Inline
or
Pathologically Polluting Perl

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Nonsense in the intellect promotes
corruption in the will
-C.S.Lewis

Outline

- Ways to link Perl to Other Stuff
- History of Inline
- Using Inline::C, Inline::Java
- Writing your own Inline::

Why Inline?

- Isn’t Perl Perfect?
- No. “Perl” != “Perfect”
- However, “Perl” =~ /Per([fect]*)/ which is more than we can say for C, Java, Python, etc..

Linking Perl to Stuff: XS

Good:

- Powerful

Bad:

- Requires learning a new language
- Requires knowing about Perlguts, even for simple stuff
- need to create many accessory files

Linking Perl to Stuff: SWIG

Good:

- Automates much of the build process

Bad:

- Requires learning a new language
- Not part of Perl distribution
- Versioning issues (May be solved now)
- Creates extra files

Philosophical Aside

Assertion: Creating lots of files is bad

- Many languages (notably Java) force you to create files
- However, the *raison d'être* of files is to organize information for the user. Any programming language with interferes with this is evil, evil, evil

Now, back to your regularly scheduled talk.

Linking Perl to Stuff: Inline

Good:

- Very DWIM (Takes care of details for you)
- Almost no unnecessary syntax
- Easy to learn
- Can write *One liners* with Inline

Bad:

- Not as powerful as XS
- Can’t distribute modules without XS
  (to be removed in ver 0.50)

Using Inline::C

CODE:

```
use Inline C => <<'END_C';
void greet(char *greetee) {
  printf("Hello, %s\n“,greetee);
}
END_C
greet(“world”);
```

OUTPUT:

```
Hello, world
```

Using Inline::C

CODE:

```
use Inline C;
print JAxH('Perl`);
__END__
__C__
SV* JAxH(char* x) {
  return newSVpvf(
   "Just Another %s Hacker\n", x);
}
```

OUTPUT:

```
Just Another Perl Hacker
```

Inline Use: (Win2K ActivePerl)

```
$ TIMEFORMAT="Time= %R"
$ time C:/perl/bin/perl ex2.pl
Just Another Perl Hacker
Time= 6.743
$ time C:/perl/bin/perl ex2.pl
Just Another Perl Hacker
Time= 0.239
```

Inline Directories

```
$ ls -lR .
drwxr-xr-x          0 Nov  4 20:42 _Inline
-rw-r--r--        135 Nov  4 20:39 ex2.pl
./_Inline:
drwxr-xr-x          0 Nov  4 20:42 build
-rw-r--r--        221 Nov  4 20:42 config
drwxr-xr-x          0 Nov  4 20:42 lib
./_Inline/build:
./_Inline/lib:
drwxr-xr-x          0 Nov  4 20:42 auto
./_Inline/lib/auto:
drwxr-xr-x          0 Nov  4 20:42 ex2_pl_1031
./_Inline/lib/auto/ex2_pl_1031:
-r--r--r--          0 Nov  4 20:42 ex2_pl_1031.bs
-r-xr-xr-x      20480 Nov  4 20:42 ex2_pl_1031.dll
-r--r--r--        832 Nov  4 20:42 ex2_pl_1031.exp
-rw-r--r--        594 Nov  4 20:42 ex2_pl_1031.inl
-r--r--r--       2234 Nov  4 20:42 ex2_pl_1031.lib
```

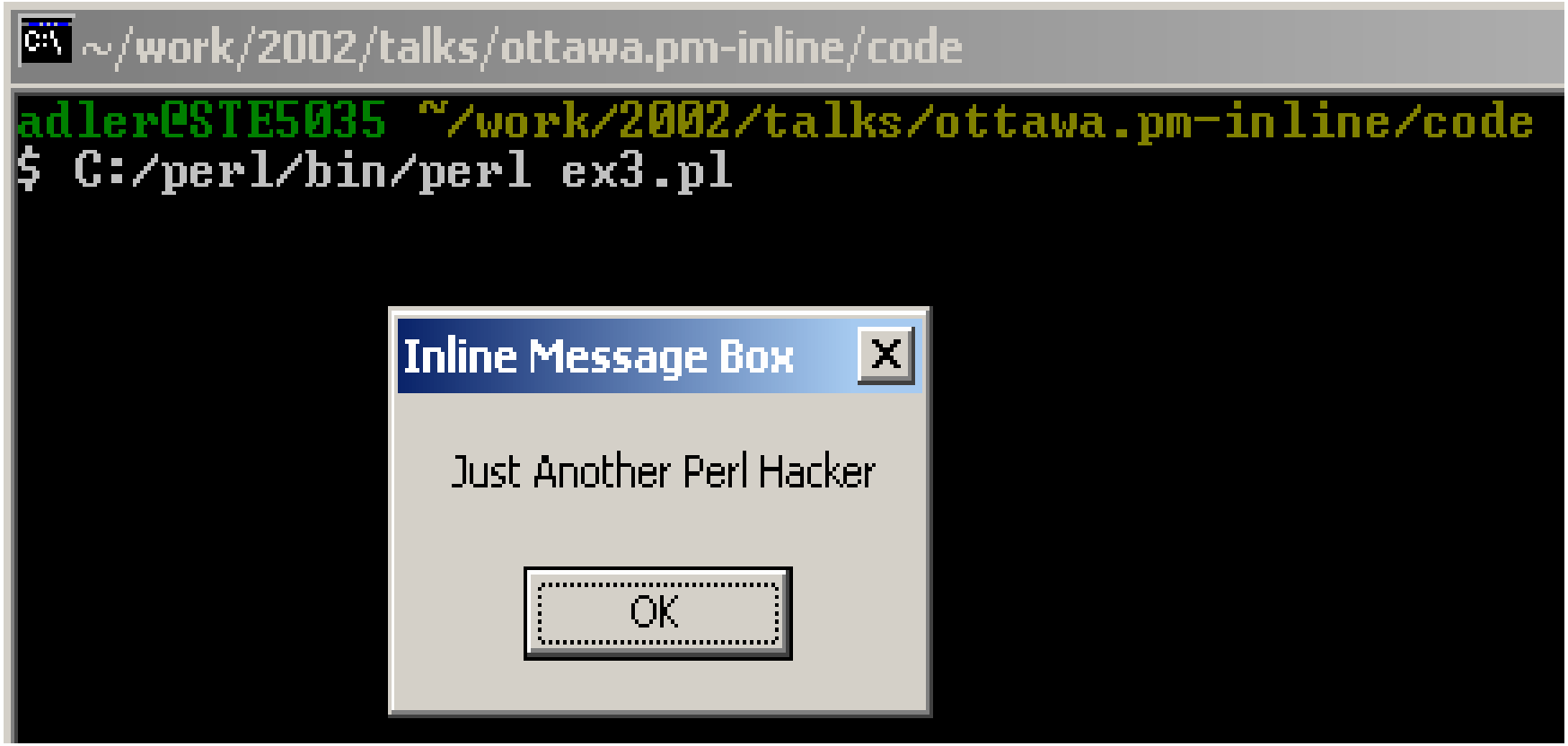
Warning

- The next slide contains windows specific code.
- Viewer discretion is advised

External Libraries

```
use Inline C => DATA => LIBS => '-
  luser32', PREFIX => 'my_';
MessageBoxA('Inline Message Box',
  'Just Another Perl Hacker');
__END__
__C__
#include <windows.h>
int my_MessageBoxA(char* C, char* T){
  return MessageBoxA(0, T, C, 0); }
```

External Libraries



See Perl Run. Run Perl, Run!

Inline::CPR -> Create C interpreter

```
#!/usr/bin/cpr
int main(void) {
 printf("Hello, world\n");
}
```

Inline ILSMs

ILSM = Inline Language Support Module

Inline::CPP
Acme::Inline::PERL
Inline::Java
Inline::Guile
Inline::C
Inline::Befunge
Inline::BC
Inline::TT
Inline::WebChat
Inline::Ruby
Inline::Tcl
Inline::Python
Inline::Pdlpp
Inline::Octave
Inline::Basic
Inline::Filters
Inline::Awk
Inline::ASM
Inline::Struct

Creating an Inline Module

Techniques to link to Perl

- Compile to a dynamic library (*.so,*.dll) and link to Perl at run time (::C, ::CPP, ::Java::API)
- Open a socket connection between Perl and the other interpreter (::Python, ::Java)
- Pipe stdio,stderr between Perl and other interpreter (::Octave). (using IPC::Open3)

How to create Inline Module

Look at Inline::PERL

Inline::PERL gives you the power of the PERL programming language from within your Perl programs. …

PERL is a programming language for writing CGI applications. It's main strength is that it doesn't have any unnecessary warnings or strictures.

Create Inline Module

- Create the following methods
  - Register
  - Build
  - Load
  - Validate
- Object variables contains all the code and administrative information

Example of a “build” method

```
sub load {
    my $o = shift;
    my $obj = $o->{API}{location};
    open PERL_OBJ, "< $obj" or croak
        "Can't open $obj for output\n$!";
    my $code = join '', <PERL_OBJ>;
    close \*PERL_OBJ;
    eval
        "package $o->{API}{pkg};\n$code";
    croak "$obj:\n$@" if $@;
}
```

Current Status of Inline

- Stayed at Version 0.43 for a long time.
- Version 0.44 has just been released
  - New, cleaner build
  - Bug fixes
- Version 0.50 promises:
  - Distribute modules without Inline
  - Cleaner features