How the Camel is de-cocooning

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The Inspiration

coccoon?

Perl **5** Recap: 2000 - 2010

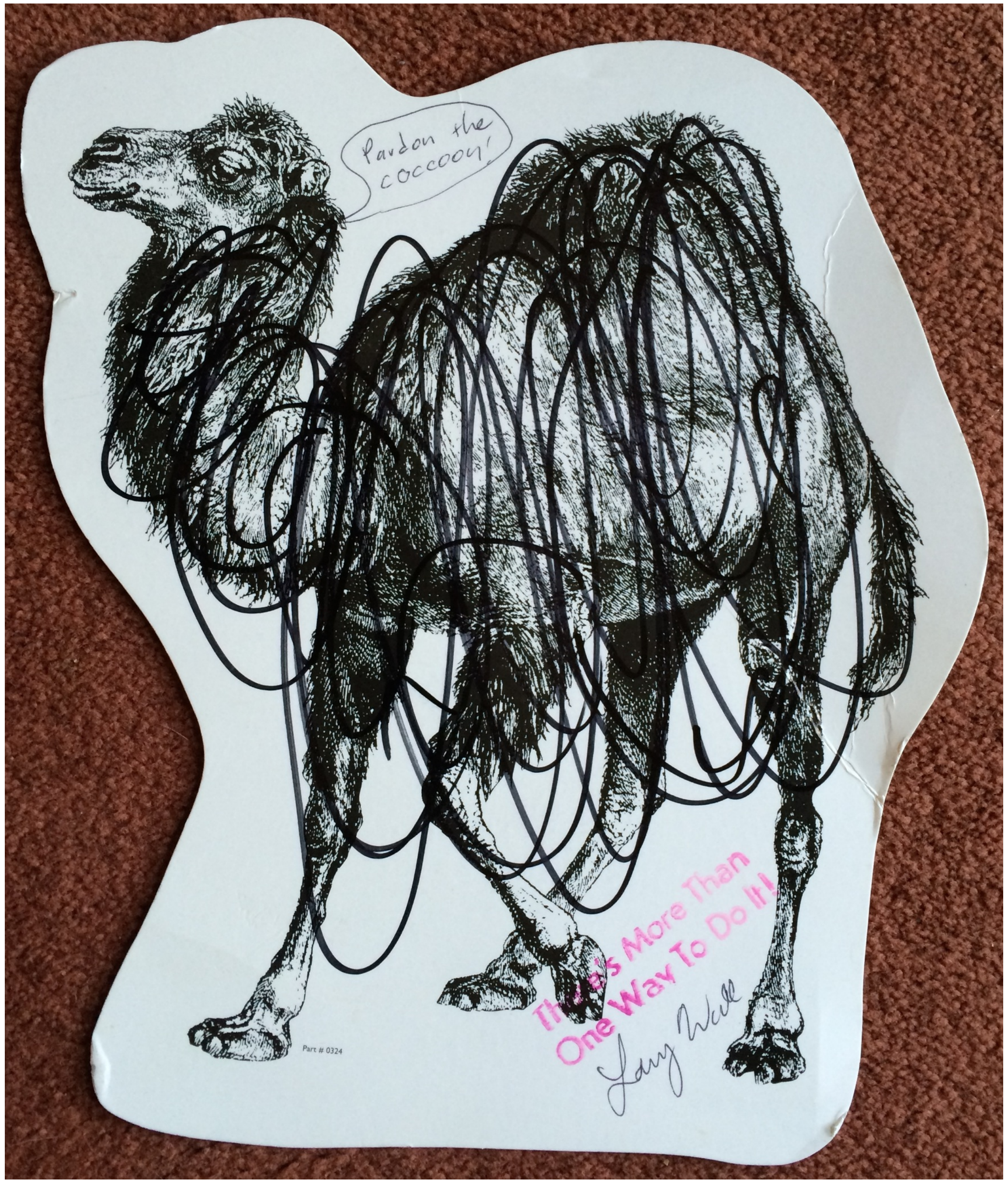
- 2000 - Perl 5.6
- 2002 - Perl 5.8
- 2007 - Perl 5.10
- 2010 - Perl 5.12 + yearly release
- The lean years have **passed**!

Perl **6** Recap: 2000 - 2010

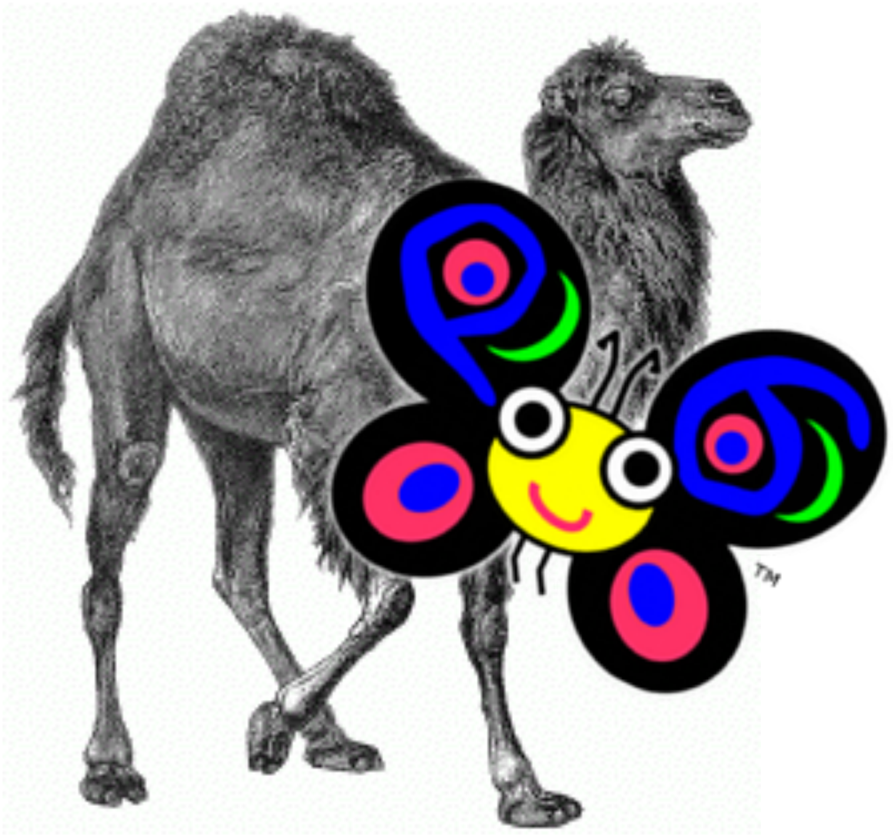
- Camel Herders Meeting / Request for Comments
- Apocalypses, Exegeses, Synopses
- Parrot as a VM for everybody
- Pugs (on Haskell) / Perl 6 test-suite
- Rakudo (on Parrot) / Niecza (on mono/.NET)
- Nothing “Production Ready”

The 0’s - Cocooning Years

- Perl was busy with itself
- Redefining itself
- Re-inventing itself
- What is Perl ?
- These years have **passed**!



Not your normal de-cocooning



Perl **5** and Perl **6** will co-exist for a long time to come!

Perl **5** in the 10’s

- A new release **every year**
- Many
- Perl 6 ~, //, …, p
- Perl 6 Meth
- and a **Monthly** development release

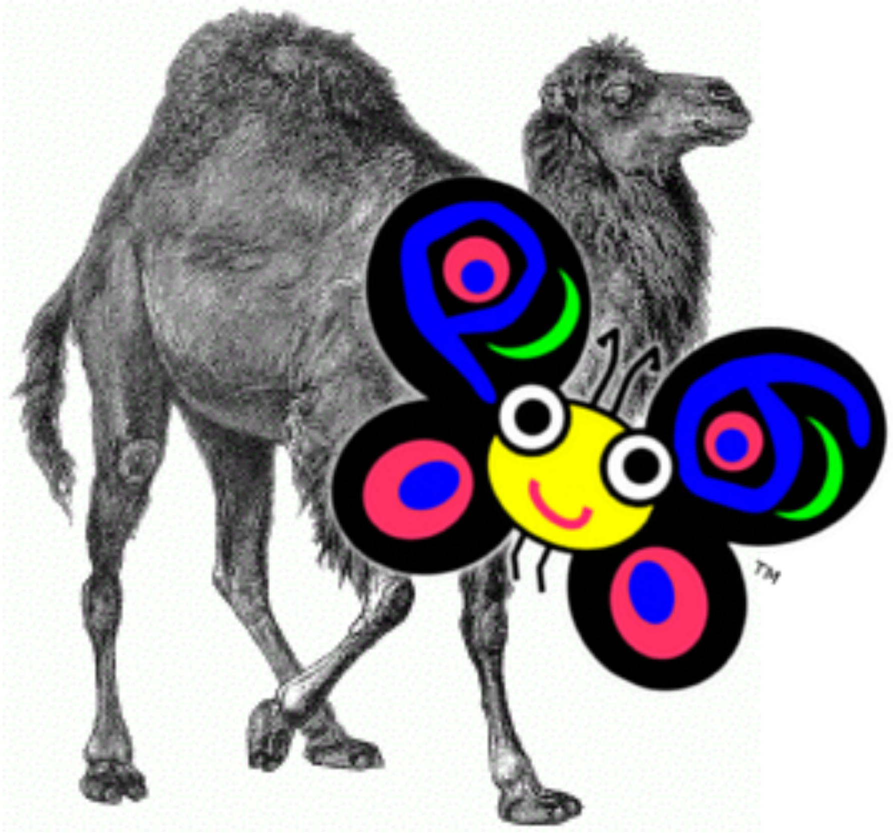
5.20 is out!

Go get it

and use it!

Perl **6** in the 10’s

- Niecza more feature-complete, initially
- Not Quite Perl (NQP) developed and stand-alone
- 6model on NQP with multiple backends
- MoarVM - a Virtual Machine for Perl 6
- Rakudo runs on Parrot, JVM, MoarVM
- also a **Monthly** development release



Co-existence? Yes!

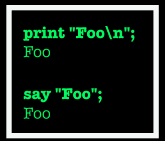
But Perl 6 will become larger and be more future proof!

Cool Perl **6** features in Perl **5**

- say
- yada yada yada (…)
- state variables
- defined-or (//)
- lexical subs
- subroutine signatures
- OK as long as it doesn’t involve **types**

```
print "Foo\n";
Foo


say "Foo";
Foo
```



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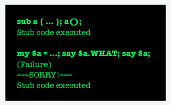
```
sub a { ... }; a();
Unimplemented at -e line 1


my $a = ...;
syntax error at -e line 1, near "= ..."
```



```
sub a { ... }; a();
Stub code executed

my $a = ...; say $a.WHAT; say $a;
(Failure)
===SORRY!===
Stub code executed
```

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sub a { ... }; a();
Unimplemented at -e line 1

my $a = ...;
syntax error at -e line 1, near "= ..."
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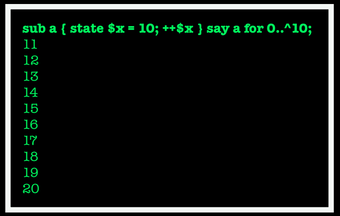
Stub code executed


my $a = ...; say $a.WHAT; say $a;
(Failure)
===SORRY!===
Stub code executed
```

```
sub a { state $x = 10; ++$x }; say a for 0..9;
11
12
13
14
15
16
17
18
19
20
```



```
sub a { state $x = 10; ++$x } say a for 0..^10;
11
12
13
14
15
16
17
18
19
20
```

```
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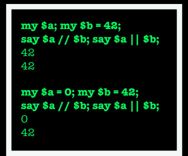
19
20
```

```
my $a; my $b = 42;
say $a // $b; say $a || $b;
42
42

my $a = 0; my $b = 42;
say $a // $b; say $a || $b;
0
42
```



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42
42

my $a = 0; my $b = 42;
say $a // $b; say $a || $b;
0
42
```
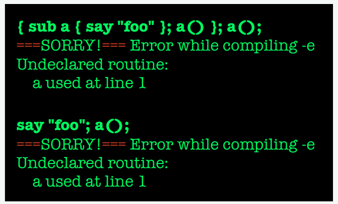

```
{ my sub a { say "foo" }; a() }; a();
foo
Undefined subroutine &main::a called at -e line 1.

say "foo"; a();
foo
Undefined subroutine &main::a called at -e line 1.
```



```
{ sub a { say "foo" }; a() }; a();
===SORRY!=== Error while compiling -e
Undeclared routine:
   a used at line 1

say "foo"; a();
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say "foo"; a();
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Undeclared routine:
    a used at line 1
```
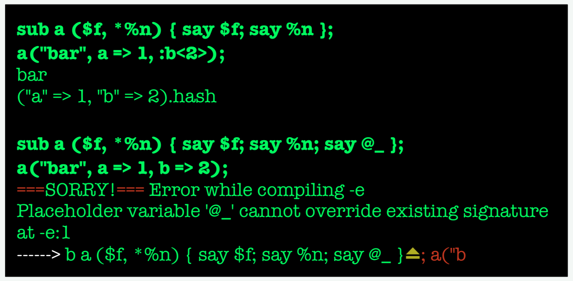

```
sub a ($f, %n) { say $f; say %n };
a("bar", a => 1, b => 2);
bar
b2a1

sub a ($f, %n) { say $f; say %n; say @_ };
a("bar", a => 1, b => 2);
bar
b2a1
barb2a1
```



```
sub a ($f, *%n) { say $f; say %n };
a("bar", a => 1, :b<2>);
bar
("a" => 1, "b" => 2).hash

sub a ($f, *%n) { say $f; say %n; say @_ };
a("bar", a => 1, b => 2);
===SORRY!=== Error while compiling -e
Placeholder variable '@_' cannot override existing signature
at -e:1
------> b a ($f, *%n) { say $f; say %n; say @_ }⏏; a("b
sub a ($f, %n) { say $f; say %n };
a("bar", a => 1, b => 2);
bar
b2a1

sub a ($f, %n) { say $f; say %n; say @_ };
a("bar", a => 1, b => 2);
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b2a1
barb2a1
```

```
sub a ($f, *%n) { say $f; say %n };
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```

Problematic Perl **6** features in Perl **5**

- Standard async still dependent on ithreads
- Promises specific event loop dependent
- Smart match to be experimental / deprecated
- Subroutine signatures limited and only syntactic sugar
- **Bolting on** stuff later stays **difficult**

Perl 5 - Standard async

- Since 5.8 we have **ithreads**
- Which suffers from a flawed implementation
- But for which there is no real alternative
- Using fork() emulation intended for Windows
- Officially **discouraged** since **5.20**
- Maybe **forks.pm** qualifies as an alternative
- Still, programming threads reliably is **superhuman**

"Debugging is twice as hard as writing the code in the first place. Therefore, if you write the code as cleverly as possible, you are, by definition, not smart enough to debug it.”

--Brian Kernighan

Perl 5 - Promises

- Asynchronicity for non-superhumans
- Only available as a CPAN module
- Needs an event loop
- Cannot usually have more than one event loop
- Probably not really asynchronous

Perl 5 - Smart match

- You need typing for smart match to make sense
- Perl 5 will most likely **never** have typing
- Only of limited usefulness and source of confusion
- Hence marked **experimental** again
- And potentially **deprecated** in the future

Perl 5 - Subroutine signatures

- Just arrived with perl **5.20**!
- Alas, syntactic sugar only
- And no real named parameters
- In Perl 6, part of multi-method dispatch
- **Nice** to have nonetheless!

```
sub a (:$name = "You") { say "Hey, $name!" };
a; a :name<Orlando>;
Hey, You!
Hey, Orlando!
```

```
say (name=>"Orlando").WHAT;
(Pair)
say (name=>"Orlando").perl;
"name" => "Orlando"
say :name<Orlando>.WHAT;
(Pair)
say :name<Orlando>.perl;
"name" => "Orlando"
```

```
multi a (Num $n) { say "Number $n" };
multi a (Str $a) { say "String $a" };
a(42); a("foo");
Number 42
String foo
```

```
my $a = "foo"; say $a;
foo
my Num $a = "foo"; say $a;
Type check failed in assignment to '$a'; expected 'Num' but got ‘Str' in
block  at -e:1
my Str $a = "foo"; say $a;
foo
```

Perl **5** features in Perl **6**

- “use v5”
- It stays hard to **integrate** / **mimic** the indescribable

use v5

- By TimToady, maintained by **FROGGS** (Tobias Leich)
- Re-implement Perl 5 just like Rakudo Perl 6
- Grammar / Action based, as a “slang”
- **No** XS (at least not as we know it)
- Call Perl 5 code from Perl 6 and vice-versa
- Now passes **~10%** of Perl 5 test-suite
- Part of next Rakudo Star distribution!

Needed for Perl 6 adoption

- A good introduction (e)book
- More modules, CPAN support
- Better performance

A good introduction (e)book

- Rumour has it a certain someone is working on that
- Don’t let that stop you from writing your own!
- Or just blog about your experiences
- And let us know that you did!

More modules - CPAN support

- Can already upload Perl distributions to CPAN
- Can find distributions on CPAN
- Install from CPAN really soon with **panda**
- Effort to start porting CPAN module later this year

Better performance

- MoarVM is now standalone
- Performance on MoarVM creeping towards Perl 5
- Startup Perl 5 + Moose about same as Perl 6
- Code introspection for optimization built-in
- GSoC project to develop JIT for MoarVM underway
- First JITted code execution already seen!

Why use Perl 6 in production?

- Saner implicit/explicit multi-core programming
    - Channels, Promises, Supplies…
- No versioning issues with modules
- Cool features = happier programmers

```
use Test; ok 42,"foo";
ok 1 - foo
```

```
{ use Test }; ok 42,"foo";
===SORRY!=== Error while compiling -e
Undeclared routine:
    ok used at line 1. Did you mean 'on'?
```

```
for ^10 { rand.sleep; .print };
0123456789
real 0m5.486s
user  0m0.259s
sys 0m0.051s
```

```
await do for ^10 { start { rand.sleep; .print } };
6783524091
real 0m1.217s
user  0m0.260s
sys 0m0.051s
```

```
my $a = 1|2|3; say $a;
any(1,2,3)
my $a = 1|2|3; say $a == 1;
any(True, False, False)
my $a = any(1..3); say so $a == 1;
True
say (0..^100).pick;
71
my $a = any( ^100 ); say so $a == (^100).pick;
True
my $a = any( ^100 ); say so $a == (^1000).pick;
True
my $a = any( ^100 ); say so $a == (^1000).pick;
False
```

How to try Perl 6

(as a **user**)

- Rakudo with plenty of modules to try
- Next version will have **v5** most likely
- http://rakudo.org/downloads/star

How to try Perl 6

(as a **tester**)

- The Rakudo equivalent of **perlbrew**:
- https://github.com/tadzik/rakudobrew

How to try Perl 6

(as a **contributor**)

- mkdir foo && cd foo
- git clone https://github.com/rakudo/rakudo.git
- cd rakudo
- perl Configure.pl —gen-moar
- make install
- install/bin/perl6 -v

Examples?

- Rosetta Code
- http://perl6.org/community/rosettacode
- Perl 6 Advent Calendar
- https://perl6advent.wordpress.com
- Jonathan Worthington's presentations with examples
- http://jnthn.net/articles.shtml

Support?

- fine folks of the #perl6 channel on irc.freenode.org
- blogs: http://planeteria.org/perl6/
- from Perl 5: http://perlgeek.de/en/article/5-to-6
- the nitty gritty: http://perlcabal.org/syn/

Questions?

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Thank You!

for the White Camel