

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-INTEGERS MIN.FIXP)
 (TEST.MAX-INTEGERS 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**

(\* sm "24-Jul-85 15:57")

```
[LAMBDA (OBJECT-SPECIFICATIONS)
 (SELECTQ (if (LISTP OBJECT-SPECIFICATIONS)
 then (CAR OBJECT-SPECIFICATIONS)
 else OBJECT-SPECIFICATIONS)
 (INTEGER (RAND TEST.MIN-INTEGERS TEST.MAX-INTEGERS))
 (SPECIAL-INTEGERS
 (TEST.RANDOM-SELECTION (QUOTE (0 1 -1))))
 (BOUND-INTEGERS
 (RAND (CADR OBJECT-SPECIFICATIONS)
 (CADDR OBJECT-SPECIFICATIONS)))
 (LARGE-INTEGERS
 (TEST.RANDOM-SELECTION (LIST (RAND (IMINUS TEST.LARGE)
 TEST.MIN-INTEGERS)
 (RAND TEST.LARGE TEST.MAX-INTEGERS))))
 (SMALL-INTEGERS
 (TEST.RANDOM-SELECTION (LIST (RAND (IMINUS TEST.SMALL)
 0)
 (RAND 0 TEST.SMALL))))
 (SMALL-POSITIVE-INTEGERS
 (RAND 1 TEST.SMALL))
 (SMALL-NON-NEGATIVE-INTEGERS
 (RAND 0 TEST.SMALL))
 (SMALL-NEGATIVE-INTEGERS
 (RAND (IMINUS TEST.SMALL)
 -1))
 (SMALL-NON-POSITIVE-INTEGERS
 (RAND (IMINUS TEST.SMALL)
 0))
 (VERY-SMALL-POSITIVE-INTEGERS
 (RAND 1 TEST.VERY-SMALL))
 (VERY-SMALL-NON-NEGATIVE-INTEGERS
 (RAND 0 TEST.VERY-SMALL))
 (VERY-SMALL-NEGATIVE-INTEGERS
 (RAND (IMINUS TEST.VERY-SMALL)
 -1))
 (VERY-SMALL-NON-POSITIVE-INTEGERS
 (RAND (IMINUS TEST.VERY-SMALL)
 0))
 (VERY-LARGE-POSITIVE-INTEGERS
 (RAND (IDIFFERENCE TEST.MAX-INTEGERS 1000)
 TEST.MAX-INTEGERS))
 (VERY-LARGE-NEGATIVE-INTEGERS
 (RAND TEST.MIN-INTEGERS (IDIFFERENCE TEST.MIN-INTEGERS 1000)))
 (POSITIVE-INTEGERS
 (RAND 1 TEST.MAX-INTEGERS))
 (NON-NEGATIVE-INTEGERS
 (RAND 0 TEST.MAX-INTEGERS))
 (NEGATIVE-INTEGERS
 (RAND TEST.MIN-INTEGERS -1))
 (NON-POSITIVE-INTEGERS
 (RAND TEST.MIN-INTEGERS 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 1677215
1677214 1677216 13421727 13421726 13421728))))
(POSITIVE-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**

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[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**

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

```

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

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

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

(RPAQ? TEST.VERY-SMALL 4)

(RPAQ? TEST.SMALLP MAX.SMALLP)

(RPAQ? TEST.SMALL 1000)

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

(RPAQ? TEST.MAX-DEPTH 4)

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

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

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

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