

# Beyond the Mouse – A Short Course on Programming

LAB02: Matlab, Variables

Ronni Grapenthin

Geophysical Institute, University of Alaska  
Fairbanks

September 19, 2011

YOU'LL NEVER FIND A  
PROGRAMMING LANGUAGE  
THAT FREES YOU FROM  
THE BURDEN OF  
CLARIFYING  
YOUR IDEAS.



"The Uncomfortable Truths Well",  
<http://xkcd.com/568> (April 13, 2009)

# Logic 101

Use logic to connect multiple conditions and **test** for certain cases (0 is false, 1 is true):

Use logic to connect multiple conditions and **test** for certain cases (0 is false, 1 is true):

**'NOT'**

(`~`, `!`):

a	!a
0	1
1	0

Use logic to connect multiple conditions and **test** for certain cases (0 is false, 1 is true):

**'NOT'**  
(`'~'`, `'!'`):

a	!a
0	1
1	0

**'AND' ('&&'):**

a	b	a && b
0	0	0
0	1	0
1	0	0
1	1	1

# Logic 101

Use logic to connect multiple conditions and **test** for certain cases (0 is false, 1 is true):

**'NOT'**  
(`~, '!'`):

a	!a
0	1
1	0

**'AND'** (`&&`):

a	b	a && b
0	0	0
0	1	0
1	0	0
1	1	1

**'OR'** (`||`):

a	b	a    b
0	0	0
0	1	1
1	0	1
1	1	1

# Logic 101

Use logic to connect multiple conditions and **test** for certain cases (0 is false, 1 is true):

**'NOT'**  
(`'~', '!'`):

a	!a
0	1
1	0

**'AND'** (`'&&'`):

a	b	a && b
0	0	0
0	1	0
1	0	0
1	1	1

**'OR'** (`'||'`):

a	b	a    b
0	0	0
0	1	1
1	0	1
1	1	1

**'XOR'**:

a	b	a xor b
0	0	0
0	1	1
1	0	1
1	1	0

# Logic 101

Use logic to connect multiple conditions and **test** for certain cases (0 is false, 1 is true):

**'NOT'**  
(`~, '!'`):

a	!a
0	1
1	0

**'AND'** (`&&`):

a	b	a && b
0	0	0
0	1	0
1	0	0
1	1	1

**'OR'** (`||`):

a	b	a    b
0	0	0
0	1	1
1	0	1
1	1	1

**'XOR'**:

a	b	a xor b
0	0	0
0	1	1
1	0	1
1	1	0

## Examples

- 'Friday Beer' if **not** younger than 21 **and** it is Friday.

# Logic 101

Use logic to connect multiple conditions and **test** for certain cases (0 is false, 1 is true):

**'NOT'**  
(`~, '!'`):

a	!a
0	1
1	0

**'AND'** (`&&`):

a	b	a && b
0	0	0
0	1	0
1	0	0
1	1	1

**'OR'** (`||`):

a	b	a    b
0	0	0
0	1	1
1	0	1
1	1	1

**'XOR'**:

a	b	a xor b
0	0	0
0	1	1
1	0	1
1	1	0

## Examples

- 'Friday Beer' if **not** younger than 21 **and** it is Friday.
- 'Discard data' if outlier **or** affected by unmodeled processes.