# APL: A different Programming Language

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M. Liarmakopoulos

APL + 1 <sup>-</sup>2 3 BCN + 110 APL & BCN 1 0 1

## Who

- Michail, Μιχάλης, Mike, Μάηκ
- Greek living in Barcelona
- Physics & Mathematics background
- Data Engineer @ Webhelp ES
- Cat father
- Avid reader









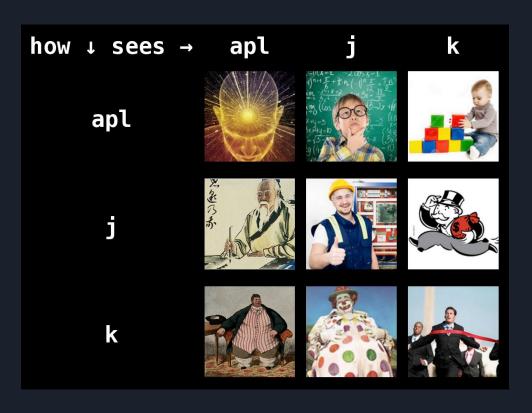






## This talk

- 1. APL ∈ BCN
  - a. Goals
  - b. Meetups
  - c. Online/IRL
- 2. APL
  - a. Past
  - b. Present
  - c. Future
- 3. Live coding
- 4. Questions ???
- 5. References
- 6. Thanks





#### APL ∈ BCN: Goals

- 1. Spreading knowledge of APL and the array family of programming languages.
- 2. Spreading knowledge about Ken Iverson and other people involved in the development of APL.
- 3. Sharing knowledge related to the intersection of mathematics and programming.
- 4. Fostering a friendly community of people interested in array programming.

## APL ∈ BCN: Meetups

- 1. General meetups (online & IRL)
- 2. Historical APL paper reading group (online)
- 3. General (paper, book) reading group (online)

## APL ∈ BCN: Online/IRL

#### Reasons for online meets:

- Covid19
- Accessibility of group's activities from all over Spain/Europe/globe

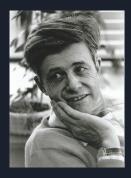
#### Reasons for IRL meets:

- Vision to establish a strong APLjk community in Spain based in Barcelona.
- Cervezas, tapas/pinxos, chupitos!





#### APL: Past



- K. E. Iverson, A. Falkoff, "A Programming Language", 1957-1962.
- IBM System/360, 1964.
- I. P. Sharp Associates (1964-2005), STSC (1969-2003).
- APL2, 1980s.
- Dyalog APL, 1981 today.
- A. Whitney, "A", 1985; "A+", 1988.
- K. E. Iverson, R. Hui, "J", 1990, E. K. Iverson.
- A. Whitney, "K", 1992 today.







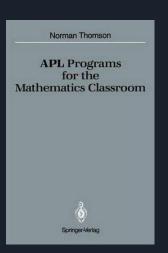
#### **APL: Past**



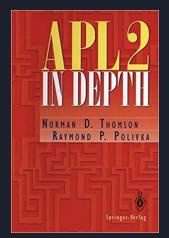
Undergraduate Texts in Mathematics

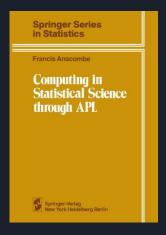
E. J. LeCuyer
Introduction to
College Mathematics
with A Programming
Language

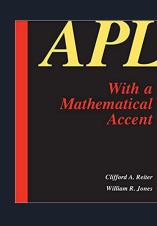
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Springer-Verlag New York- Heidelberg - Berlin

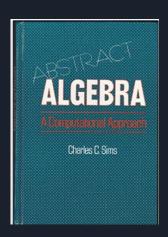












## APL: Past



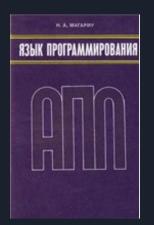


APPRENDRE ET APPLIQUER LE LANGAGE

préface de Ph. ARRAMS



















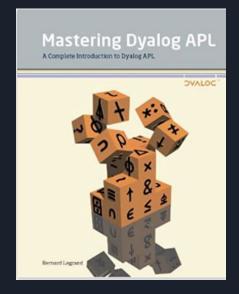


#### **APL: Present**



Introduction to Dyalog APL: https://xpqz.github.io/learnapl jupyter-notebook dyalog apl

- Dyalog APL v.18.0, v.18.2 (beta)
- J, v.902, v.903 (beta)
- K, v.9 "Shakti" / 2020
- GNU APL v.1.8
- **BQN 2021**
- dzaima/APL v.0.1.7 / 2020-05-13
- Nial v.7.0 / January 2017
- KAP 2021
- NARS2000 v.0.5 / 2019
- NGN APL v.2018



**Discord Community server** 

apl.chat

r/apljk

tryapl.org

**Dyaloq** <u>APL</u> vocab.

<u>arraycast</u>

#### **APL: Future**

Co-dfns

<u>Dyalog</u> <u>APL</u>

<u>Jsoft.</u>

- Co-dfns
- Dyalog APL
- .
- K
- BQN
- Other array languages
- APL competitions
- APL conferences
- APL user groups
- Web development with APL
- Py'n'APL
- Computational science with APL
- Teaching mathematics with APL/J
- Machine learning with APL
- ???

<u>Kx</u>

<u>BQN</u>

Array langs

APL compet.

Conf.

<u>User</u> groups

Web apps

Py'n'APL

<u>Cha07</u>

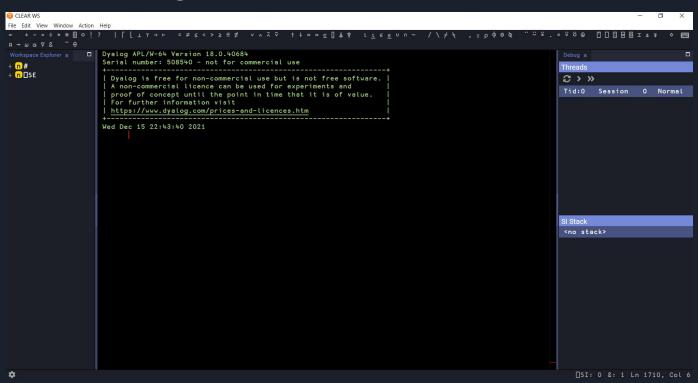
<u>APL, J</u>

<u>ANNs</u>

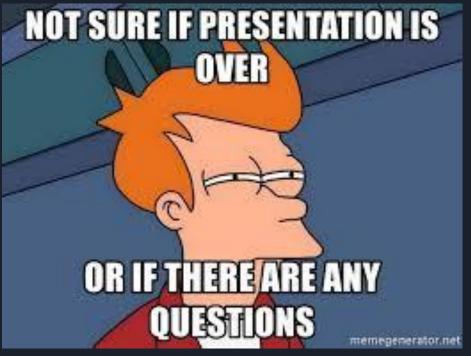
???

 $APL \in BCN$ 

# Live Coding



## Questions ???







## References(1/2)

- 1. <a href="https://mlliarm.github.io/apl-in-bcn/">https://mlliarm.github.io/apl-in-bcn/</a> (user group's page, lots of useful material)
- 2. Portal: apl.wiki
- 3. Try APL on your browser: tryapl.org
- 4. <a href="https://en.wikipedia.org/wiki/APL">https://en.wikipedia.org/wiki/APL</a> (programming language)
- 5. <a href="https://aplwiki.com/wiki/Ken Iverson">https://aplwiki.com/wiki/Ken Iverson</a>
- 6. <a href="https://dblp.org/pid/75/296.html">https://dblp.org/pid/75/296.html</a> (Ken's publications)
- 7. <a href="https://aplwiki.com/wiki/Roger Hui">https://aplwiki.com/wiki/Roger Hui</a>
- 8. <a href="https://dblp.org/pid/54/3627.html">https://dblp.org/pid/54/3627.html</a> (Roger's publications)
- 9. <a href="https://code.jsoftware.com/wiki/Community/Creative Commons">https://code.jsoftware.com/wiki/Community/Creative Commons</a> (Various APL papers)
- 10. <a href="https://www.afapl.asso.fr/topo.pdf">https://www.afapl.asso.fr/topo.pdf</a> ("Le langage APL au service de la physique", C. Chachaty 2007)
- 11. <a href="https://tinyurl.com/chachaty-qm">https://tinyurl.com/chachaty-qm</a> ("Une application d'apl en mecanique quantique : les niveaux d'energie d'un systeme de spins electroniques et nucleaires", C. Chachaty 1996)
- 12. <a href="https://tinyurl.com/chachaty-diffeq">https://tinyurl.com/chachaty-diffeq</a> ("Quelques fonctions apl simples pour la resolution numerique des equations et systemes differentiels", C. Chachaty)
- 13. <a href="http://www.softwarepreservation.org/projects/apl/Books/Physics%20in%20APL2/view">http://www.softwarepreservation.org/projects/apl/Books/Physics%20in%20APL2/view</a> (Greg. Chaitin, Mathematical Physics with APL2)

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- 15. K. E. Iverson, Introducing APL to teachers, 1972
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- 17. R. K.W. Hui, M. J. Kromberg, <u>APL Since 1978</u>, 2020
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- 22. <a href="https://en.wikipedia.org/wiki/File:APL">https://en.wikipedia.org/wiki/File:APL</a> developers.jpg
- 23. <a href="https://en.wikipedia.org/wiki/APL">https://en.wikipedia.org/wiki/APL</a> (programming language)#History
- 24. <a href="https://aplwiki.com/wiki/J">https://aplwiki.com/wiki/J</a>
- 25. <a href="https://www.jsoftware.com/papers/tot.htm">https://www.jsoftware.com/papers/tot.htm</a>
- 26. <a href="https://en.wikipedia.org/wiki/J">https://en.wikipedia.org/wiki/J</a> (programming language)
- 27. <a href="https://en.wikipedia.org/wiki/l">https://en.wikipedia.org/wiki/l</a>. P. Sharp Associates
- 28. <a href="https://en.wikipedia.org/wiki/Scientific Time Sharing Corporation">https://en.wikipedia.org/wiki/Scientific Time Sharing Corporation</a>,
- 29. <a href="https://aplwiki.com/wiki/K">https://aplwiki.com/wiki/K</a>
- 30. <a href="https://en.wikipedia.org/wiki/Arthur Whitney">https://en.wikipedia.org/wiki/Arthur Whitney</a> (computer scientist)
- 31. <a href="https://en.wikipedia.org/wiki/Roger Hui">https://en.wikipedia.org/wiki/Roger Hui</a>

#### Thanks

- Adám Brudzewsky (<u>Dyalog Ltd.</u>)
- Conor Hoekstra (@code report)
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