Essential Perl One-Liners

Walter C. Mankowski

Department of Computer Science
Drexel University
Philadelphia, PA

CPOSC
October 16, 2010

One-Liners

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- “Doctor, my leg hurts. What can I do?” The doctor says, “Limp!”

One-Liners

- Take my wife — please!
- "Doctor, my leg hurts. What can I do?" The doctor says, "Limp!"
- I've just been on a once-in-a-lifetime holiday. I'll tell you what, never again.

Why One-Liners?

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- A lot of work has been done on tools and techniques to get around that.
- Perl's still great for throwing together quick and dirty little programs.
- Nothing's quicker and dirtier than the one-liner.

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- Text files are *everywhere*.
- The Unix command-line environment is incredibly powerful:
  - everything is ASCII
  - create new "programs" by connecting small, simple existing programs in pipelines
  - less, wc, sort, xargs, sed, tr, cut, tee, etc.
- Perl fits really well into this niche.

Freeing your time for more important things . . .

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Perl One-Liners 101

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(Cell phones off?)

Hello, world

```
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- no strict
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- no tests

That's it!

- That's all you need to know.

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- That's all you need to know.
- The rest of this talk is all about syntactic sugar to make one-liners easier to write.

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Automatic newlines with -l

The -l flag automatically adds a newline to whatever you print.

Without -l

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perl -e 'print "Hello, world.\n"'
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With -l

```
perl -le 'print "Hello, world."'
```

say what?

Perl 5.10 introduced a new builtin function, `say`, that works just like `print` except that it automatically adds a newline.

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Sadly, say doesn't work with -e:

```
% perl -e 'say "Hello, world."'
String found where operator expected at -e line 1, near
"say "Hello, world.""
        (Do you need to predeclare say?)
syntax error at -e line 1, near "say "Hello, world.""
Execution of -e aborted due to compilation errors.
%
```

say what? (continued)

To avoid breaking backward compatibility, say is turned off by default in 5.10.

say what? (continued)

To avoid breaking backward compatibility, say is turned off by default in 5.10.
To turn it on from the command line, use -E instead of -e:

```
% perl -E 'say "Hello, world."'
Hello, world.
%
```

Writing Loops

Suppose you want to see if your team is following your new coding standards that lines can't be longer than 80 characters. Here's one way to write that:

```
perl -e 'while (<>) {print if length > 80}' *.pl
```

The -n flag

That gets tedious to write that all the time, so perl has a -n flag that automatically puts a loop around your code. It's equivalent to

```
while {<>} {
    ...  # your code goes here
}
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```

With -n

```
perl -ne 'print if length > 80' *.pl
```

BEGIN and END blocks

If you want to do pre- or post-processing when using the `-n` flag, use BEGIN and END blocks.
For example, if the file `nums` contains

```
1
2
3
4
```

BEGIN and END blocks (continued)

Sum

```
% perl -lne '$s += $_; END{print $s}' nums
10
```

BEGIN and END blocks (continued)

Sum

```
% perl -lne '$s += $_; END{print $s}' nums
10
```

Product

```
% perl -lne 'BEGIN{$p=1} $p *= $_; END{print $p}' nums
24
```

Writing Loops (continued)

Suppose you want to convert an existing file to lowercase. Now that you know about the `-n` flag, you might try writing it like this:

```
perl -ne 'tr/A-Z/a-z/; print' foo
```

Writing Loops (continued)

Suppose you want to convert an existing file to lowercase. Now that you know about the `-n` flag, you might try writing it like this:

```
perl -ne 'tr/A-Z/a-z/; print' foo
```

```
perl -ne 'tr/A-Z/a-z/; print' foo >foo.out
```

The -p flag

Printing each line is a common enough operation that perl has a special flag for it, the -p flag. It's equivalent to

```
while {<>} {
    ...  # your code goes here
} continue {
    print or die "-p destination: $!\n";
}
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It's similar to the -n flag, except -p prints out each line:

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With -p

```
perl -pe 'tr/A-Z/a-z/' foo
```

Advanced Perl One-Liners

Editing files "in-place"

Instead of just printing out the file, one thing you might want to do with the `-p` flag is make the changes directly to the file. Perl's `-i` flag does exactly that:

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```

Edit a.pl "in-place"

```
perl -pi -e 's/foo/bar/' a.pl
```

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Print to stdout

```
perl -pe 's/foo/bar/' a.pl
```

Edit a.pl "in-place"

```
perl -pi -e 's/foo/bar/' a.pl
```

Editing multiple files

```
perl -pi -e 's/foo/bar/' *.pl
```

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Edit `a.pl` "in-place"

```
perl -pi -e 's/foo/bar/' a.pl
```

Editing files "in-place"

Obviously the `-i` flag is dangerous since it clobbers whatever was originally in the file. So Perl lets you specify a backup file when using `-i`.

Edit `a.pl` "in-place"

```
perl -pi -e 's/foo/bar/' a.pl
```

Original file saved in `a.pl.bak`

```
perl -p -i.bak -e 's/foo/bar/' a.pl
```

Automatically splitting files

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Default is to split on ' '; use the -F flag to split on something else.

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Print processes whose parents are init

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```

Print all userids and user names

```
perl -aln -F: -e 'print "$F[2]\t$F[0]"' /etc/passwd
```

Using modules

Instead of explicitly `use`'ing a module, you can load a module from the command line with the `-M` flag.
The following programs both do the same thing:

Use module

```
perl -e 'use LWP::Simple; getprint "http://pghpw.org"'
```

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Use module

```
perl -e 'use LWP::Simple; getprint "http://pghpw.org"'
```

-M flag

```
perl -MLWP::Simple -e 'getprint "http://pghpw.org"'
```

Using modules

That's still kind of ugly. One trick to simply it further is to put modules you commonly use in one-liners into y.pm:

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Now instead of this:

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y.pm

```
use LWP::Simple;
1;
```

Now instead of this:

```
perl -MLWP::Simple -e 'getprint "http://pghpw.org"'
```

you can write this:

```
perl -My -e 'getprint "http://pghpw.org"'
```

Using modules

Another good use of y.pm is for one-liner utility functions.

y.pm

```
sub hv {
    for my $k (sort { $h{$a} <=> $h{$b} } keys %h) {
        print "$h{$k}\t$k";
    }
}
```

Using modules

Then suppose you want to count the occurrences of each work in test.txt:

test.txt

```
dog
cat
dog
rat
cat
dog
```

All you have to do is this:

```
perl -My -ne '$h{$_}++; END{hv}' test.txt
```

Input record separators

Perl normally reads input until it hits the "input record separator", which defaults to \n and can be changed by setting $/.
But in addition to setting $/ in a BEGIN block, you can also change it on the command line with the -0 flag. It sets $/ to an octal or hex number:

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But in addition to setting `$/` in a BEGIN block, you can also change it on the command line with the -0 flag. It sets `$/` to an octal or hex number:

`-0x0d`	carriage returns
`-0`	null character (`find -print0`)
`-00`	paragraph mode (useful for Postfix logs)
`-0777`	slurp in entire file

Summary of flags

Flag	Result
`-e`	Execute program on command line
`-l`	Automatically add newlines
`-n`	Automatically loop
`-p`	Automatically loop and print each line
`-i`	Edit files in-place
`-a`	Automatically split input
`-M`	Use module
`-0`	Change input record separator

More Information

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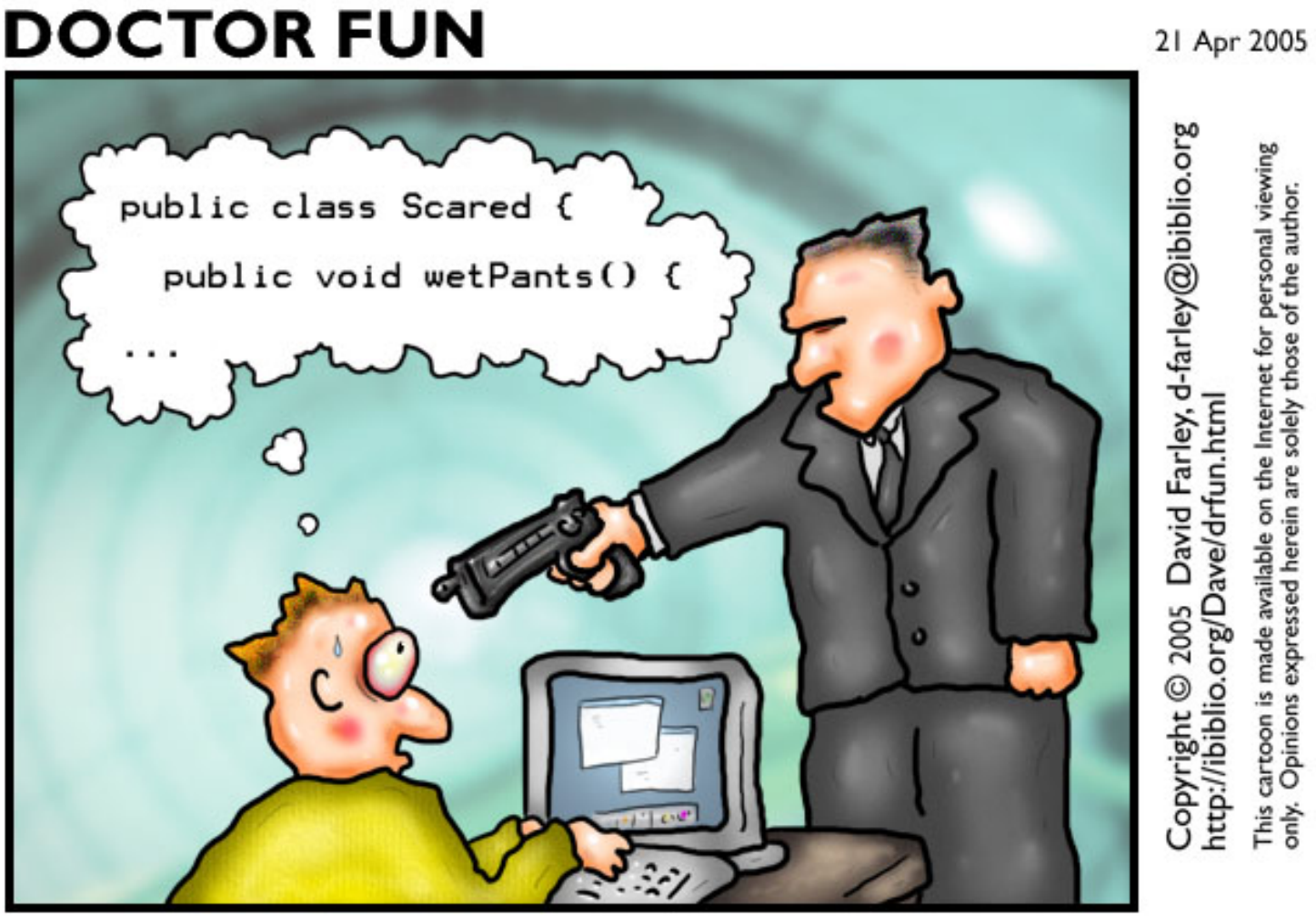
- Google for "perl one liners"
  - Tom Christiansen one-liners
  - article by Jeff Bay in *The Perl Review*
  - "One-liners 101" on IBM developerWorks
  - `@perloneliner` on Twitter
  - many others

Java doesn't have one-liners



Quentin Tarantino's "Learn Java in a Minute"

Examples!

Palindromes

Find palindromes

```
perl -lne 'print if $_ eq reverse' \
  /usr/share/dict/words
```

Line Numbers

Print lines preceded by line number

```
perl -ne 'print "$. $_"'
```

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Simpler way to do it...

```
cat -n
```

Computing Averages

Sum lines, then divide by total number of lines

```
% perl -lne '$s += $_; END{print $s/$.}' nums
2.5
%
```

Printing selected lines

Print lines 10–20

```
perl -ne 'print if 10..20'
```

The `..` operator is magic when used in scalar context. Read the "Range Operators" section in `perlop`.

Grep with Perl regular expressions

Poor man's grep

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perl -ne 'print if /^foobar/'
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Lines with foo not followed by bar

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Lines with bar not preceded by foo

```
perl -ne 'print if /(?<!foo)bar/'
```

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```
perl -ne 'print if /foo(?!bar)/'
```

Lines with bar not preceded by foo

```
perl -ne 'print if /(?<!foo)bar/'
```

Grep on paragraphs

```
perl -00 -ne 'print if /foo(?!bar)/'
```

Random Numbers

Does `rand()` return the same sequence with the same seed on different platforms?

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Look at the first 5

```
% perl -le 'srand(42); print rand for 1..5'
0.744525000061007
0.342701478718908
0.111085282444161
0.422338957988309
0.0811111711783106
```

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0.111085282444161
0.422338957988309
0.0811111711783106
```

Try a whole bunch

```
% perl -le 'srand(42); print rand for 1..100_000' \
  | md5sum
ac18d07f40c858bf4b23090177f6a685  -
```

Stacking the deck

One-liners can also be used in shell scripts

```
#!/bin/bash

SEED=‘perl -le ’print int rand 0xffffffff’‘

for ((n = 10; n <= 400; n += 10)) do
  cmd="./wn_path_seq $n $SEED"
  echo $cmd
  $cmd
done
```

Add lines to file

Add line to beginning of file

```
perl -0777 -i -ne 'print "first\n$_"' test.txt
```

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```

Same thing

```
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```

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Add line to beginning of file

```
perl -0777 -i -ne 'print "first\n$_"' test.txt
```

Same thing

```
perl -0777 -i -pe '$_= "first\n$_"' test.txt
```

Same thing, more obfuscated

```
perl -0777 -i -pe 's//first\n/' test.txt
```

Thank you!