazon.com/Verification-Control-Software-Princeton-Mathematics/dp/0691181306>

Language Classification by Numbers - April McMahon and Robert McMahon  
<https://www.amazon.com/Language-Classification-Numbers-Oxford-Linguistics/dp/0199279020>

A History of Folding in Mathematics Mathematizing the Margins -- Michael Friedman  
<https://www.amazon.com/History-Folding-Mathematics-Mathematizing-Historical/dp/331972486X>

Handbook of Mereology - Hans Burkhardt, Johanna Seibt, Guido Imaguire and Stamatis Gerogiorgakis (Editors)  
<https://www.amazon.com/Handbook-Mereology-Analytica-Burkhardt-Founding-ebook/dp/B07GC6H3NN>

Applications of Automata Theory and Algebra\_ Via the Mathematical Theory of Complexity to Biology, Physics, Psychology, Philosophy, and Games - John Rhodes and Chrystopher L. Nehaniv  
<https://www.amazon.com/APPLICATIONS-AUTOMATA-THEORY-ALGEBRA-MATHEMATICAL/dp/9812836977>

The Science of Can and Can't\_ A Physicist's Journey through the Land of Counterfactuals - Chiara Marletto  
<https://www.amazon.com/Science-Can-Cant-Physicists-Counterfactuals/dp/0525521925>

Syllogistic Logic and Mathematical Proof - Paolo Mancosu and Massimo Mugnai  
<https://www.amazon.com/Syllogistic-Logic-Mathematical-Proof-Mancosu/dp/0198876920>

Patterns of change Linguistic innovations in the development of classical mathematics - Ladislav Kvasz  
<https://www.amazon.com/Patterns-Change-Innovations-Development-Mathematics/dp/3764388390>

Jumping Computation Updating Automata and Grammars for Discontinuous Information Processing  
Alexander Meduna and Zbyněk Krívka  
<https://www.amazon.com/Jumping-Computation-Discontinuous-Information-Processing-ebook/dp/B0CXDYCV8H>

Discourse Perspective of Geometric Thoughts - Sasha Wang  
<https://www.amazon.com/Discourse-Perspective-Geometric-Perspektiven-Mathematikdidaktik/dp/3658128046>

The Logic, Philosophy, and History of the Lambda-Calculus - Levis Zerpa  
<https://www.amazon.com/Logic-Philosophy-History-Lambda-Calculus-Applications/dp/3031728505>

Category Theory for Programmers - Bartosz Milewski  
<https://www.blurb.com/b/9621951-category-theory-for-programmers-new-edition-hardco>

Picture Fuzzy Logic and Its Applications in Decision Making problems  
Chiranjibe Jana, Madhumangal Pal, Valentina Emilia Balas and Ronald R. Yager  
<https://www.amazon.com/Picture-Applications-Decision-Problems-Advanced/dp/0443220247>

The Gödelian Puzzle Book\_ Puzzles, Paradoxes and Proofs - Raymond M. Smullyan  
<https://www.amazon.com/G%C3%B6delian-Puzzle-Book-Puzzles-Paradoxes/dp/0486497054>

Around the World in 80 Games - Marcus du Sautoy

<https://www.amazon.com/Around-World-Eighty-Games-Mathematician/dp/1541601289>

Towards an Arithmetical Logic The Arithmetical Foundations of Logic - Yvon Gauthier  
<https://www.amazon.com/Towards-Arithmetical-Logic-Foundations-Universal/dp/3319220861>

The Language of Mathematics A Linguistic and Philosophical Investigation - Mohan Ganesalingam  
<https://www.amazon.com/Language-Mathematics-Linguistic-Philosophical-Investigation/dp/364237011X>

Formalizing 100 Theorems - <https://www.cs.ru.nl/~freek/100/>

Thought vector - [https://en.wikipedia.org/wiki/Thought\\_vector](https://en.wikipedia.org/wiki/Thought_vector)

Algebraic Structures in Natural Language - Shalom Lappin and Jean-Philippe Bernardy (editors)  
<https://www.amazon.com/Algebraic-Structures-Natural-Language-Shalom/dp/1032071044>

Lateral Solutions to Mathematical Problems - Des MacHale  
<https://www.amazon.com/Solutions-Mathematical-Problems-Recreational-Mathematics/dp/1032370920>

Ruliology: Linking Computation, Observers and Physical Law - Hatem Elshatlawy, Dean Rickles and Xerxes D. Arsiwalla  
[https://www.researchgate.net/publication/373518649\\_Ruliology\\_Linking\\_Computation\\_Observers\\_and\\_Physical\\_Law](https://www.researchgate.net/publication/373518649_Ruliology_Linking_Computation_Observers_and_Physical_Law)

The Little Book of Math into English - George Grätzer - <https://www.amazon.com/Little-Book-Math-into-English/dp/303165160X>

Aftermath & Antimath - Florentin Smarandache

<https://www.amazon.com/AFTERMATH-ANTIMATH-1-Florentin-Smarandache-ebook/dp/B08CZ9QZ4J>

Smarandache Paradox - <https://mathworld.wolfram.com/SmarandacheParadox.html>

Upside-Down Logics: Falsification of the Truth and Truthification of the False - Florentin Smarandache  
<https://fs.unm.edu/Upside-DownLogics.pdf>

Principles of Innovative Design Thinking Synergy of Extenics with Axiomatic Design Theory - Wenjuan Li, Zhenghe Song and C. Steve Suh - <https://www.amazon.com/Principles-Innovative-Design-Thinking-Axiomatic/dp/9811904847>

## (21) MATHEMATICS, TEACHING AND PROJECTS

Crank Dot Net - List of bizarre mathematics - Erik Max Francis – <http://www.crank.net/math.html>

“Crackpots” who were right - <http://blog.vixra.org/category/crackpots-who-were-right/>

Where is the frontier between Mathematics and pseudo-mathematics"? - <https://en.wikipedia.org/wiki/Pseudomathematics>  
Pseudo-mathematics VS Proto-mathematics, can "dissident mathematicians" exist in a similar way to "dissident scientists"?

Worldwide list of dissident scientist

[https://www.academia.edu/37679452/Jean\\_de\\_Climont\\_-\\_The\\_worldwide\\_list-of\\_dissident\\_scientists\\_1-500\\_-\\_Part\\_1.pdf](https://www.academia.edu/37679452/Jean_de_Climont_-_The_worldwide_list-of_dissident_scientists_1-500_-_Part_1.pdf)

List of topics characterized as pseudoscience - [https://en.wikipedia.org/wiki/List\\_of\\_topics\\_characterized\\_as\\_pseudoscience](https://en.wikipedia.org/wiki/List_of_topics_characterized_as_pseudoscience)

Negapedia - <http://en.negapedia.org/search/?&o=0&c=&q=Mathematics>

The Map of Mathematics - <https://www.youtube.com/watch?v=OmJ-4B-mS-Y> <https://www.flickr.com/photos/95869671@N08/32264483720>

Mind maps of Advanced Mathematics and various branches thereof

<https://math.stackexchange.com/questions/124709/mind-maps-of-advanced-mathematics-and-various-branches-thereof>

Mathematics - The big picture - <https://math.stackexchange.com/questions/902296/mathematics-the-big-picture?noredirect=1&lq=1>

The Most Obvious Secret in Mathematics - Tai-Danae Bradley - <https://www.math3ma.com/blog/the-most-obvious-secret-in-mathematics>

TIB AV Portal - <https://av.tib.eu/> - [https://twitter.com/TIB\\_AVPortal](https://twitter.com/TIB_AVPortal) - <https://www.youtube.com/watch?v=CkYC3Lveeo0>  
[https://www.researchgate.net/publication/280083062\\_The\\_TIBAV\\_Portal\\_as\\_a\\_future\\_Linked\\_Media\\_Ecosystem](https://www.researchgate.net/publication/280083062_The_TIBAV_Portal_as_a_future_Linked_Media_Ecosystem)

A Focus on Fractions: Bringing Research to the Classroom - Marjorie M. Petit

<https://www.amazon.com/Focus-Fractions-Bringing-Classroom-Mathematical/dp/0415801516>

Visualizing Mathematics The Role of Spatial Reasoning in Mathematical Thought - Kelly S. S. Mix and Michael T. Battista  
<https://www.amazon.com/Visualizing-Mathematics-Reasoning-Mathematical-Education-ebook/dp/B07FKZ8HZG>

Mathematical Creativity and Mathematical Giftedness - Florence Mihaela Singer

<https://www.amazon.com/Mathematical-Creativity-Giftedness-Capacities-Mathematically/dp/3030103269>

Data Assimilation A Mathematical Introduction - Kody Law, Andrew Stuart and Konstantinos Zygalakis  
<https://www.amazon.com/Data-Assimilation-Mathematical-Introduction-Mathematics/dp/331920324X>

Analysing Historical Mathematics Textbooks - Gert Schubring  
<https://www.amazon.com/Analysing-Historical-Mathematics-Textbooks-International/dp/3031176693>

How We Understand Mathematics Conceptual Integration in the Language of Mathematical Description - Jacek Woźny  
<https://www.amazon.com/How-Understand-Mathematics-Integration-Mathematical/dp/3030085139>

Proof Technology in Mathematics Research and Teaching - Gila Hanna, David A. Reid and Michael de Villiers  
<https://www.amazon.com/Technology-Mathematics-Research-Teaching-Education/dp/3030284824>

Adventures of Mind and Mathematics - Wolff-Michael Roth  
<https://www.amazon.com/Adventures-Mind-Mathematics/dp/3030518116>

Doing Research: A New Researcher's Guide - James Hiebert, Jinfa Cai, Stephen Hwang, Anne K Morris and Charles Hohensee  
<https://www.amazon.com/Doing-Research-Researchers-Mathematics-Education/dp/3031190777>

Designing, Conducting, and Publishing Quality Research in Mathematics Education - Keith R. Leatham  
<https://www.amazon.com/Designing-Conducting-Publishing-Mathematics-Education/dp/3030235041>

Mathematical Challenges For All - Roza Leikin Editor  
<https://www.amazon.com/Mathematical-Challenges-Research-Mathematics-Education/dp/3031188675>

Mathematics at the Margins - Elizabeth Warren and Jodie Miller  
<https://www.amazon.com/Mathematics-at-Margins-SpringerBriefs-Education/dp/9811007012>

Handbook of Cognitive Mathematics - Marcel Danesi  
<https://www.amazon.com/Handbook-Cognitive-Mathematics-Marcel-Danesi/dp/3031039467>

Encyclopedia of Mathematics Education - Stephen Lerman  
<https://www.amazon.com/Encyclopedia-Mathematics-Education-Steve-Lerman/dp/3030157881>

Math for the Digital Factory - Luca Ghezzi, Dietmar Hömberg and Chantal Landry  
<https://www.amazon.com/Digital-European-Consortium-Mathematics-Industry-ebook/dp/B077NGYN2C>

Early Algebraization A Global Dialogue from Multiple Perspectives - Jinfa Cai and Eric Knuth  
<https://www.amazon.com/Early-Algebraization-Perspectives-Mathematics-Education/dp/3642177344>

18 Unconventional Essays on the Nature of Mathematics - Reuben Hersh  
<https://www.amazon.com/18-Unconventional-Essays-Nature-Mathematics/dp/0387257179>

What Is Mathematics For? - Underwood Dudley - <https://www.ams.org/notices/201005/rtx100500608p.pdf>

Is Mathematics Inevitable? - Underwood Dudley - <https://www.amazon.com/Mathematics-Inevitable-Spectrum-Underwood-Dudley/dp/0883855666>

Mathematicians and their gods Interactions between mathematics - Lawrence and McCartney  
<https://www.amazon.com.au/Mathematicians-their-Gods-Interactions-mathematics/dp/0198703058>

Miracles, Mystics, Mathematicians Searching for Deep Reality - Sasho Kalajdzievski  
<https://www.amazon.com/Miracles-Mystics-Mathematicians-Searching-Reality-ebook/dp/B0CKYBBKH9>

Mathematics and Religion Our Languages of Sign and Symbol - Javier Leach  
<https://www.amazon.com/Mathematics-Religion-Languages-Templeton-Science/dp/1599471493>

Spirituality by the numbers - Georg Feuerstein  
<https://www.amazon.com/Spirituality-Numbers-Georg-Feuerstein/dp/0874777658>

The Theology of Arithmetic (translated by Robin Waterfield )  
<https://www.amazon.com/Theology-Arithmetic-English-Ancient-Greek/dp/0933999720>

The Math(s) Fix: An Education Blueprint for the AI Age- <https://www.amazon.com/Math-Fix-Education-Blueprint-Age/dp/B0977N1JDL/>

The Death of the Amateur Mathematician - <https://davidwees.com/content/death-amateur-mathematician/>

Scientific Peer Review Guidelines for Informative Peer Review - J. Matthias Starck  
<https://www.amazon.com/Scientific-Peer-Review-Guidelines-Informative/dp/3658199148>

Beall's list of predatory open access journals - <http://beallslist.weebly.com>

Colamos un ESTUDIO FALSO en una revista científica | Así funcionan los PREDATORY JOURNALS - Tamayo

<https://www.youtube.com/watch?v=xq3XXWpRuck>

Directory of open access journals <https://doaj.org/>

List of mathematical abbreviations - [https://en.wikipedia.org/wiki/List\\_of\\_mathematical\\_abbreviations](https://en.wikipedia.org/wiki/List_of_mathematical_abbreviations)

Forgotten Books (List) - <https://www.forgottenbooks.com/en/Mathematics>

List of Preprint Repositories - [https://en.wikipedia.org/wiki/List\\_of\\_preprint\\_repositories](https://en.wikipedia.org/wiki/List_of_preprint_repositories)

List of types of functions - [https://en.wikipedia.org/wiki/List\\_of\\_types\\_of\\_functions](https://en.wikipedia.org/wiki/List_of_types_of_functions)

List of mathematical functions - [https://en.wikipedia.org/wiki/List\\_of\\_mathematical\\_functions](https://en.wikipedia.org/wiki/List_of_mathematical_functions)

List of mathematic operators - [https://en.wikipedia.org/wiki/List\\_of\\_mathematic\\_operators](https://en.wikipedia.org/wiki/List_of_mathematic_operators)

Glossary of mathematical symbols - [https://en.wikipedia.org/wiki/Glossary\\_of\\_mathematical\\_symbols](https://en.wikipedia.org/wiki/Glossary_of_mathematical_symbols)

List of international common standards - [https://en.wikipedia.org/wiki/List\\_of\\_international\\_common\\_standards](https://en.wikipedia.org/wiki/List_of_international_common_standards)

List of volunteer computing projects - [https://en.wikipedia.org/wiki/List\\_of\\_volunteer\\_computing\\_projects](https://en.wikipedia.org/wiki/List_of_volunteer_computing_projects)

AI for Math Fund (a new grant program supporting projects that apply AI and machine learning to mathematics)

<https://renaissancephilanthropy.org/initiatives/ai-for-math-fund/>

r/badmathematics - <https://www.reddit.com/r/badmathematics/>

r/mathmemes - <https://www.reddit.com/r/mathmemes/>

Future of mathematics - [https://en.wikipedia.org/wiki/Future\\_of\\_mathematics](https://en.wikipedia.org/wiki/Future_of_mathematics)

Writing Math Research Papers A Guide for High School Students and Instructors - Robert K. Gerver

<https://www.amazon.com/Writing-Math-Research-Papers-5th/dp/1641131101>

Books on Chicago Sun-Times AI-generated summer reading list aren't real - <https://www.youtube.com/watch?v=2IQJfAsrkRA>

Epoch AI - <https://epoch.ai/> (investigating key trends and questions that will shape the trajectory and governance of AI)

The AI Mathematician - YANG-HUI HE - <https://icms-conference.org/2024/sessions/Talks-BKZ-Session/He.pdf>

Vixra - <https://vixra.org/> && AI Vixra - <https://ai.vixra.org/>

Vixra Top 500 - [https://www.vixrapedia.org/wiki/Vixra\\_Top\\_500](https://www.vixrapedia.org/wiki/Vixra_Top_500)

Vixrapedia - [https://www.vixrapedia.org/wiki/Main\\_Page](https://www.vixrapedia.org/wiki/Main_Page)

Vixraone (arxiv-looking vixra) - <https://vixraone.github.io/>

Scientific Journals Can't Keep Up With Flood of Fake Papers 'Paper mills' churn out fraudulent studies faster than publishers can retract them - Nidhi Subbaraman - <https://www.wsj.com/science/scientific-journals-fake-paper-mills-92e42230>

Unusual articles - [https://en.wikipedia.org/wiki/Wikipedia:Unusual\\_articles/Mathematics\\_and\\_numbers](https://en.wikipedia.org/wiki/Wikipedia:Unusual_articles/Mathematics_and_numbers)

This beats working for a living The dark secrets of a college professor - Professor X

<https://www.amazon.com/This-Beats-Working-Living-Professor/dp/0870001892>

Lambert Academic Publishing - <https://lap-publishing.com/how-to-publish/> && <https://lap-publishing.com/faq/>

Mathematicians An Outer View of the Inner World - Mariana Ruth Cook

<https://www.amazon.com/Mathematicians-Outer-View-Inner-World/dp/0691139512>

Computer-Based Maths - <https://www.computerbasedmath.org/>

Jokes of Chuck Norris - <https://mathjokes4mathyfolks.wordpress.com/2019/12/22/chuck-norris-math-and-some-science-jokes/>

[https://www.reddit.com/r/Jokes/comments/10p6h99/chuck\\_noriss\\_password\\_is\\_the\\_last\\_9\\_digits\\_of\\_pi/](https://www.reddit.com/r/Jokes/comments/10p6h99/chuck_noriss_password_is_the_last_9_digits_of_pi/)

## (22) KNOTS, GRAPHS, BRAIDS AND TANGLES

Animeted knots - Grog - <https://www.animatedknots.com/complete-knot-list>

Knot Theory and Its Applications - Kunio Murasugi

<https://www.amazon.com/Applications-Birkh%C3%83%C2%A4user-Classics-Murasugi-2007-10-03/dp/B01A68JA8S>

A Knot-vice's Guide to Untangling Knot Theory - Rebecca Hardenbrook  
[http://www.math.utah.edu/~rebeccah/A\\_Knot\\_vice\\_s\\_Guide\\_to\\_Untangling\\_Knot\\_Theory.pdf](http://www.math.utah.edu/~rebeccah/A_Knot_vice_s_Guide_to_Untangling_Knot_Theory.pdf)

Braid theory - [https://encyclopediaofmath.org/wiki/Braid\\_theory](https://encyclopediaofmath.org/wiki/Braid_theory)

Knotplot - Robert G. Scharein <https://www.knotplot.com/>

The 85 Ways to Tie a Tie - [https://en.wikipedia.org/wiki/The\\_85\\_Ways\\_to\\_Tie\\_a\\_Tie](https://en.wikipedia.org/wiki/The_85_Ways_to_Tie_a_Tie)

KnotInfo - <https://knotinfo.math.indiana.edu/> && LinkInfo - <https://linkinfo.math.indiana.edu/index.php>

Knot operation - [https://en.wikipedia.org/wiki/Knot\\_operation](https://en.wikipedia.org/wiki/Knot_operation)

Tangles - Mike Pearson - <https://nrich.maths.org/content/id/5681/Tangles.pdf>

Knotoids, Braidoids and Rail Knotoids - Sofia Lambropoulou - <http://labtd.nsu.ru/6RCCKT/presentations/Lambropoulou.pdf>

Bands, tangles and linear skein theory - Uwe Kaiser - [https://www.academia.edu/en/20916617/Bands\\_tangles\\_and\\_linear\\_skein\\_theory](https://www.academia.edu/en/20916617/Bands_tangles_and_linear_skein_theory)

String Figures as Mathematics? An Anthropological Approach to String Figure-making in Oral Tradition Societies - Eric Vandendriessche  
<https://www.amazon.com/String-Figures-Mathematics-Anthropological-Figure-making/dp/3319119931>

Graphs on Surfaces Dualities, Polynomials, and Knots - Joanna A. Ellis-Monaghan and Iain Moffatt  
<https://www.amazon.com/Graphs-Surfaces-Dualities-Polynomials-Knots/dp/1461469708>

Hitchhiker Trees - David Greenberg - <https://www.slideshare.net/DavidGreenberg7/hitchhiker-trees-strangeloop-2016>

Graph operations - [https://en.wikipedia.org/wiki/Graph\\_operations](https://en.wikipedia.org/wiki/Graph_operations)  
[https://en.wikipedia.org/wiki/Graph\\_product#Overview\\_table](https://en.wikipedia.org/wiki/Graph_product#Overview_table)

Introduction to Graph and Hypergraph Theory - Vitaly I. Voloshin  
<https://www.amazon.com/Introduction-Hypergraph-Theory-Vitaly-Voloshin/dp/1606923722>

Hypergraph - <https://en.wikipedia.org/wiki/Hypergraph>

The Arithmetic of Braids - [https://mathcenter.oxford.emory.edu/site/math108/braid\\_arithmetic/](https://mathcenter.oxford.emory.edu/site/math108/braid_arithmetic/)

Configurations from a Graphical Viewpoint - Tomaz Pisanski and Brigitte Servatius  
<https://www.amazon.com/Configurations-Graphical-Viewpoint-Birkh%C3%A4user-Lehrb%C3%BCcher/dp/0817683631>

Looking at Numbers - Tom Johnson and Franck Jedrzejewski  
<https://www.amazon.com/Looking-at-Numbers-Tom-Johnson/dp/3034805535>

Handbook of Graph Drawing and Visualization - Roberto Tamassia  
<https://www.amazon.com/Handbook-Visualization-Discrete-Mathematics-Applications/dp/113803424X>

Handbook of Product Graphs - Richard Hammack, Wilfried Imrich and Sandi Klavzar  
<https://www.amazon.com/Handbook-Product-Discrete-Mathematics-Applications/dp/1439813043>

Ribbon knot - [https://en.wikipedia.org/wiki/Ribbon\\_knot](https://en.wikipedia.org/wiki/Ribbon_knot)

Incidence structures - [https://en.wikipedia.org/wiki/Incidence\\_structure#Examples](https://en.wikipedia.org/wiki/Incidence_structure#Examples)

In pursuit of the traveling salesman mathematics at the limits of computation - William Cook  
<https://www.amazon.com/Pursuit-Traveling-Salesman-Mathematics-Computation/dp/0691152705>

Mathematical Hugs (and Chiral Knots) - Numberphile - <https://www.youtube.com/watch?v=lHJxZ7JOEwI>

The Shoelace Book\_ A Mathematical Guide to the Best (And Worst) Ways to Lace Your Shoes - Burkard Polster  
<https://www.amazon.com/Shoelace-Book-Mathematical-Guide-Worst/dp/0821839330>

Braids and Self-Distributivity - Patrick Dehornoy  
<https://www.amazon.com/Self-Distributivity-Progress-Mathematics-Patrick-Dehornoy/dp/0817663436>

Teaching and Learning of Knot Theory in School Mathematics - Akio Kawauchi and Tomoko Yanagimoto (Editors)  
<https://www.amazon.com/Teaching-Learning-Theory-School-Mathematics/dp/4431541373>

Programming mechanics in knitted materials, stitch by stitch - Krishna Singal, Michael S. Dimitriev, Sarah E. Gonzalez, A. Patrick Cacheine, Sam Quinn and Elisabetta A. Matsumoto - <https://arxiv.org/abs/2302.13467>

Metagraphs and Their Applications - Robert W. Blanning and Amit Basu - <https://link.springer.com/book/10.1007/978-0-387-37234-1>

Metagraph A new model of data Structure - Deepti Gaur, Aditya Shastri and Ranjit Biswas  
[https://www.researchgate.net/publication/232644410\\_Metagraph\\_A\\_New\\_Model\\_of\\_Data\\_Structure](https://www.researchgate.net/publication/232644410_Metagraph_A_New_Model_of_Data_Structure)

Examples and counterexamples in graph theory - John C. Capobianco and Michael Molluzzo  
<https://www.amazon.com/Examples-counterexamples-theory-Michael-Capobianco/dp/0444002553>

Fibonacci anyons - [https://en.wikipedia.org/wiki/Topological\\_quantum\\_computer](https://en.wikipedia.org/wiki/Topological_quantum_computer)

Advanced Graph Theory - Santosh Kumar Yadav  
<https://www.amazon.com/Advanced-Graph-Theory-Santosh-Kumar/dp/3031225619>

Stick number - [https://en.wikipedia.org/wiki/Stick\\_number](https://en.wikipedia.org/wiki/Stick_number)

Knots, Links and Their Invariants - A. B. Sossinsky  
<https://www.amazon.com/Knots-Invariants-Student-Mathematical-Library/dp/1470471515>

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