Language alone won't pay your bills

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- Original idea: "Why Python sucks"
- What I really wanted to say: are you aware of your **tradeoffs**?
- Do you know why you should **not** use Python in a certain context?

What's your aim?

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- Should you enjoy? (maybe)
- Should your software be fast? (define fast) (maybe)
- **Development productivity**

Software total ownership costs

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You should consider the total cost in order to **deliver** your software to your customer(s) and to **maintain** it working

Main topics

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- Language

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- Code reuse

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- Tools

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- Language
- Code reuse
- Tools
- Deployment

Language

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- Python is pretty good

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- Dynamically typed

```java
package eu.franzoni.ep2012;

import eu.franzoni.ep2012.impl.FunnyDuck;

import java.util.Collection;

public class MyDuckGenerator {
    public Duck createDuck(Flesh flesh,
            Collection<Wing> wings) {
        /* ... */
        return new FunnyDuck();
    }
}
```

```
class MyDuckGenerator(object):
    def createDuck(self, flesh, wings):
        """
        :type flesh: :class: python_things.flesh.Flesh
        :type wings: :class: collections.Iterable
                of :class:python_things.wing.Wing
        :rtype: :class:python_things.ducks.FunnyDuck
        """
        # some code here
        return FunnyDuck()
```

Typing is not the bottleneck

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 www.sbastn.com

sys.path

sys.path

VS

sys.path

VS

classpath

TRADEOFF:
you're trading **power**
and **freedom**
for **a recognized**
way of doing
something

Code reuse 1: libraries

- Standard lib gives you **quick and full access** to the underlying OS api, but may limit portability
- Libraries may be linked to C libraries -> you can reuse existing C code, but **deployment behaviour** may vary.

Code reuse 2 - packaging

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- Distutils

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- Setuptools

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- Distribute

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- Pip

Code reuse 3 - isolation

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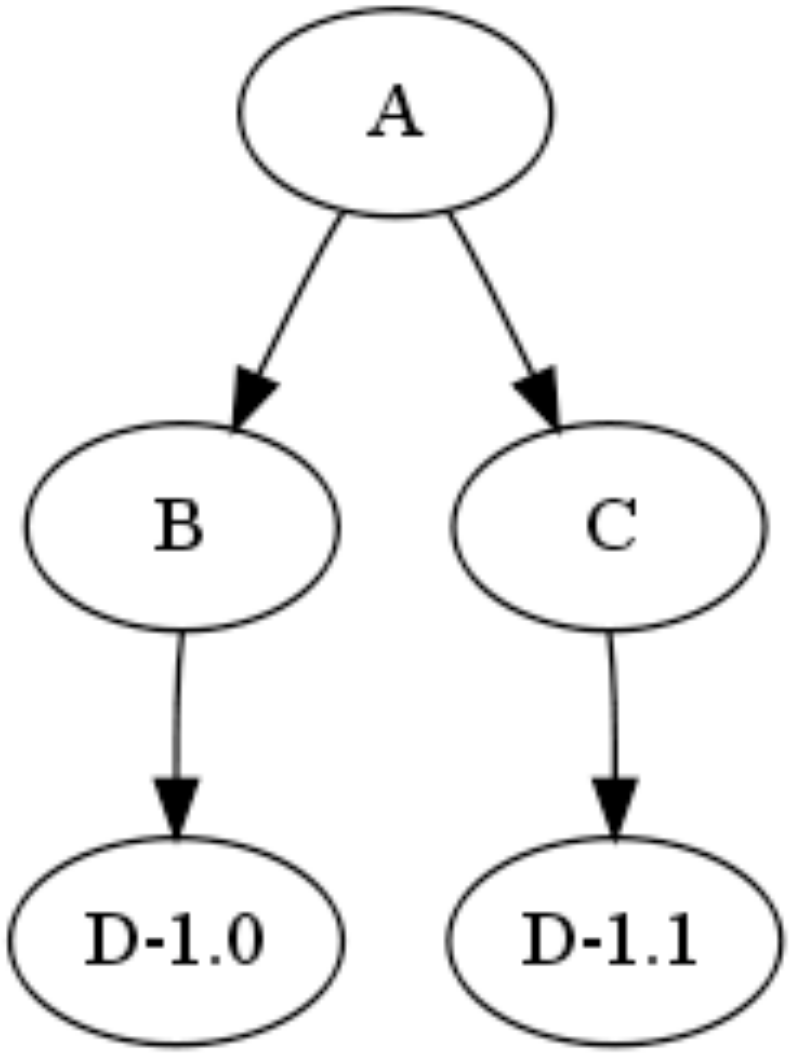
- zc.buildout
- virtualenv

Diamond dependency



Play together?

Python Packaging

- Strange things done in setup.py, even importing a module before installing it
- Some package working with distribute, others with setuptools
- Missing dependencies or version conflicts
- Mutable PyPI -> needs mirroring

FACTOID #1

Not working packages from pypi

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33%

FACTOID #2

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FACTOID #2

- Java project with 50-60 deps
- We had to fork one project because of a subtle bug
- Python project with about 10 deps
- We had to fork **five** libraries because of packaging issues or version conflicts

Maven

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- Proxy/caching repositories are available

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- But they're needed whatsoever
- There's nothing like Apache or Eclipse for Python. Individual developers write and rewrite solutions.

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- If somebody else has spent years and years in development, should you care and rebake your own solution?
- Don't fall for the NIY syndrome!
- Code reuse in Java is much easier
- **Tradeoff:** it may be quicker and more fun to write in Python, but reusing other's and your own code may be harder!

TOOLS

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- Code-completion can help you a lot
- A good debugger can help you dig into complex and tricky situations.
- Refactoring matters a lot.

Python tools miss integration

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- Good IDE (IMHO) Pycharm tries to use ‘default’ tools
- Other IDEs setup their own build files which are hard to use without the IDE (e.g. CI)
- Debugger integration is really tricky

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- This is quite true to Ruby as well. Gems work fine.

CONTINUOUS INTEGRATION AND DELIVERY

DELIVERY

DELIVERY

- Deployments are an highly manual task in Python, both for webapps and standalone apps
- There's no recommended way to to it.
- Packaging into wholly contained directories for debs/rpms is all but obvious and requires handcrafting.

Continuos Integration

Continuos Integration

- Need for reproducible builds
- Hard to make an environment stable **and** deliver the very same artifact that was built to production

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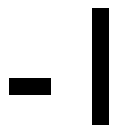

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