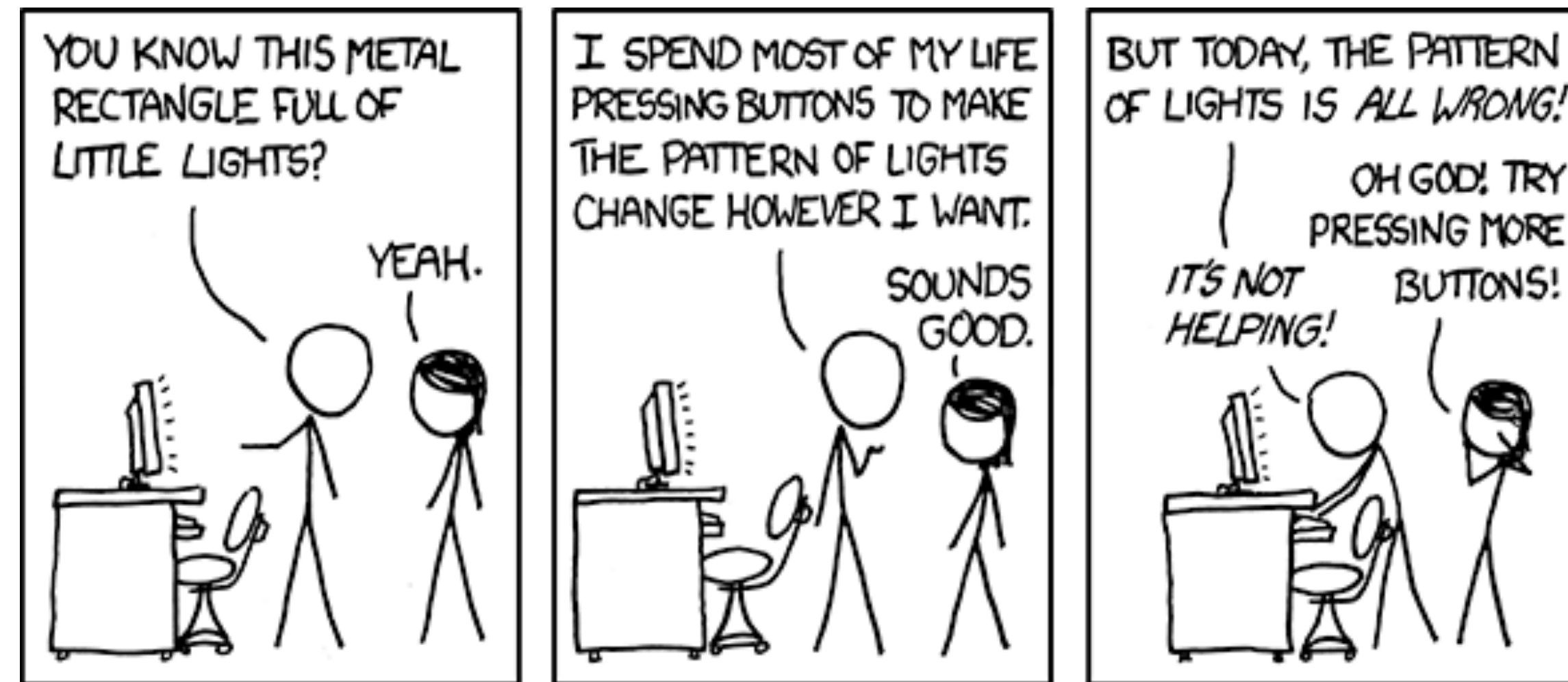
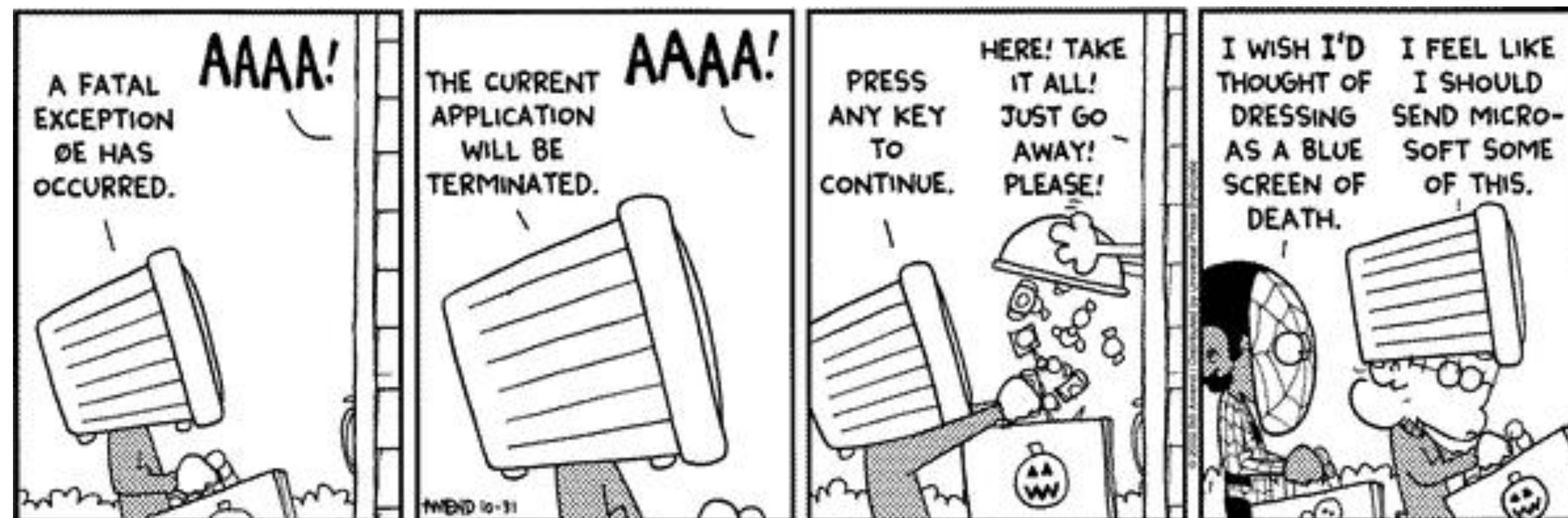


# Python Scripting - Debugging



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PCfB Class 8  
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# Outline

- Types of errors
- Debugging tools/tips

# Syntax Errors

- Detected before program is run
- Part of your code is not understood by the interpreter

```
File "./rev_comp_v1.py", line 10
    print (revseq.translate(trantab))
          ^
```

SyntaxError: invalid syntax

# Runtime Errors (aka, Exceptions)

- Occur when program is executed
- 29 standard exception types  
([https://www.tutorialspoint.com/python/standard\\_exceptions.htm](https://www.tutorialspoint.com/python/standard_exceptions.htm))
- Format = Traceback

Traceback (most recent call last):

File "./rev\_comp\_v3.py", line 19, in <module>  
 print\_rev\_comp(seq)

File "./rev\_comp\_v3.py", line 10, in print\_rev\_comp  
 print (revseq.translate(trantab))

AttributeError: 'builtin\_function\_or\_method' object  
has no attribute 'translate'

# Tip #1: Look up!

- Problem not necessarily on the line where the error was detected
- Could be on a preceding line

# Tool #1: `print()` function

- Prior to the error to check the status of important variables
- Within loops to check whether conditions have been met



# Tool #2: Comments

- Temporarily remove sections of code to isolate problem

**Use # to comment out a single line**

**Use ' ' ' ' ' ' to comment out multiple lines**

# Tip #2: Interactive interpreter

- Don't forget about the command line interface
- Easy way to test commands

# Executing script in working directory

```
./fasta2phy.py -f lassa_seqs.fasta
```

**Please install:**



**Adobe Illustrator**

**or**



**Inkscape**

**And:**



**Adobe Photoshop**

**or**



**GIMP**