The State of Python

… and the web

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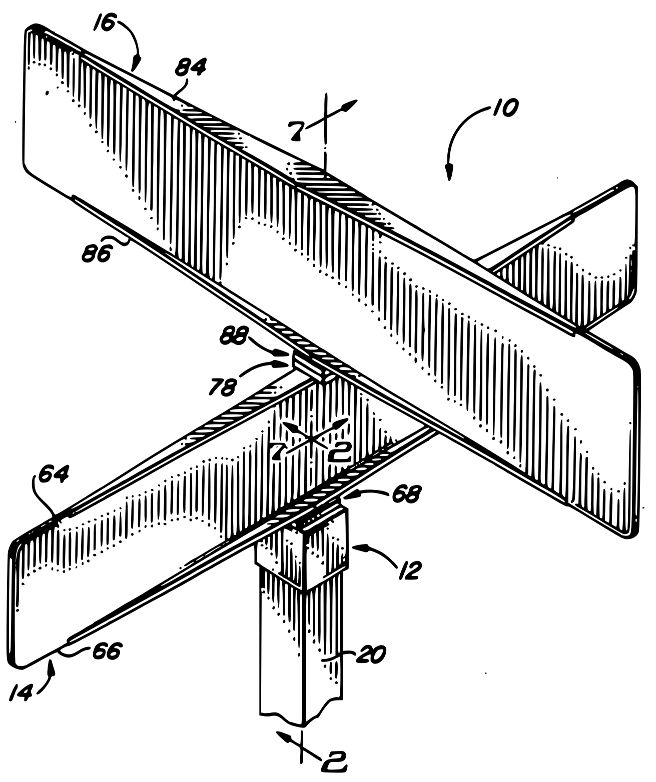
Who am I

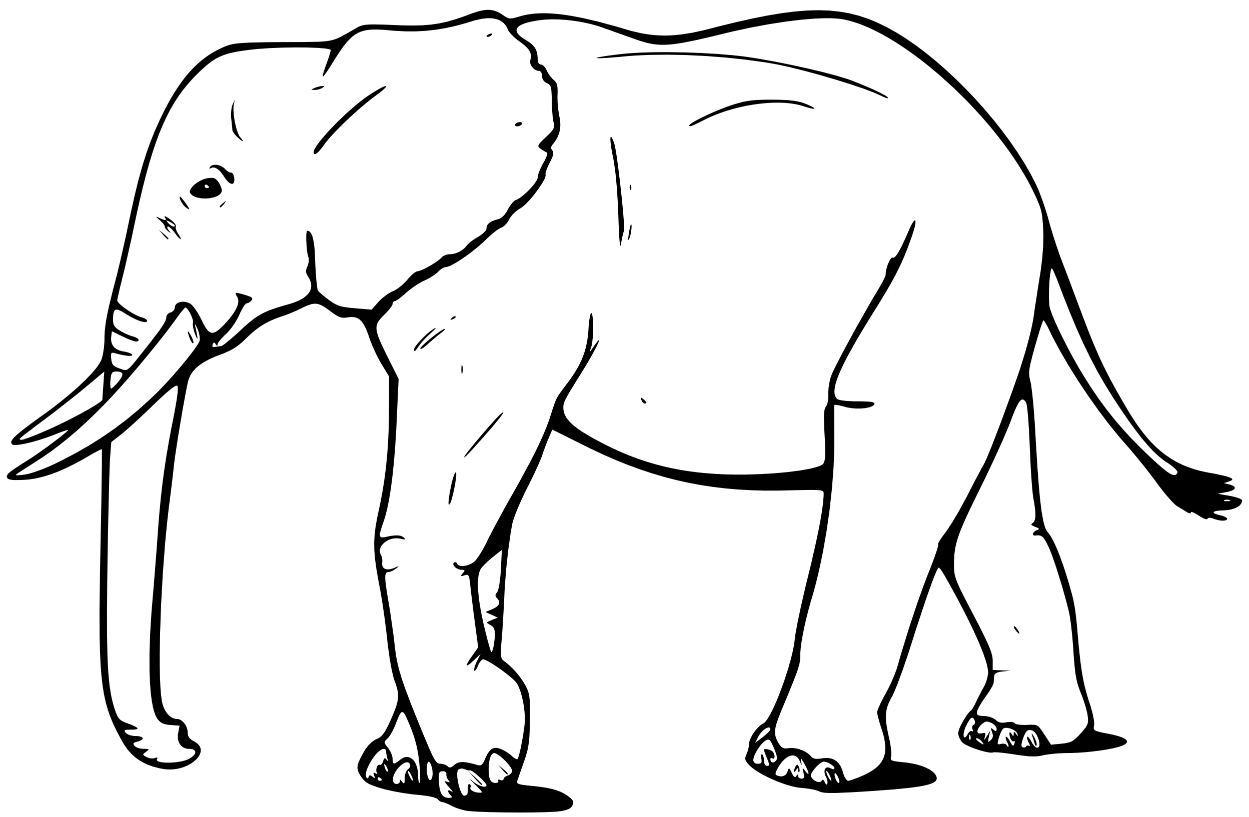
- Armin Ronacher (@*mitsuhiko*)
- Founding Member of the “Pocoo Team”
- we're doing Jinja2, Werkzeug, Flask, Pygments, Sphinx and a bunch of other stuff.



Crossroads

Python 3

- The Elephant in the Room



Python in 2011

- The big Python 3 versus Python 2 debate
- PyPy is making tremendous progress

Recent Python News

- Unladen Swallow is resting
- Python 3.2 was released
- Python's packaging infrastructure is being worked on.
- distutils2 / packaging in Python 3

Recent PyPy News

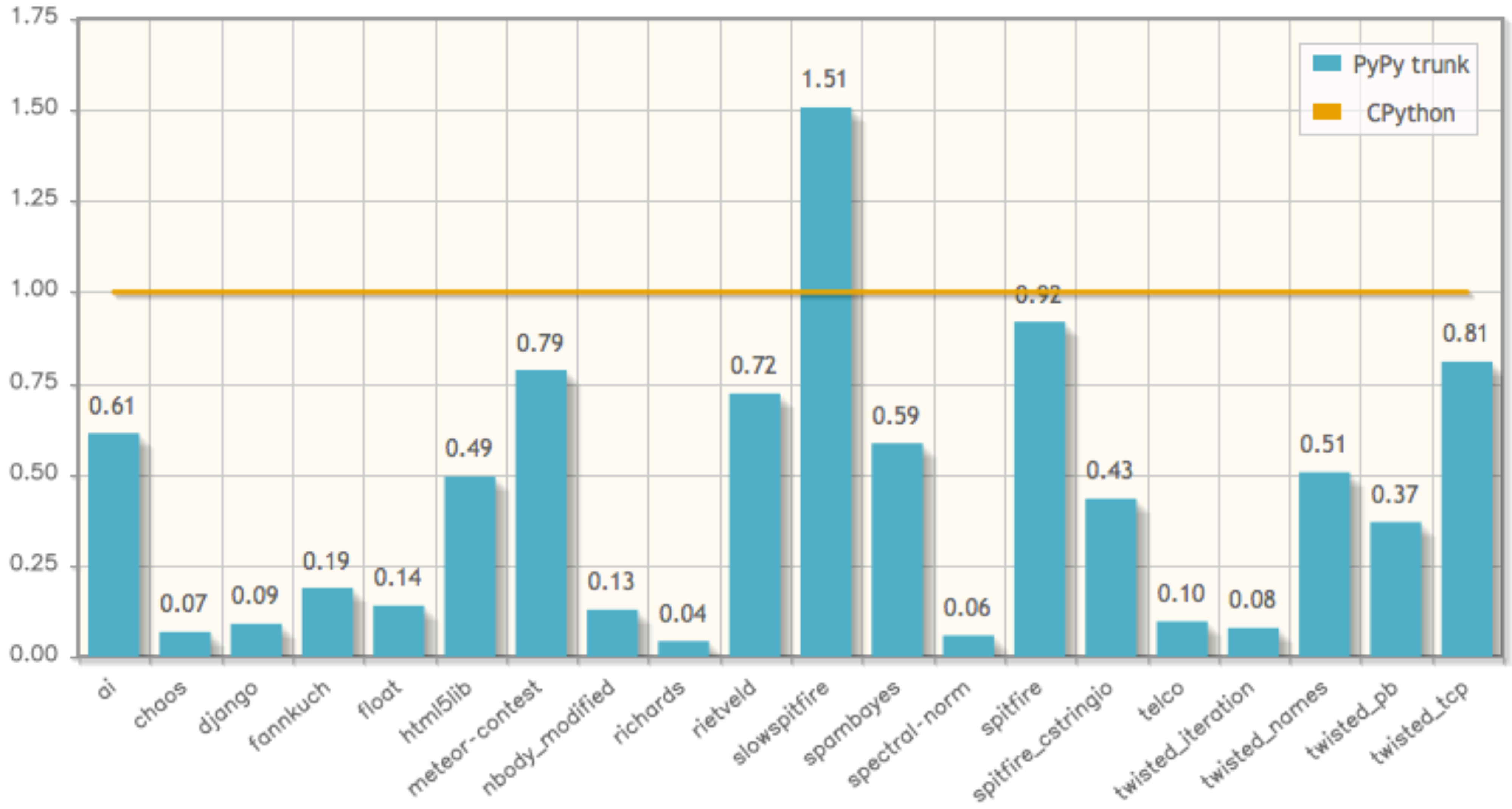
- PyPy gets experimental support for the CPython C API
- PyPy got 10.000$ by the PSF
- PyPy 1.5 released
- Are you using PyPy in production? Why not? http://bit.ly/pypy-survey

PyPy

PyPy Right Now

- “Python written in Python”
- PyPy trunk 3.7x faster than CPython over a wide variety of benchmarks
- Up to 40x faster for certain benchmarks
- Compatible with Python 2.7.1

Really Fast



- http://speed.pypy.org/

Things that will break

- There is only experimental support for the Python C API and it will always be slow.
- Different garbage collection behavior, no reference counting.

Things that work

- Django
- Flask
- ctypes
- pyglet
- twisted
- sqlite

The Bonus

- Sandbox support
- Stackless execution mode
- A .NET backend

Python 3

Python 3 is …

- … where all new language developments are happening
- … adding unicode to the whole stack
- … cleaning up the language
- … breaking backwards compatibility

The Good Parts

- Introduces unicode into exceptions and source compilation as well as identifiers
- Greatly improved IO API regarding unicode
- New language constructs
- Implementation cleaned up a lot

New Constructs

- Extended iterable unpacking
- Keyword only arguments
- nonlocal
- Function parameter and return value annotations

Improved Things

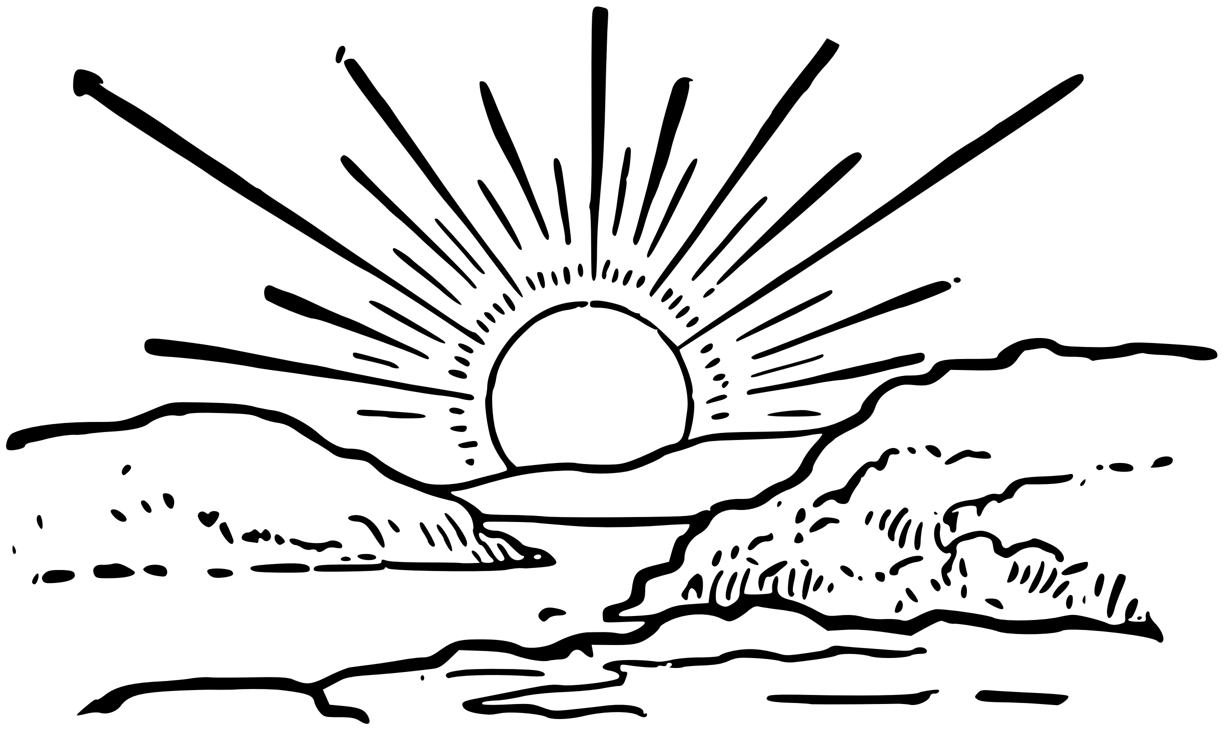
- print as a function
- Improved syntax for catching and raising exceptions
- Ellipsis (...) syntax element now available everywhere

Different Behavior

- More powerful metaclasses (but removed support for some tricks people relied on*)
- List comprehensions are now from the behavior much closer to generator expressions
    - ** don't abuse undocumented "features"*

Warts removed

- Argument unpacking
- Unused nested tuple raising syntax
- Longs no longer exposed
- Classic classes gone
- Absolute imports by default
- Obscure standard library modules



Common Ground

New in 2.6/2.7

- Explicit byte literals, make upgrading easier
- Advanced string formatting
- Print as a function
- Class decorators
- New IO library

New in 2.6/2.7

- The multiprocessing package
- Type hierarchy for numbers
- Abstract base classes
- Support for fractions

Going Forward

Beauty or Speed

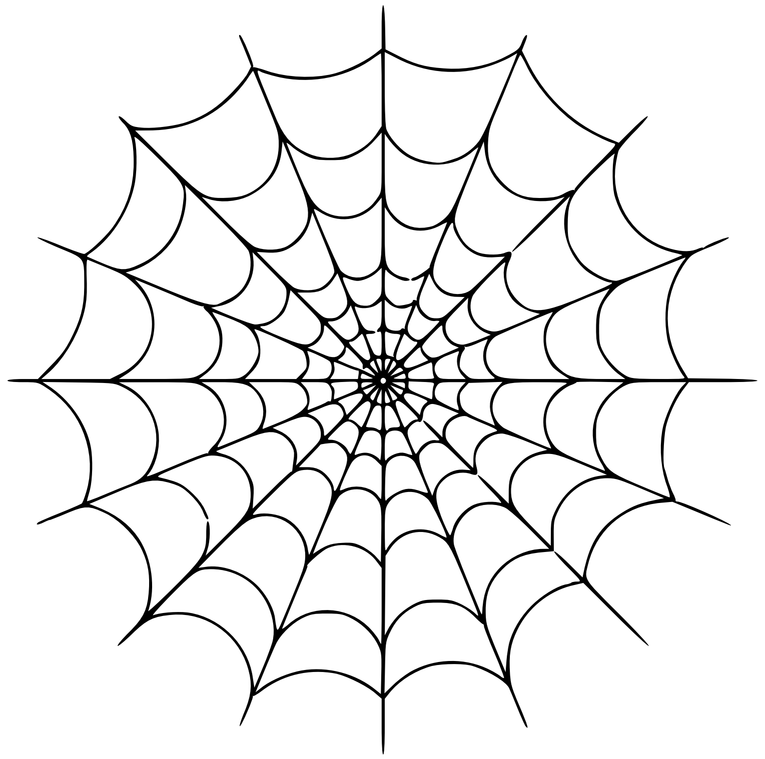
- Right now it's a decision between the beauty of the code (Python 3) or the raw performance (PyPy).
- PyPy itself will probably always be written in Python 2, but the interpreter might at one point support Python 3.

Library Support

- Numeric libraries work great on Python 3 and benefit of improvements in the language.
- PyPy still lacks proper support for the C-API of Python.

Predictions

- Most people will write their code against 2.7 with the intention of supporting PyPy.
- Libraries that require the Python C API will become less common
- We will see libraries that support targeting both Python 2.7 and Python 3.x.



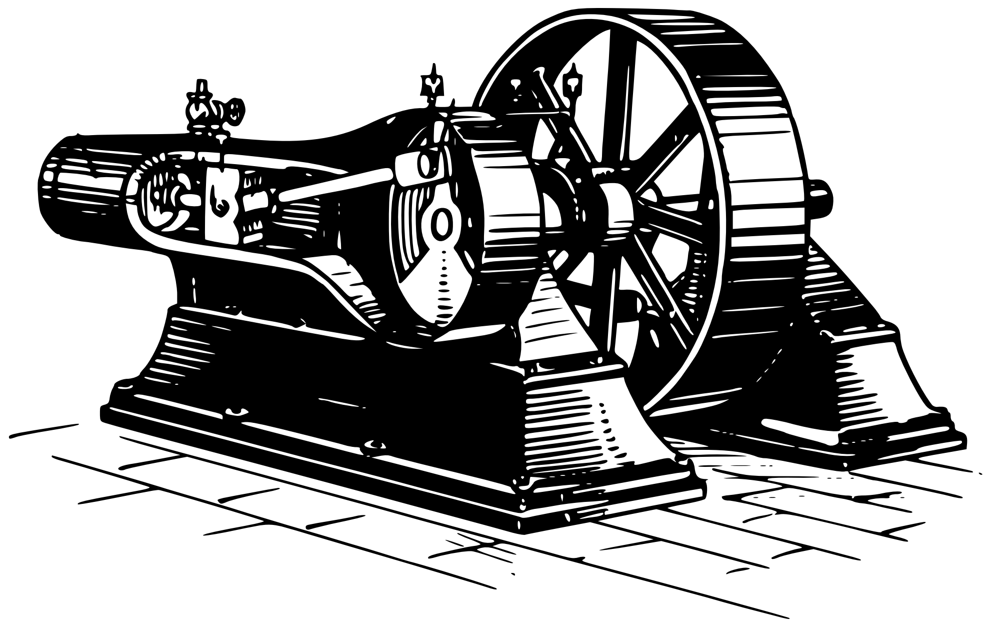
Python and the Web

WSGI

- New revision for Python 3
- There is some work done to port implementations to Python 3
- No longer something people actively care about. “It works”

New Developments

- Improvements to PyPy's support for database adapters
- Improvements in template compilation to take advantage of PyPy's behavior.
- Porting some libraries over to Python 3.



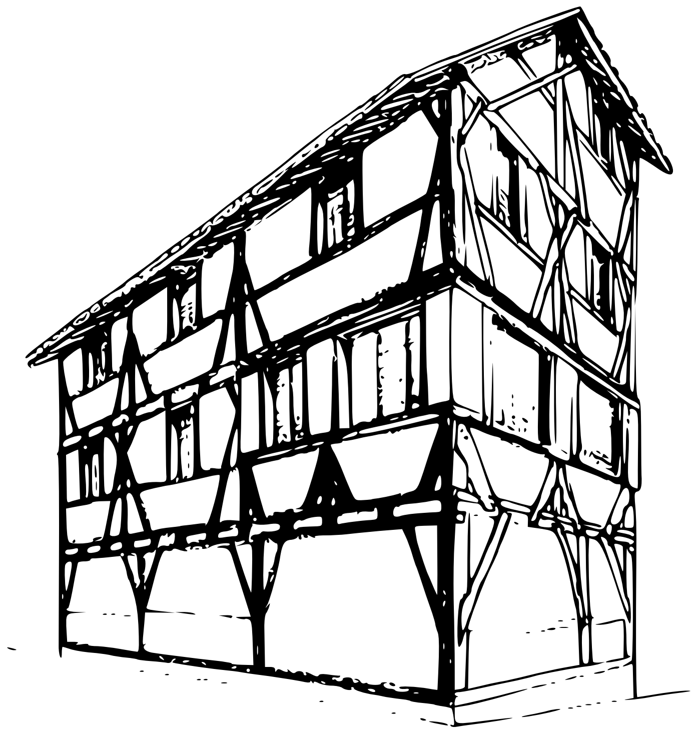
Making Python 3 work

Python 3 can work

- Start porting libraries over.
- Issues with Python 3 will only be resolved if people actively try to port.
- The higher level the application, the easier to port. Libraries are the culprit.

And it's not hard

- When you're at the port where you can drop Python 2.6 support, you can write code that survives 2to3 mostly without hacks in the code.
- http://bit.ly/python3-now



Frameworks

We're doing great

- WSGI works out well in practice.
- Pylons and BFG -> Pyramid, nice introduction into the ZOPE world.
- Less and less framework specific code out there, easier to reuse.

Less Frameworks*

- Django
- Pyramid
- Flask
- Bottle
- web.py

Low Level

- Werkzeug
- WebOb
    - these two might actually merge at one point in the future

Frameworks are Good

- New frameworks are necessary to explore new paradigms and concepts.
- It's surprisingly easy to switch frameworks or parts of frameworks in Python.
- Frameworks are merging and evolving.

Thank you

Contact / Slides

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