



Dyalog North America - 7 April 2025

APL Ecosystem

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Premise

There are more resources today to

- ◆ Learn APL
- ◆ Participate in the APL community
- ◆ Contribute to the APL community
- ◆ Entertain yourself with APL


than at any time in history.

But most APLers don't know about them.

My goal

- Make people aware of (some of) the resources available
- Encourage people to explore those resources
- Encourage people to share those resources
- Encourage people to contribute to those resources

APL Wiki



APL Wiki

- Main page
- Recent changes
- Random page
- Categories
- Help about MediaWiki

Quick links

- Overview
- Running APL
- Learning resources
- Chat rooms and forums

Tools

- What links here
- Related changes
- Special pages
- Printable version
- Permanent link
- Page information


[Create account](#) [Log in](#) [Dark mode](#)

[Main Page](#) [Discussion](#)

Read [View source](#) [View history](#)

Welcome to APL Wiki,

[452](#) articles about APL that anyone can edit.
See the [navigational overview](#) of content.



APL is an [array-oriented programming language](#)^W. Its natural, concise [syntax](#) lets you develop shorter programs while thinking more about the problem you're trying to solve than how to express it to a computer.

Running APL

Traditionally a commercial language, quite a few implementations are now free without feature limitations, several can be tried online, and many are [open source](#).

[Running APL](#) · [Try APL online](#)

Hello world

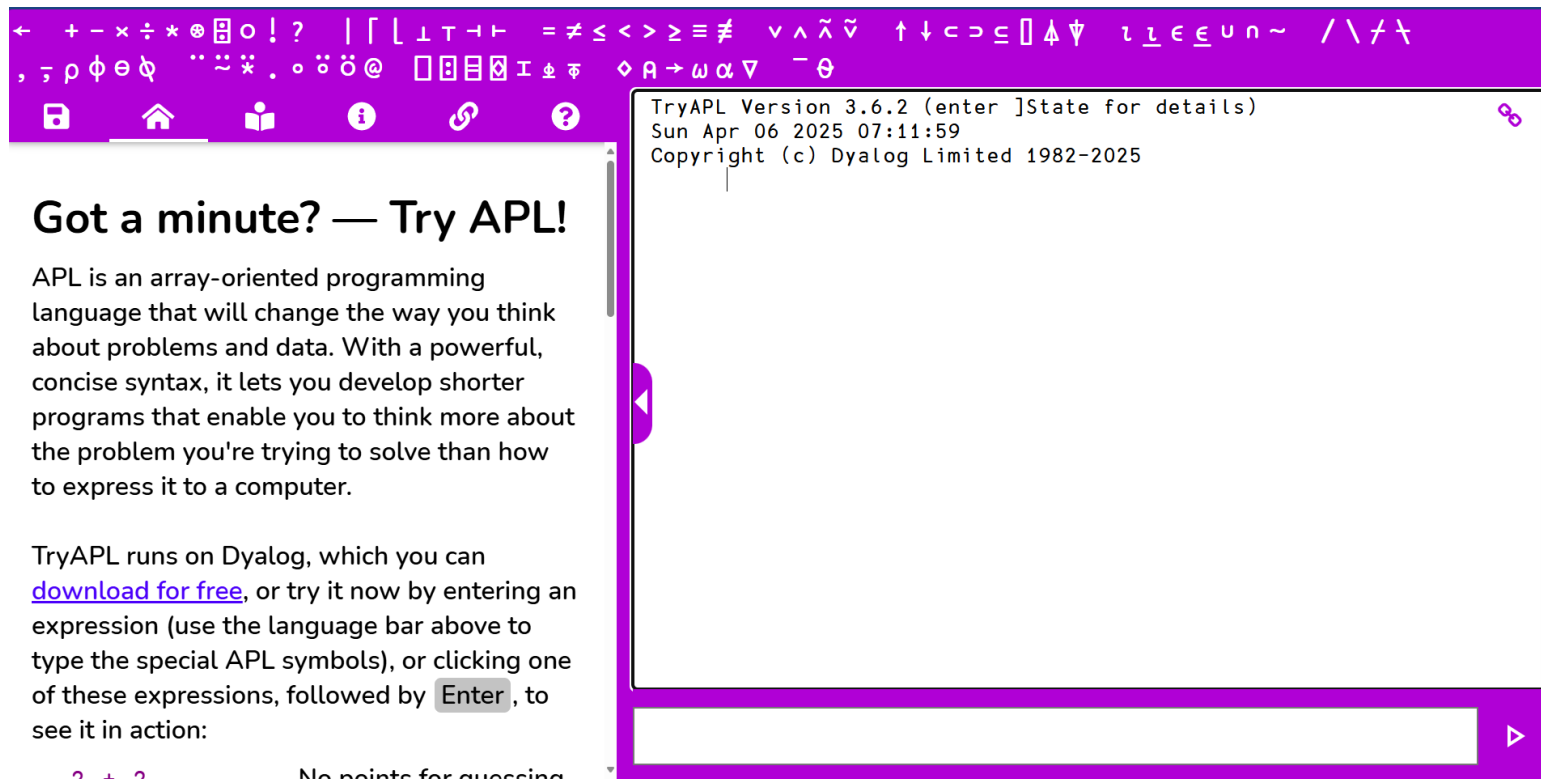
Taking up a new programming language can be a daunting task. While it can appear cryptic at first, you can learn to [read](#), write and [remember](#) APL with little effort. There is plenty of material to help you in the process.

[Introductions](#) · [Learning resources](#) · [Blogs](#) · [Podcasts](#) · [Videos](#)

Who uses it?

Contributing

TryAPL



Got a minute? — Try APL!

APL is an array-oriented programming language that will change the way you think about problems and data. With a powerful, concise syntax, it lets you develop shorter programs that enable you to think more about the problem you're trying to solve than how to express it to a computer.


TryAPL runs on Dyalog, which you can [download for free](#), or try it now by entering an expression (use the language bar above to type the special APL symbols), or clicking one of these expressions, followed by **Enter**, to see it in action:




```
TryAPL Version 3.6.2 (enter ]State for details)
Sun Apr 06 2025 07:11:59
Copyright (c) Dyalog Limited 1982-2025
```

APLCart

Tell me about: × ? #

X,Y,Z:any M,N:num I,J:int A,B:Bool C,D:char f,g,h:fn ax:axis s:scal v:vec m:mat

 $(0 \sim \ddot{\circ}, \circ \Phi \vdash \text{目}) Y$	Progressive index of (ι) cyclic uniques (υ) without replacement
$X \{ \alpha (R \ddot{\sim} \iota R \leftarrow \neq \ddot{\circ} \vdash \rho \circ \Phi \circ \Phi \alpha \iota \ddot{\sim}) \omega \} Y$	Progressive index of (ι) without replacement
$X \{ \alpha (R \ddot{\sim} \epsilon R \leftarrow \neq \ddot{\circ} \vdash \rho \circ \Phi \circ \Phi \alpha \iota \ddot{\sim}) \omega \} Y$	Progressive member of (ε) without replacement
$X \{ \alpha [\ddot{\sim} \subset (\iota \neq \alpha) \sim \alpha (R \ddot{\sim} \iota R \leftarrow \neq \ddot{\circ} \vdash \rho \circ \Phi \circ \Phi \alpha \iota \ddot{\sim}) \omega \} Y$	Progressive without (∼) without replacement

5 of 3720 Quiz   

YouTube

The screenshot shows a YouTube search results page for the query "APL programming". The search bar at the top contains the text "APL programming" and has a search icon and a microphone icon. Below the search bar, there are three video results. The first video is titled "APL + Game of Life =" and is by the channel "code_report". It has 35K views and was uploaded 3 years ago. The video thumbnail shows a man's face in front of a green grid with small green dots. The second video is titled "APL Wins (vs C++, Java & Python)" and is also by "code_report". It has 25K views and was uploaded 4 years ago. The video thumbnail shows a screenshot of a website with the text "three days from now there's going to be a free half day conference for apl". The third video is titled "Text Processing in APL // Aaron Hsu // Dyalog '22" and is by the channel "Dyalog User Meetings". It has 1.8K views and was uploaded 2 years ago. The video thumbnail shows a man's face next to a graphic with the text "TEXT PROCESSING IN APL" and "Dyalog". To the right of each video thumbnail, there is a description and a "Matching chapter" section. The first video's description mentions "The famous Conway's Game of Life in APL! Conway's Game of Life Wiki: ...". The second video's description mentions "Free APL Conference: https://www.dyalog.com/apl-seeds-user-meetings/aplseeds21.htm Download APL: https://www.dyalog.com/ ...". The third video's description mentions "Aaron Hsu APL has a reputation for being very good at numerical and financial types of calculations, but much of what modern ...".

APL programming

APL + Game of Life = ❤️
35K views • 3 years ago
code_report
The famous Conway's Game of Life in APL! Conway's Game of Life Wiki: ...
14 chapters Intro | Create Dimensions | Shape | Role | Rotate | Matrix | Logical | LifeInter | Initialize Board | Inline...

APL Wins (vs C++, Java & Python)
25K views • 4 years ago
code_report
Free APL Conference: <https://www.dyalog.com/apl-seeds-user-meetings/aplseeds21.htm> Download APL: <https://www.dyalog.com/> ...
Matching chapter 6:59 Free APL Conference

Text Processing in APL // Aaron Hsu // Dyalog '22
1.8K views • 2 years ago
Dyalog User Meetings
Aaron Hsu APL has a reputation for being very good at numerical and financial types of calculations, but much of what modern ...
Matching chapter 0:00 APL for processing text data

GitHub

The screenshot shows the GitHub search interface with the query 'language:APL'. The left sidebar shows filters for 'Filter by' (Code: 11.1k, Repositories: 568, Issues: 2k, Pull requests: 1k, Discussions: 0, Users: 89, More) and 'Languages' (JavaScript, HTML, Java, Python). The main content area displays 'More than 568 results (1 s)' with a 'Sort by: Most stars' dropdown and a 'Save' button. Three search results are visible:


- abrudz/aplcart**: A novel approach to finding your way in APL. Tags: syntax, learning, reference, idioms, information. 138 stars, updated 5 days ago. Includes 'Star' and 'Sponsor' buttons.
- BobMcDear/trap**: Autoregressive transformers in APL. Tags: nlp, deep-learning, transformer, gpt, apl. 100 stars, updated on Feb 14. Includes a 'Star' button.
- abrudz/dyalog-apl-extended**: Includes 'Star' and 'Sponsor' buttons.

On the right, there is a 'Sponsor open source projects you depend on' section with a description and a link to 'Explore sponsorable projects'. Below it is a 'How can we improve search?' section with a 'Give feedback' link. At the bottom right, a 'ProTip!' states: 'Press the / key to activate the search input again and adjust your query.'


Hacker News


The screenshot shows the Hacker News website interface. At the top, there's a search bar with the text 'APL' entered. To the right of the search bar, it says 'Search by algolia'. Below the search bar, there are filters for 'Stories', 'by', 'Popularity', 'for', and 'All time'. The search results show 610 results in 0.001 seconds. The list of results includes various articles about APL, such as 'Try APL', 'AMA: Explaining my 750 line compiler-runtime designed to GPU self-host APL', 'A History of APL in 50 Functions', 'Learning APL', 'APL - A Glimpse of Heaven (2006)', 'APL deserves its renaissance too (2018)', 'APL deserves its renaissance too', 'Game of Life in one Ruby statement inspired by APL', 'A deep dive into APL', 'I can look like APL or English', 'APL at Volvo', 'April: An APL That Compiles to Common Lisp', 'APL\iv: an APL interpreter and stream processor written in Go', 'APL386 Unicode - An APL Font', 'Ruins of forgotten empires: APL languages', 'Ivy - An interpreter for an APL-like language', 'Array Languages: R vs. APL (2023)', 'GNU APL 1.0', and 'Is APL Dead? Not anymore'. Each result shows the title, a link, and some metadata like points and comments.


The APL Orchard (StackExchange)

Adam  **Dyalog Announcement:** The last few years have seen dramatic changes to the computing world and the array of things with which an APL application needs to interact. [Our latest blog post](#) highlights features of Dyalog version 19.4.1 – released today – that are likely to be very useful in the years to come. Tue 11:32


8 hours later...


RubenVerg  no polynomial division/remainder in aplcart? Tue 12:23

Adam  @RubenVerg Please PR.


RubenVerg  i'll write one unless there's a good one already somewhere? Tue 12:56

1 hour later...


LdBeth  @Adam [oels.org/A000292](#) Tue 14:22


Adam  @LdBeth Indeed.

19 hours later...


Adam  @user1646572 Hi bondtrails, if you want to participate here, please email access@apl.chat Wed 9:20

3 hours later...


Stack Exchange Feeds  **Q: Dyalog APL: how fix AI-generated code (work with PostgreSQL via ffi)** Wed 12:37

 The task was this (be sure to use libpq via ffi, odbc is not suitable): connect to the database, let's call it Local We get records from the Local database from the vpn_nodes table, ip addresses For each vpn_node, we take the ip address and connect to postgresql running on its ip in a separate t... [apl](#) [dvalog](#)


22 hours later...

Adam  **Announcement:** [BAA Vector Webinar](#) in 15 mins. Thu 10:43

16 hours later...

Adam  @user1646572 Welcome to the APL Orchard. Since you're new to Stack Exchange Chat, I highly recommend familiarising yourself with [apl.wiki/APL_Orchard#Features](#) Fri 2:18

24 hours later...

RubenVerg  @Adam couldn't come up with anything yst 1:55

The last message was posted 1 day ago.

[all rooms](#) [site rooms](#)

The APL Orchard

apl.chat — Learn, teach, ask, code, golf, & discuss usage. See [apl.wiki/APL_Orchard](#) for access and info, [aplcart.info](#) for simple how-to questions. See also [apl.wiki/Chat_rooms_and_forums](#)

[apl](#) [array-manipulation](#) [tips](#)

[room](#) [info](#)

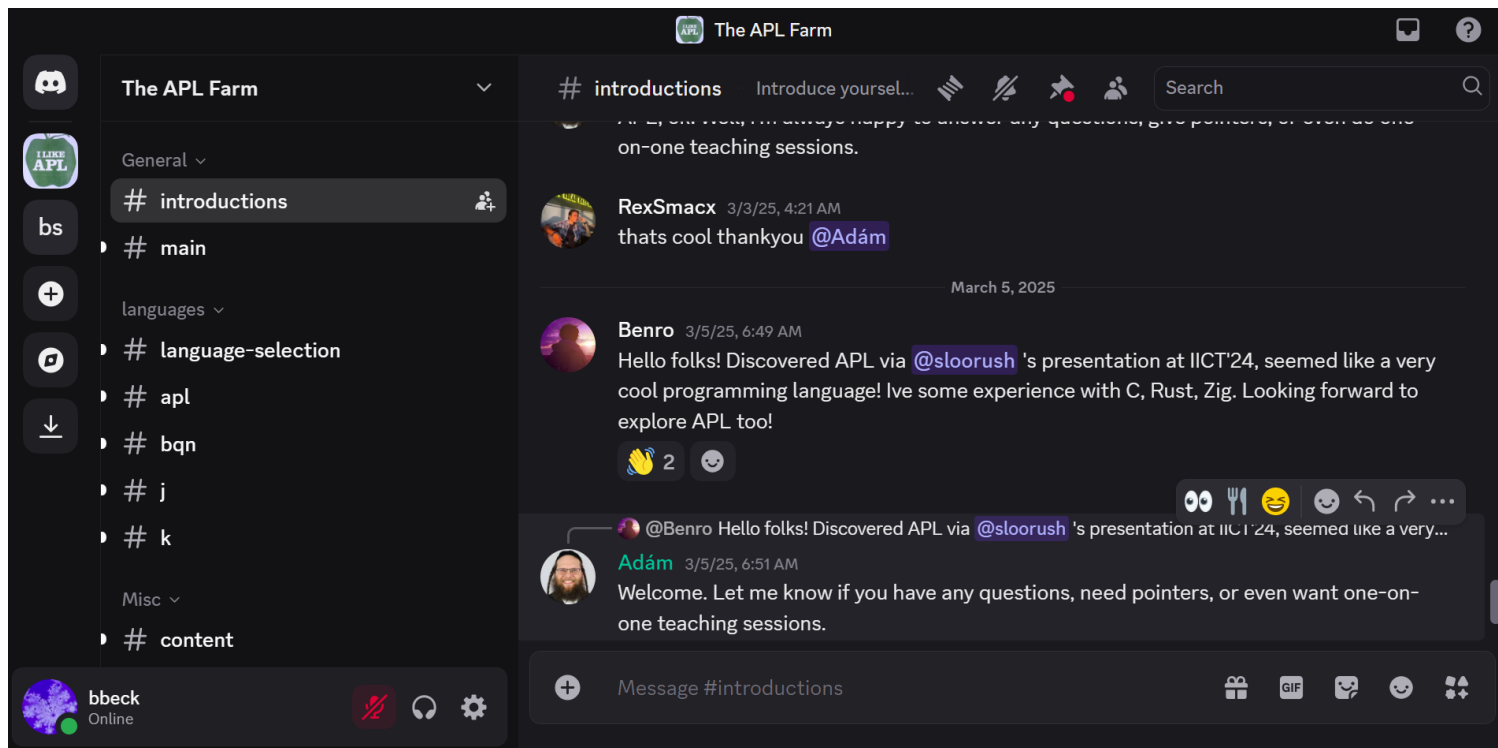
 not the room you are looking for?

There are other rooms, with 34 users currently talking in 24 rooms. [starred](#) / [show all 781](#)

- ★ It means `s[3]` needs to be replaced by `1000+1.1×s[3]` - [mar 28 at 9:54](#) by [Adam](#)
- ★ It will use a least squares fit if the system is over-specified, and error if the system either is under-specified or has no solution. - [feb 18 at 18:52](#) by [Adam](#)
- ★ `Range←{⊂IO←0 + (a n b)←⊂⊂VGET('from' 0)('step' 1)'to' + a+n×(n÷b-a)}` - [feb 4 at 21:32](#) by [Adam](#)
- ★ Hi everyone! Dyalog is applying for Google Summer of Code 2025 ([summerofcode.withgoogle.com](#)). It is a program to promote open source software devel... - [jan 31 at 10:26](#) by [sloorush](#)
- ★ (post APL code in separate messages and press Ctrl+k before posting; SE chat will visually merge your messages and format the code properly) - [dec 8 at 10:47](#) by [Adam](#)
- ★ TinyAPL 0.11.0.0 just released! The biggest addition are dictionaries, which are pretty interesting, but there's lots of other stuff. Like always t... - [nov 30 at 16:46](#) by [RubenVerg](#)
- ★ OK OK so I was being somewhat optimistic with my estimate of when we'd upload new images. However, it has finally happened, so you can download th... - [sep 3 at 14:26](#) by [AndyS](#)
- ★ 6 I should have called it AskAdam, then maybe people would remember! - [mar 13, 2023 at 6:16](#) by [Adam](#)
- ★ 2 I can't remember if I already mentioned that I moved omnibar to [omnibar.rubenverg.com](#) - [feb 14, 2024 at 11:10](#) by [RubenVerg](#)
- ★ 12 We need a free open source implementation of a rationalised APL, built from the ground up upon a modern environment. - [dec 17, 2020 at 21:09](#) by [Adam](#)


We're exploring improvements to chat and need your help! We'd appreciate your feedback in this quick, 2-minute survey [x](#)

The APL Farm (Discord)



APL Tutor

▼ 0. Introduction 1/7 ▼

The logo for 'APL Tutor' features the letters 'APL' in a large, orange, hand-drawn, sketchy font. Below 'APL', the word 'TUTOR' is written in a smaller, blue, rounded, hand-drawn font.

The objective of this course is simple: to teach you to use APL.

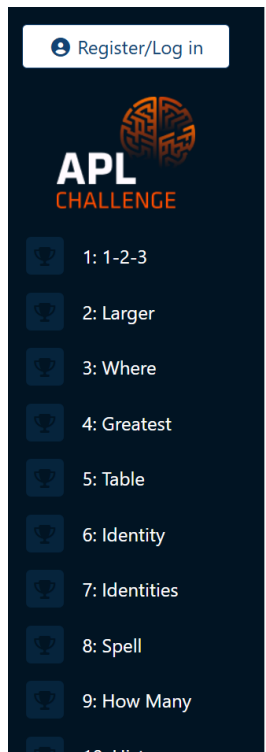
APL is the rebel of programming languages. It looks different; it feels different; it behaves differently; it requires you to think differently. It is different. Members of the data processing community tend to have strong feelings about APL. They love it or they hate it. People who love it, tend to make people who hate it, hate it even more. People who hate it, tend to make people who love it, arrogant. It's a vicious cycle.

Often, those who hate APL don't really understand it. Or, they understand it only enough to argue its weak points. Hopefully, this course will teach you enough about APL to love it or hate it intelligently. You may as well be a well-

[Watch Intro Video](#) [Try APL Now](#)

DYALOG

APL Challenge



Welcome to the APL Challenge!

The deadline for the current round (2025.1) is Wednesday 30 April 2025 at 09:00 UTC (in 23 days).


APL is a programming language that will change the way you think about solving problems. You don't need to know any APL or programming at all to participate in this challenge; the question texts will teach you everything you need to know to progress. To do this, we have kept what we teach very simple, even though APL is slightly more complicated than what we describe.

There are four rounds of the APL Challenge each year. You don't need to participate in an earlier round to participate in the current one. Each round has ten problems and runs for three months, after which [Dyalog Ltd](#) awards three USD 100 prizes. You don't have to answer every question, but your chance of winning increases as you answer more questions. A list of [winners of previous rounds](#) is available on the Dyalog website.

If you're interested but don't want to participate in this round, please register anyway (using the button at the top) so that we can notify you of updates and tell you about future rounds. You can ask us to stop sending you emails at any time.

Let's get started...

Use [TryAPL](#) to experiment and find your answer. You can write APL symbols by clicking on them in the language bar above the area where you write APL code.


Although you can begin without registering – most browsers will store your answers until you register – you must be [registered and logged in](#) to submit (send in) your answers. When you're happy with your answer, hit  Submit. The system will only allow you to submit correct answers.

Several problems include some data you need. You should be able to copy text that is written with `code letters like this` by clicking on it, but note that not all browsers allow this.

Next 

APL Forge

The 2025 round is open for submissions

 [About the APL Forge](#) [Previous Winners](#) [Submissions](#) [Ideas](#) [FAQs](#) [Contact Us](#) [SUBMIT YOUR PROJECT](#)

Welcome to the APL Forge

Shaping Tomorrow with APL

Do you have a problem and are looking for the right language in which to solve it? Do you have an idea for a library that you think other APL users might benefit from? Do you have an APL-based application that you want to share? The APL Forge is where we reward you for using Dyalog APL to solve problems and develop libraries, applications, and tools.

[MORE DETAILS](#)

ArrayPortal.com

Array Portal

arrayportal.com

Apps Link EWC METSIM APL Flying & Sailing Car Dyalog Cloud Travel Linux Sport Productivity Ferie 2022 All Bookmarks

About Array Portal **Search Everything** Training Discussion Videos & Podcasts Source Code Reference Journals & Blogs

game of life scholes Title filter Negate words

27 Items

- @abrudz (APL) 2022-11-22 Functional forms (The APL Show — Notation as a Tool of Thought ep. 3) ...; last talk : <https://dyalog.tv/Dyalog18/?v=y33XDD6ANT0> Game of...
- APL Wiki APL Wiki ... "Game of Life" John Scholes is famous for the following implementation of Conway's Game of Life :...
- APL Wiki Advanced examples - APL Wiki ..., statistics and geographic information systems John Scholes' Conway's Game of Life — implementing a cellular automaton Ranking poker...
- APL Wiki Conway's Game of Life - APL Wiki ...External links Conway's Game of Life John Scholes' famous video on YouTube John Scholes' notes , as part of...
- APL Wiki John Scholes - APL Wiki ...2009 , Scholes produced an explanatory video of his implementation of John Conway's "Game of Life"
- APL Wiki John Scholes' Conway's Game of Life - APL Wiki John Scholes' Conway's Game of Life - APL Wiki John Scholes' Conway's Game of Life - APL Wiki...
- APL Wiki Learning resources - APL Wiki ...deserves its renaissance too (on John Scholes' Conway's Game of Life) The APL Challenge Text courses APL...
- D-Functions Dyalog APL ... life @ John Conway's "Game of Life" lisp @ Evaluator for a...
- Discord (APL) 2024-05-17 2024-05-18 ...can do it in a similar way to scholes' game of life or the stencil variant of GoL. One more...
- Discord (APL) 2023-01-23 2023-01-23 ...someone ` ` versus every primitive in the Scholes' version , it would be at least a hard choice...
- Discord (APL) 2022-02-17 2022-02-17 ...I would like to include a version of game of life in J . However , as I don't...
- Discord (APL) 2022-01-23 2022-01-23 ...hui And another who's name I've forgotten Scholes ? No Inverses don't work with dfns anyway McDonnell...
- Discord (BQN) 2023-09-12 2023-09-13 2023 - 09 - 13 Suppose I want to make a game of life which is zero - padded ,...
- Discord (BQN) 2021-08-15 2021-08-16 ...about John Scholes' coding style , and whether comments should be aligned hence all the links to Scholes references and...
- Discord (BQN) 2021-04-13 2021-04-14 ...Scholes to explain how it works . rip in peace i meant a video - the apl game of life...
- Discord (K) 2021-12-09 2021-12-09 ...attention in the game of life . . which game of life ? the john scholes idea doesn't work...
- Discord (Main) 2021-04-10 2021-04-11 ...in 1997 . they're an invention of John Scholes I believe . J even predates control structures in APL...
- Discord (Off Topic) 2021-10-05 2021-10-06 ...to APL programming is to begin with John Scholes' Game of Life program , ponder for a while the ways...
- Dyalog Blog (APL) 2022-11-09 Welcome Silas Poulson ...'s Co - dfns and John Scholes' Game of Life demonstration in particular) - whilst attempting to...
- Fastidious Elegance (APL) 2017-05-04 An Interview about LambdaConf Workshop ...things like the John Scholes' YouTube videos on APL , such as " Game of Life in APL " or...
- Functional Geekery (APL) Functional Geekery Episode 65 - Morten Kromberg - Functional Geekery ...Conway ' s Game of Life in APL Interactive tutorial of Conway ' s Game of Life on Try APL...
- GitHub (APL) Dyalog/MiSites/DyNA15/life.dyalog ...of John Conway's "Game of Life" , courtesy of John Scholes V Init @ Initialize pattern and...

The screenshot shows a web browser window with the URL `arrayportal.com`. The page features a navigation bar with links like 'About ArrayPortal', 'Search Everything', 'Training', 'Discussion', 'Videos & Podcasts', 'Source Code', 'Reference', and 'Journals & Blogs'. A search bar at the top left contains the text 'game of life'. Below the search bar, a list of search results is visible, including entries from APL Wiki, Discord, and Dyalog Blog. A large, semi-transparent text box is overlaid on the center of the page, containing the following text:

ArrayPortal.com is a full-text (including code) searchable view of most of the web-based array language resources. It currently indexes nearly 200,000 pages from dozens of sites that cover primarily APL and J, and provides search results with snippets and navigation to the underlying pages.

It's also under active development (Alpha) and hence unreliable; it's been released to allow for broad, rapid feedback during construction.

Please send comments as well as requests for the inclusion of additional material to Ed Gottsman.

edward.j.gottsman@gmail.com

On the right side of the search results, a sidebar shows '27 Items' and a snippet of text: 'anking poker...'. At the bottom of the search results, a snippet from GitHub is visible: 'Dyalog/MiSites/DyNA15/life.dyalog ...of John Conway's "Game of Life", courtesy of John Scholes V Init initialize pattern and...'.

Evangelism

- ❖ LambdaConf
- ❖ Functional Conf
- ❖ PLDI

☆ The Landscape of Formal Verification in APL: a Review with a Case Study in Quantum Computing

Building dependable and reliable software remains a major challenge in today's world: we sit at the brink of an explosion in the amount and complexity of computer programs. Increasingly intricate and interconnected software systems, the dramatic rise and availability of GPU resources, the prospect of quantum computing at relevant scales of practical utility and the growing role LLMs in program writing make ensuring reliability, security and reproducibility hard. Formal verification becomes foundational to tame that complexity; its effectiveness is modulated by available programming language constructs and their corresponding logic properties. In this manuscript, we present evidence suggesting that APL provides a viable solution to the problem of constructing dependable software through formal verification of programs. As a very high-level language (VHLL) with strong research precedents in formal verification, its abstractions correspond to algorithms readily specifiable in Hoare logic. We provide a general review of formal verification, as well as a literature review of direct and indirect connections to formal verification in APL. Using recent work in APL for quantum computing, we describe a workflow-driven methodology to verify quantum programs from the perspective of correctness, safety and liveness. Finally we discuss opportunities and open questions in formal verification with APL. Our observations suggest that, similar to how machine learning methods became viable once the enabling hardware and software context reached a sufficient state of maturity, formally verified APL software may be ready for prime time: APL and other array languages can –and likely will– play a larger role to shape the landscape of future software.

REMOTE

📎 File Attached



Santiago Núñez-Corrales

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University of Illinois Urbana-Champaign





LambdaConf, 7 May 2024

Generic Glyphs Different Domains

Josh David

Dyalog



NumPy vs APL



@MaxCan-Code "Max Sun APL"



Living the Loopless Life

Aaron W. Hsu arcfide@sacrideo.us

LambdaConf 2024, Estes Park, CO

URLS in this Presentation

The APL Wiki	https://aplwiki.com
APLCart	https://aplcart.info
YouTube	https://www.youtube.com/results?search_query=apl+language
GitHub	https://github.com/search?q=apl%20language&type=repositories
Hacker News	https://hn.algolia.com/?q=APL
The APL Orchard	https://chat.stackexchange.com/rooms/52405/the-apl-orchard
The APL Farm	https://discord.com/channels/821509511977762827/821509990287540285
APL Tutor	https://tutorial.dyalog.com/ (updated version coming)
APL Challenge	https://challenge.dyalog.com/
APL Forge	https://forge.dyalog.com/
Array Portal	https://www.arrayportal.com/

You can help...

- ◆ Contribute to the APLWiki
- ◆ Publish code
- ◆ Like and comment on videos and presentations
- ◆ Speak, Talk, Ask

Save the dates!

- Fall DYNA will be a 2-day event on September 29th & 30th
- Venue to be determined


https://dyna.dyalog.com


DYNA Fall 2025
29-30 September 2025

On 29–30 September 2025, Dyalog will be hosting a 2–day DYNA User Meeting.

This will be a more in–depth look into the Dyalog ecosystem.

Register for updates below.





Get Updates