

sql egg

A small scheme library for constructing SQL queries.
Extension for Chicken Scheme
Version 1.0

Hans Bulfone

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1 About this egg

1.1 Version history

- 1.0 Initial release
- 1.1 Documentation, some fixes/features

1.2 Usage

Load this egg like so:

```
(require-extension sql)
```

2.1 Introduction

No support for actually accessing a database is provided so this extension is meant to be used together with other extensions like `postgresql` or `mysql`.

- `sql.egg` is incomplete. It mostly contains what I've needed so far :)
- `sql.egg` has only been used with PostgreSQL so far.

<code>sql:null</code>	[procedure]
<code>(sql:null)</code>	
Returns the NULL object	
<code>sql:null?</code>	[procedure]
<code>(sql:null? X)</code>	
Returns <code>#t</code> if <code>X</code> is the NULL object, <code>#f</code> otherwise.	

```
(require-extension postgresql sql)
(define (sql:null) pg:sql-null-object)
(define sql:null? pg:sql-null-object?)
```

'()' is also recognized as NULL by the sql egg, no matter how `sql:null?` is defined.

`sql:quote` [procedure]
 (sql:quote S)
 Returns a copy of S with ' replaced by '' and \ replaced by \\.

```
sql:transform [procedure]
  (sql:transform EXPR)
```

Returns the S-expression `EXPR` converted to SQL syntax as a list. The following transformation rules exist:

```
(and)                ->                TRUE
```

<code>(and x ...)</code>	<code>-></code>	<code>(x AND ...)</code>
<code>(or)</code>	<code>-></code>	<code>FALSE</code>
<code>(or x ...)</code>	<code>-></code>	<code>(x OR ...)</code>
<code>(not x)</code>	<code>-></code>	<code>(NOT x)</code>
<code>(null? x)</code>	<code>-></code>	<code>(x IS NULL)</code>
<code>(= x (sql:null))</code>	<code>-></code>	<code>(x IS NULL)</code>
<code>(binary-operator x1 x2)</code>	<code>-></code>	<code>(x1 op x2)</code>
<code>(n-ary-operator x ...)</code>	<code>-></code>	<code>(x op ...)</code>
<code>(-> type x)</code>	<code>-></code>	<code>(x::type)</code>
<code>(as x alias)</code>	<code>-></code>	<code>x AS alias</code>
<code>(asc x)</code>	<code>-></code>	<code>x ASC</code>
<code>(desc x)</code>	<code>-></code>	<code>x DESC</code>
<code>(extract f s)</code>	<code>-></code>	<code>EXTRACT(f FROM s)</code>
<code>(substring s start count)</code>	<code>-></code>	<code>SUBSTRING(s FROM start FOR count)</code>
<code>(string-append x ...)</code>	<code>-></code>	<code>(x ...)</code>
<code>(bitwise-and x ...)</code>	<code>-></code>	<code>(x & ...)</code>
<code>(bitwise-ior x ...)</code>	<code>-></code>	<code>(x ...)</code>
<code>(bitwise-xor x ...)</code>	<code>-></code>	<code>(x # ...)</code>
<code>(bitwise-not x)</code>	<code>-></code>	<code>(~x)</code>
<code>(join/on type a b on)</code>	<code>-></code>	<code>(a type JOIN b ON on)</code>
<code>(join/using type a b (using1 u2 ...))</code>	<code>-></code>	<code>(a type JOIN b USING (using1,u2,...))</code>
<code>(join/natural type a b)</code>	<code>-></code>	<code>(a NATURAL type JOIN b)</code>

<code>(func x ...)</code>	<code>-></code>	<code>func(x,...)</code>
<code>string</code>	<code>-></code>	<code>'(quoted-string)'</code>
<code>#t</code>	<code>-></code>	<code>TRUE</code>
<code>#f</code>	<code>-></code>	<code>FALSE</code>
<code>(sql:null)</code>	<code>-></code>	<code>NULL</code>
<code>()</code>	<code>-></code>	<code>NULL</code>

`sql:list->string` [procedure]
`(sql:list->string L)`

Returns the elements of `L` concatenated as a string.

`sql:binary-operators` [parameter]
 A list of binary operators recognized by `sql:transform`, by default `'(< > <= >= = <> != << >>)`.

`sql:n-ary-operators` [parameter]
 A list of n-ary operators recognized by `sql:transform`, by default `'(+ - * /)`.

2.6 Utility functions for generating common SQL queries

`sql:select` [procedure]
`(sql:select WHAT FROM WHERE #!optional (ORDER-BY #f))`

Returns a SQL SELECT-query as a string. `WHAT` and `FROM` are lists of S-expressions. `WHERE` is an S-expression or `#f`. `ORDER-BY`, if given, is a list of S-expressions.

`sql:insert` [procedure]
`(sql:insert TABLE VALUES)`

Returns a SQL INSERT-query as a string. `TABLE` is a string or symbol naming the table to receive the data. `VALUES` is an alist mapping column names (symbols) to values (S-expressions)

`sql:delete` [procedure]
`(sql:delete TABLE WHERE)`

Returns a SQL DELETE-query as a string. `TABLE` is a string or symbol naming the table to modify. `WHERE` is either an S-expression specifying the rows to delete or `#f`.

`sql:update` [procedure]
`(sql:update TABLE UPDATES WHERE)`

Returns a SQL UPDATE-query as a string. `TABLE` is a string or symbol naming the table to modify. `UPDATES` is an alist mapping column names (symbols) to values (S-expressions), `WHERE` is either an S-expression specifying the rows to modify or `#f`.

3 Examples

```
$ csi
)
(____/_____) /) , /)
/ ( / _ (/ _ _ __
/ / )__(_(____/____(/_/ (
(_____)
Version 2, Build 3 - linux-unix-gnu-x86 - [ libffi dload ptables ]
(c)2000-2005 Felix L. Winkelmann
#;1> (use sql)
; loading /usr/lib/chicken/sql.so ...
#;2> (define (get-some-data) "some-data")
#;3> (sql:insert "foobar" '((timestamp . (now)) (data . ,(get-some-data)) (quux . 5)))
"INSERT INTO foobar(timestamp,data,quux) VALUES(now(),'some-data',5)"
#;4> (sql:update "foobar" '((timestamp . (+ timestamp 5))) '(< quux 10))
"UPDATE foobar SET timestamp=(timestamp+5) WHERE (quux<10)"
#;5> (sql:select '(f.data quux.name) '((as foobar f) quux) '(and (= f.quux quux.bla) (>= f.
"SELECT f.data,quux.name FROM foobar AS f,quux WHERE ((f.quux=quux.bla) AND (f.timestamp>=
#;6>
```

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