Two roads diverged in a wood

MATLAB search path

CS112 Scientific Computation
Department of Computer Science
Wellesley College

MATLAB name evaluation

When MATLAB evaluates a name, it follows a set of *precedence rules:*

1) variable in current workspace?
2) built-in MATLAB function?
3) if name is in an M-file, is it a subfunction in this file?
4) M-file in the current directory?
5) M-file in a directory on the MATLAB search path?
6) otherwise, error:

??? Undefined function or variable…

Buggy code

```
% analyzeData.m
load depthData.mat
mean = mean(depthData)
stdDev = std(depthData)
depthData = depthData(depthData > (mean - 3*stdDev))
mean = mean(depthData)
```

```
>> analyzeData
mean =
  9.9737e+003
stdDev =
  275.5549
??? Subscript indices must either be real positive integers or logicals
Error in ==> analyzeData at 6
mean = mean(depthData)
```

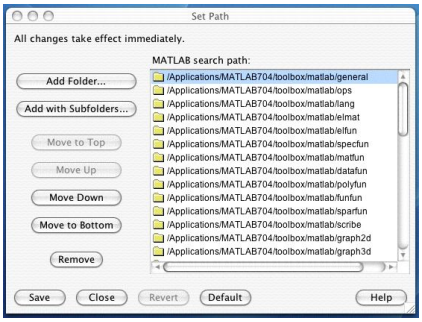
3

MATLAB search path

The initial search path is the list of all directories where MATLAB files are stored

When resolving a name, MATLAB searches directories on the search path in the order listed

To view the search path:
Click **Set Path...** in the menu above the Command Window

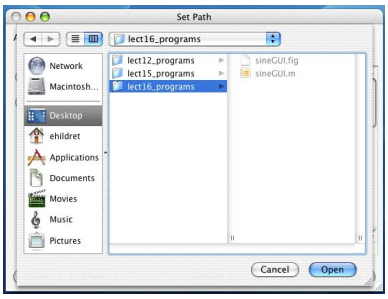


4

To add a folder to the search path:

Press the **Add Folder...** or **Add with SubFolders...** button, navigate to desired folder and press the **Open** button

As usual, things look slightly different on MACs & PCs …



You can also use the addpath function:

Mac:

```
>> addpath('/Users/ehildret/Desktop/loops_programs');
```

5

Generating a tree of paths

If you forget the format for specifying the path to a folder, call pwd to see the path leading to the Current Directory:

```
>> dir = pwd
dir =
/Users/ehildret/Desktop/CS112
>> addpath(dir)
```

If you want to add a directory and all its subdirectories use:*

```
>> addpath(genpath(dir))
```

* This is similar to the file menu item **Add with Subfolders...**

6

How do I know what a name refers to?

The exist function indicates whether a variable or function exists

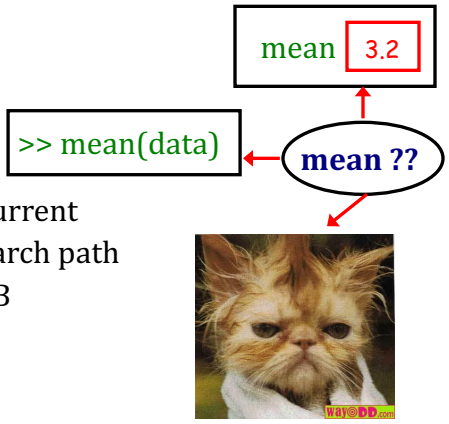
>> exist name returns:

0 if name does not exist

1 if name is a variable in current workspace

2 if name is an M-file in the Current Directory or on MATLAB search path

5 if name is a built-in MATLAB function



>> exist magic

ans =

2

7

Which witch?

The which function prints the pathname of a function

>> which magic

/Applications/MATLAB_R2017a.app/toolbox/matlab/elmat/magic.m

The type function can be used to print the definition of functions that are not built-in MATLAB functions, but defined in M-files on the search path

>> type magic

8