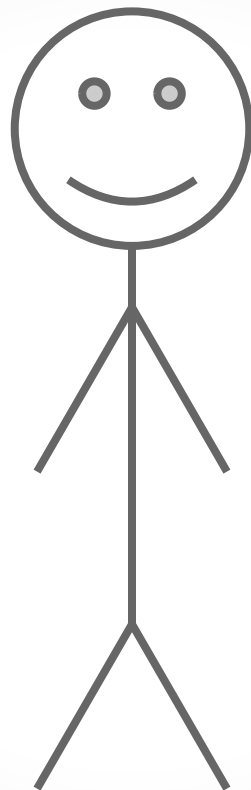


why sustain scientific software?

Matthew Turk
NCSA / UIUC

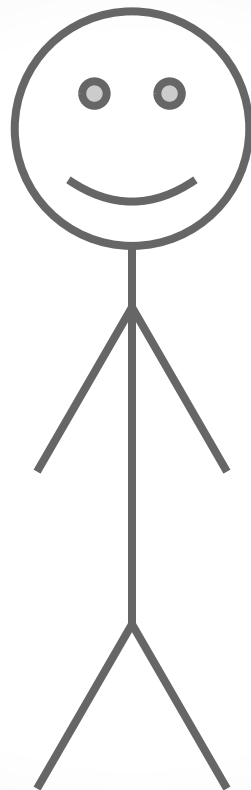
Two Caveats

What is this?



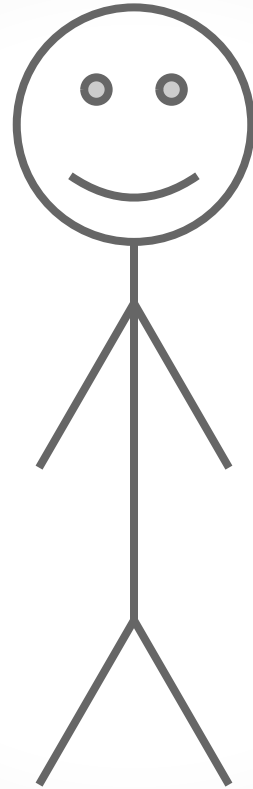
#1

What is this?



#1

Straw person



#1

Original research not included.

#2

Where are we?

WSSSPE 1

(SC13)

WSSSPE1.1

(SciPy 14)

WSSSPE2

(SC14)

WSSSPE2.1

(SciPy 2015)

WSSSPE3

(here^[1])

[1] I am extremely happy we are not at Supercomputing this year.

SC



SciPy

“The International Conference
for High-Performance
Computing, Networking,
Storage and Analysis”

“Scientific Computing with
Python”

Top-down

Bottom-up

Software is getting harder.

Software is getting better.

(pause for self-reflection)

**why sustain scientific
software?**

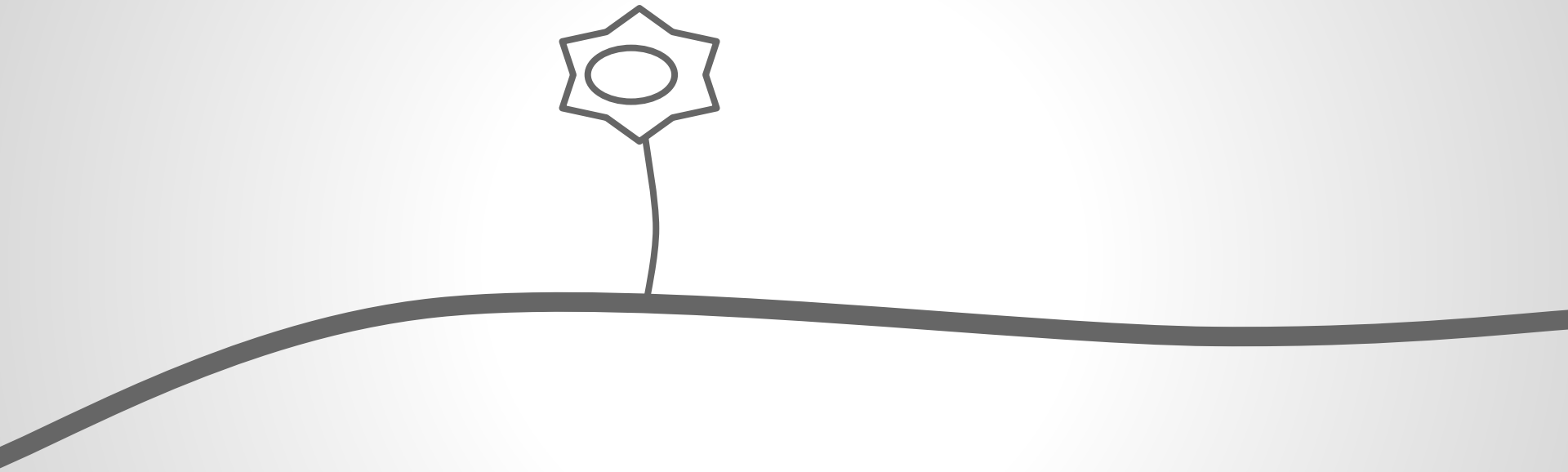
sustain?

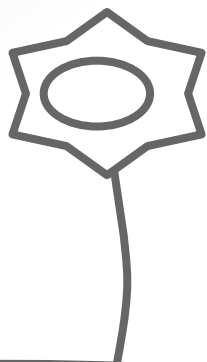
scientific software?

why?

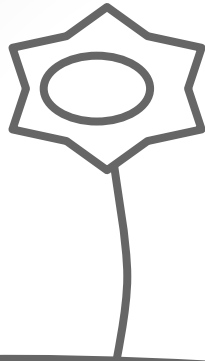
sustain?







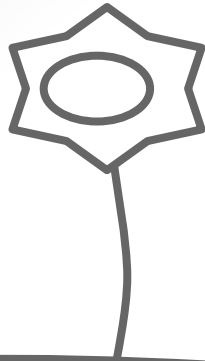
(scientific software)



(scientific software)



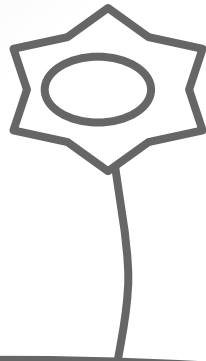
(citations?)



(scientific software)



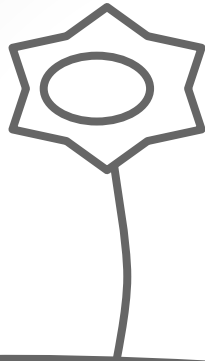
(community?)



(scientific software)



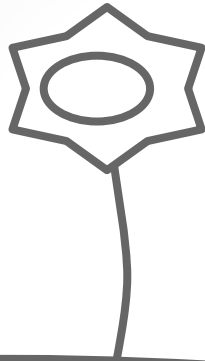
(funding?)



(scientific software)



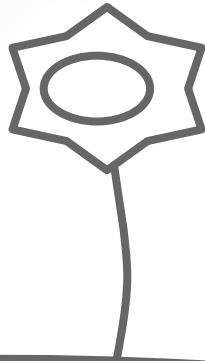
(prizes?)



(scientific software)



(stability?)



(scientific software)

Sustainable?

Keeps up with bug reports.

Sustainable?

Adds new features.

Sustainable?

Works on new hardware architectures.

Sustainable?

People can learn how to use it.

Sustainable?

Keeps getting funded.

Sustainable?

Grows new features.

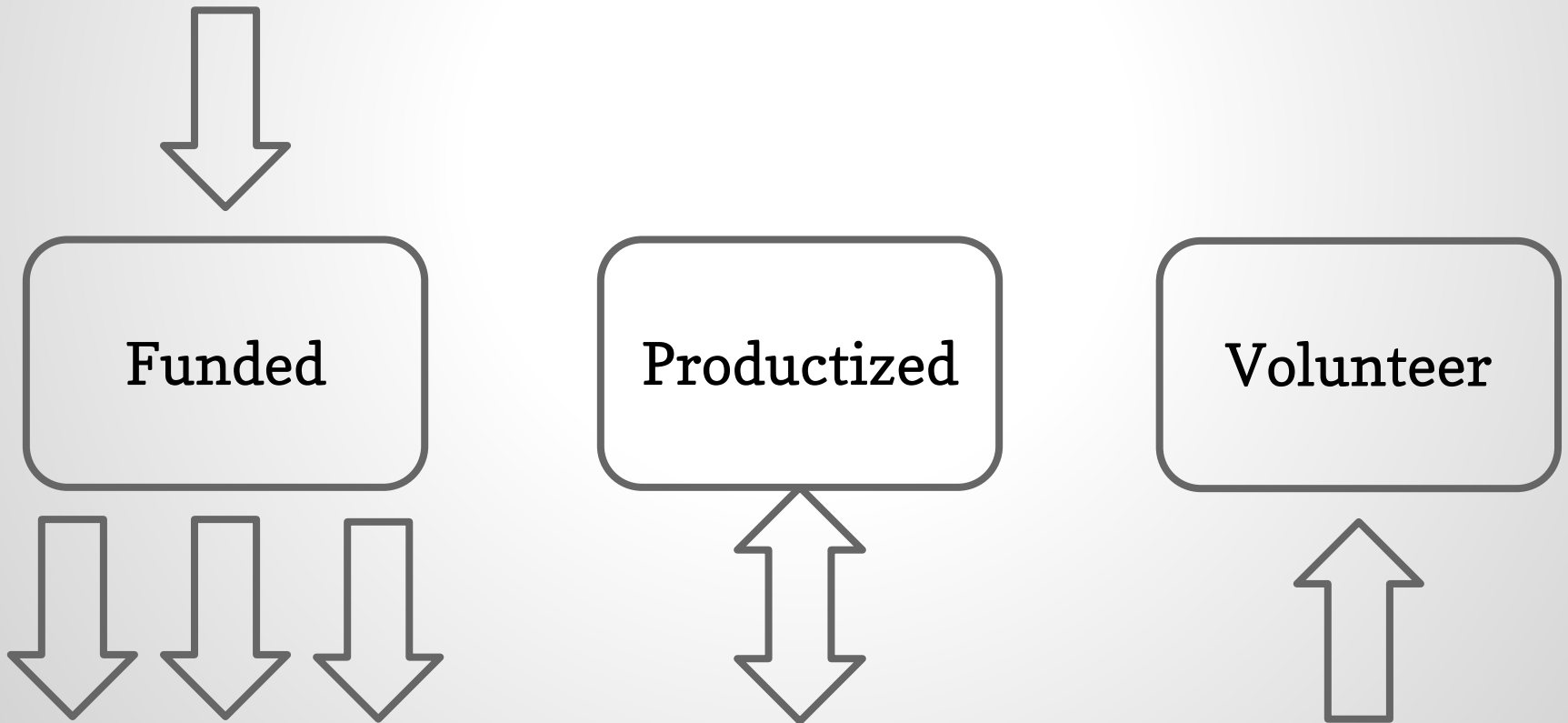
Sustainable?

Produces the same results.

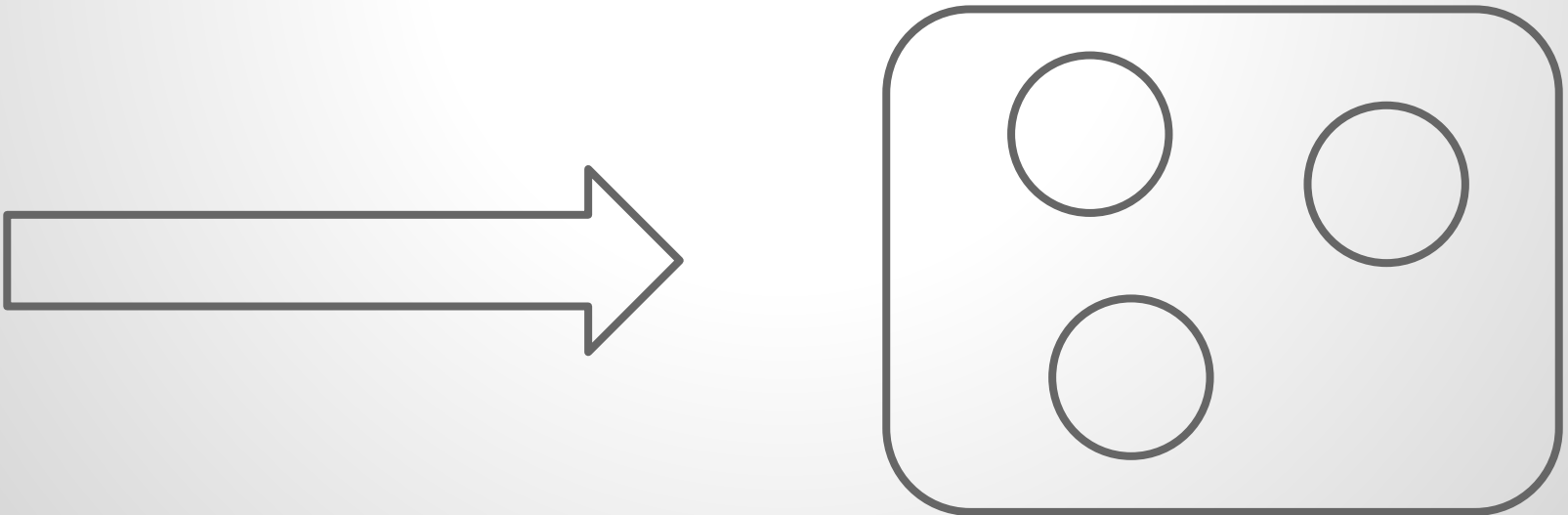
Sustainable?

Transitions between people.

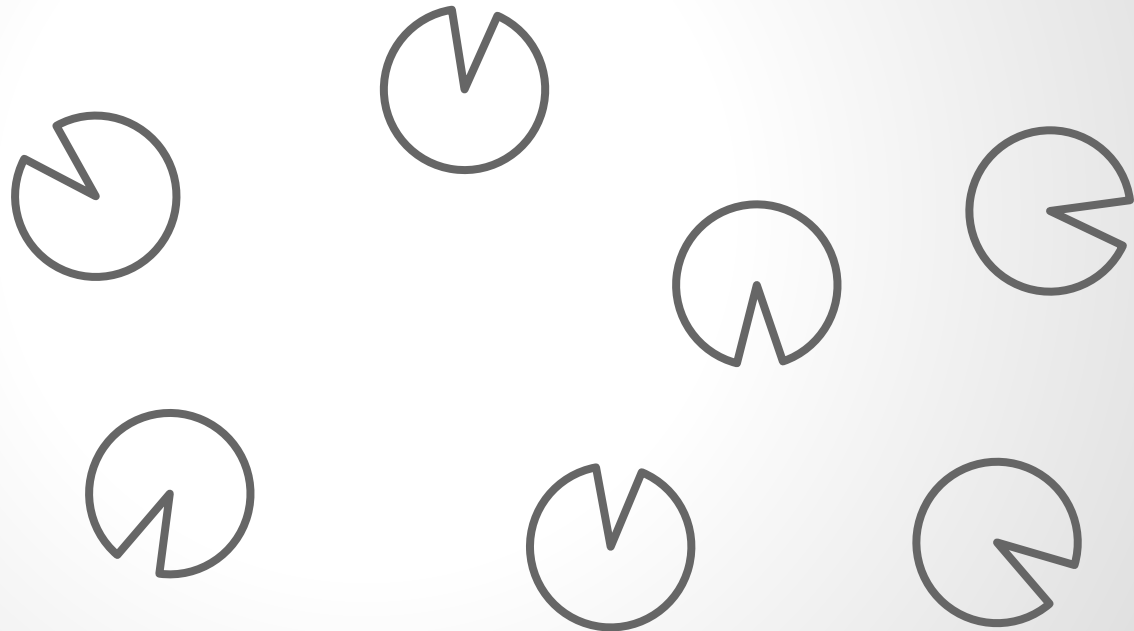
Models



Is “productized” synonymous
with self-sufficient?



Unpaid labor?^[2]



[2] <http://www.ashedryden.com/blog/the-ethics-of-unpaid-labor-and-the-oss-community>

Top-down

Bottom-up

Large-scale?

Small-scale?

Large-scale?

Small-scale?

well, no

scientific software?

What are we sustaining?

Scientific software, obviously.

~~Scientific software, obviously.~~

Scientific inquiry.

~~Scientific software, obviously.~~

~~Scientific inquiry.~~

Conducting inquiry via software.

~~Scientific software, obviously.~~

~~Scientific inquiry.~~

~~Conducting inquiry via software.~~

Specific software?

~~Scientific software, obviously.~~

~~Scientific inquiry.~~

~~Conducting inquiry via software.~~

~~Specific software?~~

People? Career? Future?

Top-down

Bottom-up

why?

**Motivation:
a series of ansatz^[3]**

"The Noble Scientist"

Fun?

Useful?

Craft?

Identity?

One person^[4] asked not, "How can we sustain?"
but instead asked, "When do we end?"

[4] That person was Greg Wilson.

Without answering that, how do we
know how to proceed?

Wishlist

Wishlist

How do we “ship” a “product” “on time” when dealing with a mix of funding models and motivations?

Wishlist

How can we maintain a “process” that
doesn't turn people away?

Wishlist

How do we know when it's time to
move on?

Wishlist

How can “productized” software
balance its future versus its past?

Wishlist

How can we help avoid burnout?

Wishlist

Can we reduce systemic bias?

thank you