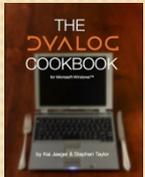
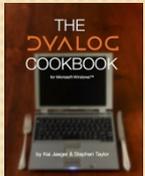


Cooking with Dyalog



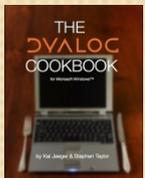
Kai Jaeger & Stephen Taylor, Dyalog 16

“Stefano, what has computer science yet to learn from APL?”



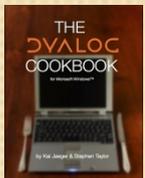
Kai Jaeger & Stephen Taylor, Dyalog 16

“Nothing.”



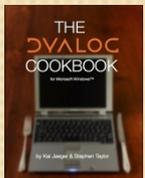
Kai Jaeger & Stephen Taylor, Dyalog 16

“But it’s the best language for a programmer who wants to make a million dollars”



Dyalog applications

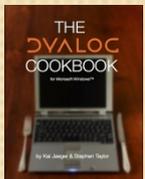
- make financial plans
- evaluate mortgage portfolios
- mature pension policies
- estimate pension-fund liabilities
- match DNA
- ... and enrich their authors



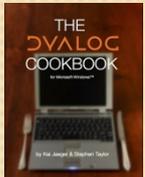
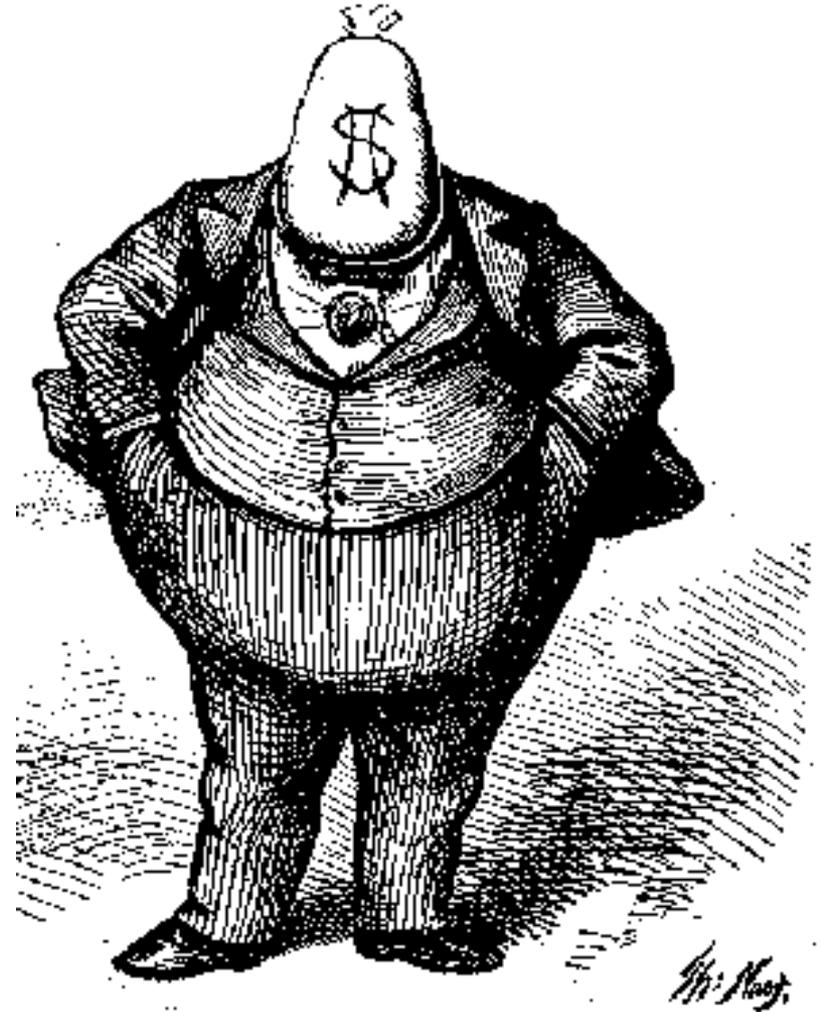
How do we get from here...



Kai Jaeger & Stephen Taylor, Dyalog 16



... to here?



Kai Jaeger & Stephen Taylor, Dyalog 16



I. Learn an analytical skill

```

∇PG19APLPF[ ]∇
[ 0] PG19APLPF;A S T B
[ 1] B←'550555 -555,555,551.00'
[ 2] S←(T←LEDGER[;1]←' ')∕LEDGER
[ 3] A←(∼T)∕LEDGER
[ 4] 'Report P: Account Balances Less Than $2.00'
[ 5] ' '
[ 6] T←A[;3]<2
[ 7] (T∕A[;1]),B∇T∕A[;2 3]
[ 8] 2 1ρ' '
[ 9] 'Report Q: Accounts Overdrawn More than $100.00'
[10] ' '
[11] T←A[;3]<∼100
[12] (T∕A[;1]),B∇T∕A[;2 3]
[13] 2 1ρ' '
[14] 'Report R: Accounts with Balances over $1000.00'
[15] ' '
[16] (A[;3]>1000)∕A[;1,2]
[17] 2 1ρ' '
[18] 'Report S: Unassigned Account Numbers'
[19] ' '
[20] ' ',S[;2]

```

Figure 4. Ledger Calculations Using Picture Formatting

2. Write programs that help you



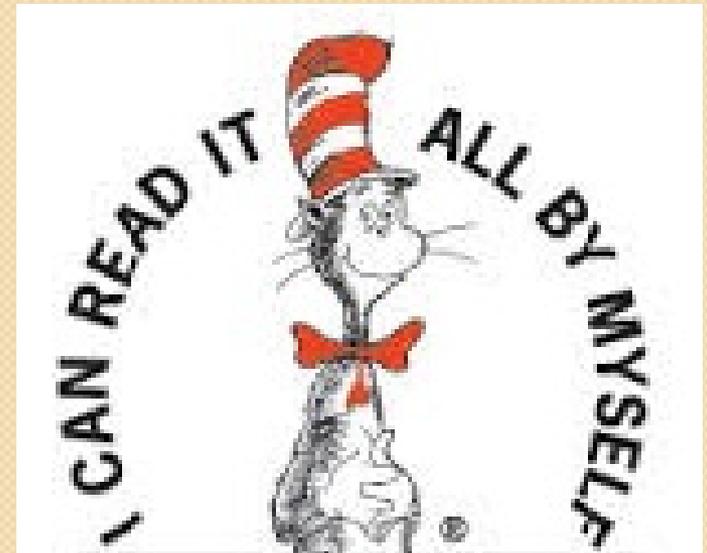
```

∇PG19APLPF[□]∇
[ 0] PG19APLPF;A S T B
[ 1] B←'550555 -555,555,551.00'
[ 2] S←(T←LEDGER[;1]←' ')∕LEDGER
[ 3] A←(∼T)∕LEDGER
[ 4] 'Report P: Account Balances Less Than $2.00'
[ 5] ' '
[ 6] T←A[;3]<2
[ 7] (T∕A[;1]),B∕T∕A[;2 3]
[ 8] 2 1ρ' '
[ 9] 'Report Q: Accounts Overdrawn More than $100.00'
[10] ' '
[11] T←A[;3]<∼100
[12] (T∕A[;1]),B∕T∕A[;2 3]
[13] 2 1ρ' '
[14] 'Report R: Accounts with Balances over $1000.00'
[15] ' '
[16] (A[;3]>1000)∕A[;1,2]
[17] 2 1ρ' '
[18] 'Report S: Unassigned Account Numbers'
[19] ' '
[20] ' ',S[;2]

```

Figure 4. Ledger Calculations Using Picture Formatting

2. Write programs that help you





3. Package them for others to use

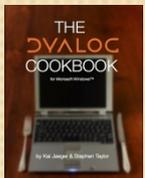
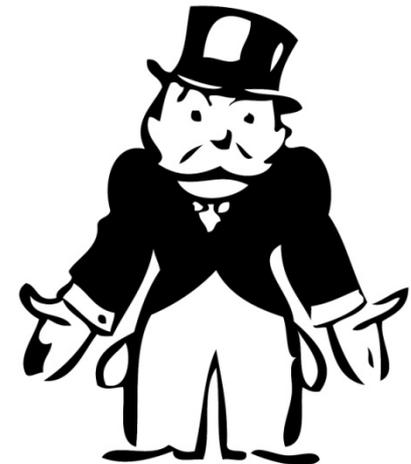




**4. License them to
your competitors**

The Four-Step Programme

- Acquire an analytical skill
- Write programs you can use
- **Package them for others to use**
- License them to your competitors

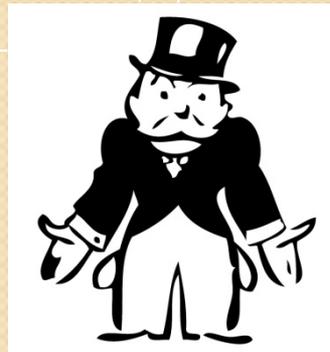


My lovely code

```
∇PG19APLPF[ ]∇
[ 0] PG19APLPF;A S T B
[ 1] B+ '550555 -555,555,551.00'
[ 2] S←(T←LEDGER[;1]← ' ')∕LEDGER
[ 3] A←(∼T)∕LEDGER
[ 4] 'Report P: Account Balances Less Than $2.00'
[ 5] ' '
[ 6] T+A[;3]<2
[ 7] (T/A[;1]),B∕T∕A[;2 3]
[ 8] 2 1ρ' '
[ 9] 'Report Q: Accounts Overdrawn More than $100.00'
[10] ' '
[11] T+A[;3]< -100
[12] (T/A[;1]),B∕T∕A[;2 3]
[13] 2 1ρ' '
[14] 'Report R: Accounts with Balances over $1000.00'
[15] ' '
[16] (A[;3]>1000)∕A[;1,2]
[17] 2 1ρ' '
[18] 'Report S: Unassigned Account Numbers'
[19] ' '
[20] ' ' ,S[;2]
```

Figure 4. Ledger Calculations Using Picture Formatting

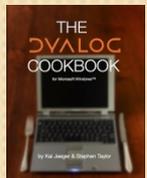
Slick techie stuff



THE DIALOG COOKBOOK

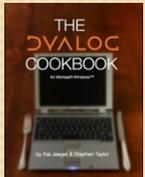
for Microsoft Windows™

by Kai Jaeger & Stephen Taylor



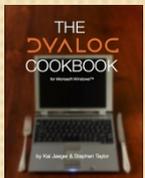
Kai Jaeger & Stephen Taylor, Dyalog 16

What goes in the pot?

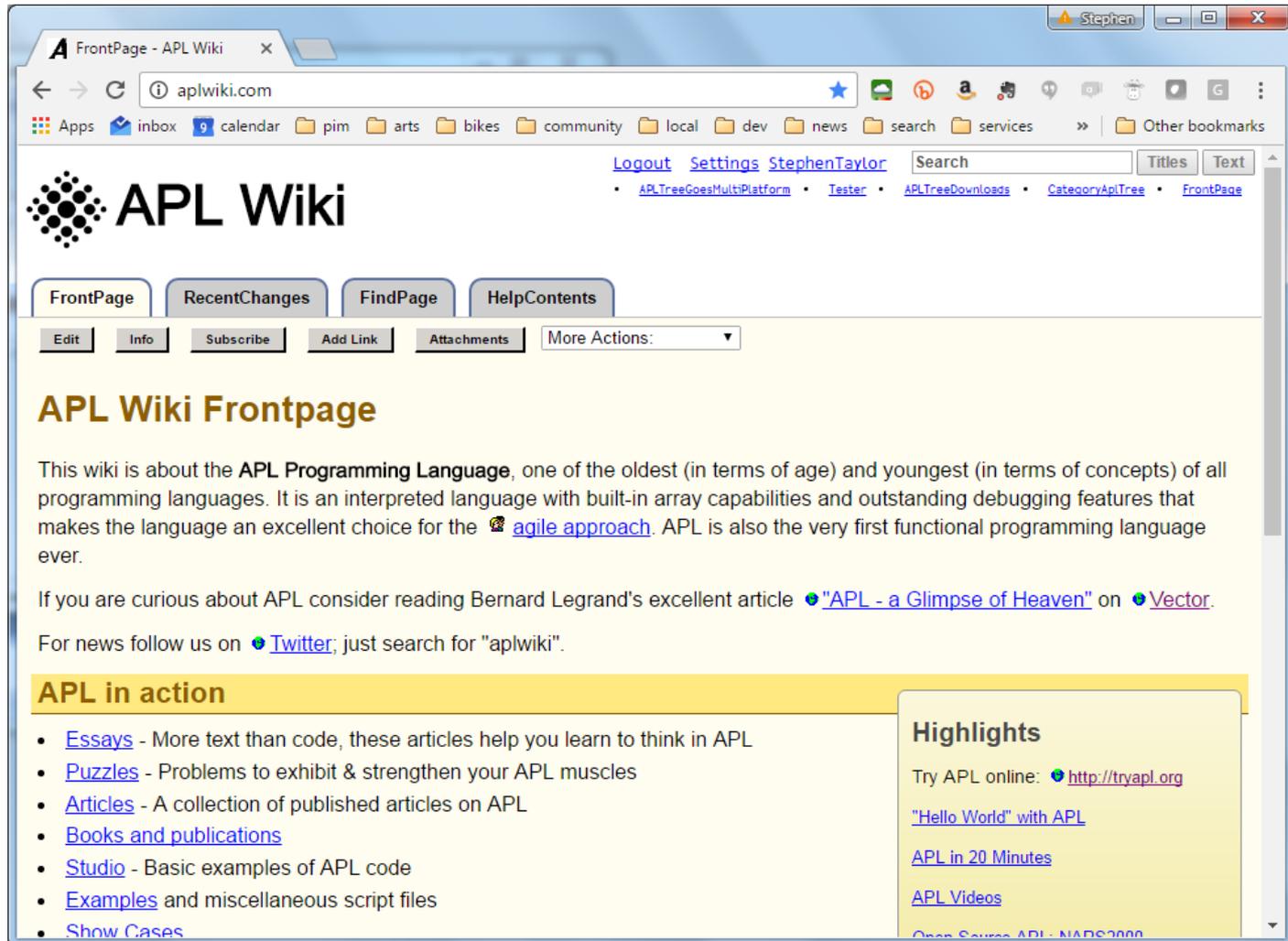


What goes in the pot?

- Workspace structure
- Packaging an EXE
- Logging events
- Handling errors
- Configuration settings
- Test suites
- Build scripts
- Storing data
- Documentation
- User interfaces
- Help subsystem
- Installer
- Interprocess communications
- Managing source code
- ...



What goes in the pot?



The screenshot shows a web browser window titled "FrontPage - APL Wiki" with the URL "aplwiki.com". The browser's address bar and tabs are visible. The page content includes the APL Wiki logo, navigation links like "Logout", "Settings", and "StephenTaylor", and a search bar. Below the logo are tabs for "FrontPage", "RecentChanges", "FindPage", and "HelpContents". A row of action buttons includes "Edit", "Info", "Subscribe", "Add Link", "Attachments", and "More Actions". The main heading is "APL Wiki Frontpage". The text below describes APL as one of the oldest and youngest programming languages, an interpreted language with array capabilities, and the first functional programming language. It mentions Bernard Legrand's article "APL - a Glimpse of Heaven" on Vector and suggests following the page on Twitter. A yellow banner titled "APL in action" contains a list of links: "Essays", "Puzzles", "Articles", "Books and publications", "Studio", "Examples", and "Show Cases". A sidebar titled "Highlights" lists "Try APL online" with a link to "http://tryapl.org", "Hello World" with APL, "APL in 20 Minutes", "APL Videos", and "Open Source APL: NARS2000".

FrontPage - APL Wiki

aplwiki.com

Logout Settings StephenTaylor

APL Wiki

FrontPage RecentChanges FindPage HelpContents

Edit Info Subscribe Add Link Attachments More Actions:

APL Wiki Frontpage

This wiki is about the **APL Programming Language**, one of the oldest (in terms of age) and youngest (in terms of concepts) of all programming languages. It is an interpreted language with built-in array capabilities and outstanding debugging features that makes the language an excellent choice for the  [agile approach](#). APL is also the very first functional programming language ever.

If you are curious about APL consider reading Bernard Legrand's excellent article ["APL - a Glimpse of Heaven"](#) on [Vector](#).

For news follow us on [Twitter](#); just search for "aplwiki".

APL in action

- [Essays](#) - More text than code, these articles help you learn to think in APL
- [Puzzles](#) - Problems to exhibit & strengthen your APL muscles
- [Articles](#) - A collection of published articles on APL
- [Books and publications](#)
- [Studio](#) - Basic examples of APL code
- [Examples](#) and miscellaneous script files
- [Show Cases](#)

Highlights

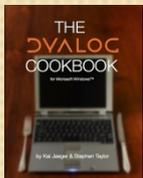
Try APL online: <http://tryapl.org>

["Hello World" with APL](#)

[APL in 20 Minutes](#)

[APL Videos](#)

[Open Source APL: NARS2000](#)



What goes in the pot?

CategoryApiTree - APL V x

aplwiki.com/CategoryApiTree

Logout Settings StephenTaylor Search Titles Text

APL Wiki

FrontPage RecentChanges FindPage HelpContents CategoryApiTree

Edit Info Subscribe Add Link Attachments More Actions:

The APLTree project: APL tools and utility library

(Hide table-of-contents)

All downloads are available at <http://download.aplwiki.com>

Platform dependency

Until August 2016 the APLTree project was pretty much a Windows-only project. That has changed now.

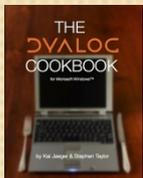
[Show](#) the details

Overview

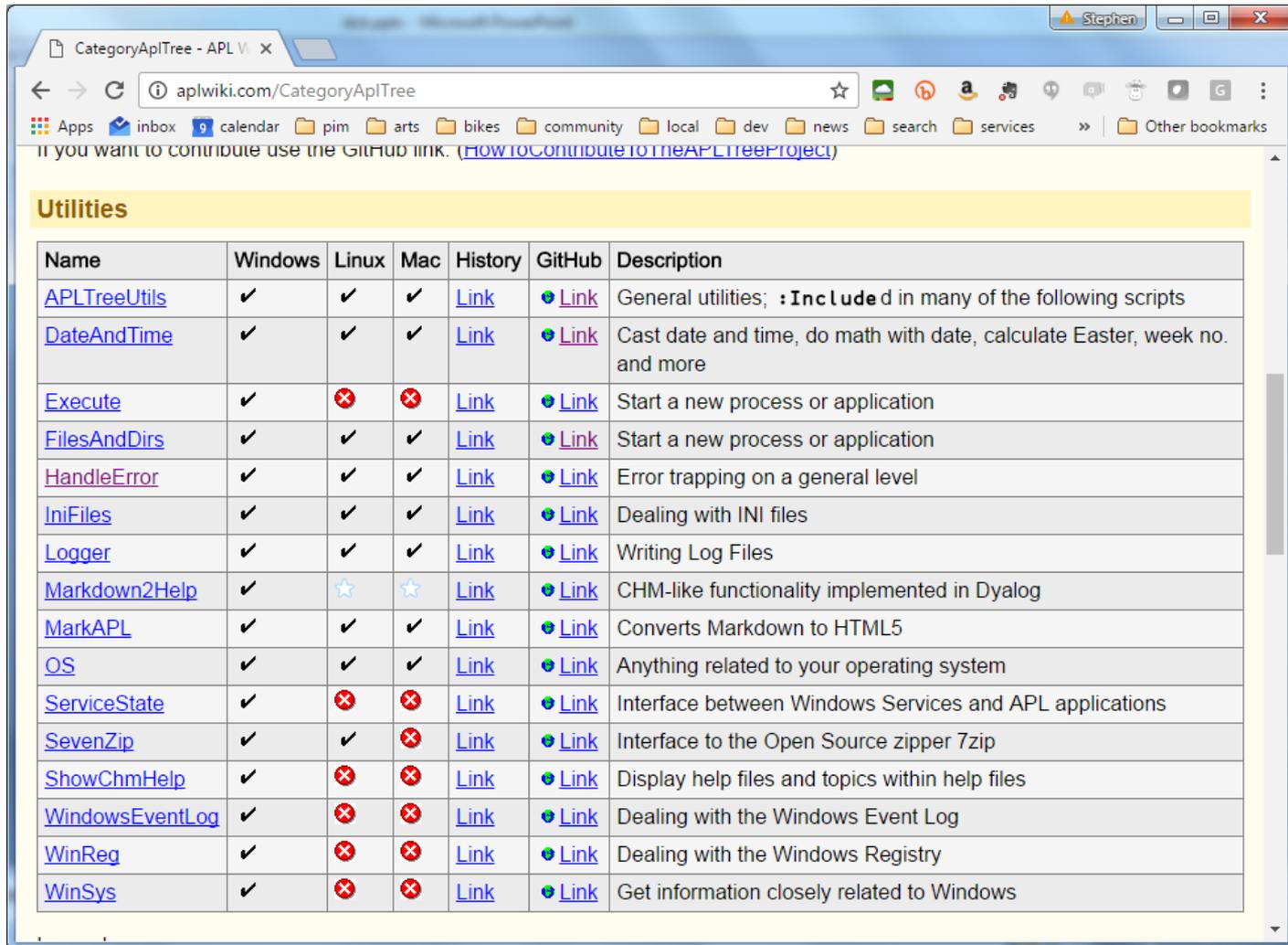
- **APLTree** is supposed to offer scripts (class scripts and namespace scripts) as well as full-blown applications for every-day-problems programmers typically come across.
- **APLTree** is an Open Source project - see [APLTreeLicensing](#) for details.
- Sub-projects of **APLTree** should follow certain suggestions - see [APLTreeSuggestions](#) for details.

Contents

1. [The APLTree project: APL tools and utility library](#)
 1. [Platform dependency](#)
 2. [Overview](#)
 1. [Utilities](#)
 2. [Tools](#)
 3. [Suspended projects](#)
 4. [APLTree downloads](#)
 1. [Using an APLTree member](#)
 2. [Contributing](#)
 3. [Get the full project](#)
 4. [Create a new APLTree sub project](#)



What goes in the pot?



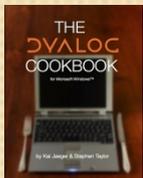
CategoryApITree - APL V x

aplwiki.com/CategoryApITree

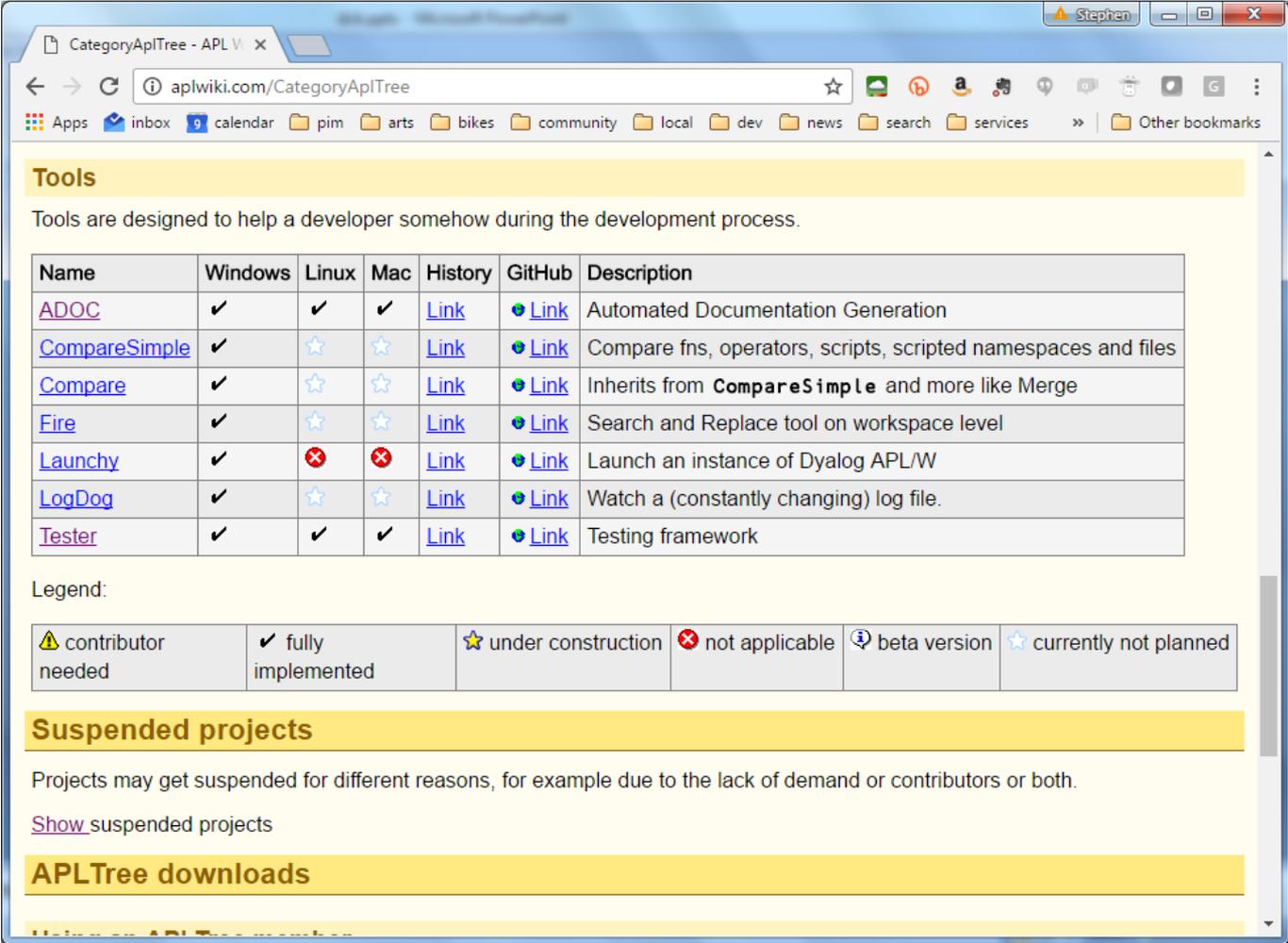
if you want to contribute use the GitHub link. ([HOW TO CONTRIBUTE TO THE APL TREE PROJECT](#))

Utilities

Name	Windows	Linux	Mac	History	GitHub	Description
APLTreeUtils	✓	✓	✓	Link	Link	General utilities; :Included in many of the following scripts
DateAndTime	✓	✓	✓	Link	Link	Cast date and time, do math with date, calculate Easter, week no. and more
Execute	✓	✗	✗	Link	Link	Start a new process or application
FilesAndDirs	✓	✓	✓	Link	Link	Start a new process or application
HandleError	✓	✓	✓	Link	Link	Error trapping on a general level
IniFiles	✓	✓	✓	Link	Link	Dealing with INI files
Logger	✓	✓	✓	Link	Link	Writing Log Files
Markdown2Help	✓	★	★	Link	Link	CHM-like functionality implemented in Dyalog
MarkAPL	✓	✓	✓	Link	Link	Converts Markdown to HTML5
OS	✓	✓	✓	Link	Link	Anything related to your operating system
ServiceState	✓	✗	✗	Link	Link	Interface between Windows Services and APL applications
SevenZip	✓	✓	✗	Link	Link	Interface to the Open Source zipper 7zip
ShowChmHelp	✓	✗	✗	Link	Link	Display help files and topics within help files
WindowsEventLog	✓	✗	✗	Link	Link	Dealing with the Windows Event Log
WinReg	✓	✗	✗	Link	Link	Dealing with the Windows Registry
WinSys	✓	✗	✗	Link	Link	Get information closely related to Windows



What goes in the pot?



Tools

Tools are designed to help a developer somehow during the development process.

Name	Windows	Linux	Mac	History	GitHub	Description
ADOC	✓	✓	✓	Link	Link	Automated Documentation Generation
CompareSimple	✓	☆	☆	Link	Link	Compare fns, operators, scripts, scripted namespaces and files
Compare	✓	☆	☆	Link	Link	Inherits from CompareSimple and more like Merge
Fire	✓	☆	☆	Link	Link	Search and Replace tool on workspace level
Launchy	✓	✗	✗	Link	Link	Launch an instance of Dyalog APL/W
LogDog	✓	☆	☆	Link	Link	Watch a (constantly changing) log file.
Tester	✓	✓	✓	Link	Link	Testing framework

Legend:

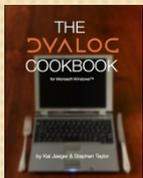
⚠ contributor needed	✓ fully implemented	☆ under construction	✗ not applicable	ℹ beta version	☆ currently not planned
----------------------	---------------------	----------------------	------------------	----------------	-------------------------

Suspended projects

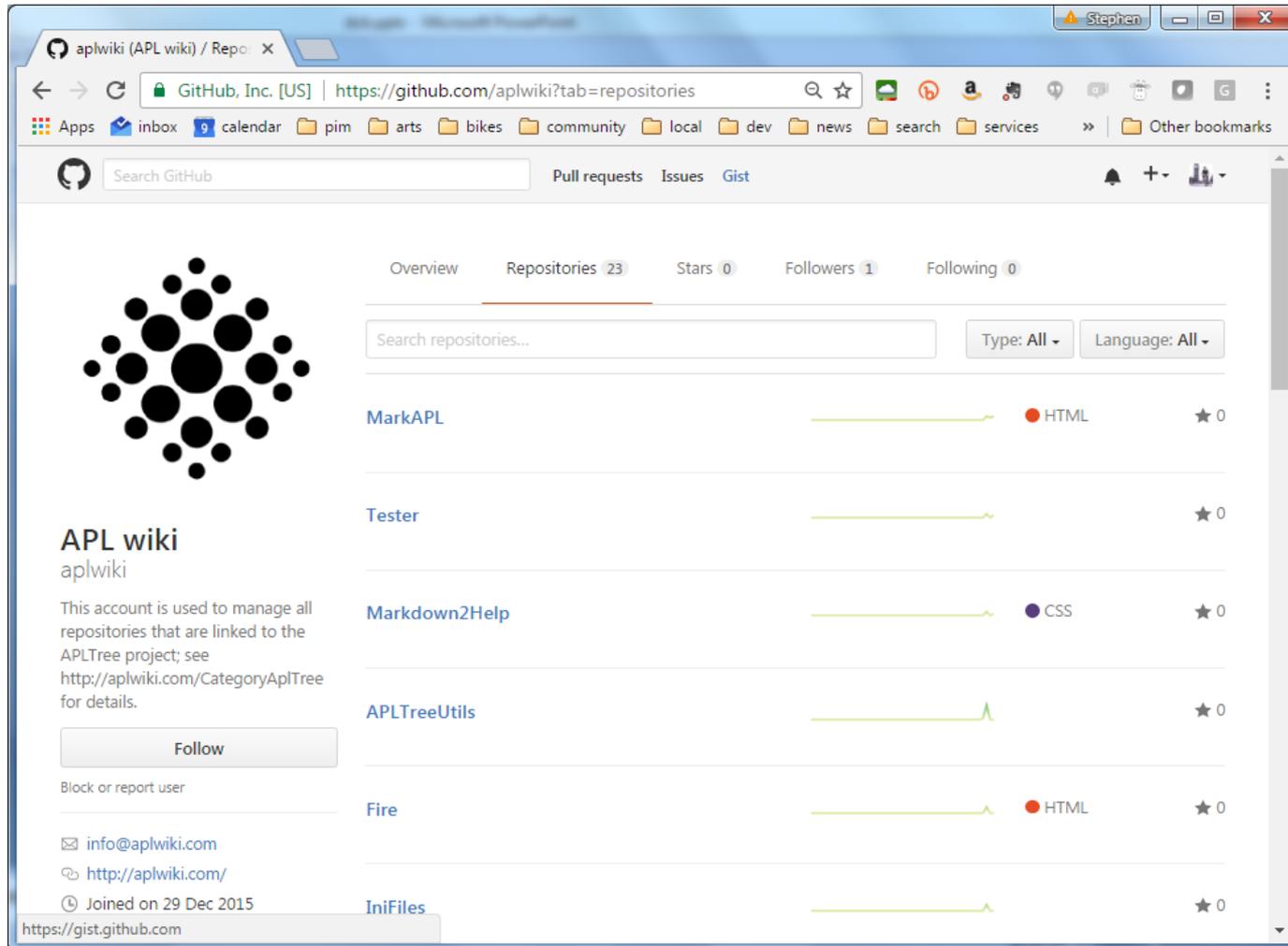
Projects may get suspended for different reasons, for example due to the lack of demand or contributors or both.

[Show](#) suspended projects

APLTree downloads

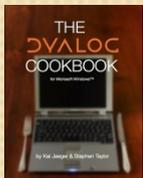


What goes in the pot?

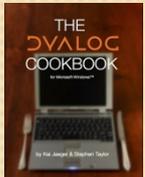


The screenshot shows a web browser window displaying the GitHub profile for 'aplwiki'. The browser's address bar shows the URL 'https://github.com/aplwiki?tab=repositories'. The page features a search bar, navigation links for 'Pull requests', 'Issues', and 'Gist', and a profile summary with 'Overview', 'Repositories 23', 'Stars 0', 'Followers 1', and 'Following 0'. A list of repositories is shown, including 'MarkAPL', 'Tester', 'Markdown2Help', 'APLTreeUtils', 'Fire', and 'IniFiles', each with a progress bar and star count.

Repository Name	Language	Stars
MarkAPL	HTML	0
Tester		0
Markdown2Help	CSS	0
APLTreeUtils		0
Fire	HTML	0
IniFiles		0

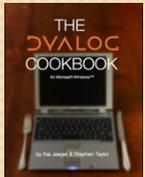
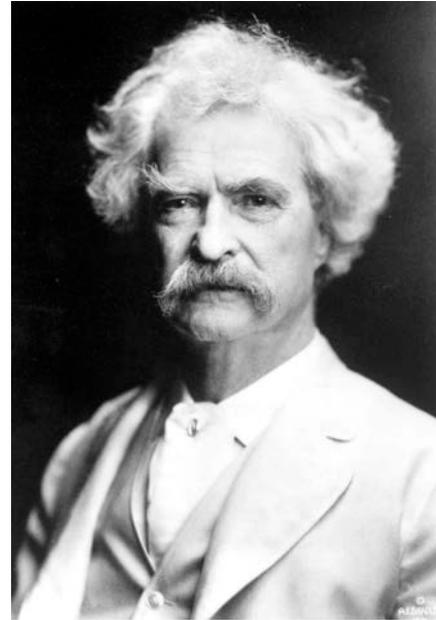


Whose cooking?



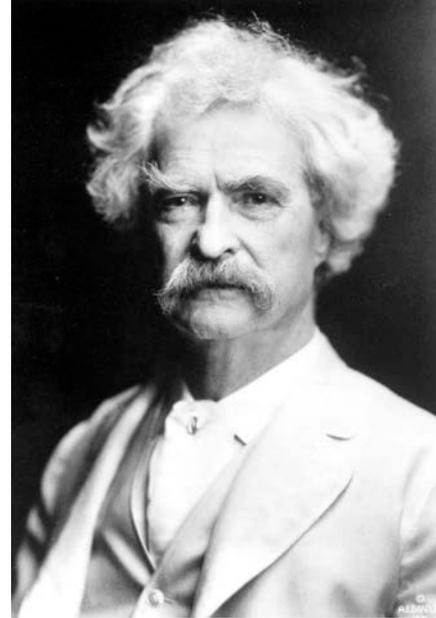
Kai Jaeger & Stephen Taylor, Dyalog 16

Credentials

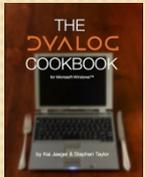


Kai Jaeger & Stephen Taylor, Dyalog 16

Credentials

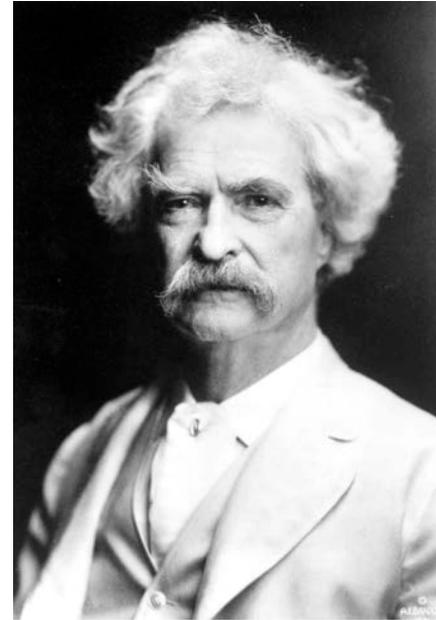


“Between us we encompass all human knowledge.”



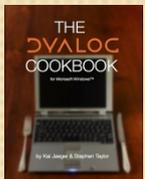
Kai Jaeger & Stephen Taylor, Dyalog 16

All human knowledge

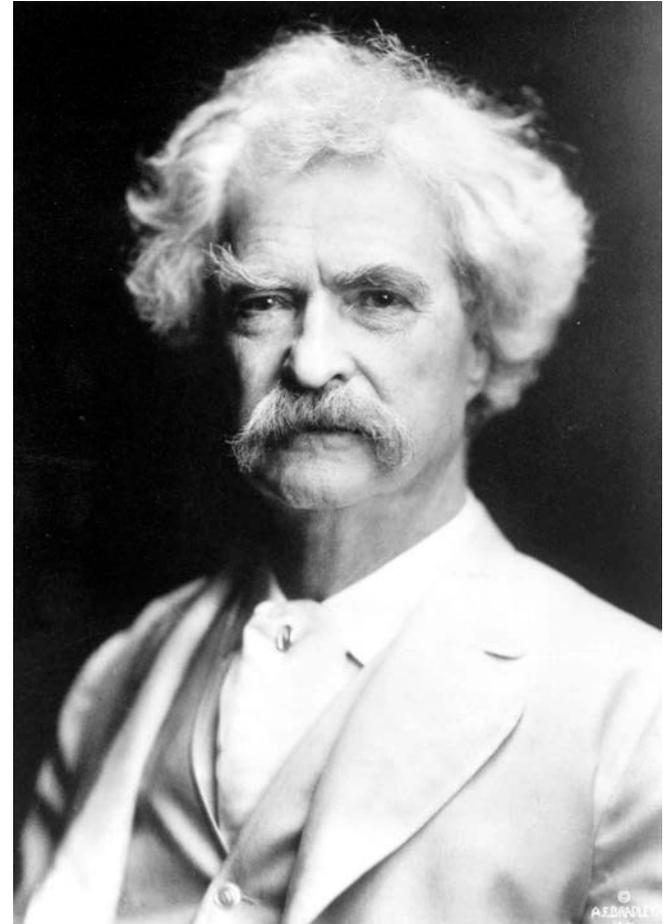


“Mr Wells knows everything that can be known.”

Kai Jaeger & Stephen Taylor, Dyalog 16

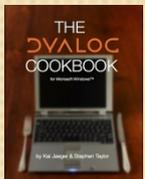


All human knowledge



“And I know the rest.”

Kai Jaeger & Stephen Taylor, Dyalog 16



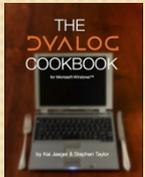
THE DIALOG COOKBOOK

for Microsoft Windows™

by Kai Jaeger & Stephen Taylor

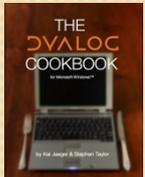
Good as that is...

You know other solutions



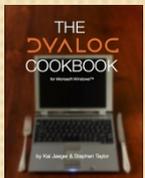
Kai Jaeger & Stephen Taylor, Dyalog 16

Doubtless better ones



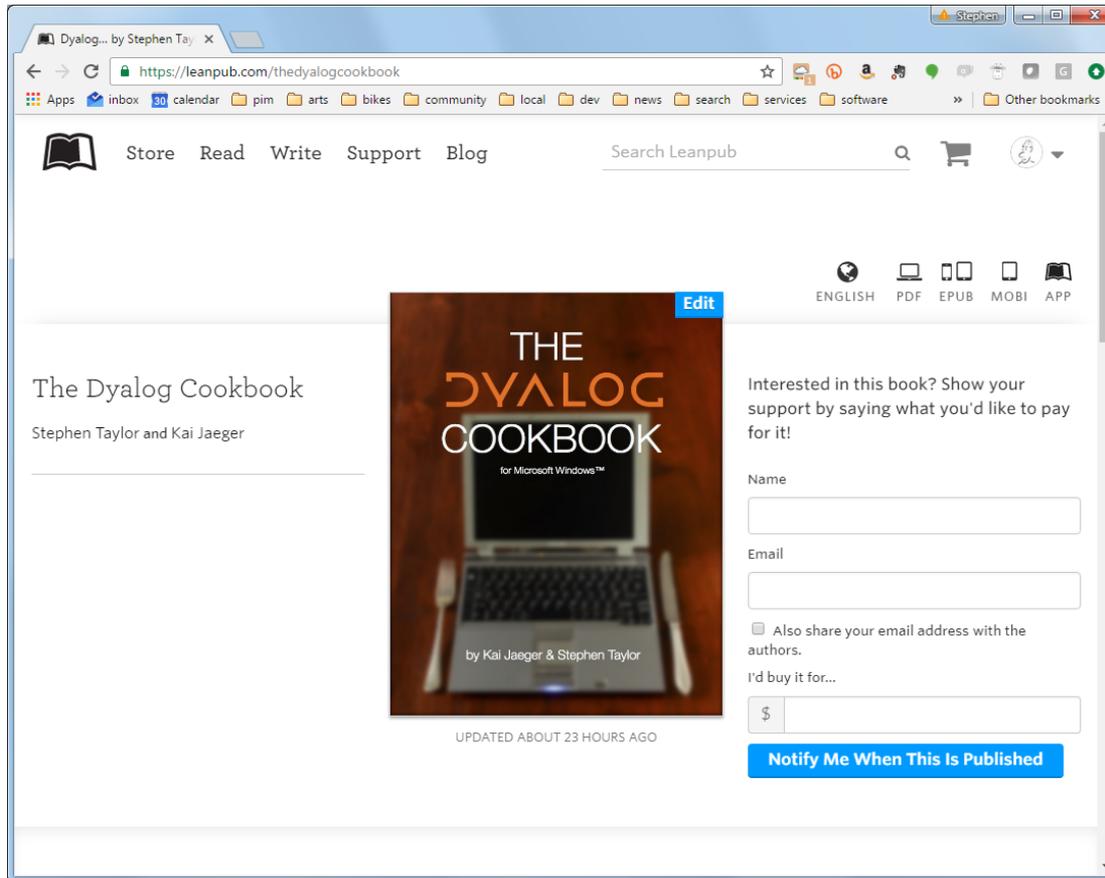
Kai Jaeger & Stephen Taylor, Dyalog 16

We know you'll contribute

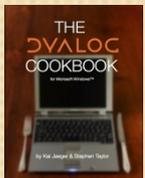


Kai Jaeger & Stephen Taylor, Dyalog 16

A Leanpub book

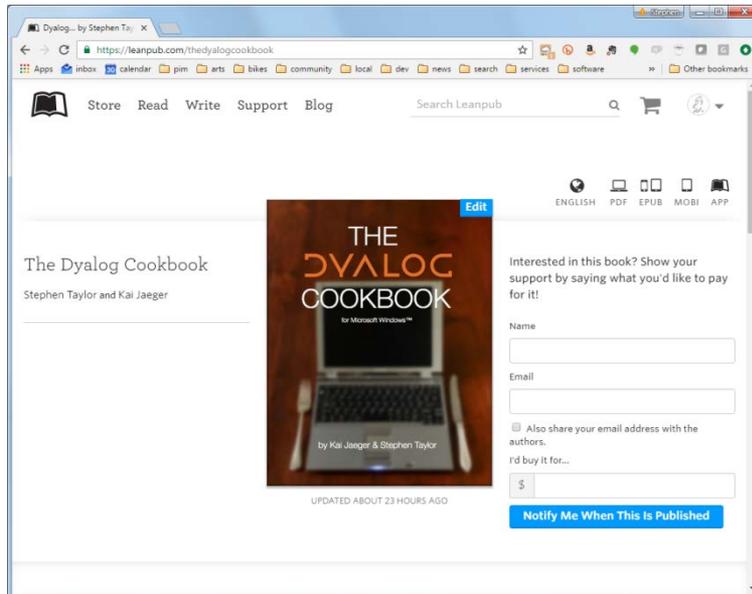


The screenshot shows a web browser window displaying the Leanpub page for 'The Dyalog Cookbook'. The browser's address bar shows the URL <https://leanpub.com/thedyalogcookbook>. The page features a navigation menu with 'Store', 'Read', 'Write', 'Support', and 'Blog', along with a search bar and icons for a shopping cart and user profile. Below the navigation, there are icons for different file formats: ENGLISH, PDF, EPUB, MOBI, and APP. The main content area displays the book cover for 'THE DYALOG COOKBOOK for Microsoft Windows™' by Kai Jaeger & Stephen Taylor. The cover features a laptop with a fork and knife on either side. To the right of the cover is a form for users to show their support by indicating what they'd like to pay for the book. The form includes fields for Name, Email, a checkbox for sharing the email address with the authors, and a field for the price. A blue button labeled 'Notify Me When This is Published' is located below the price field. The text 'UPDATED ABOUT 23 HOURS AGO' is visible below the book cover.

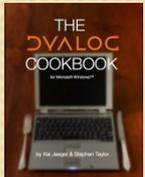


Kai Jaeger & Stephen Taylor, Dyalog 16

A Leanpub book



leanpub.com/thedyalogcookbook



Kai Jaeger & Stephen Taylor, Dyalog 16

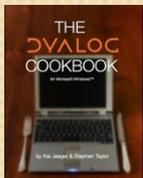
Written in Markdown



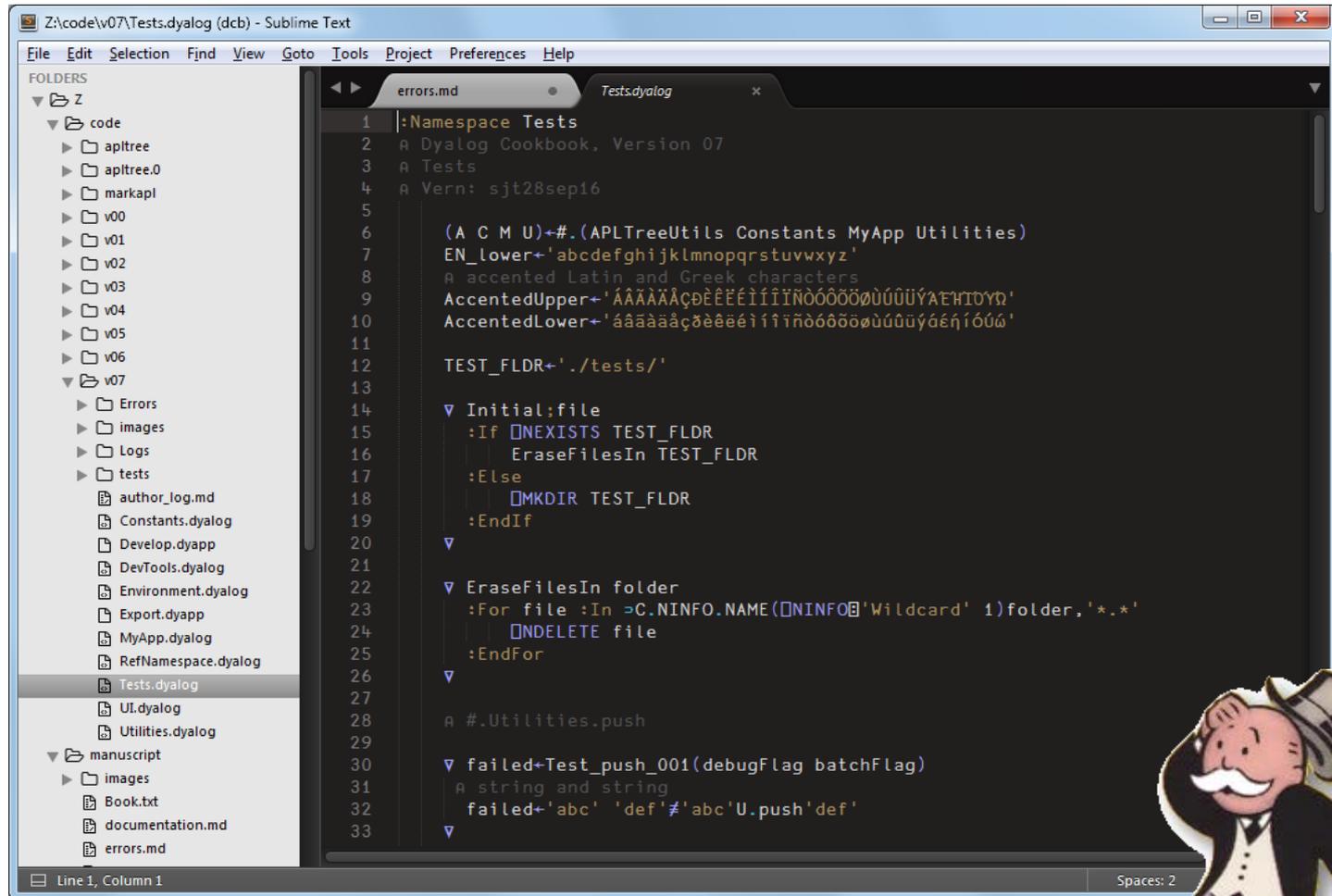
```
Z:\manuscript\errors.md • (dcb) - Sublime Text
File Edit Selection Find View Goto Tools Project Preferences Help
FOLDERS
  Z
  code
  manuscript
  images
  Book.txt
  documentation.md
  errors.md
  frontmatter.txt
  intro.md
  logging.md
  mainmatter.txt
  makeme.md
  packaging.md
  part 1 chapters.md
  Part 1.md
  part 2 chapters.md
  Part 2.md
  settings.md
  structure.md
  testing.md
  ui.md
  texts
  versions
  .dropbox
  .gitignore
  dcb.sublime-project
  dcb.zip
  README.md
  gui

errors.md
128 (txt enc nl)+[NGET i>files
129 tbl;+CountLetters txt
130 :Else
131 exit+LogError 'UNABLE_TO_READ_SOURCE'
132 :EndTrap
133 :Until (#files)<i+i+1
134 :If exit=EXIT.OK
135 lines+{α,',',φω}/>{α(+/ω)}目/[+1]tbl
136 :Trap 0
137 bytes+(lines ec nl)[NPUT tgt C.NPUT.OVERWRITE
138 :Else
139 exit+LogError'UNABLE_TO_WRITE_TARGET'
140 bytes+0
141 :EndTrap
142 Log.Log(φbytes),' bytes written to ',tgt
143 :Endif
144
145
146
147 In this context the :Trap structure has an advantage over [NTRAP. When it
fires, and control advances to its :Else fork, the trap is immediately
cleared. So there is no need explicitly to reset the trap to avoid an open
loop.
148
149 The handling of error codes and messages can easily obscure the rest of the
logic. Clarity is not always easy to find, but is well worth working for. This
is particularly true where there is no convenient test for an error, only a
trap for when it is encountered.
```

Line 104, Column 82 Spaces: 2 Markdown GFM



... and in Dyalog scripts



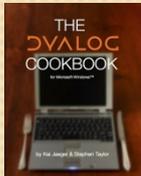
```
File Edit Selection Find View Goto Tools Project Preferences Help
FOLDERS
▼ Z
  code
    apmtree
    apmtree.0
    markapl
    v00
    v01
    v02
    v03
    v04
    v05
    v06
    v07
      Errors
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        author_log.md
        Constants.dyalog
        Develop.dyapp
        DevTools.dyalog
        Environment.dyalog
        Export.dyapp
        MyApp.dyalog
        RefNamespace.dyalog
        Tests.dyalog
        UL.dyalog
        Utilities.dyalog
      manuscript
        images
        Book.txt
        documentation.md
        errors.md
  manuscript
    images
    Book.txt
    documentation.md
    errors.md

errors.md
Tests.dyalog
1 |:Namespace Tests
2 |A Dyalog Cookbook, Version 07
3 |A Tests
4 |A Vern: sjt28sep16
5
6 | (A C M U)+#. (APLTreeUtils Constants MyApp Utilities)
7 | EN_lower+ 'abcdefghijklmnopqrstuvwxyz'
8 | A accented Latin and Greek characters
9 | AccentedUpper+ 'ÁÀÃÄÅÇÈÉÊËÌÍÎÏÑÒÓÔÕÖÙÚÛÜÝÀÈ'HOYR'
10 | AccentedLower+ 'áàãäåçèéêëìíîïñòóôõöùúûüýàé'íóú'
11
12 | TEST_FLDR+ './tests/'
13
14 | ▾ Initial:file
15 |   :If [NEXISTS TEST_FLDR
16 |     EraseFilesIn TEST_FLDR
17 |   :Else
18 |     [MKDIR TEST_FLDR
19 |   :EndIf
20 | ▾
21 | ▾ EraseFilesIn folder
22 |   :For file :In =>C.NINFORM.INFO[ 'Wildcard' 1] folder, '*.*'
23 |     [DELETE file
24 |   :EndFor
25 | ▾
26 | ▾
27 | A #.Utilities.push
28
29 | ▾ failed+Test_push_001(debugFlag batchFlag)
30 |   A string and string
31 |   failed+ 'abc' 'def' ≠ 'abc'U.push'def'
32 |
33 | ▾

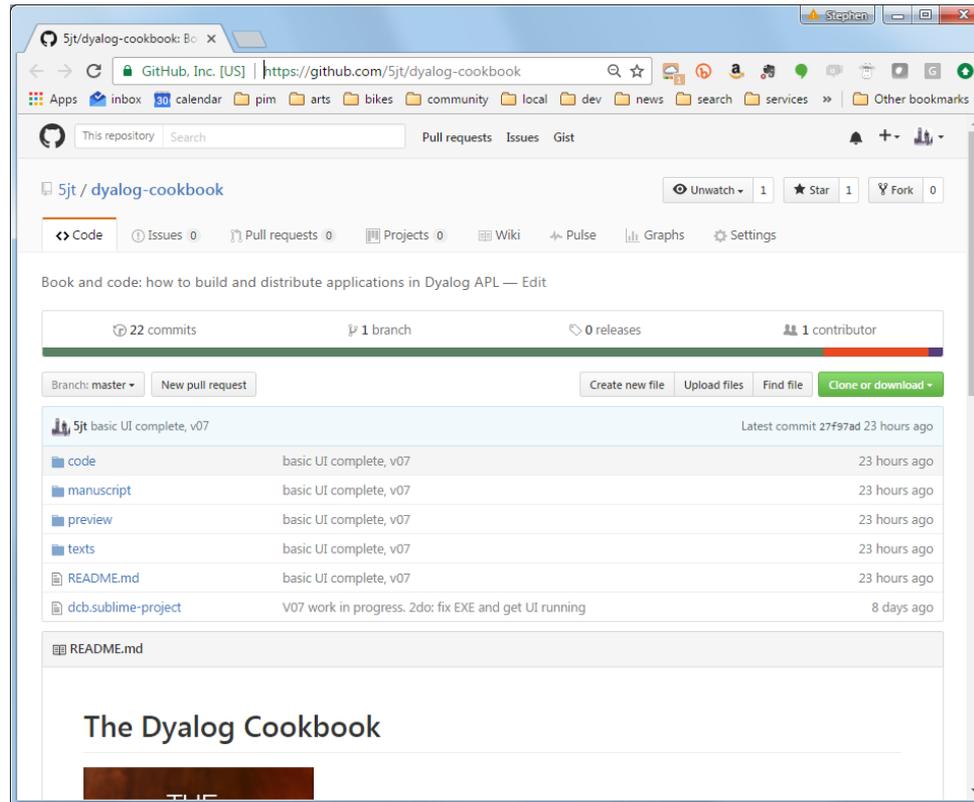
Line 1, Column 1 Spaces: 2
```



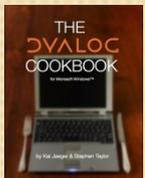
Kai Jaeger & Stephen Taylor, Dyalog 16



Collaborate through GitHub



github.com/5jt/dyalog-cookbook



Kai Jaeger & Stephen Taylor, Dyalog 16

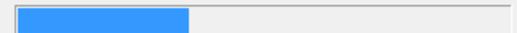
THE DIALOG COOKBOOK

for Microsoft Windows™

by Kai Jaeger & Stephen Taylor

Example progress bar

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#cookbook at theaplroom.slack.com

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