

# J: A modern math-oriented APL

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M. Liarmakopoulos

```
APL ← 1 2 3
BCN ← 10
APL ∈ BCN

1 0 1
```



# This talk

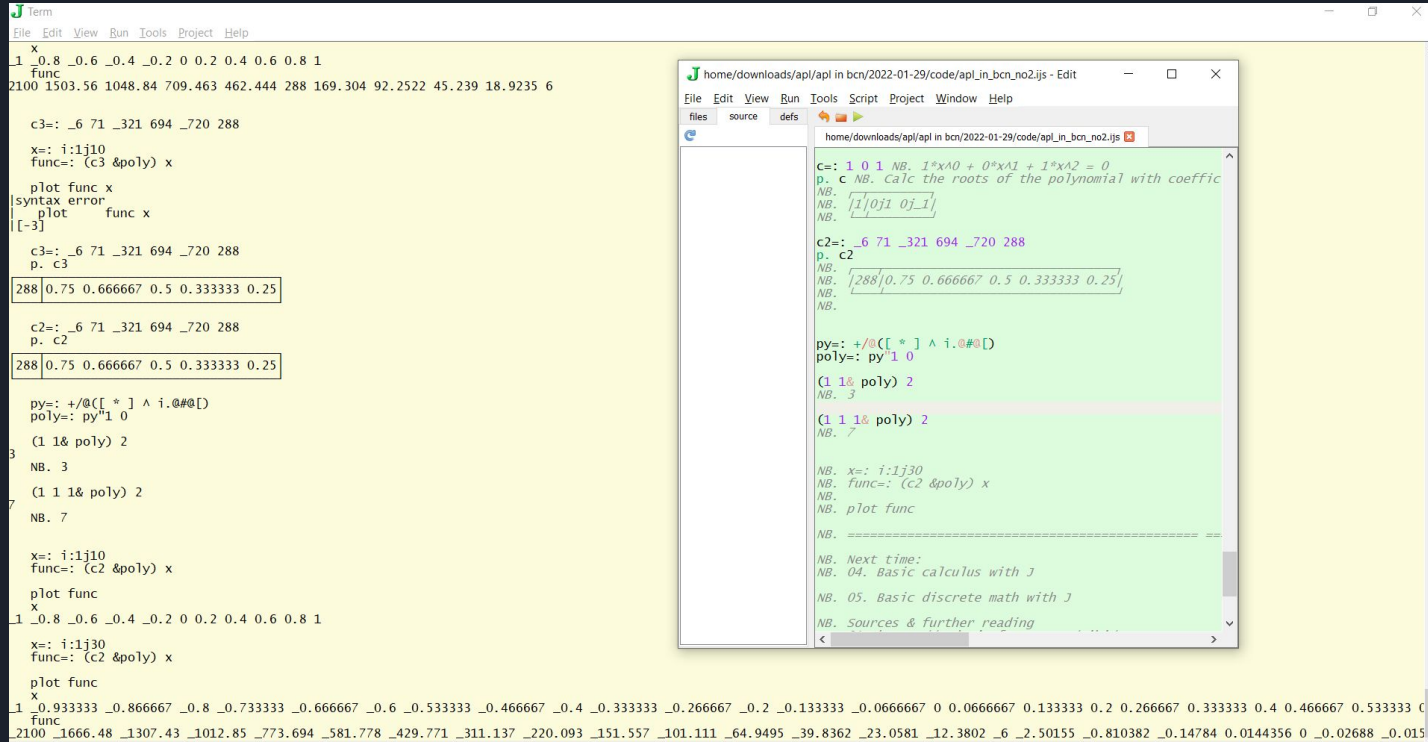
1. History
2. Live coding
3. Questions ???
4. References
5. Thanks



# 1. History

- 1990
- Arthur Whitney  
<http://www.jsoftware.com/jwiki/Essays/Incunabulum>
- Expanded Incunabulum:  
<https://gist.github.com/mlliarm/a59bb723552e4a1ab646fd321cbc58cb>
- Roger & Ken
- Eric
- JSoftware team & Community:  
<https://github.com/jsoftware/jsource>

## 2. Live coding



The image shows a live coding session with two windows. The left window is a Jupyter Notebook titled 'home/downloads/apl/apl in bcn/2022-01-29/code/apl\_in\_bcn\_no2.jjs - Edit'. It contains a Jupyter cell with the following code:

```
1 x
  _0.8 _0.6 _0.4 _0.2 0 0.2 0.4 0.6 0.8 1
func
2100 1503.56 1048.84 709.463 462.444 288 169.304 92.2522 45.239 18.9235 6

c3=: _6 71 _321 694 _720 288
x=: i:lj10
func=: (c3 &poly) x

plot func x
|syntax error
|plot func x
|[-3]

c3=: _6 71 _321 694 _720 288
p. c3

288|0.75 0.666667 0.5 0.333333 0.25

c2=: _6 71 _321 694 _720 288
p. c2

288|0.75 0.666667 0.5 0.333333 0.25

py=: +/0([ * ] ^ i.@#0[])
poly=: py^1 0

(1 1& poly) 2
NB. 3

(1 1 1& poly) 2
NB. 7

x=: i:lj10
func=: (c2 &poly) x

plot func
x
1 _0.8 _0.6 _0.4 _0.2 0 0.2 0.4 0.6 0.8 1
x
func
2100 _1666.48 _1307.43 _1012.85 _773.694 _581.778 _429.771 _311.137 _220.093 _151.557 _101.111 _64.9495 _39.8362 _23.0581 _12.3802 _6 _2.50155 _0.810382 _0.14784 0.0144356 0 _0.02688 _0.015
```

The right window is a terminal window titled 'home/downloads/apl/apl in bcn/2022-01-29/code/apl\_in\_bcn\_no2.jjs - Edit'. It shows the output of the Jupyter cell, including the polynomial coefficients and the plot of the function.

```
C=: 1 0 1 NB. 1*x^0 + 0*x^1 + 1*x^2 = 0
p. c NB. Calc the roots of the polynomial with coeff
NB.
NB. 1|0j1 0j-1|
NB.

c2=: _6 71 _321 694 _720 288
p. c2
NB.
NB. 288|0.75 0.666667 0.5 0.333333 0.25|
NB.
NB.

py=: +/0([ * ] ^ i.@#0[])
poly=: py^1 0
(1 1& poly) 2
NB. 3
(1 1 1& poly) 2
NB. 7
NB. x=: i:lj10
NB. func=: (c2 &poly) x
NB. plot func
NB.
NB. =====
NB. Next time:
NB. 04. Basic calculus with J
NB. 05. Basic discrete math with J
NB. Sources & further reading
```

Questions ???





## 4. References

- Devon McCormick's, [Minimal Beginner J](#)
- <https://code.jsoftware.com/wiki/Studio/Gallery>
- <https://code.jsoftware.com/wiki/Studio/Viewmat>
- <https://code.jsoftware.com/wiki/Plot>
- <https://code.jsoftware.com/wiki/Plot/Examples>
- <https://code.jsoftware.com/wiki/Plot/Contrib>
- [https://code.jsoftware.com/wiki/Books#Exploring Math](https://code.jsoftware.com/wiki/Books#Exploring_Math)
- JPrimer, by Eric: <https://www.jsoftware.com/help/primer/contents.htm>
- An Implementation of J, by Roger: <https://www.jsoftware.com/ioj/ioj.htm>
- New vocabulary: <https://code.jsoftware.com/wiki/NuVoc>



## 5. Thanks

- All the very friendly and welcoming [APLjk community](#).
- Bob
- Devon
- You for joining.