Code Ocean: publishing notebooks reproducibly

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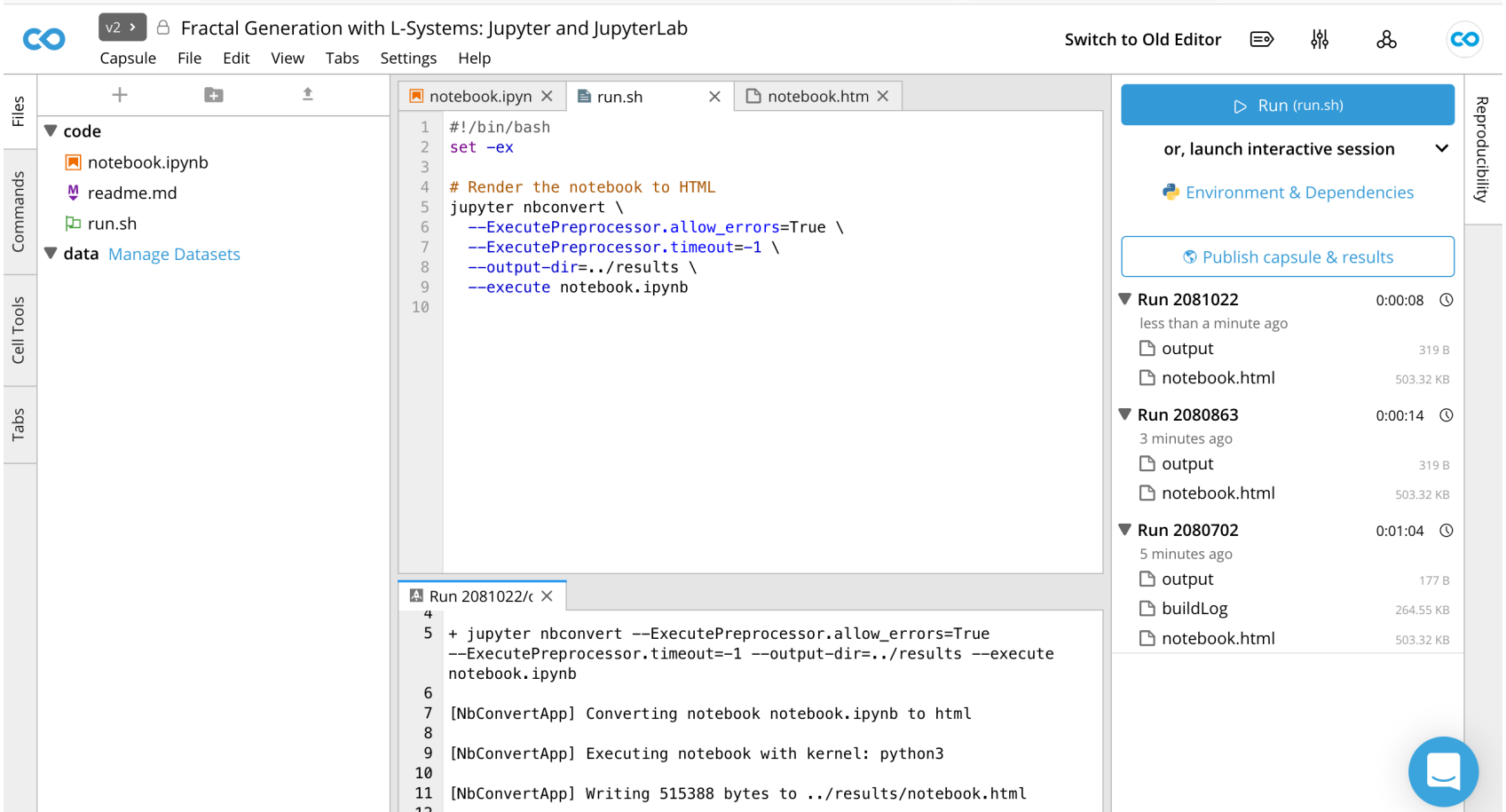
Code Ocean

- Code Ocean is, more or less:
  - JupyterLab IDE + modifications
  - A robust dependency management system
  - A publishing platform (DOIs & stable URLs)
  - A sharing platform (embed your 'compute capsules' on webpages)



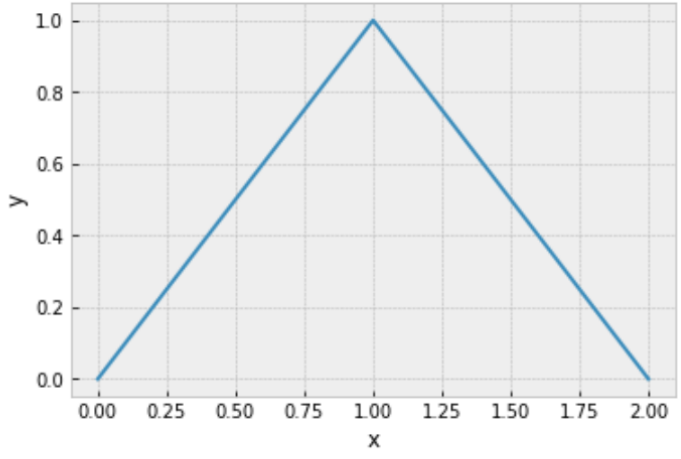
Publishing reproducible Jupyter Notebooks

Notebook + environment + `nbconvert` = a rendered HTML

notebook.htm ×

View Raw

In [2]:
```
plt.plot(
    [0, 1, 2],   # X-values
    [0, 1, 0]    # Y-values
)
# The next two lines add labels to the axes.
plt.xlabel('x')
plt.ylabel('y');
```



I find it easier to think about lists of coordinate pairs than it is to think about two lists of coordinates. Below is a function below that takes a list of coordinates, converts them to the lists that matplotlib expects, and plots them.

In [3]:
```
def plot_coords(coords, bare_plot=False):
    if bare_plot:
        # Turns off the axis markers.
        plt.axis('off')
```

Run (run.sh)

or, launch interactive session

Environment & Dependencies

Code Ocean's published results
November 12, 2018 | Verified

Published Result 0:00:08
9 minutes ago
output 319 B
notebook.html 503.32 KB

Run 2080863 0:00:14
Code Ocean | 11 minutes ago

Run 2080702 0:01:04
Code Ocean | 14 minutes ago

Reproducibility

Interactive sessions

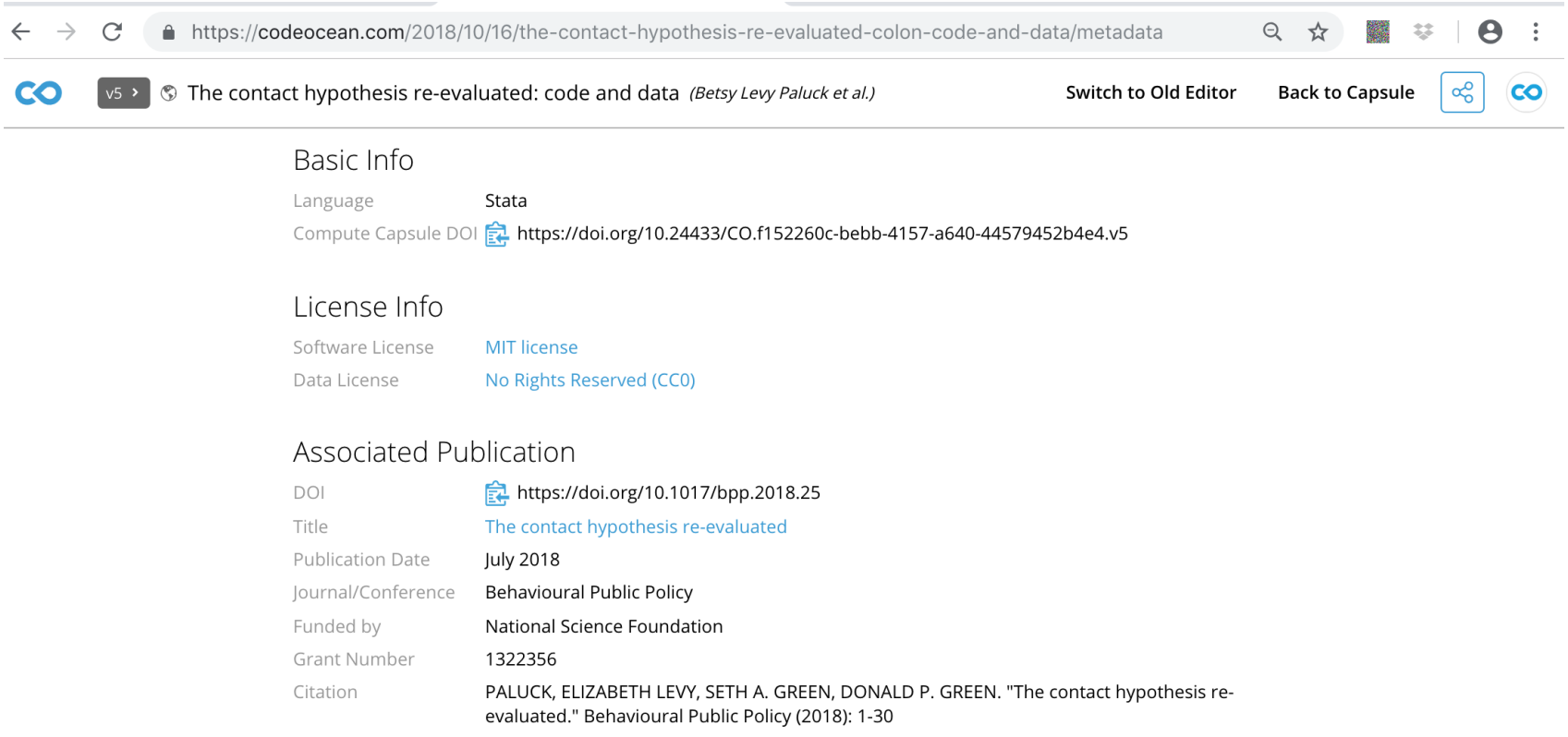
https://codeocean.com/2018/11/13/fractal-generation-with-l-systems-colon-jupyter-and-jupyterlab/code

- Jupyter
- JupyterLab
- Time for a live demonstration

Questions?

- How is this different than Binder?
- What is the uploading process like?
- How are dependencies managed?
- Is this exportable?

Reference Slide 1: Publishing on Code Ocean:



Reference Slide 2: Embedding on webpages & within articles

- You can also embed your published capsule in your article's HTML page or on your personal webpage, a la https://ieeexplore.ieee.org/document/8410389/algorithms#