

<http://xkcd.com/224/>

# *Perl*

## Baseless Myths & Startling Realities

by Tim Bunce, July 2008

Parrot and Perl 6 portion incomplete  
due to lack of time  
(not lack of myths!)

## Prefer ‘Good Developers’ over ‘Good Languages’

“For all program aspects investigated, **the performance variability that derives from differences among programmers** of the same language—as described by the bad-to-good ratios—**is on average as large or larger than the variability found among the different languages.**”

— An empirical comparison of C, C++, Java, Perl, Python, Rexx, and Tcl. IEEE Computer Journal October 2000

<http://www.cis.udel.edu/~silber/470STUFF/article.pdf>

“In the script group, the Perl subjects may be more capable than the others, because the Perl language appears more than others to attract especially capable people.” :)

# Who am I?



Tim Bunce

Author of the Perl DBI module

Using Perl since 1991

Involved in the development of Perl 5

“Pumpkin” for 5.4.x maintenance releases

<http://blog.timbunce.org>

Perl 5.4.x 1997-1998

Living on the west coast of Ireland

# ~ Myths ~



[http://www.bleaklow.com/blog/2003/08/new\\_perl\\_6\\_book\\_announced.html](http://www.bleaklow.com/blog/2003/08/new_perl_6_book_announced.html)

# ~ Myths ~

**Perl is dead**

**Perl is hard to read / test / maintain**

**Perl 6 is killing Perl 5**

Another myth: Perl is slow:

<http://www.tbray.org/ongoing/When/200x/2007/10/30/WF-Results>

# ~ Myths ~

**Perl is dead**

Perl is hard to read / test / maintain

Perl 6 is killing Perl 5



# Perl 5



Perl 5 isn't the new kid on the block

Perl is 21 years old

Perl 5 is 14 years old

A mature language with a mature culture

How many times Microsoft has changed developer technologies in the last 14 years...





Perl 0: embryo  
Perl 1: infant  
Perl 2: toddler  
Perl 3: child  
Perl 4: preteen  
Perl 5: adolescent

You can guess where that's leading...

From "The State of the Onion 10" by Larry Wall, 2006  
<http://www.perl.com/pub/a/2006/09/21/onion.html?page=3>

# Buzz != Jobs

Perl5 hasn't been generating buzz recently

It's just getting on with the job

Lots of jobs

- just not all in web development

Web developers tend to have a narrow focus.

"At a recent finance technology conference in New York, the top 3 foundational technologies (by number of references) mentioned over the course of the conference by its speakers were:

#3 - XML

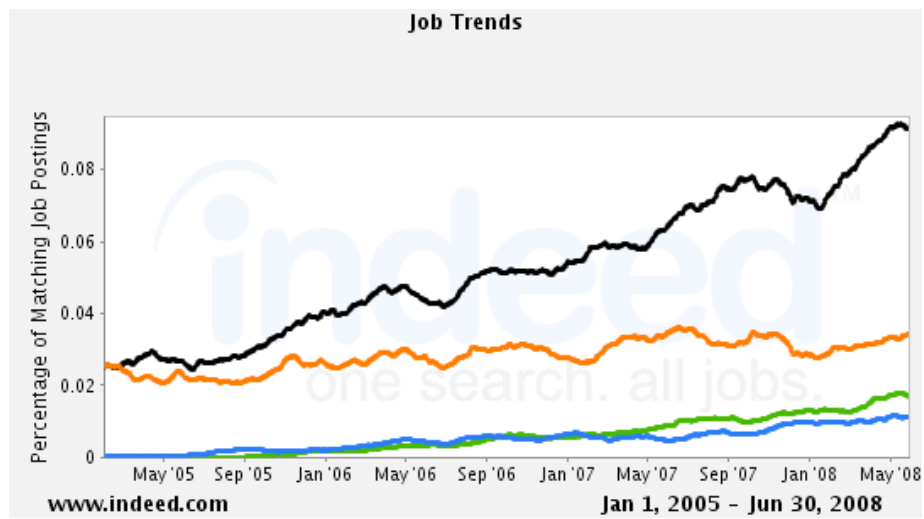
#2 - SQL

#1 - Perl

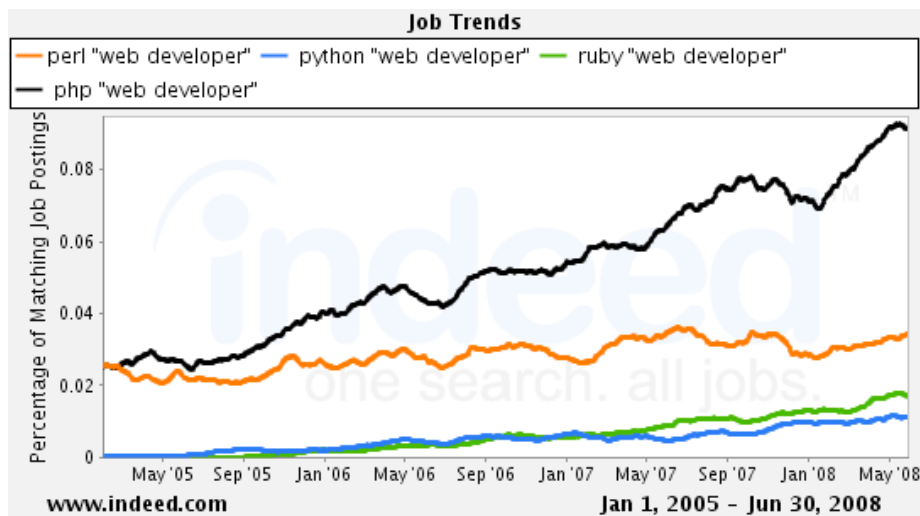
There were no others mentioned." -- Richard Dice, president, The Perl Foundation, in reference to O'Reilly's Money:Tech conference, New York, Feb 6 & 7, 2008.

By "foundational technology" I mean a building block technology.

# Guess the Languages



# “web developer”

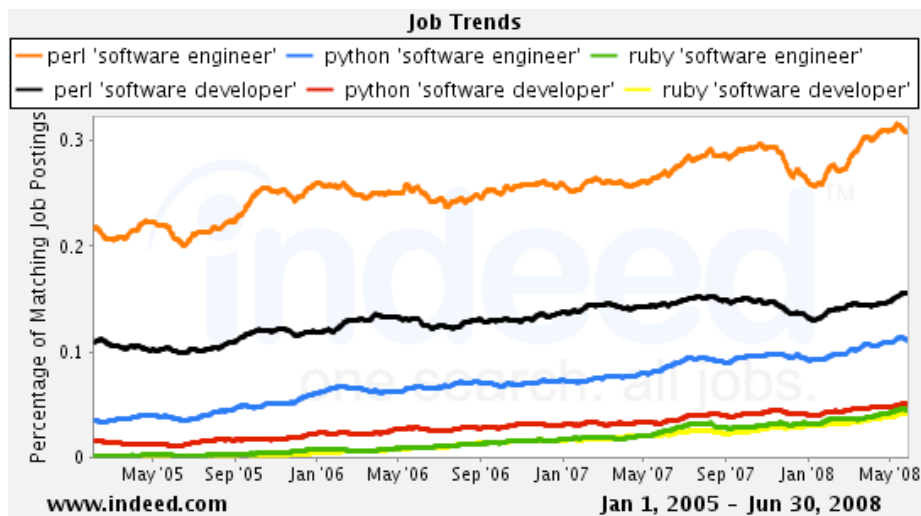


Yes, Perl is growing more slowly than others  
but these are just “web developer” jobs

I think this graph captures the essence of why people think Perl is stagnant.  
It's because Perl hasn't been growing much \*in the 'web developer' world\*

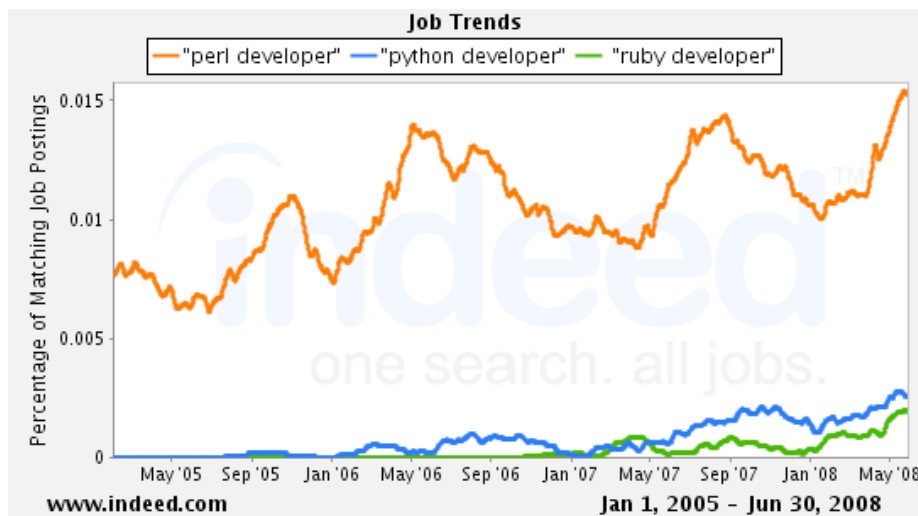
PHP - I'm not going to focus on PHP because it's not a general purpose language.

# “software engineer”



Perl is mentioned in many more software engineer/developer jobs.

# “foo developer”



Perl is the primary focus of more developer jobs.  
Want a fun new job? Become a Perl developer!

The existence of “foo developer” job titles is a sign of maturity.

# Massive Module Market

Large and vibrant developer community

Over 15,000 distributions (58,000 modules)

Over 6,700 'authors' (who make releases)

One quarter of all CPAN distributions have been updated in the last 4 months!

Half of all updated in the last 17 months!

Libraries are more important than languages.

Large user community leads to large contributor community  
(given good community tools - more on that later)

<http://search.cpan.org/recent>

<http://schwern.org/~schwern/talks/Perl%20is%20unDead%20-%20YAPC-NA-2008.pdf>



# Top Modules

Many gems, including...

DBI DBD::\* DBIx::Class Rose::DB::Object

Catalyst Moose DateTime

Algorithm::\* Statistics::\* Thread::\*

XML::\* HTML::\* WWW::\* Parse::\*

Net::\* Email::\* POE::\* Locale::\*

Test::\* Devel::Cover Perl::Critic perltidy

Quality varies on CPAN, naturally.  
(See Acme::\* for some fun.)

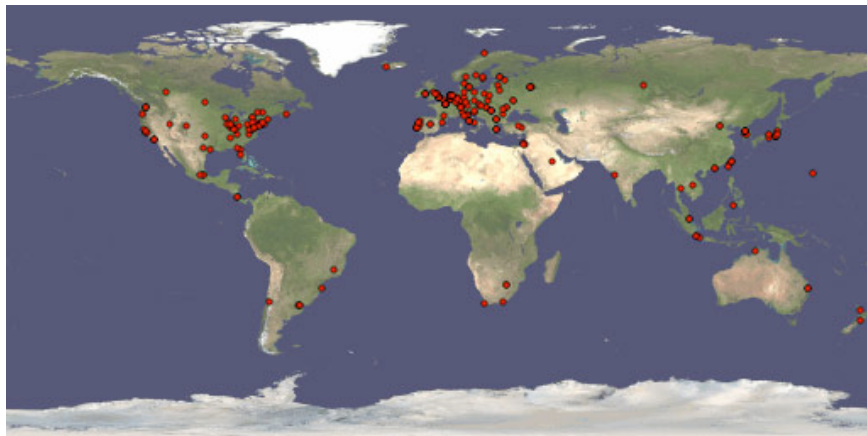
<http://www.serpentine.com/blog/2008/02/19/peruse-popular-perl-packages/>

“Moose is pretty much the most exciting thing I’ve seen come out of the Perl 5 world in quite some time, and I’m really enjoying using it for my projects”

(My apologies if your favourite module isn’t included here.)



Comprehensive Perl Archive Network  
360 mirrors in 51 regions (TLDs)



CPAN handles the global distribution.

Mirror status <http://www.cs.uu.nl/stats/mirmon/cpan.html>

# Developer Services

Upload a perl module distribution  
and you automatically get...

- *global distribution and archiving*
- *namespace* ownership and management
- a *bug tracking* queue at [rt.cpan.org](http://rt.cpan.org)
- a *forum* at [cpanforum.com](http://cpanforum.com)
- *smoke testing* on many platforms

This is a mature environment with rich services.

I'll discuss smoke testing and quality a little later

# search.cpan.org

For each and every distribution:

Browse well formatted inter-linked docs

Links to forums, bug tracking, ratings,  
annotated documentation, dependency  
analysis, smoke test results, and more...

620,000 unique visitors per month

140,000 page views per day

41,000 visits per day

The primary face of CPAN

TOOLS Also has other tools, like grep'ing and diff'ing the distributions without downloading them.

DOWNLOAD You can download distributions but most people use automated tools for that.

Source for stats: google analytics (added 31st Jan, so unique visitor count is probably too low and its too soon to see trends)




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in

[Stevan Little](#) > [Moose-0.38](#)

[permalink](#)

## Moose-0.38

<b>This Release</b>	Moose-0.38	<a href="#">[Download]</a> <a href="#">[Browse]</a>	15 Feb 2008	
<b>Other Releases</b>	<div>Moose-0.37 -- 14 Feb 2008 <input type="button" value="Goto"/></div>			
<b>Links</b>	<a href="#">[Discussion Forum]</a> <a href="#">[View/Report Bugs (2)]</a> <a href="#">[Dependencies]</a> <a href="#">[Other Tools]</a>			
<b>CPAN Testers</b>	PASS (62) NA (1) <a href="#">[View Reports]</a> <a href="#">[Perl/Platform Version Matrix]</a>			
<b>Rating</b>	★★★★★ (3 Reviews) <a href="#">[Rate this distribution]</a>			
<b>License</b>	Perl ( <a href="#">Artistic</a> and <a href="#">GPL</a> )			
<b>Special Files</b>	<div><a href="#">Build.PL</a> <a href="#">MANIFEST</a> <a href="#">Makefile.PL</a></div> <div><a href="#">Changes</a> <a href="#">META.yml</a> <a href="#">README</a></div>			



















Modules		
<a href="#">Moose</a>	A postmodern object system for Perl 5	0.38
<a href="#">Moose::Meta::Attribute</a>	The Moose attribute metaclass	0.34

Documentation	
<a href="#">Moose::Cookbook</a>	How to cook a Moose
<a href="#">Moose::Cookbook::FAQ</a>	Frequently asked questions about Moose

Example page for a distribution  
Showing rich set of features

# Dependency Analysis available for all Modules

<http://bbbike.radzeit.de/~slaven/cpantestersmatrix.cgi>

<a href="#">Moose</a>		16 PASSEs, 0 UNKNOWNs, 0 FAILs, 0 NAs
<a href="#">Test::LongString</a>		108 PASSEs, 0 UNKNOWNs, 0 FAILs, 0 NAs
<a href="#">Test::Builder</a>		Core module
<a href="#">Scalar::Util</a>		Core module
<a href="#">Test::Exception</a>		28 PASSEs, 0 UNKNOWNs, 0 FAILs, 0 NAs
<a href="#">Test::Harness</a>		Core module
<a href="#">Sub::Uplevel</a>		34 PASSEs, 0 UNKNOWNs, 0 FAILs, 0 NAs
<a href="#">Exporter</a>		Core module
<a href="#">Carp</a>		Core module
<a href="#">Filter::Simple</a>		Core module
<a href="#">Class::MOP</a>		20 PASSEs, 0 UNKNOWNs, 0 FAILs, 0 NAs
<a href="#">File::Spec</a>		Core module
<a href="#">Sub::Name</a>		16 PASSEs, 0 UNKNOWNs, 0 FAILs, 0 NAs
<a href="#">Sub::Exporter</a>		81 PASSEs, 0 UNKNOWNs, 0 FAILs, 0 NAs
<a href="#">Params::Util</a>		99 PASSEs, 0 UNKNOWNs, 0 FAILs, 0 NAs
<a href="#">Sub::Install</a>		102 PASSEs, 0 UNKNOWNs, 0 FAILs, 0 NAs
<a href="#">Data::OptList</a>		89 PASSEs, 0 UNKNOWNs, 0 FAILs, 0 NAs
<b>Chance of success</b>		100%

Dependencies need not be hell!

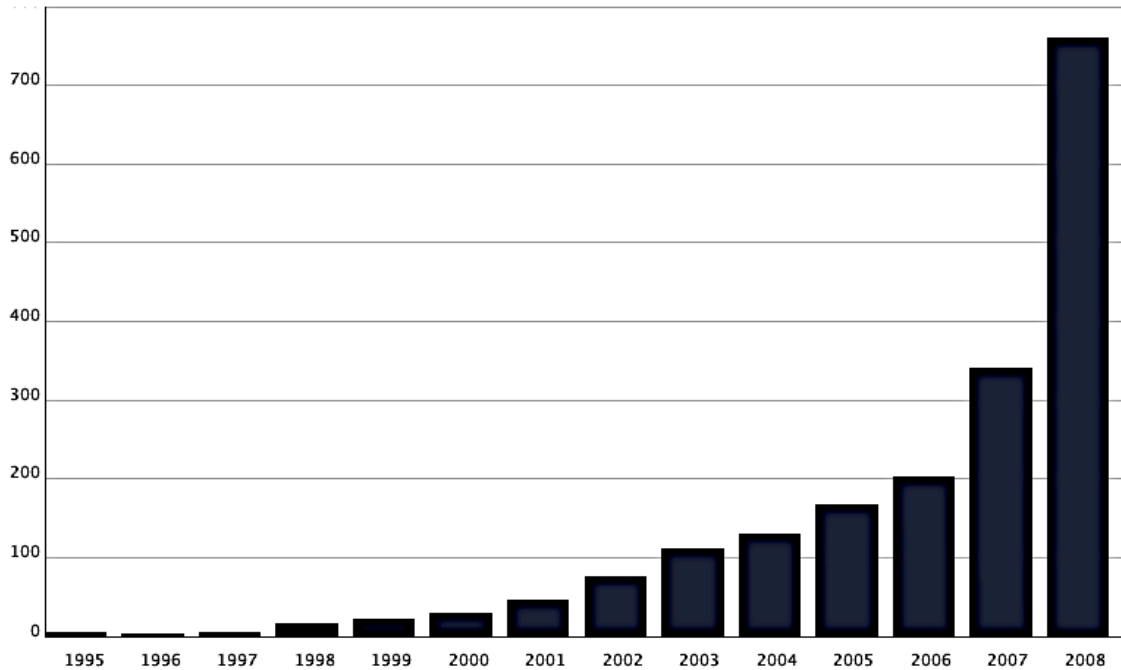
Shows tree of dependencies

Identify risks.

Refine the view to match you particular operating system and perl version

# Average Uploads/Month

Created on: Wednesday January 30, 7:33 PM



Did I say it was a vibrant and growing developer community?

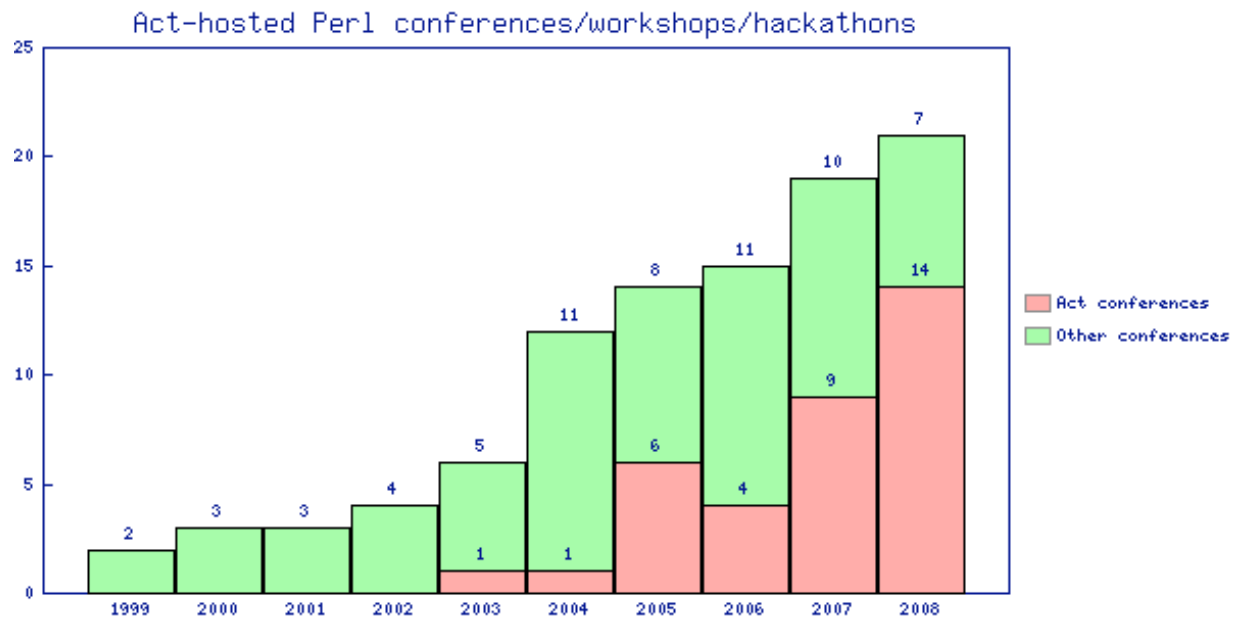
(2008 may be slightly exaggerated as it's extrapolated from January data.)  
The trend is clear.

Certainly doesn't look like a dead language!

<http://services.alphaworks.ibm.com/manyeyes/view/SmAgULsOtha6C7W~7CInL2~>

# Perl Mongers

## Grass Roots Community & Conferences



<http://use.perl.org/article.pl?sid=08/04/29/0512200>

(“Act (A Conference Toolkit) is a multilingual, template-driven, multi-conference web site that can manage the users, talks, schedule and payment for your conference”)



# ~ Myths ~



Perl is hard to read / test / maintain

Perl 6 is killing Perl 5

# ~ Myths ~



**Perl is hard to read / test / maintain**

Perl 6 is killing Perl 5

“True greatness is measured by how much freedom you give to others, not by how much you can coerce others to do what you want.”  
—Larry Wall

I greatly value the freedoms perl give me  
Freedoms in the language, the community, the technology, the culture.  
With freedom comes responsibility  
You can write poorly in any language.  
You can write beautiful code in Perl.  
<http://jeremy.zawodny.com/blog/archives/009873.html#comment-39486>

# Guidelines and Tools

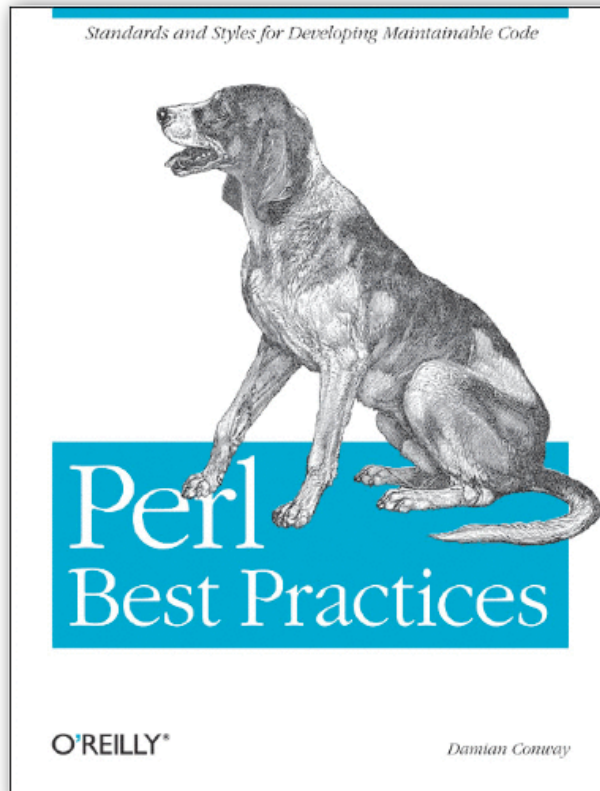
Perl Best Practices

Perl::Tidy

Perl::Critic

Test::\*

Devel::Cover



More than one way to do it, but...

Already a growing culture of quality and testing when the book came out in July 2005  
256 guidelines

Agreeing on one set of sane guidelines  
is more important than the exact details of the guidelines.

PBP makes it easy for a team to agree “We’ll just follow PBP guidelines”.

# Perl::Tidy

Perl code beautifier

Works beautifully - can be trusted

Supports *many* options for personal styles

Perl Best Practices recommended options

Normalise the coding style of existing code.

Very simple and effective way to add clarity to a code base.

Now you've got pretty code,  
but is it good code?

CRITIC (next)

# Perl::Critic

Static Code Analysis for Perl

Includes over 120 policies

Most based on Perl Best Practices

Grouped into levels and themes

Configurable and extensible  
for local policies and styles

An extensible framework for creating and applying coding standards to Perl source code

Perltidy address the layout of code.

Perlcritic addresses the semantics.

Now you've got pretty code,  
that follows best practices,  
but does it work?

... TESTING (next)

# Test::\*

Perl culture takes testing seriously

Excellent mature tools for testing

Test Anything Protocol - producers/consumers

[http://en.wikipedia.org/wiki/Test\\_Anything\\_Protocol](http://en.wikipedia.org/wiki/Test_Anything_Protocol)

Test::\* modules make it easy to write tests

Over 200 Test::\* distributions on CPAN

Also many 'mock' modules for mocking objects and other functionality to ease testing

Test::Class provides xUnit styles tests

The test modules work together.

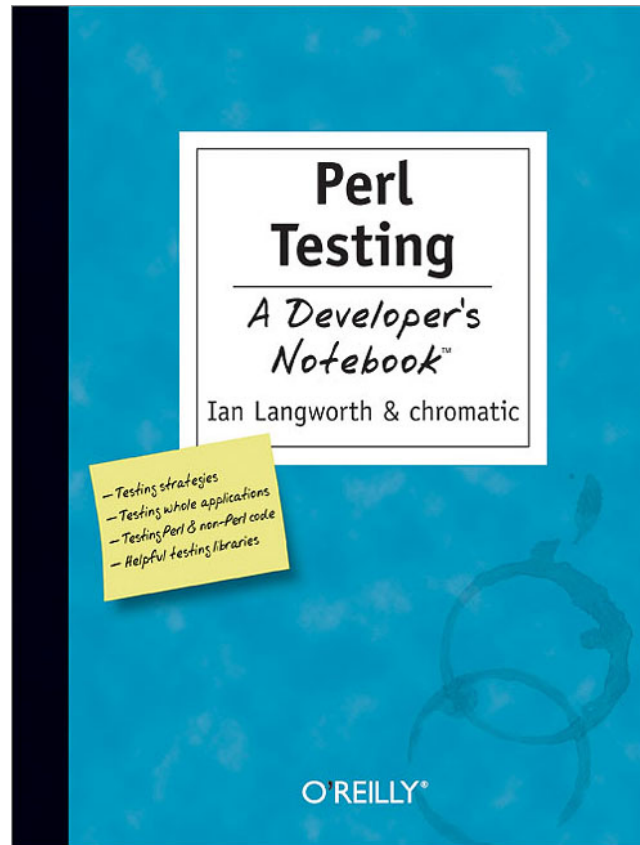
<http://search.cpan.org/search?m=dist&q=Test%3A%3A&s=1&n=100>

Now...

you've got pretty code,  
that follows best practices,  
has tests and the tests pass,  
but how much code is exercised by the tests?

COVERAGE (next)





Published July 2005

<http://www.oreilly.com/catalog/perltestingadn/>

# Devel::Cover

Coverage Analysis for Perl

Tells you what code has been executed

Statement, branch, condition, subroutine, pod

Produces drill-down reports in HTML

Includes documentation coverage analysis.

# Devel::Cover Reports

<http://pjcj.sytes.net/cover/latest/>

File	stmt	bran	cond	sub	pod	total
<a href="#">AcePerl-1.91</a>	72.48	52.74	43.18	74.66	56.36	64.15
<a href="#">Algorithm-Annotate-0.10</a>	100.00	50.00	n/a	100.00	0.00	87.80
<a href="#">Algorithm-C3-0.06</a>	100.00	100.00	100.00	100.00	100.00	100.00
<a href="#">Algorithm-Dependency-1.102</a>	75.13	41.60	31.43	85.00	92.11	67.14
<a href="#">Algorithm-Diff-1.1902</a>	87.47	78.68	77.66	80.77	100.00	83.85

file	stmt	bran	cond	sub	pod	time	total
<a href="#">blib/lib/Algorithm/Dependency.pm</a>	95.2	83.3	n/a	93.3	100.0	34.4	92.7
<a href="#">blib/lib/Algorithm/Dependency/Item.pm</a>	100.0	50.0	33.3	100.0	100.0	8.2	86.8
<a href="#">blib/lib/Algorithm/Dependency/Ordered.pm</a>	100.0	75.0	n/a	100.0	100.0	9.3	93.7
<a href="#">blib/lib/Algorithm/Dependency/Source.pm</a>	86.3	55.0	46.7	90.9	100.0	22.2	75.5
<a href="#">blib/lib/Algorithm/Dependency/Source/File.pm</a>	100.0	50.0	n/a	100.0	100.0	7.8	85.2
<a href="#">blib/lib/Algorithm/Dependency/Source/HoA.pm</a>	100.0	50.0	n/a	100.0	100.0	0.5	90.5
<a href="#">blib/lib/Algorithm/Dependency/Weight.pm</a>	97.7	44.4	n/a	100.0	100.0	13.6	85.9
<a href="#">inc/Class/Inspector.pm</a>	41.1	19.6	0.0	43.5	83.3	2.1	35.6
<a href="#">inc/Test/ClassAPI.pm</a>	77.2	40.5	28.6	100.0	50.0	1.9	68.4
Total	75.1	41.6	31.4	85.0	92.1	100.0	67.1

blib/lib/Algorithm/Dependency/Weight.pm			
Criterion	Covered	Total	%
statement	42	43	97.7
branch	8	18	44.4
condition			n/a
subroutine	12	12	100.0
pod	5	5	100.0
total	67	78	85.9

line	stmt	bran	cond	sub	pod	time	code
1							package <b>Algorithm::Dependency::Weight</b> ;

223							sub <b>weight_all</b> {
224	1			<u>1</u>	<u>1</u>	11	my \$self = shift;
225	1					13	my @items = \$self->source->items;
226	1	<u>50</u>				15	defined \$items[0] or return undef;
227	1					10	\$self->weight_hash( map { \$_->id } @items );
	6					67	

blib/lib/Algorithm/Dependency/Source.pm			
<i>Criterion</i>	<i>Covered</i>	<i>Total</i>	<i>%</i>
<b>condition</b>	7	15	<u>46.7</u>

## and 3 conditions

line	!!	!&&!r	!&&r	condition
<b>139</b>	0	0	1037	defined \$_[0] && ! <b>ref</b> (_[0])
	0	0	1037	defined \$_[0] && ! <b>ref</b> (_[0]) && \$_[0] ne ' '

## or 3 conditions

line	!	!&&r	!&&!r	condition
<b>140</b>	1037	0	0	\$\$ <b>self</b> {'loaded'} or <b>\$self-&gt;load</b>
<b>161</b>	11	3	0	\$\$ <b>self</b> {'loaded'} or <b>\$self-&gt;load</b>
<b>182</b>	4	1	0	\$\$ <b>self</b> {'loaded'} or <b>\$self-&gt;load</b>

# ~ Myths ~

Perl is dead

Perl is hard to read / test / maintain

Perl 6 is killing Perl 5

# ~ Myths ~

**BUSTED!**  
Perl is dead

**BUSTED!**  
Perl is hard to read / test / maintain

**Perl 6 is killing Perl 5**

# Perl 6 *saved* Perl 5!

“Perl 5 had already started dying, because people were starting to see it as a dead-end language.

It seemed odd at the time, but when we announced Perl 6, Perl 5 suddenly took on a new life.”

—Larry Wall, 2002



# Perl 6 *saved* Perl 5!

In 2000 perl was dying from the inside out  
The Perl 6 RFC process “vented speen”  
Perl 5 development has gone smoothly since  
Much refactoring driven by Perl5-on-Parrot  
Many new features inspired by Perl 6 work

Back around 2000...

- Perl5 was getting very hard to maintain
- Bickering on the mailing lists
- Few volunteers for any real work
- Lack of direction

Using Perl 5 as one of the backends for Perl 6.

# Perl 5.10

Perl 5.10 was released in December 2007  
Five years after 5.8.0, two years after 5.8.8

Refactored internals

*many fixes, more speed, less memory*

Switch statement, smart matching, named captures, state variables, defined-or, say, field hashes, pluggable regex engines, trie-based non-recursive pattern matching, and more...

<http://www.slideshare.net/rjbs/perl-510-for-people-who-arent-totally-insane>

# A Culture of Testing

Another bonus from Perl 6:

*Strong test suites for Perl 5 code are needed to ensure backwards compatibility*

Strengthened culture of testing

# Perl Test Suite

2002: Perl 5.8.0 had **26,725** core tests  
+41,666 more for bundled libraries etc.

2007: Perl 5.10.0 has **78,883** core tests  
+109,427 more for bundled libraries etc.

(I couldn't find code coverage stats.)

For perspective: Ruby has ~1,400 core tests plus ~14,000 for bundled libraries etc.

See comments in [http://www.oreillynet.com/onlamp/blog/2007/05/trust\\_but\\_verify.html](http://www.oreillynet.com/onlamp/blog/2007/05/trust_but_verify.html)  
and <http://reddit.com/info/1uzda/comments/>

# Module Test Suites

## CPAN Testers Network:

*Automated smoke testing of CPAN uploads*

Runs the test suite included in distribution

over 60 different platforms

over 20 different perl versions

Immediate feedback for developers

Some by completely automated robots in virtual machines.

Some by users who submit reports as they download and test via the installer.

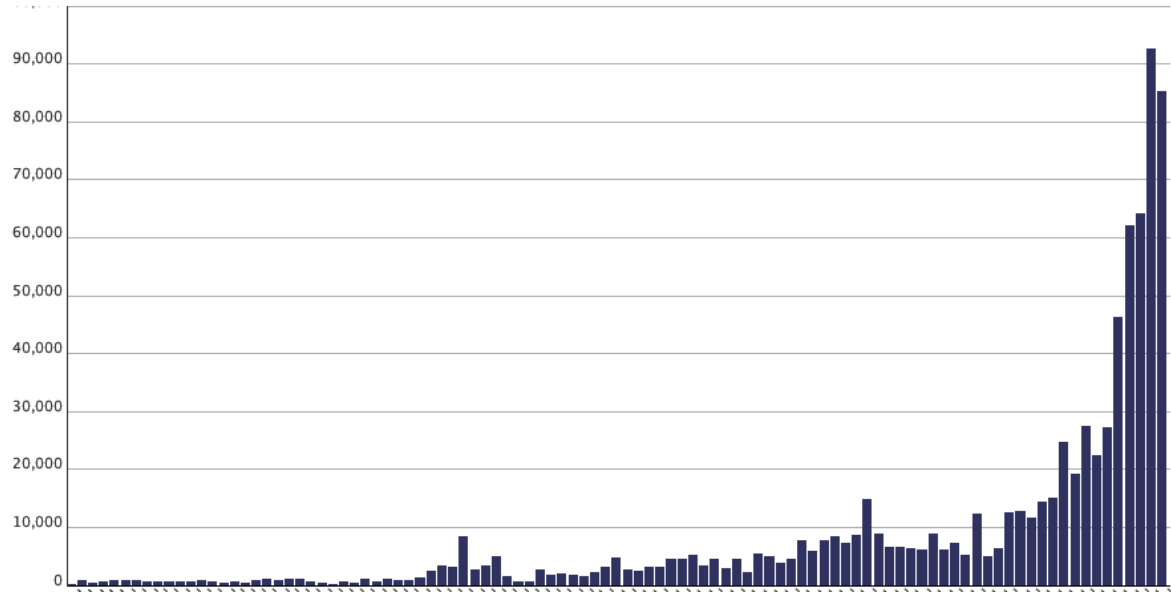
# Platform/Version analysis available for all Modules

<http://cpandeps.cantrell.org>

	MSWin32	VMS	cygwin	darwin	freebsd	linux	netbsd	openbsd	solaris
5.11.0									
5.10.0									
5.9.5									
5.9.1									
5.9.0									
5.8.8									
5.8.7									
5.8.6									
5.8.5									
5.8.4									
5.8.3									
5.8.2									
5.8.1									
5.8.0									
5.6.2									
5.6.1									
5.5.5									

This one is for the DBI

# ~90,000 Reports/Month



# ~ Myths ~

**BUSTED!**  
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# ~ Myths ~

Perl is dead

**BUSTED!**

Perl is hard to read / test / maintain

**BUSTED!**

Perl 6 is killing Perl 5

**BUSTED!**

# *Perl 6 Myths*

**“Perl 6 is not Perl”**

**“It'll never be finished”**

**“There's no code written in Perl 6”**

**“Perl 6 is not Perl”**

*“Perl 6 [...] is clearer, more direct, more expressive, and without many of the old false leads and rough edges in Perl 5.*

*So, Perl 6 is still Perl in that a programmer looking at a Perl 6 program will instantly recognize that it is "Perl", even if some of the details are different.”*

*—Larry Wall*

**“It’ll never be finished”**

*“If we'd done Perl 6 on a schedule, you'd have it by now. And it would be crap.”*

*—Larry Wall*

*"do it right" and "it's ready when it's ready"*

*“Truly radical and far-reaching improvements over the past few years.”*

It's given the design team the freedom to look deeply into issues.

To re-balance the design and grammar as it evolved, in ways that wouldn't be possible after a release.

# When will be be done?

*“We're not doing the Waterfall [model of development] we're doing the **Whirlpool**, where the strange attractor whirls around **with feedback at many levels** but eventually converges on something in the middle.”*

—Larry Wall

in 'What criteria mark the closure of perl6 specification'

Specification is now relatively stable

*“In other words, a whirlpool sucks, but the trick is to position your whirlpool over your intended destination, and you'll eventually get there, though perhaps a bit dizzier than you'd like.”*

-- Larry Wall, in 'What criteria mark the closure of perl6 specification'

Mid-2007 thru mid 2008:

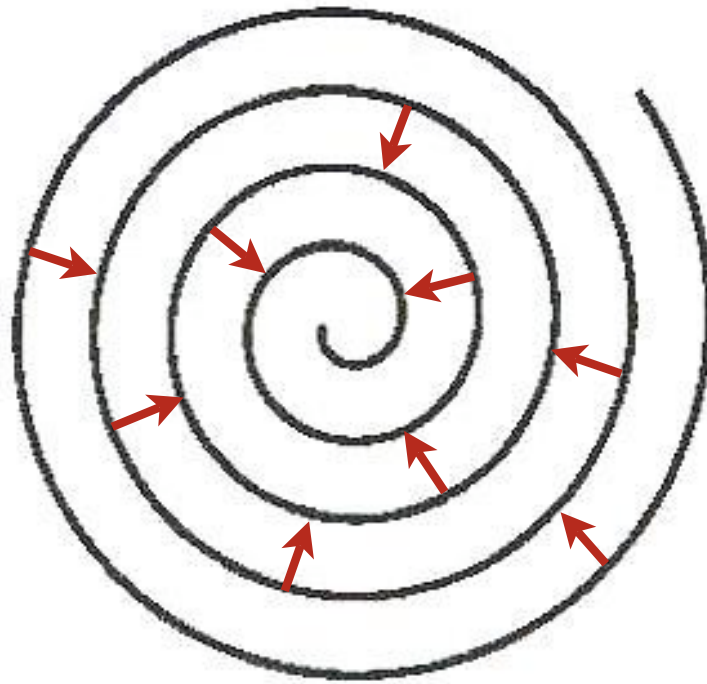
New features:.....6%

Refinements to existing features:.....16%

Clarifications of semantics:.....44%

Typo fixes:.....35%





*“feedback at many levels”*

# Multiple implementations

Perl 6 compilers

Pugs - *initial experimentation in Haskell*

KindaPerl6 - *perl5 - aiming to self-host*

SMOP - *Simple Meta Object Protocol*

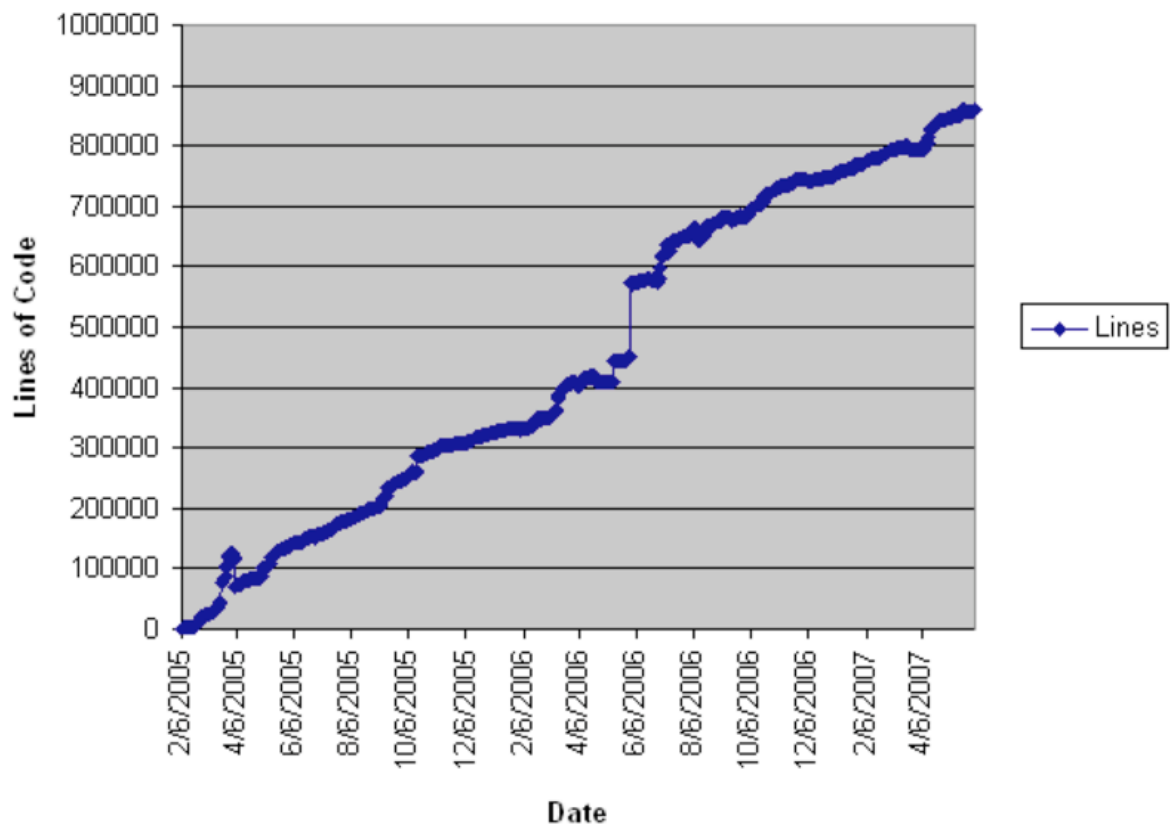
Rakudo - *built on Parrot Compiler Toolchain*

Sharing a common test suite



<http://www.sgeier.net/fractals/indexe.php>

## Pugs - 850,000 Lines of Code in 2 Years



An extraordinary amount of work.

Valuable feedback into the 'whirlpool' of design and evolution.

Test suite is the official Perl 6 test suite

**“There's no Perl 6 code”**

- > 35,000 lines of tests written in Perl 6
- > 10,000 lines of examples written in Perl 6

<http://m19s28.dyndns.org/iblech/stuff/pugs-smokes/pugs-smoke-6.2.13-r19912-linux-normal--1202939667-1239--19328-18024-1304-1909-769-30--0d335bb4cd34fb4ab68763b9f97ae15.html>

<http://svn.pugscode.org/pugs/ext/Muldis-DB/>





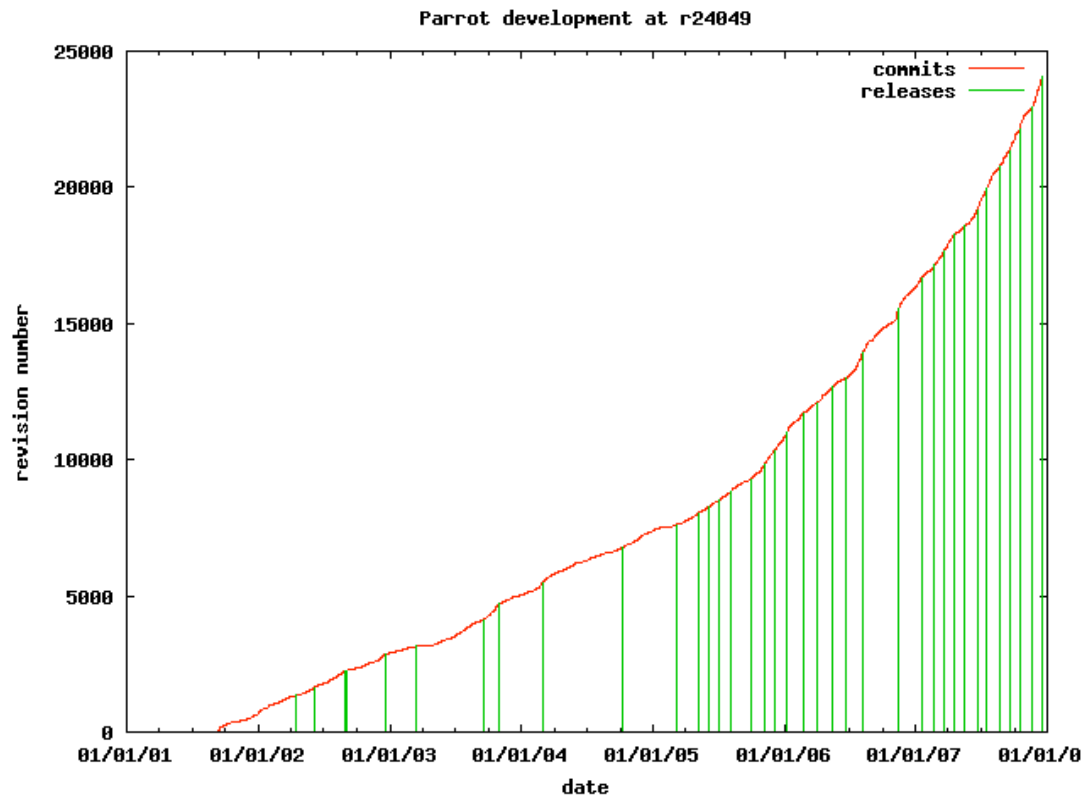
An advanced virtual machine for dynamic languages

Advanced capabilities with JIT compiling

Already supports over 50 languages  
about 20 of which are non-toy

*Python, Ruby, PHP, Lua, Lisp, TCL, ...*





# Parrot Test Suite

11,086 tests in 557 files

53,884 tests if run for all 7 runcores

(in Jan 2008, many more now)

# Parrot Compiler Toolkit

Write a compiler in an afternoon!

“Parrot is really quite wonderful. [...] Parrot lets you implement your own languages using Perl 6 rules for the grammar and Perl 6 for the compiler.”

- Simon Cozens

<http://blog.simon-cozens.org/post/view/1323>

# Rakudo

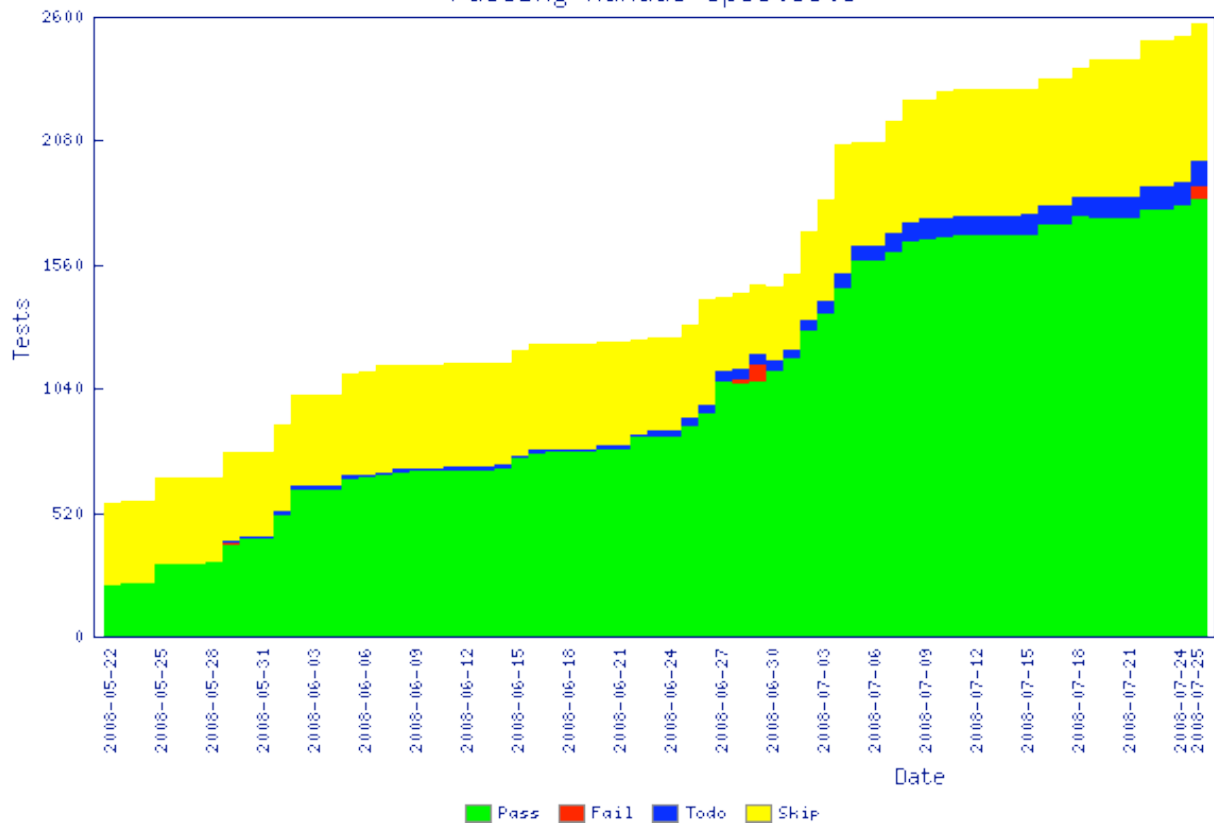
# Perl 6 on Parrot

"Rakudo" short for "rakuda-do"

Japanese for "Way of the Camel"

"rakudo" also means "paradise"

Passing Rakudo Spectests



# Community Resources

*“Awesome community.  
Perl people tend to be laid-back and friendly.”*

perlmonks.org - Meditations and wisdom

use.perl.org - News and blogs

perlbuzz.com - Headlines and articles

comp.lang.perl.\* - Newsgroups

Quote taken from comment on <http://blog.timbunce.org/2008/02/14/perceptions-of-perl-views-from-the-edge/>

# Any questions?

<http://perlmonks.org>  
<http://search.cpan.org>  
<http://blog.timbunce.org>