dfsch Reference Manual

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Chapter 1

dfsch File Index

1.1 dfsch File List

Here is a list of all documented files with brief descriptions:

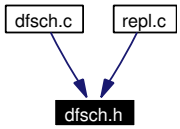
dfsch.c . . . . . ??
dfsch.h 3
repl.c . . . . . ??

Chapter 2

dfsch File Documentation

2.1 dfsch.h File Reference

This graph shows which files directly or indirectly include this file:



Defines

- #define **DFSCH_CAR** 0
- #define **DFSCH_CDR** 0

Typedefs

- typedef **dfsch_ctx_t** **dfsch_ctx_t**
- typedef **dfsch_object_t** **dfsch_object_t**
- typedef unsigned int **dfsch_cXr_t**
- typedef **dfsch_object_t** *(* **dfsch_primitive_t**)(**dfsch_object_t** *)

Functions

- void **dfsch_gc** ()
- int **dfsch_eq_p** (**dfsch_object_t** *a, **dfsch_object_t** *b)
- int **dfsch_object_null_p** (**dfsch_object_t** *obj)
- int **dfsch_object_pair_p** (**dfsch_object_t** *obj)
- int **dfsch_object_atom_p** (**dfsch_object_t** *obj)
- int **dfsch_object_symbol_p** (**dfsch_object_t** *obj)
- int **dfsch_object_number_p** (**dfsch_object_t** *obj)
- int **dfsch_object_string_p** (**dfsch_object_t** *obj)
- int **dfsch_object_primitive_p** (**dfsch_object_t** *obj)

- int **dfsch_object_closure_p** (**dfsch_object_t** *obj)
- int **dfsch_object_procedure_p** (**dfsch_object_t** *obj)
- int **dfsch_object_exception_p** (**dfsch_object_t** *obj)
- **dfsch_object_t** * **dfsch_obj_read** (char *str)
- char * **dfsch_obj_write** (**dfsch_object_t** *obj)
- **dfsch_object_t** * **dfsch_nil** ()
- **dfsch_object_t** * **dfsch_cons** (**dfsch_object_t** *car, **dfsch_object_t** *cdr)
- **dfsch_object_t** * **dfsch_car** (**dfsch_object_t** *pair)
- **dfsch_object_t** * **dfsch_cdr** (**dfsch_object_t** *pair)
- **dfsch_object_t** * **dfsch_cXr** (**dfsch_object_t** *pair, **dfsch_cXr_t** x)
- **dfsch_object_t** * **dfsch_set_car** (**dfsch_object_t** *pair, **dfsch_object_t** *c)
- **dfsch_object_t** * **dfsch_set_cdr** (**dfsch_object_t** *pair, **dfsch_object_t** *c)
- **dfsch_object_t** * **dfsch_assoc** (**dfsch_object_t** *key, **dfsch_object_t** *alist)
- **dfsch_object_t** * **dfsch_make_symbol** (char *symbol)
- char * **dfsch_symbol** (**dfsch_object_t** *symbol)
- **dfsch_object_t** * **dfsch_true** ()
- **dfsch_object_t** * **dfsch_quote** ()
- **dfsch_object_t** * **dfsch_make_number** (double n)
- float **dfsch_number** (**dfsch_object_t** *n)
- **dfsch_object_t** * **dfsch_make_primitive** (**dfsch_primitive_t** prim)
- **dfsch_object_t** * **dfsch_make_macro** (**dfsch_object_t** *proc)
- **dfsch_object_t** * **dfsch_make_exception** (**dfsch_object_t** *type, **dfsch_object_t** *data)
- **dfsch_object_t** * **dfsch_eval** (**dfsch_object_t** *exp, **dfsch_object_t** *env)
- **dfsch_object_t** * **dfsch_apply** (**dfsch_object_t** *proc, **dfsch_object_t** *args)
- **dfsch_ctx_t** * **dfsch_make_context** ()
- **dfsch_object_t** * **dfsch_ctx_eval** (**dfsch_ctx_t** *ctx, **dfsch_object_t** *exp)
- void **dfsch_destroy_context** (**dfsch_ctx_t** *ctx)
- void **dfsch_ctx_define** (**dfsch_ctx_t** *ctx, char *name, **dfsch_object_t** *obj)

2.1.1 Detailed Description

dfsch is quick and dirty implementation of someting that resembles scheme. This file contains interfacespecification.

Definition in file **dfsch.h**.

2.1.2 Typedef Documentation

2.1.2.1 typedef struct dfsch_ctx_t dfsch_ctx_t

Interpreter context Definition at line 45 of file dfsch.h.

2.1.2.2 typedef unsigned int dfsch_cXr_t

Meant for functions like caaddar, currently unused Definition at line 55 of file dfsch.h.

2.1.2.3 typedef struct dfsch_object_t dfsch_object_t

C datatype for scheme objects Definition at line 50 of file dfsch.h.

2.1.2.4 typedef dfsch_object_t*(* dfsch_primitive_t)(dfsch_object_t *)

Native functions prototype Definition at line 60 of file dfsch.h.

2.1.3 Function Documentation

2.1.3.1 dfsch_object_t* dfsch_apply (dfsch_object_t * *proc*, dfsch_object_t * *args*)

Applyes procedure PROC to arguments ARGS. Obviously it doesn't work for macros. Definition at line 1092 of file dfsch.c.

2.1.3.2 dfsch_object_t* dfsch_assoc (dfsch_object_t * *key*, dfsch_object_t * *alist*)

`(assoc KEY ALIST)` Definition at line 423 of file dfsch.c.

2.1.3.3 dfsch_object_t* dfsch_car (dfsch_object_t * *pair*)

`(car PAIR)` Definition at line 379 of file dfsch.c.

2.1.3.4 dfsch_object_t* dfsch_cdr (dfsch_object_t * *pair*)

`(cdr PAIR)` Definition at line 386 of file dfsch.c.

2.1.3.5 dfsch_object_t* dfsch_cons (dfsch_object_t * *car*, dfsch_object_t * *cdr*)

`(cons CAR CDR)` Definition at line 368 of file dfsch.c.

2.1.3.6 void dfsch_ctx_define (dfsch_ctx_t * *ctx*, char * *name*, dfsch_object_t * *obj*)

Defines new variable NAME with value OBJ in global environment of context CTX. Definition at line 1333 of file dfsch.c.

2.1.3.7 dfsch_object_t* dfsch_ctx_eval (dfsch_ctx_t * *ctx*, dfsch_object_t * *exp*)

Evaluates given expression EXP in global environment of given context CTX. Definition at line 1326 of file dfsch.c.

2.1.3.8 dfsch_object_t* dfsch_cXr (dfsch_object_t * *pair*, dfsch_cXr_t *x*)

Unimplemented

2.1.3.9 void dfsch_destroy_context (dfsch_ctx_t * *ctx*)

Unregisters global environment of given context from list of non-deallocatable objects, runs garbage collector and dealocates memory taken by given context CTX. Definition at line 1329 of file dfsch.c.

2.1.3.10 int dfsch_eq_p (dfsch_object_t * *a*, dfsch_object_t * *b*)

Are A and B equal objects? Definition at line 329 of file dfsch.c.

2.1.3.11 dfsch_object_t* dfsch_eval (dfsch_object_t * *exp*, dfsch_object_t * *env*)

Evaluates EXP in gven binding environment ENV. Definition at line 1002 of file dfsch.c.

2.1.3.12 void dfsch_gc ()

Perform garbage collection Definition at line 239 of file dfsch.c.

2.1.3.13 dfsch_ctx_t* dfsch_make_context ()

Allocates new context and adds its top-level environment into list of objects tat sould not be dealocated by garbage collector. Definition at line 1291 of file dfsch.c.

2.1.3.14 dfsch_object_t* dfsch_make_exception (dfsch_object_t * *type*, dfsch_object_t * *data*)

Makes exception symbol of given TYPE and DATA. Definition at line 583 of file dfsch.c.

2.1.3.15 dfsch_object_t* dfsch_make_macro (dfsch_object_t * *proc*)

Wraps procedure for use as macro.

2.1.3.16 dfsch_object_t* dfsch_make_number (double *n*)

Makes number object from given floating-point number. Definition at line 450 of file dfsch.c.

2.1.3.17 dfsch_object_t* dfsch_make_primitive (dfsch_primitive_t *prim*)

Makes primitive (native) procedure from pointer to implementing function. Definition at line 556 of file dfsch.c.

2.1.3.18 dfsch_object_t* dfsch_make_symbol (char * *symbol*)

Makes symbol object from corresponding ASCIIZ string. Definition at line 521 of file dfsch.c.

2.1.3.19 dfsch_object_t* dfsch_nil ()

'()

2.1.3.20 float dfsch_number (dfsch_object_t * *n*)

Returns native representation of given number object; Definition at line 461 of file dfsch.c.

2.1.3.21 dfsch_object_t* dfsch_obj_read (char * *str*)

Parse ASCIIZ string into object Definition at line 853 of file dfsch.c.

2.1.3.22 char* dfsch_obj_write (dfsch_object_t * *obj*)

Convert object to ASCIIZ string Definition at line 859 of file dfsch.c.

2.1.3.23 int dfsch_object_atom_p (dfsch_object_t * *obj*)

Is A an atom?

2.1.3.24 int dfsch_object_closure_p (dfsch_object_t * *obj*)

Is A a lambda-closure??

2.1.3.25 int dfsch_object_exception_p (dfsch_object_t * *obj*)

Is A an exception?

2.1.3.26 int dfsch_object_null_p (dfsch_object_t * *obj*)

Is A null?

2.1.3.27 int dfsch_object_number_p (dfsch_object_t * *obj*)

Is A a anumber?

2.1.3.28 int dfsch_object_pair_p (dfsch_object_t * *obj*)

Is A a pair?

2.1.3.29 int dfsch_object_primitive_p (dfsch_object_t * *obj*)

Is A a primitive (native) function?

2.1.3.30 int dfsch_object_procedure_p (dfsch_object_t * *obj*)

Is A an applicable procedure?

2.1.3.31 int dfsch_object_string_p (dfsch_object_t * *obj*)

Is A a string?

2.1.3.32 int dfsch_object_symbol_p (dfsch_object_t * *obj*)

Is A a symbol?

2.1.3.33 dfsch_object_t* dfsch_quote ()

Performance hack: returns symbol `quote` witout need for looking it up every time. Definition at line 545 of file dfsch.c.

2.1.3.34 dfsch_object_t* dfsch_set_car (dfsch_object_t * *pair*, dfsch_object_t * *c*)

`(set-car! PAIR C)` Definition at line 394 of file dfsch.c.

2.1.3.35 dfsch_object_t* dfsch_set_cdr (dfsch_object_t * *pair*, dfsch_object_t * *c*)

`(set-cdr! PAIR C)` Definition at line 407 of file dfsch.c.

2.1.3.36 char* dfsch_symbol (dfsch_object_t * *symbol*)

Returns string representation of given symbol. Definition at line 531 of file dfsch.c.

2.1.3.37 dfsch_object_t* dfsch_true ()

Performance hack: returns symbol `true` witout need for looking it up every time. Definition at line 537 of file dfsch.c.

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