

File created: 24-Jul-85 17:42:37 {DSK}<LISPFILERS>TESTER>SOURCES>RANDOM-GENERATOR.;2

changes to: (FNS TEST.GENERATE-RANDOM)

previous date: 19-Jul-85 11:24:20 {DSK}<LISPFILERS>TESTER>SOURCES>RANDOM-GENERATOR.;1

Read Table: OLD-INTERLISP-FILE

Package: INTERLISP

Format: XCCS

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## (RPAQQ **RANDOM-GENERATORCOMS**

```
((FNS TEST.GENERATE-RANDOM TEST.GENERATE-LIST-OF-ITEMS TEST.RANDOM-SELECTION)
 (INITVARS (TEST.TYPES-OF-RANDOM-OBJECTS (QUOTE (INTEGER SHORT-SIMPLE-LIST SHORT-LIST CHARACTER)))
  (TEST.MIN-INTEG MIN.FIXP)
  (TEST.MAX-INTEG MAX.FIXP)
  (TEST.VERY-SMALL 4)
  (TEST.SMALLP MAX.SMALLP)
  (TEST.SMALL 1000)
  (TEST.LARGE (IDIFFERENCE MAX.FIXP 1000))
  (TEST.MAX-DEPTH 4)
  (TEST.MAX-CHARACTER-CODE 255))))
```

(DEFINEQ

## (**TEST.GENERATE-RANDOM**

[LAMBDA (OBJECT-SPECIFICATIONS) (\* sm "24-Jul-85 15:57")

```
(SELECTQ (if (LISTP OBJECT-SPECIFICATIONS)
  then (CAR OBJECT-SPECIFICATIONS)
  else OBJECT-SPECIFICATIONS)
 (INTEGER (RAND TEST.MIN-INTEG TEST.MAX-INTEG))
 (SPECIAL-INTEG
  (TEST.RANDOM-SELECTION (QUOTE (0 1 -1)))))
 (BOUND-INTEG
  (RAND (CADR OBJECT-SPECIFICATIONS)
  (CADDR OBJECT-SPECIFICATIONS)))
 (LARGE-INTEG
  (TEST.RANDOM-SELECTION (LIST (RAND (IMINUS TEST.LARGE)
  TEST.MIN-INTEG)
  (RAND TEST.LARGE TEST.MAX-INTEG)))))
 (SMALL-INTEG
  (TEST.RANDOM-SELECTION (LIST (RAND (IMINUS TEST.SMALL)
  0)
  (RAND 0 TEST.SMALL)))))
 (SMALL-POSITIVE-INTEG
  (RAND 1 TEST.SMALL))
 (SMALL-NON-NEGATIVE-INTEG
  (RAND 0 TEST.SMALL))
 (SMALL-NEGATIVE-INTEG
  (RAND (IMINUS TEST.SMALL)
  -1))
 (SMALL-NON-POSITIVE-INTEG
  (RAND (IMINUS TEST.SMALL)
  0))
 (VERY-SMALL-POSITIVE-INTEG
  (RAND 1 TEST.VERY-SMALL))
 (VERY-SMALL-NON-NEGATIVE-INTEG
  (RAND 0 TEST.VERY-SMALL))
 (VERY-SMALL-NEGATIVE-INTEG
  (RAND (IMINUS TEST.VERY-SMALL)
  -1))
 (VERY-SMALL-NON-POSITIVE-INTEG
  (RAND (IMINUS TEST.VERY-SMALL)
  0))
 (VERY-LARGE-POSITIVE-INTEG
  (RAND (IDIFFERENCE TEST.MAX-INTEG 1000)
  TEST.MAX-INTEG))
 (VERY-LARGE-NEGATIVE-INTEG
  (RAND TEST.MIN-INTEG (IDIFFERENCE TEST.MIN-INTEG 1000)))
 (POSITIVE-INTEG
  (RAND 1 TEST.MAX-INTEG))
 (NON-NEGATIVE-INTEG
  (RAND 0 TEST.MAX-INTEG))
 (NEGATIVE-INTEG
  (RAND TEST.MIN-INTEG -1))
 (NON-POSITIVE-INTEG
  (RAND TEST.MIN-INTEG 0))
 (BIGNUM [PACK (CONS (TEST.RANDOM-SELECTION (QUOTE (- ")))
  (CONS (RAND 0 9)
  (for I from 1 to (RAND 20 99) collect (RAND 0 9]))
 (POSITIVE-BIGNUM
  [PACK (CONS (RAND 0 9)
  (for I from 1 to (RAND 20 99) collect (RAND 0 9]))
 (SPECIAL-BIGNUM
```

```

    (TEST.RANDOM-SELECTION (QUOTE (16383 16382 16384 32767 32766 32768 65535 65534 65536 16777215
                                   16777214 16777216 134217727 134217726 134217728))))
(PPOSITIVE-POWEROF10-BIGNUM
 (PACK (CONS 1 (for I from 1 to (RAND 20 99) collect 0))))
(WINDOW (CREATEW (TEST.GENERATE-RANDOM (QUOTE REGION))
              (TEST.RANDOM-SELECTION (LIST NIL "DUMMY"))
              (RAND 0 20)))
(REGION [PROG (LEFT BOTTOM)
          (SETQ LEFT (RAND 0 SCREENWIDTH))
          (SETQ BOTTOM (RAND 0 SCREENHEIGHT))
          (RETURN (CREATEREGION LEFT BOTTOM (RAND 10 (IDIFFERENCE SCREENWIDTH LEFT))
                                (RAND 10 (IDIFFERENCE SCREENHEIGHT BOTTOM)))]
        (LIST-OF-ITEMS
         (TEST.GENERATE-LIST-OF-ITEMS (if (LISTP OBJECT-SPECIFICATIONS)
                                           then (CDR OBJECT-SPECIFICATIONS)
                                           else NIL)))
        (SHORT-SIMPLE-LIST
         (for I from 1 to (TEST.GENERATE-RANDOM (QUOTE VERY-SMALL-NON-NEGATIVE-INTEGER))
         collect (PACK* (QUOTE A)
                        I)))
        (SHORT-SIMPLE-NON-NULL-LIST
         (for I from 1 to (TEST.GENERATE-RANDOM (QUOTE VERY-SMALL-POSITIVE-INTEGER))
         collect (PACK* (QUOTE A)
                        I)))
        (SHORT-LIST [PROG (DEPTH)
                          (SETQ DEPTH (if (AND OBJECT-SPECIFICATIONS (LISTP OBJECT-SPECIFICATIONS))
                                           then (CADR OBJECT-SPECIFICATIONS)
                                           else TEST.MAX-DEPTH))
                          (if (EQ DEPTH 1)
                              then (RETURN (TEST.GENERATE-RANDOM (QUOTE SHORT-SIMPLE-LIST)))
                              else (RETURN (for I from 1 to (TEST.GENERATE-RANDOM (QUOTE
                                                                                     VERY-SMALL-NON-NEGATIVE-INTEGER
                                                                                     ))
                                             collect (TEST.GENERATE-RANDOM (LIST (QUOTE SHORT-LIST)
                                                                                     (RAND 1 (SUB1 DEPTH)))))]
                          (LIST-OF-CHARACTERS
                           [PROG (NUM-OF-CHARACTERS)
                                (SETQ NUM-OF-CHARACTERS (if (AND OBJECT-SPECIFICATIONS (LISTP OBJECT-SPECIFICATIONS))
                                                            then (CADR OBJECT-SPECIFICATIONS)
                                                            else (TEST.GENERATE-RANDOM (QUOTE LARGE-POSITIVE-INTEGER)
                                                                 (RETURN (for I from 1 to NUM-OF-CHARACTERS collect (TEST.GENERATE-RANDOM (QUOTE CHARACTER]))
                                                                 (CHARACTER (CHARACTER (RAND 0 TEST.MAX-CHARACTER-CODE))))
                                                                 (PRINTOUT T OBJECT-TYPE " CAN NOT BE GENERATED."))

```

**(TEST.GENERATE-LIST-OF-ITEMS**

```

[LAMBDA (SPEC-LIST) (* sm "17-Jun-85 00:27")
 (PROG (ITEM-TYPE MIN-ITEMS MAX-ITEMS)
   (SETQ ITEM-TYPE (if SPEC-LIST
                       then (if (LISTP (CAR SPEC-LIST))
                               then (CAR SPEC-LIST)
                               else (LIST (CAR SPEC-LIST)))
                       else TEST.TYPES-OF-RANDOM-OBJECTS))
   (SETQ MIN-ITEMS (if (CDR SPEC-LIST)
                       then (CADR SPEC-LIST)
                       else 0))
   (SETQ MAX-ITEMS (if (CDDR SPEC-LIST)
                       then (CADDR SPEC-LIST)
                       else (RAND 0 20)))
   (RETURN (for I from 1 to (RAND MIN-ITEMS MAX-ITEMS) collect (TEST.GENERATE-RANDOM (
                                                                                     TEST.RANDOM-SELECTION
                                                                                     ITEM-TYPE)]

```

**(TEST.RANDOM-SELECTION**

```

[LAMBDA (L) (* sm "15-Jun-85 17:30")
 (CAR (NTH L (RAND 1 (LENGTH L))

```

)

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(RPAQ? TEST.TYPES-OF-RANDOM-OBJECTS (QUOTE (INTEGER SHORT-SIMPLE-LIST SHORT-LIST CHARACTER)))

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(RPAQ? TEST.MIN-INTEGER MIN.FIXP)

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(RPAQ? TEST.MAX-INTEGER MAX.FIXP)

```

```

(RPAQ? TEST.VERY-SMALL 4)

```

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(RPAQ? TEST.SMALLP MAX.SMALLP)

```

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(RPAQ? TEST.SMALL 1000)

```

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(RPAQ? TEST.LARGE (IDIFFERENCE MAX.FIXP 1000))

```

```

(RPAQ? TEST.MAX-DEPTH 4)

```

```

(RPAQ? TEST.MAX-CHARACTER-CODE 255)

```

```
{MEDLEY}<test>tools>RANDOM-GENERATOR.;1
```

Page 3

```
(PUTPROPS RANDOM-GENERATOR COPYRIGHT ("Xerox Corporation" 1985))
```

FUNCTION INDEX

TEST.GENERATE-LIST-OF-ITEMS . . . . .	2	TEST.GENERATE-RANDOM . . . . .	1	TEST.RANDOM-SELECTION . . . . .	2
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VARIABLE INDEX

TEST.LARGE . . . . .	2	TEST.MAX-INTEGER . . . . .	2	TEST.SMALLP . . . . .	2
TEST.MAX-CHARACTER-CODE . . . . .	2	TEST.MIN-INTEGER . . . . .	2	TEST.TYPES-OF-RANDOM-OBJECTS . . . . .	2
TEST.MAX-DEPTH . . . . .	2	TEST.SMALL . . . . .	2	TEST.VERY-SMALL . . . . .	2