Building Better Tools

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whoami

```
$ groups
netbsd yahoo
$
```

whoami

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netbsd yahoo
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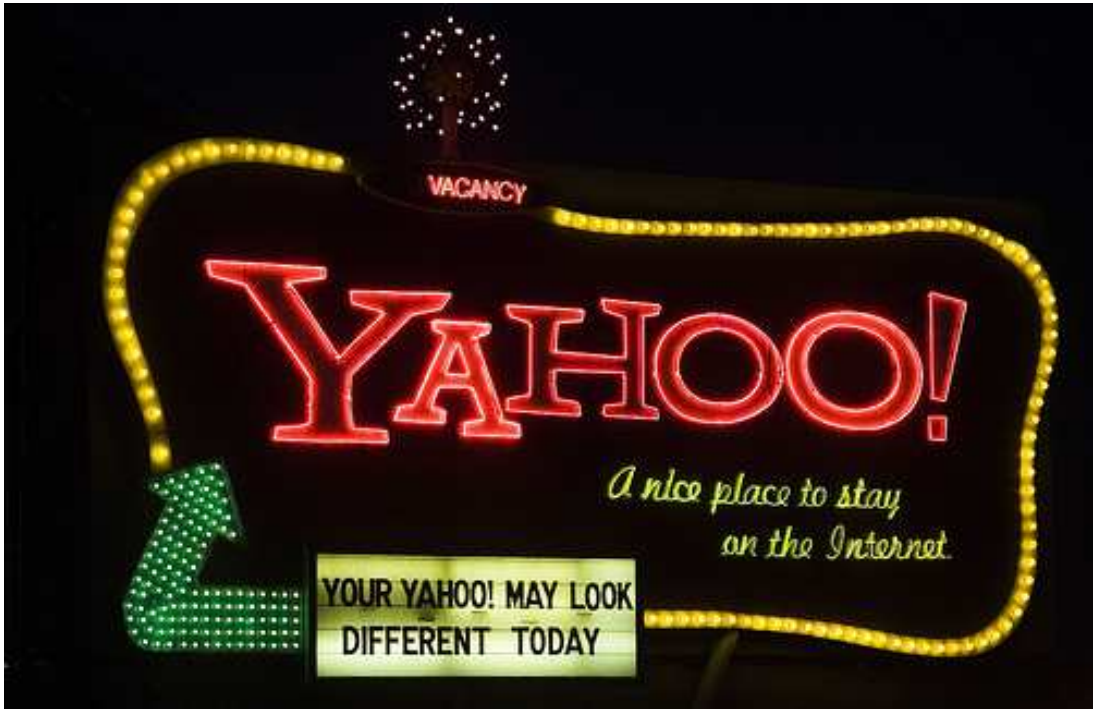
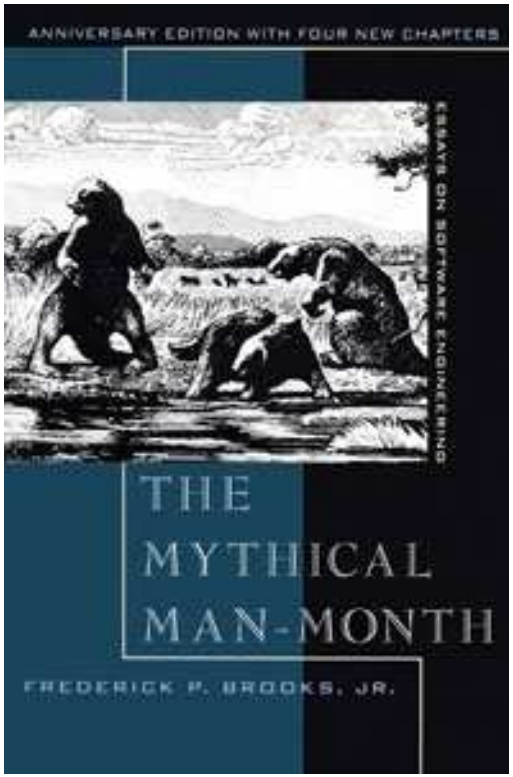
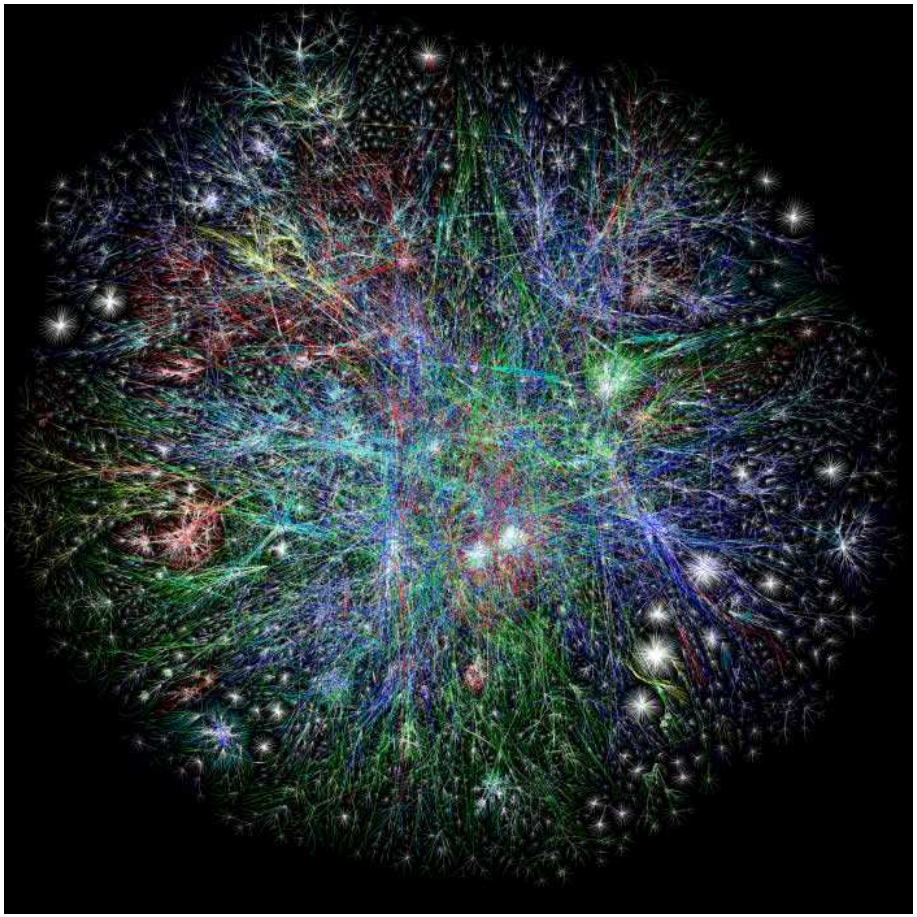
```



A much better way to spend your time.



People think the internet looks like this.



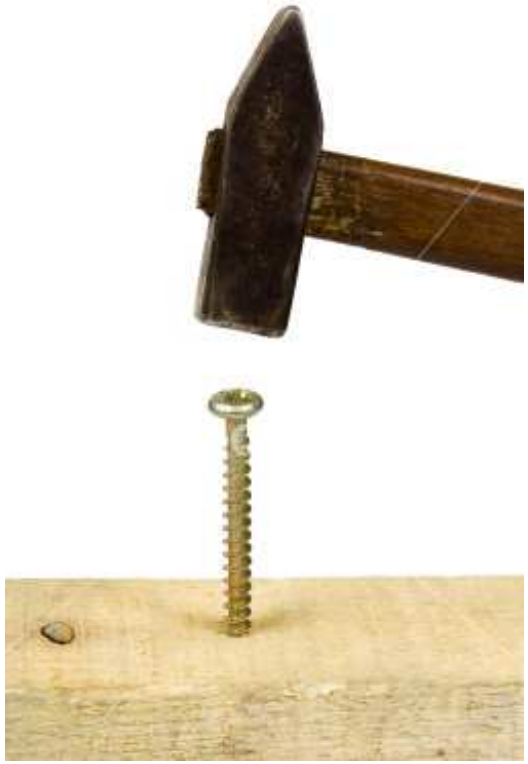
In reality...

Tools

The right tool?

The right tool?

The right tool?



The right tool?

Internet Reality

Sturgeon's Revelation

90% of everything is crud.

A better hammer!

Tools Development

Three basic categories:

- scripting
- programming
- software development

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  - often only suitable for one individual user

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Three basic categories:

- scripting
  - automating *very* simple tasks
  - customization of user environment
  - often only suitable for one individual user
  - usually eventually evolves into larger programs

Tools Development

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  - suitable for simple to moderately complex tasks

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  - provides consistent interface

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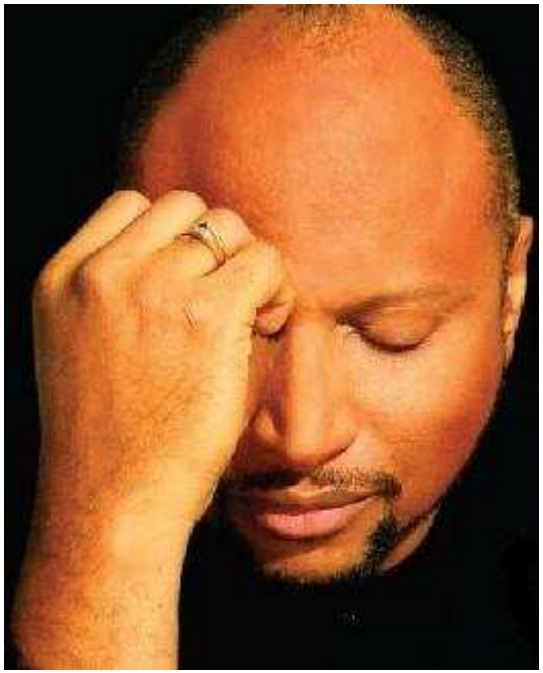
  - results frequently used by a small base of users
  - uses basic framework or common toolkits
  - provides consistent interface
  - may evolve into full product

Tools Development

Three basic categories:

- software development



Felton Pilate, *MC Hammer's producer*

Tools Development

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  - required for any reasonably complex task

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  - uses formal software engineering approach (measurable goals, requirements, specifications, ...)

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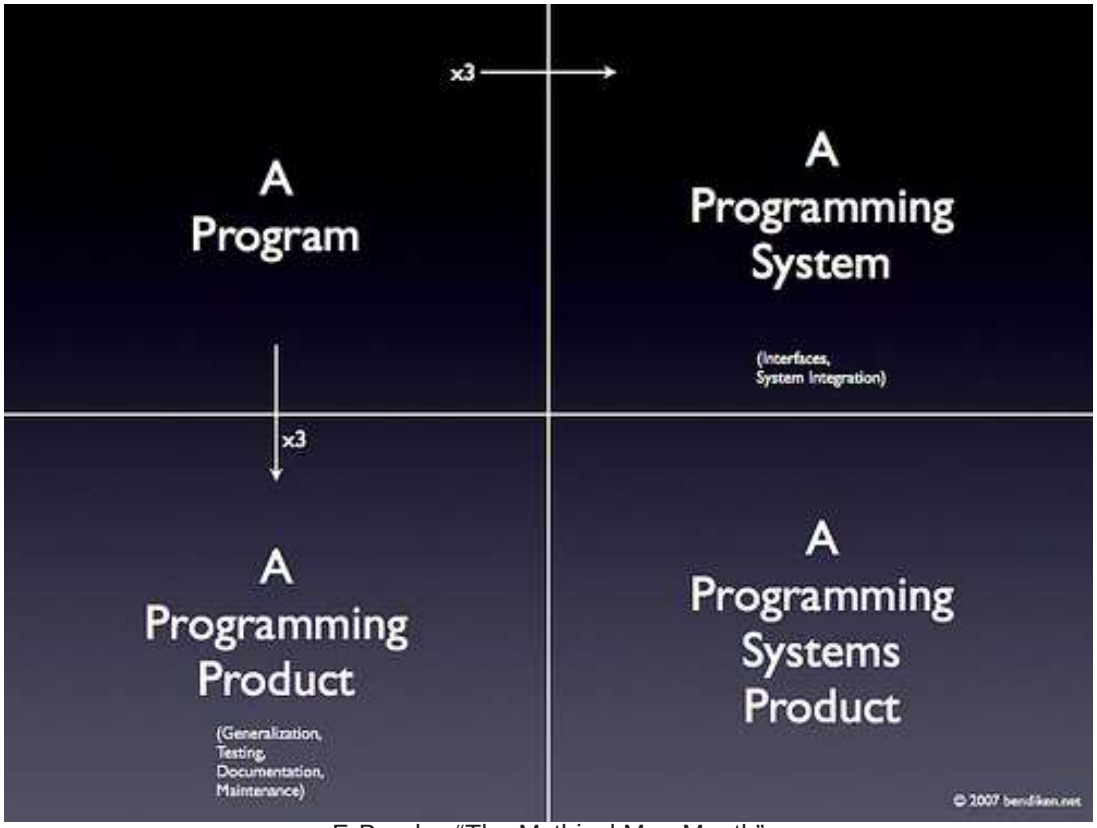
Tools Development

Three basic categories:

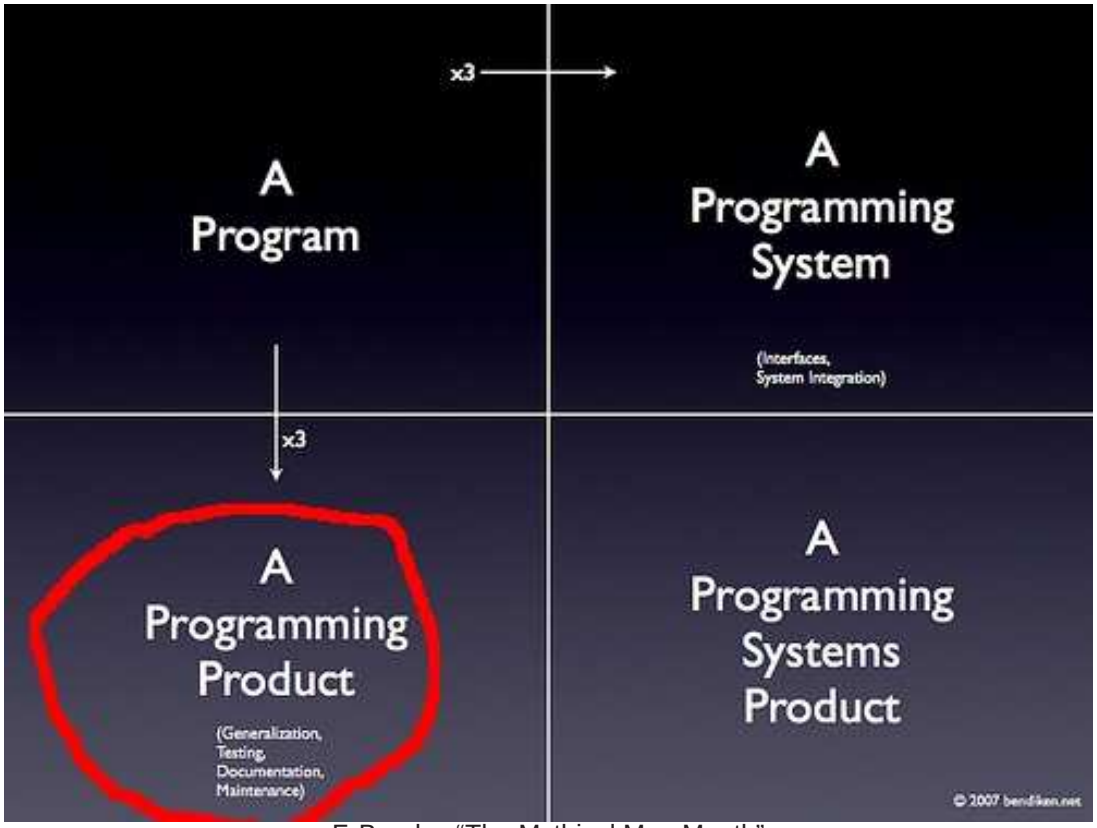
- software development
  - required for any reasonably complex task
  - uses formal software engineering approach (measurable goals, requirements, specifications, ...)
  - may evolve from previous prototypes
  - requires ongoing continous maintenance / development efforts

Evolution of the programming systems product



F. Brooks, “The Mythical Man Month”

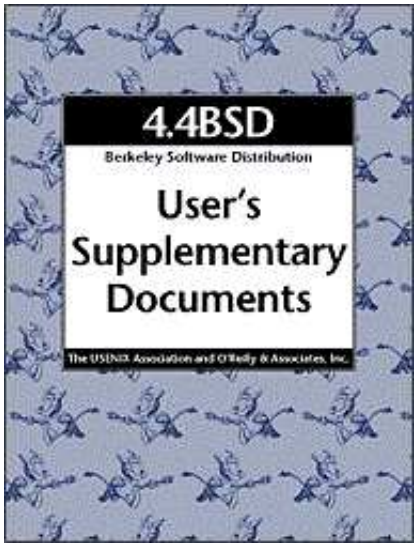
Evolution of the programming systems product

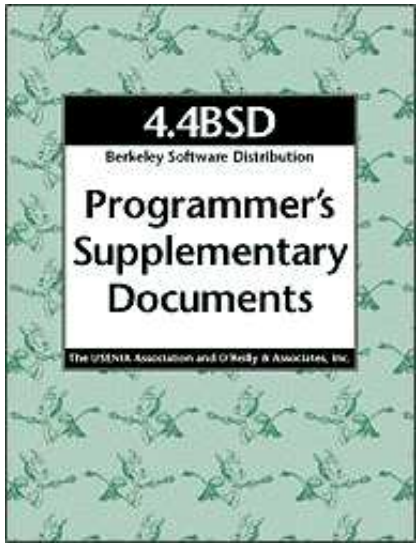


F. Brooks, “The Mythical Man Month”

“Trust me, I know what I’m doing.”

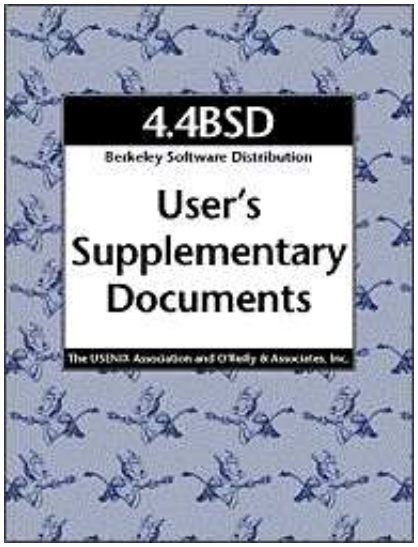
Documentation

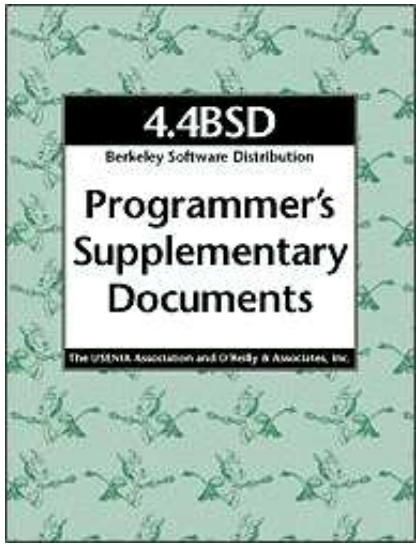




"RTFM!"

Documentation





WTFM

User Interface

Unix Philosophy

Unix Philosophy

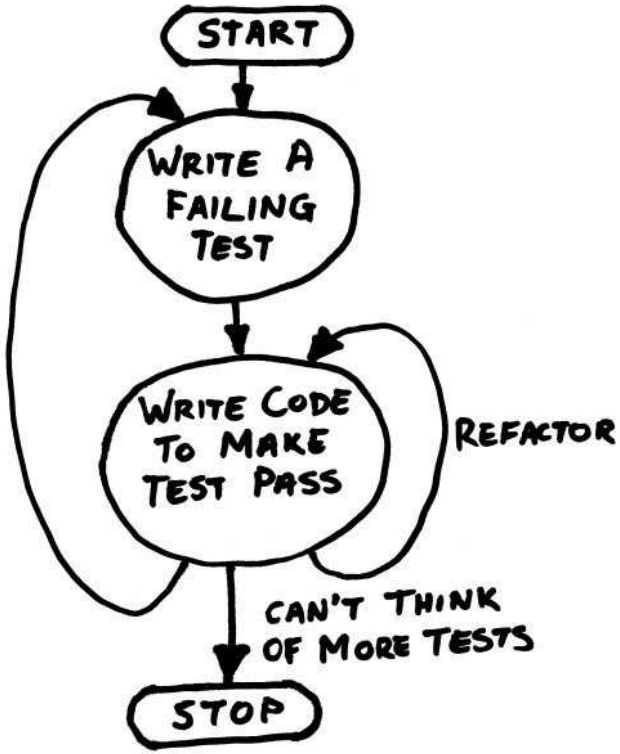
Do one thing and do it well.

The KISS Principle

POLA

Principle of Least Astonishment

Test Driven


START
WRITE A FAILING TEST
WRITE CODE TO MAKE TEST PASS
REFACTOR
CAN'T THINK OF MORE TESTS
STOP

The Zen of Python

Beautiful is better than ugly.

The Zen of Python

Explicit is better than implicit.

Explicit is better than implicit.

Autovivification is Evil!

```
$oink =  { 'foo' => { 'x' => 1, },
           'bar' => { 'y' => 2, },
         } ;
if (exists($oink->{'baz'}{'z'})) {
        print "oink->baz->z exists\n";
}
if (exists($oink->{'baz'})) {
        print "oink->baz exists\n";
}
```

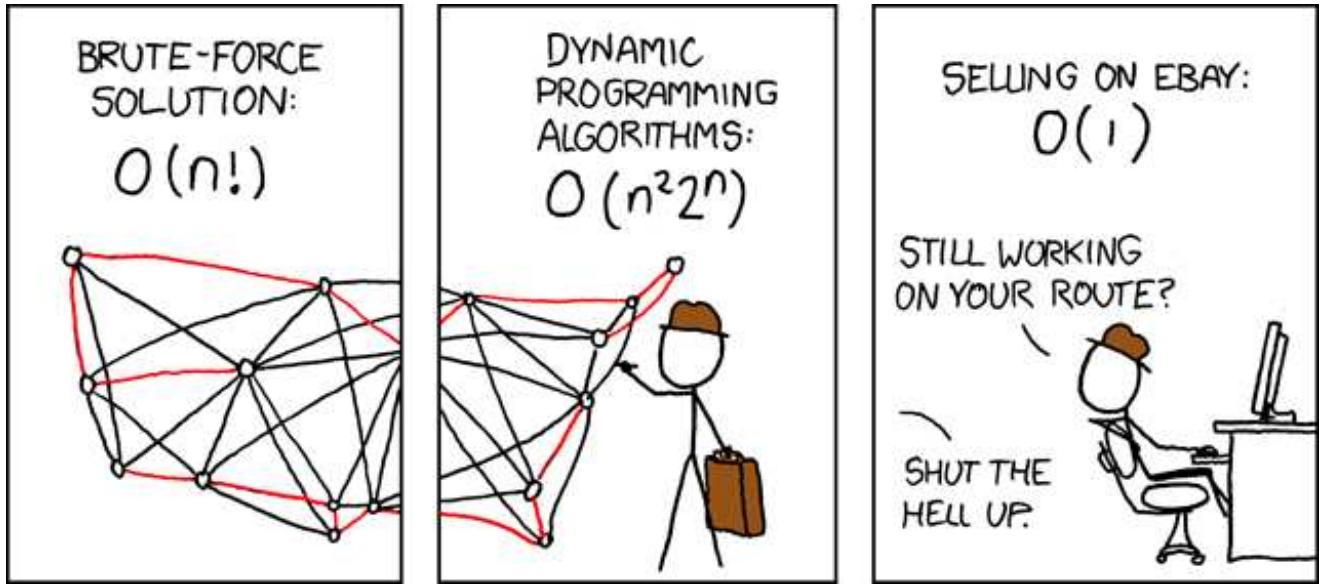
Explicit is better than implicit.

For $Deity's sake, return *something*.

```
sub func {
        my ($ref, $ref_or_is_it_something_else) = @_;
        for my $a (@{$ref}) {
                if (condition) {
                        return 1;
                }
        }
}
```

The Zen of Python

Simple is better than complex.



http://xkcd.com/399/

The Zen of Python

Complex is better than complicated.

The Zen of Python

Flat is better than nested.

The Zen of Python

Sparse is better than dense.

The Zen of Python

Readability counts.

The Zen of Python

Special cases aren’t special enough to break the rules.

The Zen of Python

Special cases aren’t special enough to break the rules.

Although practicality beats purity.

The Zen of Python

Special cases aren’t special enough to break the rules.

Although practicality beats purity.

Sturgeon’s Law: *Nothing is always absolutely so.*

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Errors should never pass silently.

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(That would be implicitly accepted failure.)

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(You know what would be better than something *implicit*?)

The Zen of Python

Errors should never pass silently.

(That would be implicitly accepted failure.)

(You know what would be better than something *implicit*?)

(Why, of course, something *explicit*!)

The Zen of Python

Errors should never pass silently.

Unless explicitly silenced.

The Zen of Python

In the face of ambiguity, refuse the temptation to guess.

The Zen of Python

There should be one – and preferably only one – obvious way to do it.

The Zen of Python

There should be one – and preferably only one – obvious way to do it.

Although that way may not be obvious at first unless you're Dutch.

The Zen of Python

Now is better than never.

The Zen of Python

Now is better than never.

Although never is often better than *right* now.

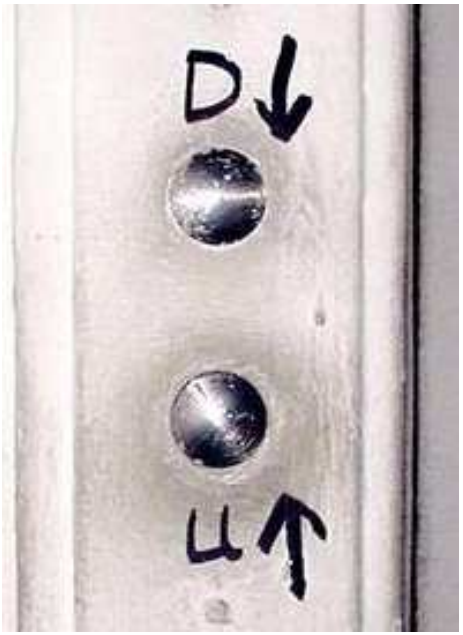
The Zen of Python

If the implementation is hard to explain, it’s a bad idea.

The Zen of Python

If the implementation is easy to explain,
it *may* be a good idea.

A simple interface, easy to explain. Yet...



The Zen of Python

Namespaces are one honking great idea –
let’s do more of those!

Consistency

Robustness Principle or Postel's Law

Be conservative in what you do; be liberal in what you accept from others.

Toss it!

Avoid the Quick Fix

There’s nothing as permanent as a temporary solution.

Take a good look in the mirror!

Nice Ass!

Take a good look in the mirror!

Until you can *prove* otherwise,
assume that *you* are an Ass!

Don’t try to be clever!

insert

```
clever sentence or image about how trying to be
clever increases complexity and leads to code that
is difficult to understand
```

here

Avoid the Project That Was Never Finished

Don’t let the Perfect be the enemy of the Good.

Avoid Feature Creep

http://www.feepingcreatures.com

Release Early, Release Often

“More users find more bugs.”

F. Brooks, “The Mythical Man Month”

Increase the Bus Factor

“Just friends.”

Fix Broken Windows

Program Maintenance

"... is an entropy-increasing process, and even its most skillful execution only delays the subsidence of the system into unfixable obsolescence."

F. Brooks, "The Mythical Man Month"

Toss it!

Starting fresh

Ownership


Certificate of Ownership
This Is To Certify That
(Name)
Is The Proud Owner Of
(Item)
on
(Date)
at
(Location)
(Presenter)

Done!