

File created: 14-Apr-2026 12:14:44 {PROJECTS}<BROKENATOMS>BROKEN-ATOMS.;10

changes to: (FUNCTIONS WITHOUT-BROKEN-ATOMS TEST-PRETTY-FILE TEST-DEEP-COMPUTATION CURE-BROKEN-ATOM)
(VARS BROKEN-ATOMSCOMS)

previous date: 18-Feb-2026 16:08:40 {PROJECTS}<BROKENATOMS>BROKEN-ATOMS.;3

Read Table: INTERLISP

Package: INTERLISP

Format: MCCS

(RPAQQ **BROKEN-ATOMSCOMS**

;; the representation of a broken atom

(RECORDS BROKEN-ATOM)

(FUNCTIONS CURE-BROKEN-ATOM)

;; for DEFPRINT

(FNS BROKEN-ATOM-PRINTER)

;; special form

(FUNCTIONS WITHOUT-BROKEN-ATOMS)

;; setup

(P (DEFPRINT 'BROKEN-ATOM 'BROKEN-ATOM-PRINTER))

;; Debugging/testing

(FUNCTIONS TEST-INTERNAL-BA TEST-EXTERNAL-BA TEST-DEEP-COMPUTATION TEST-PRETTY-FILE))

;; the representation of a broken atom

(DECLARE%: EVAL@COMPILE

(DATATYPE BROKEN-ATOM ((PACKAGE POINTER)
(NAME POINTER)
(EXTERNAL FLAG)))

)

(/DECLAREDATATYPE 'BROKEN-ATOM '(POINTER POINTER FLAG)

;; ---field descriptor list elided by lister---

'4)

(CL:DEFUN **CURE-BROKEN-ATOM (CONDITION)**

"Given an XCL:MISSING-EXTERNAL-SYMBOL condition, return a corresponding BROKEN-ATOM"

(COND

((TYPEP CONDITION 'XCL:MISSING-PACKAGE) ; no such package

(create BROKEN-ATOM

PACKAGE ← (XCL:MISSING-PACKAGE-PACKAGE-NAME CONDITION)

NAME ← (XCL:MISSING-PACKAGE-SYMBOL-NAME CONDITION)

EXTERNAL ← (XCL:MISSING-PACKAGE-EXTERNAL CONDITION)))

((TYPEP CONDITION 'XCL:MISSING-EXTERNAL-SYMBOL)

; package exists, no such external symbol

(create BROKEN-ATOM

PACKAGE ← (CL:PACKAGE-NAME (XCL:MISSING-EXTERNAL-SYMBOL-PACKAGE CONDITION))

NAME ← (XCL:MISSING-EXTERNAL-SYMBOL-NAME CONDITION)

EXTERNAL ← NIL))

(T (HELP "Don't know how to cure" CONDITION))))

;; for DEFPRINT

(DEFINEQ

BROKEN-ATOM-PRINTER

[LAMBDA (BROKEN-ATOM STREAM)

(CONS (CONCAT (fetch (BROKEN-ATOM PACKAGE) of BROKEN-ATOM)

(if (fetch (BROKEN-ATOM EXTERNAL) of BROKEN-ATOM)

then ":",

else ";;")

(fetch (BROKEN-ATOM NAME) of BROKEN-ATOM])

)

;; special form

(DEFMACRO WITHOUT-BROKEN-ATOMS (&BODY FORMS)

"Handle any broken-atom errors by producing a BROKEN-ATOM that prints as if the original atom were intact"

```

[HANDLER-BIND [[XCL:MISSING-PACKAGE #'(CL:LAMBDA (C)
(CONDITIONS:INVOKE-RESTART
'CREATE-MISSING-PACKAGE-BA (
CURE-BROKEN-ATOM
C]
(XCL:MISSING-EXTERNAL-SYMBOL #'(CL:LAMBDA (C)
(CONDITIONS:INVOKE-RESTART
'CREATE-EXTERNAL-BA (
CURE-BROKEN-ATOM
C]
(CONDITIONS:RESTART-BIND [(CREATE-MISSING-PACKAGE-BA
#' (CL:LAMBDA (V)
(RETFROM (FUNCTION RESOLVE-MISSING-PACKAGE)
V)
V))
(CREATE-EXTERNAL-BA #'(CL:LAMBDA
(V)
(RETFROM (FUNCTION
RESOLVE-MISSING-EXTERNAL-SYMBOL
)
V)
V)
(PROGN ,@FORMS)]

```

:: setup

(DEFPRINT 'BROKEN-ATOM 'BROKEN-ATOM-PRINTER)

:: Debugging/testing

(CL:DEFUN TEST-INTERNAL-BA ()

```

[LET ((FILE NIL)
(CL:WITH-OPEN-STREAM (OUT (OPENSTREAM "{nodircore}" 'OUTPUT))
(SETQ FILE OUT)
(PRINTOUT OUT "BROKEN::INTERNAL-ATOM" T))
(CL:WITH-OPEN-STREAM (IN (OPENSTREAM FILE 'INPUT))
(WITHOUT-BROKEN-ATOMS (RATOM IN]))

```

(CL:DEFUN TEST-EXTERNAL-BA ()

```

[LET ((FILE NIL)
(CL:WITH-OPEN-STREAM (OUT (OPENSTREAM "{nodircore}" 'OUTPUT))
(SETQ FILE OUT)
(PRINTOUT OUT "BROKEN:EXTERNAL-ATOM" T))
(CL:WITH-OPEN-STREAM (IN (OPENSTREAM FILE 'INPUT))
(WITHOUT-BROKEN-ATOMS (RATOM IN]))

```

(CL:DEFUN TEST-DEEP-COMPUTATION ()

"Test that we can handle internal calls to READ that encounter broken atoms"

:: make sure it works when there's no error

```

(LET [(RESULT (WITHOUT-BROKEN-ATOMS (CL:LOOP :FOR X :FROM 0 :TO 9 :COLLECT X)
(PRINTOUT T "No error loop result: " RESULT T))

```

:: and when reading legit atoms

```

(LET [(RESULT (WITHOUT-BROKEN-ATOMS (CL:LOOP :FOR X :FROM 0 :TO 9 :COLLECT (CL:READ-FROM-STRING (CONCAT
"IL:ATOM" X]
(PRINTOUT T "No error read loop result: " RESULT T))

```

:: test XCL:MISSING-PACKAGE.

```

(COND
((CL:FIND-PACKAGE :BROKEN)
(DELETE-PACKAGE :BROKEN)))
(LET [(RESULT (WITHOUT-BROKEN-ATOMS (CL:LOOP :FOR X :FROM 0 :TO 9 :COLLECT (CL:READ-FROM-STRING (CONCAT
"OM" X]
(PRINTOUT T "No such package loop result: " RESULT T))

```

```
;; test XCL:MISSING-EXTERNAL-SYMBOL
(CL:UNWIND-PROTECT
 (PROGN (CL:MAKE-PACKAGE :BROKEN)
        (LET [(RESULT (WITHOUT-BROKEN-ATOMS (CL:LOOP :FOR X :FROM 0 :TO 9 :COLLECT (CL:READ-FROM-STRING (
CONCAT
EN:ATOM" X] (PRINTOUT T "Not external symbol loop result: " RESULT T)))
" BROK
        [COND
          ((CL:FIND-PACKAGE :BROKEN)
           (DELETE-PACKAGE 'BROKEN]))

(CL:DEFUN TEST-PRETTY-FILE (SOURCE-FILE-NAME OUTPUT-FILE-NAME OUTPUT-TYPE)
  "Prettyprint a Lisp source file to an imagestream file"
  (CL:WITH-OPEN-STREAM (OUTPUT-STREAM (OPENIMAGESTREAM OUTPUT-FILE-NAME OUTPUT-TYPE))
    (WITHOUT-BROKEN-ATOMS (PRETTYFILEINDEX SOURCE-FILE-NAME NIL OUTPUT-STREAM T)
      (FULLNAME OUTPUT-STREAM))))
```

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BROKEN-ATOM1
