

#### NAME

perlintern - autogenerated documentation of purely internal Perl functions

#### DESCRIPTION

This file is the autogenerated documentation of functions in the Perl interpreter that are documented using Perl's internal documentation format but are not marked as part of the Perl API. In other words, they are not for use in extensions!

## CV reference counts and CvOUTSIDE

**CvWEAKOUTSIDE** 

Each CV has a pointer, Cvoutside(), to its lexically enclosing CV (if any). Because pointers to anonymous sub prototypes are stored in & pad slots, it is a possible to get a circular reference, with the parent pointing to the child and vice-versa. To avoid the ensuing memory leak, we do not increment the reference count of the CV pointed to by Cvoutside in the one specific instance that the parent has a & pad slot pointing back to us. In this case, we set the Cvweakoutside flag in the child. This allows us to determine under what circumstances we should decrement the refcount of the parent when freeing the child.

There is a further complication with non-closure anonymous subs (i.e. those that do not refer to any lexicals outside that sub). In this case, the anonymous prototype is shared rather than being cloned. This has the consequence that the parent may be freed while there are still active children, eq

```
BEGIN { \$a = sub \{ eval '\$x' \} \}
```

In this case, the BEGIN is freed immediately after execution since there are no active references to it: the anon sub prototype has CvWEAKOUTSIDE set since it's not a closure, and \$a points to the same CV, so it doesn't contribute to BEGIN's refcount either. When \$a is executed, the eval '\$x' causes the chain of CvOUTSIDEs to be followed, and the freed BEGIN is accessed.

To avoid this, whenever a CV and its associated pad is freed, any & entries in the pad are explicitly removed from the pad, and if the refcount of the pointed-to anon sub is still positive, then that child's CvOUTSIDE is set to point to its grandparent. This will only occur in the single specific case of a non-closure anon prototype having one or more active references (such as \$a above).

One other thing to consider is that a CV may be merely undefined rather than freed, eg undef &foo. In this case, its refcount may not have reached zero, but we still delete its pad and its Cvroot etc. Since various children may still have their Cvoutside pointing at this undefined CV, we keep its own Cvoutside for the time being, so that the chain of lexical scopes is unbroken. For example, the following should print 123:

```
my $x = 123;
sub tmp { sub { eval '$x' } }
my $a = tmp();
undef &tmp;
print $a->();
```

# bool CvWEAKOUTSIDE(CV \*cv)

## Functions in file pad.h

CX\_CURPAD\_SAVE

Save the current pad in the given context block structure.

```
void CX_CURPAD_SAVE(struct context)
```



## CX\_CURPAD\_SV

Access the SV at offset po in the saved current pad in the given context block structure (can be used as an Ivalue).

```
SV * CX_CURPAD_SV(struct context, PADOFFSET po)
```

#### PAD\_BASE\_SV

Get the value from slot po in the base (DEPTH=1) pad of a padlist

```
SV * PAD_BASE_SV(PADLIST padlist, PADOFFSET po)
```

### PAD\_CLONE\_VARS

Clone the state variables associated with running and compiling pads.

```
void PAD_CLONE_VARS(PerlInterpreter *proto_perl, CLONE_PARAMS*
param)
```

## PAD\_COMPNAME\_FLAGS

Return the flags for the current compiling pad name at offset po. Assumes a valid slot entry.

```
U32 PAD_COMPNAME_FLAGS(PADOFFSET po)
```

#### PAD COMPNAME GEN

The generation number of the name at offset po in the current compiling pad (Ivalue). Note that SvUVX is hijacked for this purpose.

```
STRLEN PAD_COMPNAME_GEN(PADOFFSET po)
```

# PAD\_COMPNAME\_GEN\_set

Sets the generation number of the name at offset po in the current ling pad (Ivalue) to gen. Note that SvUV\_set is hijacked for this purpose.

```
STRLEN PAD_COMPNAME_GEN_set(PADOFFSET po, int gen)
```

# PAD\_COMPNAME\_OURSTASH

Return the stash associated with an our variable. Assumes the slot entry is a valid our lexical.

```
HV * PAD_COMPNAME_OURSTASH(PADOFFSET po)
```

#### PAD COMPNAME PV

Return the name of the current compiling pad name at offset po. Assumes a valid slot entry.

```
char * PAD_COMPNAME_PV(PADOFFSET po)
```

### PAD\_COMPNAME\_TYPE

Return the type (stash) of the current compiling pad name at offset po. Must be a valid name. Returns null if not typed.

```
HV * PAD_COMPNAME_TYPE(PADOFFSET po)
```

#### PAD DUP

Clone a padlist.



void PAD\_DUP(PADLIST dstpad, PADLIST srcpad, CLONE\_PARAMS\*
param)

#### PAD\_RESTORE\_LOCAL

Restore the old pad saved into the local variable opad by PAD\_SAVE\_LOCAL()

```
void PAD_RESTORE_LOCAL(PAD *opad)
```

## PAD\_SAVE\_LOCAL

Save the current pad to the local variable opad, then make the current pad equal to npad

```
void PAD_SAVE_LOCAL(PAD *opad, PAD *npad)
```

#### PAD\_SAVE\_SETNULLPAD

Save the current pad then set it to null.

```
void PAD_SAVE_SETNULLPAD()
```

## PAD\_SETSV

Set the slot at offset po in the current pad to sv

```
SV * PAD SETSV(PADOFFSET po, SV* sv)
```

## PAD\_SET\_CUR

Set the current pad to be pad  $\tt n$  in the padlist, saving the previous current pad. NB currently this macro expands to a string too long for some compilers, so it's best to replace it with

```
SAVECOMPPAD();
PAD_SET_CUR_NOSAVE(padlist,n);
void PAD_SET_CUR(PADLIST padlist, I32 n)
```

#### PAD\_SET\_CUR\_NOSAVE

like PAD\_SET\_CUR, but without the save

```
void PAD_SET_CUR_NOSAVE(PADLIST padlist, I32 n)
```

## PAD SV

Get the value at offset po in the current pad

```
void PAD_SV(PADOFFSET po)
```

## PAD\_SVI

Lightweight and Ivalue version of PAD\_SV. Get or set the value at offset po in the current pad. Unlike PAD\_SV, does not print diagnostics with -DX. For internal use only.

```
SV * PAD_SV1(PADOFFSET po)
```

#### SAVECLEARSV

Clear the pointed to pad value on scope exit. (i.e. the runtime action of 'my')

```
void SAVECLEARSV(SV **svp)
```

## SAVECOMPPAD



save PL\_comppad and PL\_curpad

void SAVECOMPPAD()

#### **SAVEPADSV**

Save a pad slot (used to restore after an iteration)

XXX DAPM it would make more sense to make the arg a PADOFFSET void SAVEPADSV(PADOFFSET po)

# Functions in file pp\_ctl.c

docatch

Check for the cases 0 or 3 of cur\_env.je\_ret, only used inside an eval context.

0 is used as continue inside eval.

3 is used for a die caught by an inner eval - continue inner loop

See cop.h: je\_mustcatch, when set at any runlevel to TRUE, means eval ops must establish a local impenv to handle exception traps.

```
OP* docatch(OP *o)
```

### **GV Functions**

gv\_try\_downgrade

If the typeglob gv can be expressed more succinctly, by having something other than a real GV in its place in the stash, replace it with the optimised form. Basic requirements for this are that gv is a real typeglob, is sufficiently ordinary, and is only referenced from its package. This function is meant to be used when a GV has been looked up in part to see what was there, causing upgrading, but based on what was found it turns out that the real GV isn't required after all.

If gv is a completely empty typeglob, it is deleted from the stash.

If gv is a typeglob containing only a sufficiently-ordinary constant sub, the typeglob is replaced with a scalar-reference placeholder that more compactly represents the same thing.

NOTE: this function is experimental and may change or be removed without notice.

```
void gv_try_downgrade(GV* gv)
```

is\_gv\_magical\_sv

Returns TRUE if given the name of a magical GV.

Currently only useful internally when determining if a GV should be created even in rvalue contexts.

 ${\tt flags}$  is not used at present but available for future extension to allow selecting particular classes of magical variable.

Currently assumes that name is NUL terminated (as well as len being valid). This assumption is met by all callers within the perl core, which all pass pointers returned by SvPV.

```
bool is_gv_magical_sv(SV *const name_sv, U32 flags)
```

# **Hash Manipulation Functions**

refcounted he chain 2hv

Generates and returns a HV \* by walking up the tree starting at the passed in struct refcounted\_he \*.



NOTE: this function is experimental and may change or be removed without notice.

```
HV * refcounted_he_chain_2hv(const struct refcounted_he *c)
```

## refcounted\_he\_free

Decrements the reference count of the passed in struct refcounted\_he \* by one. If the reference count reaches zero the structure's memory is freed, and refcounted\_he\_free iterates onto the parent node.

NOTE: this function is experimental and may change or be removed without notice.

```
void refcounted_he_free(struct refcounted_he *he)
```

#### refcounted he new

Creates a new struct refcounted\_he. As key is copied, and value is stored in a compact form, all references remain the property of the caller. The struct refcounted\_he is returned with a reference count of 1.

NOTE: this function is experimental and may change or be removed without notice.

```
struct refcounted_he * refcounted_he_new(struct refcounted_he
*const parent, SV *const key, SV *const value)
```

## **IO Functions**

start\_glob

Function called by do\_readline to spawn a glob (or do the glob inside perl on VMS). This code used to be inline, but now perl uses File::Glob this glob starter is only used by miniperl during the build process. Moving it away shrinks pp\_hot.c; shrinking pp\_hot.c helps speed perl up.

NOTE: this function is experimental and may change or be removed without notice.

```
PerlIO* start_glob(SV *tmpglob, IO *io)
```

## **Magical Functions**

magic clearhint

Triggered by a delete from %^H, records the key to

```
PL_compiling.cop_hints_hash.
```

```
int magic_clearhint(SV* sv, MAGIC* mg)
```

magic clearhints

Triggered by clearing %^H, resets PL\_compiling.cop\_hints\_hash.

```
int magic_clearhints(SV* sv, MAGIC* mg)
```

magic\_sethint

Triggered by a store to %^H, records the key/value pair to

PL\_compiling.cop\_hints\_hash. It is assumed that hints aren't storing anything that would need a deep copy. Maybe we should warn if we find a reference.

```
int magic_sethint(SV* sv, MAGIC* mg)
```

mg\_localize

Copy some of the magic from an existing SV to new localized version of that SV. Container magic (eg %ENV, \$1, tie) gets copied, value magic doesn't (eg taint, pos).

If setmagic is false then no set magic will be called on the new (empty) SV. This



typically means that assignment will soon follow (e.g. 'local x = y'), and that will handle the magic.

```
void mg_localize(SV* sv, SV* nsv, bool setmagic)
```

#### **MRO Functions**

mro\_get\_linear\_isa\_dfs

Returns the Depth-First Search linearization of @ISA the given stash. The return value is a read-only AV\*. level should be 0 (it is used internally in this function's recursion).

You are responsible for SvREFCNT\_inc() on the return value if you plan to store it anywhere semi-permanently (otherwise it might be deleted out from under you the next time the cache is invalidated).

```
AV* mro_get_linear_isa_dfs(HV* stash, U32 level)
```

mro\_isa\_changed\_in

Takes the necessary steps (cache invalidations, mostly) when the @ISA of the given package has changed. Invoked by the setisa magic, should not need to invoke directly.

```
void mro_isa_changed_in(HV* stash)
```

### **Pad Data Structures**

**CvPADLIST** 

CV's can have CvPADLIST(cv) set to point to an AV.

For these purposes "forms" are a kind-of CV, eval""s are too (except they're not callable at will and are always thrown away after the eval"" is done executing). Require'd files are simply evals without any outer lexical scope.

XSUBs don't have CvPADLIST set - dXSTARG fetches values from PL\_curpad, but that is really the callers pad (a slot of which is allocated by every entersub).

The CvPADLIST AV has does not have AvREAL set, so REFCNT of component items is managed "manual" (mostly in pad.c) rather than normal av.c rules. The items in the AV are not SVs as for a normal AV, but other AVs:

0'th Entry of the CvPADLIST is an AV which represents the "names" or rather the "static type information" for lexicals.

The CvDEPTH'th entry of CvPADLIST AV is an AV which is the stack frame at that depth of recursion into the CV. The 0'th slot of a frame AV is an AV which is @\_. other entries are storage for variables and op targets.

During compilation: PL\_comppad\_name is set to the names AV. PL\_comppad is set to the frame AV for the frame CvDEPTH == 1. PL\_curpad is set to the body of the frame AV (i.e. AvARRAY(PL\_comppad)).

During execution,  $PL\_comppad$  and  $PL\_curpad$  refer to the live frame of the currently executing sub.

Iterating over the names AV iterates over all possible pad items. Pad slots that are SVs\_PADTMP (targets/GVs/constants) end up having &PL\_sv\_undef "names" (see pad\_alloc()).

Only my/our variable (SVs\_PADMY/SVs\_PADOUR) slots get valid names. The rest are op targets/GVs/constants which are statically allocated or resolved at compile time. These don't have names by which they can be looked up from Perl code at run time through eval"" like my/our variables can be. Since they can't be looked up by "name" but only by their index allocated at compile time (which is usually in PL\_op->op\_targ), wasting a name SV for them doesn't make sense.



The SVs in the names AV have their PV being the name of the variable. xlow+1..xhigh inclusive in the NV union is a range of cop\_seq numbers for which the name is valid. For typed lexicals name SV is SVt\_PVMG and SvSTASH points at the type. For our lexicals, the type is also SVt\_PVMG, with the SvOURSTASH slot pointing at the stash of the associated global (so that duplicate our declarations in the same package can be detected). SvUVX is sometimes hijacked to store the generation number during compilation.

If SvFAKE is set on the name SV, then that slot in the frame AV is a REFCNT'ed reference to a lexical from "outside". In this case, the name SV does not use xlow and xhigh to store a cop\_seq range, since it is in scope throughout. Instead xhigh stores some flags containing info about the real lexical (is it declared in an anon, and is it capable of being instantiated multiple times?), and for fake ANONs, xlow contains the index within the parent's pad where the lexical's value is stored, to make cloning quicker.

If the 'name' is '&' the corresponding entry in frame AV is a CV representing a possible closure. (SvFAKE and name of '&' is not a meaningful combination currently but could become so if my sub foo {} is implemented.)

Note that formats are treated as anon subs, and are cloned each time write is called (if necessary).

The flag SVs\_PADSTALE is cleared on lexicals each time the my() is executed, and set on scope exit. This allows the 'Variable \$x is not available' warning to be generated in evals, such as

```
\{ my \$x = 1; sub f \{ eval '\$x' \} \} f();
```

For state vars, SVs\_PADSTALE is overloaded to mean 'not yet initialised'

```
AV * CvPADLIST(CV *cv)
```

cv\_clone

Clone a CV: make a new CV which points to the same code etc, but which has a newly-created pad built by copying the prototype pad and capturing any outer lexicals.

```
CV* cv clone(CV* proto)
```

cv\_dump

dump the contents of a CV

```
void cv_dump(const CV *cv, const char *title)
```

do\_dump\_pad

Dump the contents of a padlist

```
void do_dump_pad(I32 level, PerlIO *file, PADLIST *padlist, int
full)
```

intro\_my

"Introduce" my variables to visible status.

```
U32 intro_my()
```

pad\_add\_anon

Add an anon code entry to the current compiling pad

```
PADOFFSET pad_add_anon(SV* sv, OPCODE op_type)
```



#### pad\_add\_name

Create a new name and associated PADMY SV in the current pad; return the offset. If typestash is valid, the name is for a typed lexical; set the name's stash to that value. If ourstash is valid, it's an our lexical, set the name's SvOURSTASH to that value

If fake, it means we're cloning an existing entry

NOTE: this function is experimental and may change or be removed without notice.

```
PADOFFSET pad_add_name(const char *name, const STRLEN len, const U32 flags, HV *typestash, HV *ourstash)
```

## pad\_alloc

Allocate a new my or tmp pad entry. For a my, simply push a null SV onto the end of PL\_comppad, but for a tmp, scan the pad from PL\_padix upwards for a slot which has no name and no active value.

```
PADOFFSET pad_alloc(I32 optype, U32 tmptype)
```

### pad\_block\_start

Update the pad compilation state variables on entry to a new block

```
void pad_block_start(int full)
```

# pad\_check\_dup

Check for duplicate declarations: report any of: \* a my in the current scope with the same name; \* an our (anywhere in the pad) with the same name and the same stash as ourstash is\_our indicates that the name to check is an 'our' declaration

```
void pad_check_dup(SV *name, const U32 flags, const HV
*ourstash)
```

### pad\_findlex

Find a named lexical anywhere in a chain of nested pads. Add fake entries in the inner pads if it's found in an outer one.

Returns the offset in the bottom pad of the lex or the fake lex. cv is the CV in which to start the search, and seq is the current cop\_seq to match against. If warn is true, print appropriate warnings. The out\_\* vars return values, and so are pointers to where the returned values should be stored. out\_capture, if non-null, requests that the innermost instance of the lexical is captured; out\_name\_sv is set to the innermost matched namesv or fake namesv; out\_flags returns the flags normally associated with the IVX field of a fake namesv.

Note that pad\_findlex() is recursive; it recurses up the chain of CVs, then comes back down, adding fake entries as it goes. It has to be this way because fake namesvs in anon protoypes have to store in xlow the index into the parent pad.

```
PADOFFSET pad_findlex(const char *name, const CV* cv, U32 seq, int warn, SV** out_capture, SV** out_name_sv, int *out_flags)
```

#### pad\_fixup\_inner\_anons

For any anon CVs in the pad, change CvOUTSIDE of that CV from old\_cv to new\_cv if necessary. Needed when a newly-compiled CV has to be moved to a pre-existing CV struct.

```
void pad_fixup_inner_anons(PADLIST *padlist, CV *old_cv, CV
*new_cv)
```



pad\_free

Free the SV at offset po in the current pad.

```
void pad_free(PADOFFSET po)
```

#### pad\_leavemy

Cleanup at end of scope during compilation: set the max seq number for lexicals in this scope and warn of any lexicals that never got introduced.

```
void pad_leavemy()
```

#### pad\_new

Create a new compiling padlist, saving and updating the various global vars at the same time as creating the pad itself. The following flags can be OR'ed together:

```
padnew_CLONE this pad is for a cloned CV
padnew_SAVE save old globals
padnew_SAVESUB also save extra stuff for start of sub
PADLIST* pad_new(int flags)
```

## pad\_push

Push a new pad frame onto the padlist, unless there's already a pad at this depth, in which case don't bother creating a new one. Then give the new pad an @\_ in slot zero.

```
void pad_push(PADLIST *padlist, int depth)
```

#### pad\_reset

Mark all the current temporaries for reuse

```
void pad_reset()
```

#### pad setsv

Set the entry at offset po in the current pad to sv. Use the macro PAD\_SETSV() rather than calling this function directly.

```
void pad_setsv(PADOFFSET po, SV* sv)
```

#### pad\_swipe

Abandon the tmp in the current pad at offset po and replace with a new one.

```
void pad_swipe(PADOFFSET po, bool refadjust)
```

## pad\_tidy

Tidy up a pad after we've finished compiling it: \* remove most stuff from the pads of anonsub prototypes; \* give it a @\_; \* mark tmps as such.

```
void pad_tidy(padtidy_type type)
```

## pad\_undef

Free the padlist associated with a CV. If parts of it happen to be current, we null the relevant PL\_\*pad\* global vars so that we don't have any dangling references left. We also repoint the CvOUTSIDE of any about-to-be-orphaned inner subs to the outer of this cv.



(This function should really be called pad\_free, but the name was already taken)

void pad\_undef(CV\* cv)

# **Per-Interpreter Variables**

## PL\_DBsingle

When Perl is run in debugging mode, with the **-d** switch, this SV is a boolean which indicates whether subs are being single-stepped. Single-stepping is automatically turned on after every step. This is the C variable which corresponds to Perl's \$DB::single variable. See PL\_DBsub.

SV \* PL\_DBsingle

## PL DBsub

When Perl is run in debugging mode, with the **-d** switch, this GV contains the SV which holds the name of the sub being debugged. This is the C variable which corresponds to Perl's \$DB::sub variable. See PL\_DBsingle.

GV \* PL\_DBsub

## PL DBtrace

Trace variable used when Perl is run in debugging mode, with the **-d** switch. This is the C variable which corresponds to Perl's \$DB::trace variable. See PL\_DBsingle.

SV \* PL DBtrace

#### PL dowarn

The C variable which corresponds to Perl's \$^W warning variable.

bool PL\_dowarn

## PL\_last\_in\_gv

The GV which was last used for a filehandle input operation. (<FH>)

GV\* PL\_last\_in\_gv

## PL\_ofsgv

The glob containing the output field separator - \*, in Perl space.

GV\* PL\_ofsgv

PL rs

The input record separator - \$/ in Perl space.

SV\* PL\_rs

# **Stack Manipulation Macros**

diSP

Declare Just SP. This is actually identical to dSP, and declares a local copy of perl's stack pointer, available via the SP macro. See SP. (Available for backward source code compatibility with the old (Perl 5.005) thread model.)

disp;

**LVRET** 



True if this op will be the return value of an Ivalue subroutine

# **SV Manipulation Functions**

sv\_add\_arena

Given a chunk of memory, link it to the head of the list of arenas, and split it into a list of free SVs.

```
void sv_add_arena(char *const ptr, const U32 size, const U32
flags)
```

sv\_clean\_all

Decrement the refcnt of each remaining SV, possibly triggering a cleanup. This function may have to be called multiple times to free SVs which are in complex self-referential hierarchies.

```
I32 sv_clean_all()
```

sv\_clean\_objs

Attempt to destroy all objects not yet freed

```
void sv_clean_objs()
```

sv free arenas

Deallocate the memory used by all arenas. Note that all the individual SV heads and bodies within the arenas must already have been freed.

```
void sv_free_arenas()
```

# **SV-Body Allocation**

sv\_2num

Return an SV with the numeric value of the source SV, doing any necessary reference or overload conversion. You must use the SvNUM(sv) macro to access this function.

NOTE: this function is experimental and may change or be removed without notice.

```
SV* sv_2num(SV *const sv)
```

# **Unicode Support**

find uninit var

Find the name of the undefined variable (if any) that caused the operator o to issue a "Use of uninitialized value" warning. If match is true, only return a name if it's value matches uninit\_sv. So roughly speaking, if a unary operator (such as OP\_COS) generates a warning, then following the direct child of the op may yield an OP\_PADSV or OP\_GV that gives the name of the undefined variable. On the other hand, with OP\_ADD there are two branches to follow, so we only print the variable name if we get an exact match.

The name is returned as a mortal SV.

Assumes that PL\_op is the op that originally triggered the error, and that PL\_comppad/PL\_curpad points to the currently executing pad.

NOTE: this function is experimental and may change or be removed without notice.

```
SV* find_uninit_var(const OP *const obase, const SV *const
uninit_sv, bool top)
```

report uninit



Print appropriate "Use of uninitialized variable" warning

void report\_uninit(const SV \*uninit\_sv)

## **Undocumented functions**

These functions are currently undocumented:

F0convert

Slab\_to\_rw

add\_data

add\_utf16\_textfilter

addmad

allocmy

amagic\_cmp

amagic\_cmp\_locale

amagic\_i\_ncmp

amagic\_ncmp

anonymise\_cv

ao

append\_elem

append\_list

append\_madprops

apply

apply\_attrs

apply\_attrs\_my

av\_reify

bad\_type

bind\_match

block\_end

block\_start

boot\_core\_PerIIO

boot\_core\_UNIVERSAL

boot\_core\_mro

bytes\_to\_uni

cando

check\_type\_and\_open

check\_uni

checkcomma

checkposixcc

ck\_anoncode

ck\_bitop

ck\_concat

ck\_defined

ck\_delete



- ck\_die
- ck\_each
- ck\_eof
- ck\_eval
- ck\_exec
- ck\_exists
- ck\_exit
- ck\_ftst
- ck\_fun
- ck\_glob
- ck\_grep
- ck\_index
- ck\_join
- ck\_lfun
- ck\_listiob
- ck\_match
- ck\_method
- ck\_null
- ck\_open
- ck\_readline
- ck\_repeat
- ck\_require
- ck\_return
- ck\_rfun
- ck\_rvconst
- ck\_sassign
- ck\_select
- ck\_shift
- ck\_sort
- ck\_spair
- ck\_split
- ck\_subr
- ck\_substr
- ck\_svconst
- ck\_trunc
- ck\_unpack
- ckwarn\_common
- cl\_and
- cl\_anything
- cl\_init
- cl\_init\_zero
- cl\_is\_anything



cl\_or

clear\_placeholders

closest\_cop

convert

cop\_free

cr\_textfilter

create\_eval\_scope

curmad

cv\_ckproto\_len

deb\_curcv

deb\_stack\_all

deb\_stack\_n

debprof

debug\_start\_match

del\_sv

delete\_eval\_scope

deprecate\_commaless\_var\_list

destroy\_matcher

die\_where

div128

do\_aexec

do\_aexec5

do\_chomp

do\_chop

do\_delete\_local

do\_eof

do\_exec

do\_exec3

do\_execfree

do\_ipcctl

do\_ipcget

do\_kv

do\_msgrcv

do\_msgsnd

do\_oddball

do\_op\_xmldump

do\_pmop\_xmldump

do\_print

do\_readline

do\_seek

do\_semop

do\_shmio



- do\_smartmatch
- do\_sysseek
- do\_tell
- do\_trans
- do\_trans\_complex
- do\_trans\_complex\_utf8
- do\_trans\_count
- do\_trans\_count\_utf8
- do\_trans\_simple
- do\_trans\_simple\_utf8
- do\_vecget
- do\_vecset
- do\_vop
- doeval
- dofile
- dofindlabel
- doform
- dooneliner
- doopen\_pm
- doparseform
- dopoptoeval
- dopoptogiven
- dopoptolabel
- dopoptoloop
- dopoptosub\_at
- dopoptowhen
- dump\_all\_perl
- dump\_exec\_pos
- dump\_packsubs\_perl
- dump\_sub\_perl
- dump\_sv\_child
- dump\_trie
- dump\_trie\_interim\_list
- dump\_trie\_interim\_table
- dumpuntil
- dup\_attrlist
- emulate\_cop\_io
- exec\_failed
- expect\_number
- feature\_is\_enabled
- filter\_gets
- find\_and\_forget\_pmops



find\_array\_subscript

find\_beginning

find\_byclass

find\_hash\_subscript

find\_in\_my\_stash

find\_script

first\_symbol

fold\_constants

forbid\_setid

force\_ident

force\_list

force\_next

force\_strict\_version

force\_version

force\_word

forget\_pmop

free\_tied\_hv\_pool

gen\_constant\_list

get\_arena

get\_aux\_mg

get\_db\_sub

get\_debug\_opts

get\_hash\_seed

get\_isa\_hash

get\_no\_modify

get\_num

get\_opargs

get\_re\_arg

getenv\_len

glob\_2number

glob\_assign\_glob

glob\_assign\_ref

group\_end

gv\_ename

gv\_get\_super\_pkg

gv\_init\_sv

hfreeentries

hsplit

hv\_auxinit

hv\_backreferences\_p

hv\_copy\_hints\_hv

hv\_delete\_common



hv\_kill\_backrefs

hv\_magic\_check

hv\_notallowed

incline

incpush

incpush\_if\_exists

incpush\_use\_sep

ingroup

init\_argv\_symbols

init\_dbargs

init\_debugger

init\_ids

init\_interp

init\_main\_stash

init\_perllib

init\_postdump\_symbols

init\_predump\_symbols

intuit\_method

intuit\_more

invert

io\_close

is\_an\_int

is\_handle\_constructor

is\_inplace\_av

is\_list\_assignment

is\_utf8\_X\_L

is\_utf8\_X\_LV

is\_utf8\_X\_LVT

is\_utf8\_X\_LV\_LVT\_V

is\_utf8\_X\_T

is\_utf8\_X\_V

is\_utf8\_X\_begin

is\_utf8\_X\_extend

is\_utf8\_X\_non\_hangul

is\_utf8\_X\_prepend

is\_utf8\_char\_slow

is\_utf8\_common

isa\_lookup

jmaybe

join\_exact

keyword

keyword\_plugin\_standard



lex\_end

lex\_start

linklist

list

listkids

localize

looks\_like\_bool

lop

mad\_free

madlex

madparse

magic\_clear\_all\_env

magic\_clearenv

magic\_clearisa

magic\_clearpack

magic\_clearsig

magic\_existspack

magic\_freearylen\_p

magic\_freeovrld

magic\_get

magic\_getarylen

magic\_getdefelem

magic\_getnkeys

magic\_getpack

magic\_getpos

magic\_getsig

magic\_getsubstr

magic\_gettaint

magic\_getuvar

magic\_getvec

magic\_killbackrefs

magic\_len

magic\_methcall

magic\_methpack

magic\_nextpack

magic\_regdata\_cnt

magic\_regdatum\_get

magic\_regdatum\_set

magic\_scalarpack

magic\_set

magic\_set\_all\_env

magic\_setamagic



magic\_setarylen

magic\_setcollxfrm

magic\_setdbline

magic\_setdefelem

magic\_setenv

magic\_setisa

magic\_setmglob

magic\_setnkeys

magic\_setpack

magic\_setpos

magic\_setregexp

magic\_setsig

magic\_setsubstr

magic\_settaint

magic\_setutf8

magic\_setuvar

magic\_setvec

magic\_sizepack

magic\_wipepack

make\_matcher

make\_trie

make\_trie\_failtable

malloc\_good\_size

malloced\_size

matcher\_matches\_sv

measure\_struct

mem\_collxfrm

 $mem\_log\_common$ 

mess\_alloc

method\_common

missingterm

mod

mode\_from\_discipline

modkids

more\_bodies

more\_sv

mro\_meta\_dup

mro\_meta\_init

mul128

mulexp10

my\_attrs

my\_betoh16



- my\_betoh32
- my\_betoh64
- my\_betohi
- my\_betohl
- my\_betohs
- my\_clearenv
- my\_exit\_jump
- my\_htobe16
- my\_htobe32
- my\_htobe64
- my\_htobei
- my\_htobel
- my\_htobes
- my\_htole16
- my\_htole32
- my\_htole64
- my\_htolei
- ...y\_....
- my\_htolel
- my\_htoles
- my\_kid
- my\_letoh16
- my\_letoh32
- my\_letoh64
- my\_letohi
- my\_letohl
- my\_letohs
- my\_swabn
- my\_unexec
- need\_utf8
- newDEFSVOP
- newGIVWHENOP
- newGP
- newMADPROP
- newMADsv
- newTOKEN
- new\_constant
- new\_he
- new\_logop
- new\_warnings\_bitfield
- next\_symbol
- nextargv
- nextchar



```
no_bareword_allowed
no_fh_allowed
no_op
not_a_number
nuke_stacks
num_overflow
offer_nice_chunk
oopsAV
oopsHV
op_clear
op_const_sv
```

op\_getmad
op\_getmad\_weak

op\_refcnt\_dec
op\_refcnt\_inc

op\_xmldump

open\_script

opt\_scalarhv

pack\_rec

package

package\_version

pad\_add\_name\_sv

pad\_compname\_type

pad\_peg

parse\_body

parse\_unicode\_opts

parser\_free

path\_is\_absolute

peep

pending\_Slabs\_to\_ro

pidgone

pm\_description

pmflag

pmop\_xmldump

pmruntime

pmtrans

prepend\_elem

prepend\_madprops

printbuf

process\_special\_blocks

ptr\_table\_find

put\_byte



```
gerror
qsortsvu
re_croak2
readpipe_override
ref_array_or_hash
refcounted_he_fetch
refcounted_he_new_common
refcounted_he_value
refkids
refto
reg
reg_check_named_buff_matched
reg_named_buff
reg_named_buff_iter
reg_namedseq
reg_node
reg_numbered_buff_fetch
reg_numbered_buff_length
reg_numbered_buff_store
reg_qr_package
reg_recode
reg_scan_name
reg_skipcomment
reg_temp_copy
reganode
regatom
regbranch
regclass
regcppop
regcppush
regcurly
regdump_extflags
reghop3
reghop4
reghopmaybe3
reginclass
reginsert
regmatch
regpiece
```

regpposixcc regprop regrepeat



regtail

regtail\_study

regtry

reguni

regwhite

report\_evil\_fh

require\_tie\_mod

restore\_magic

rsignal\_restore

rsignal\_save

run\_body

run\_user\_filter

rxres\_free

rxres\_restore

rxres\_save

same\_dirent

save\_freeop

save\_hek\_flags

save\_hints

save\_lines

save\_magic

save\_op

save\_pushi32ptr

save\_pushptri32ptr

save\_pushptrptr

save\_scalar\_at

sawparens

scalar

scalar\_mod\_type

scalarboolean

scalarkids

scalarseq

scalarvoid

scan\_commit

scan\_const

scan\_formline

scan\_heredoc

scan\_ident

scan\_inputsymbol

scan\_pat

scan\_str

scan\_subst



scan\_trans

scan\_word

scope

search\_const

sequence

sequence\_num

sequence\_tail

share\_hek\_flags

sighandler

simplify\_sort

skipspace

skipspace0

skipspace1

skipspace2

softref2xv

sortcv

sortcv\_stacked

sortcv\_xsub

space\_join\_names\_mortal

start\_force

stdize\_locale

store\_cop\_label

strip\_return

study\_chunk

sub\_crush\_depth

sublex\_done

sublex\_push

sublex\_start

sv\_2iuv\_common

sv\_2iuv\_non\_preserve

sv\_add\_backref

sv\_catxmlpvn

sv\_catxmlsv

sv\_del\_backref

sv\_dup\_inc\_multiple

sv\_exp\_grow

sv\_free2

sv\_i\_ncmp

sv\_kill\_backrefs

sv\_ncmp

sv\_pos\_b2u\_midway

sv\_pos\_u2b\_cached



sv\_pos\_u2b\_forwards

sv\_pos\_u2b\_midway

sv\_release\_COW

sv\_setsv\_cow

sv\_unglob

sv\_xmlpeek

swallow\_bom

swash\_get

to\_byte\_substr

to\_utf8\_substr

token\_free

token\_getmad

tokenize\_use

tokeq

tokereport

too\_few\_arguments

too\_many\_arguments

uiv\_2buf

unpack\_rec

unshare\_hek

unshare\_hek\_or\_pvn

unwind\_handler\_stack

update\_debugger\_info

usage

utf16\_textfilter

utf8\_mg\_pos\_cache\_update

utilize

validate\_suid

varname

vdie

vdie\_common

vdie\_croak\_common

visit

vivify\_defelem

vivify\_ref

wait4pid

watch

write\_no\_mem

write\_to\_stderr

xmldump\_all

xmldump\_all\_perl

xmldump\_attr



```
xmldump_eval
xmldump_form
xmldump_indent
xmldump_packsubs
xmldump_packsubs_perl
xmldump_sub
xmldump_sub_perl
xmldump_vindent
yyerror
yylex
yyparse
yywarn
```

# **AUTHORS**

The autodocumentation system was originally added to the Perl core by Benjamin Stuhl. Documentation is by whoever was kind enough to document their functions.

# **SEE ALSO**

perlguts, perlapi