

# So you don't wanna end up here

## Retraction Watch

Tracking retractions as a window into the scientific process

### Retraction appears for former federal contractor who faked data

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In December, we [reported on the case of Timothy Sheehy](#), a former government contractor who was found to have faked results. [ORI found](#) that Sheehy

“

fabricated the quantitative and qualitative data for RNA and DNA purportedly extracted from 900 formalin-fixed, paraffin-embedded (FFPE) colorectal tissue samples presented in Table 1 of the *CEBP* paper and falsely reported successful methodology to simultaneously recover nucleic acids from FFPE tissue specimens, when neither the extractions nor analyses of the FFPE samples were done. Thus, the main conclusions of the *CEBP* paper are based on fabricated data and are false.



Sheehy agreed to ask that one of his papers be retracted. The [retraction notice](#) has appeared: [Read the rest of this entry](#)

»

Written by ivanoransky  
May 8, 2014 at 9:30 am

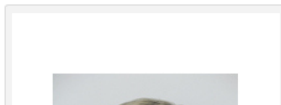
Posted in [Cancer Epidemiology Biomarkers Prev](#), [cell biology](#), [faked data](#), [freely available](#), [ori investigations](#), [united states](#)

### Förster report cites “unavoidable” conclusion of data manipulation

with 24 comments

Last week we wrote about [the 2012 complaint](#) that triggered the investigation into [Jens Förster](#), the social psychologist at the University of Amsterdam whose work has come under scrutiny for possible fraud.

Now we have the findings of the official investigation by Landelijk Orgaan



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# Plan

- Data practices (brief)
- Unit testing with exercise

# DATA ARE READ-ONLY

- Read-only means exactly that
  - If you manipulate the data, save them to another file

# The os module

- os allows you to interact with your computer's file system
- It's included in base python

# Let's do a little reading

On the wiki: `reroot.py`

- Read the first function, and write comments in a text editor explaining the functionality of this script
- Read line 27. Write a comment about what it is doing.

# You don't have dendropy

- I've put a modified version of the code on the wiki under `regex.py`
- Read it, see what it should do, and then run it. Look at the output and convince yourself it did what was expected.

# OK, so if we screw up, the originals are safe

- It's still no fun to have dorked-up code.
- Enter, unit testing

# Testing

- We're going to cover the basics of test-driven development



# Testing

- What must be true of your input for it to be useable?
- What must be true of your output to be useable?

# Take a break

- Sort of. Pick a function of your choice from either `regex.py` or `reroot.py`
- Write down one thing that must be true of the input for the function to work.
- Write down one way you would know that the output was broken or wrong.

# Test-driven development

- Diagram your pipeline.
- Write down the inputs and outputs at each step
- Decide your functions.
- Write your tests.
- Write your code.

**Measure twice, cut once**

# Exercise

- Make a list of your first name and your phone number
- Write a test-driven program with 2 functions:
  - A function that separates letters from numbers (test the in and output)
  - A sum function (test output)

# When to unit test

- When there's a possibility something could go wrong
  - Input could be goofy
  - User error
  - Library updates
  - Basically always.

# More advanced testing

<http://software-carpentry.org/v4/test/index.html>

# Example



# Try and Except

- Try: make an attempt to do some sort of behavior or task
- Except: If, for some reason, that task can't be completed, do something else

# Try and Except

list/int example