

File created: 16-Mar-2024 07:49:47 {WMEDLEY}<lispusers>tmax>TMAX-NUMBER.;3

edit by: rmk

changes to: (FNS NUMBER.DISPLAYFN NUMBER.PREPRINTFN NUMBER.IMAGEBOXFN NUMBER.PUTFN NUMBER.GETFN NUMBER.COPYFN)

previous date: 18-Mar-2022 07:06:06 {WMEDLEY}<lispusers>tmax>TMAX-NUMBER.;2

Read Table: XCL

Package: INTERLISP

Format: XCCS

(RPAQQ TMAX-NUMBERCOMS

```
(( * |Developed| |under| |support| |from| NIH |grant| RR-00785.)
( * |Written| |by| |Frank| |Gilmurray| |and| |Sami| |Shaio|. )
( * * TMAX-NUMBER |ImageObject| |functions| )
(FNS NUMBEROBJ NUMBEROBJP NGROUPP NUMBER.DISPLAYFN NUMBER.PREPRINTFN NUMBER.IMAGEBOXFN NUMBER.PUTFN
NUMBER.GETFN NUMBER.COPYFN NUMBER.BUTTONEVENTINFN NUMBEROBJ.TEDIT-TO-TEX-FN)
(FNS COPY.NGROUP.BRANCH DUMP.NGROUP.GRAPH NGROUP.BUTTONEVENTINFN NGROUP.DEFINE.TAG NUMBER.DELETE.TAG
NGROUP.SHOW.TAG CHANGE.INSERTED.NGROUP.FORMAT CHANGE.NGROUP.FORMAT.#TEXT
SHOW.INSERTED.NGROUP.FORMAT)
( * * |Variable| |and| |Record| |definitions| )
(VARS NGROUP.GRAPH.MENU.ITEMS NGROUP.INSERTED.MENU.ITEMS NGROUP.INSERTED.NOTAG.ITEMS
NGROUP.INSERTED.TAG.ITEMS)
(FILE (COMPILED SYSLOAD)
TMAX)
(INITVARS (\\NUMBEROBJ.IMAGEFNS (IMAGEFNSCREATE (FUNCTION NUMBER.DISPLAYFN)
(FUNCTION NUMBER.IMAGEBOXFN)
(FUNCTION NUMBER.PUTFN)
(FUNCTION NUMBER.GETFN)
(FUNCTION NUMBER.COPYFN)
(FUNCTION NUMBER.BUTTONEVENTINFN)
(FUNCTION NIL)
(FUNCTION NIL)
(FUNCTION NIL)
(FUNCTION NIL)
(FUNCTION XREF.WHENDELETEDFN)
(FUNCTION NIL)
(FUNCTION NIL)
(FUNCTION NUMBER.PREPRINTFN))))))
(DECLARE\\: EVAL@COMPILE DONTCOPY (RECORDS NGCOUNTER NGTEMPLATE NUMBEROBJ))))

( * |Developed| |under| |support| |from| NIH |grant| RR-00785.)
( * |Written| |by| |Frank| |Gilmurray| |and| |Sami| |Shaio|. )
( * * TMAX-NUMBER |ImageObject| |functions| )
```

(DEFINEQ

(NUMBEROBJ

```
(LAMBDA (USE TEMPLATE NUMSTRING REF.TYPE FONT MOTHER ABBREV.LEVEL)
(* |fsg| "26-Aug-87 14:29")
(LET ((NEWOBJ (IMAGEOBJCREATE (|create| NUMBEROBJ
REF.TYPE _ REF.TYPE
NUMSTRING _ (OR NUMSTRING "Note#")
USE _ USE
NGROUP.MOTHER _ MOTHER
TEMPLATE _ TEMPLATE
UPDATED.OBJ _ NIL
TEXT.AFTER# _ NIL
PAGE.NUMBER _ NIL
FONT _ FONT
TEXT.BEFORE# _ NIL
ABBREV-VAL _ ABBREV.LEVEL)
\\NUMBEROBJ.IMAGEFNS)))
(IMAGEOBJPROP NEWOBJ 'TYPE 'NUMBEROBJ)
(IMAGEOBJPROP NEWOBJ 'TEDIT-TO-TEX-FN (FUNCTION NUMBEROBJ.TEDIT-TO-TEX-FN))
NEWOBJ)))
```

(NUMBEROBJP

```
(LAMBDA (IMOBJ)
(* |ss| "27-Jun-87 16:21")
( * |Tests| |an| |imageobj| |to| |see| |if| |it| |is| |a| |number| |imageobject|.
|The| |only| |number| |imageobjects| |so| |far| |are| |NGroups| |and| |Endnotes|.
|By| |convention| |testing| |functions| |for| |an| |imageobject| |will| |be| |named|
(CONCAT |<type| |of| |imageobj>| "P"))
(AND IMOBJ (EQ (IMAGEOBJPROP IMOBJ 'TYPE)
'NUMBEROBJ)))
```

(NGROUPP

```
(LAMBDA (IMOBJ)
(* |ss| "27-Jun-87 16:15")
```

```
([with] NUMBEROBJ ([fetch] OBJECTDATUM [of] OBJ)
  (LET* ((MAIN.WINDOW (\\TEDIT.PRIMARYW TEXTOBJ))
    (IMOBJ.STRING (MKSTRING NUMSTRING))
    (NBR.FONT (SELECTQ USE
      (NOTE ([fetch] (ENDNOTEFONTS NUMBER.FONT) [of] (GET.ENDNOTE.FONTS MAIN.WINDOW)))
      (NGROUP FONT)
      (ERROR "Undefined USE field" USE))))
```

```

(AND (EQ USE 'NGROUP)
      (PROGN (AND (STRINGP TEXT.BEFORE#)
                  (SETQ IMOBJ.STRING (CONCAT TEXT.BEFORE# IMOBJ.STRING)))
              (AND (STRINGP TEXT.AFTER#)
                  (SETQ IMOBJ.STRING (CONCAT IMOBJ.STRING TEXT.AFTER#)))))
(AND (FONTP NBR.FONT)
      (DSPFONT (FONTCREATE (FONTPROP NBR.FONT 'FAMILY)
                          (FONTPROP NBR.FONT 'SIZE)
                          (FONTPROP NBR.FONT 'FACE))
                STREAM))
(|create| IMAGEBOX
  XSIZE _ (STRINGWIDTH IMOBJ.STRING STREAM)
  YSIZE _ (SELECTQ USE
                (NOTE (FIX (PLUS (TIMES (DSPSCALE NIL STREAM)
                                         (FONTPROP (CURRENT.DISPLAY.FONT STREAM)
                                                    'HEIGHT)))
                          (TIMES 0.25 (FONTPROP STREAM 'HEIGHT)))))
                (FONTPROP STREAM 'HEIGHT))
  YDESC _ (FONTPROP STREAM 'DESCENT)
  XKERN _ 0))))

```

(NUMBER.PUTFN

(LAMBDA (OBJ STREAM)

; Edited 16-Mar-2024 07:48 by rmk
(* |fsg| " 5-Aug-87 08:24")

```

(LET ((WINDOW (\\TEDIT.PRIMARYW TEXTOBJ))
      (USE (|with| NUMBEROBJ (|fetch| OBJECTDATUM |of| OBJ)
            USE))
      (OLD.FONT (|with| NUMBEROBJ (|fetch| OBJECTDATUM |of| OBJ)
                                   FONT)))
  (SELECTQ USE
    (NOTE (NOTE.PUTFN OBJ STREAM WINDOW))
    (NGROUP (LET ((NGROUP.REC (COPY (|fetch| OBJECTDATUM |of| OBJ))))
              (|with| NUMBEROBJ NGROUP.REC (SETQ FONT (LIST.FONT.PROPS FONT))
                (PRIN4 (LIST ' |NGroup| (AND (WINDOWPROP WINDOW 'DUMPNGROUPGRAPH)
                                             (DUMP.NGROUP.GRAPH WINDOW))
                          (IMAGEOBJPROP OBJ 'TAG)
                          NGROUP.REC)
                      STREAM))))
    (ERROR "Unknown NUMBER ImageObject type" USE))))

```

(NUMBER.GETFN

(LAMBDA (STREAM COPY.OBJECT)

; Edited 16-Mar-2024 07:48 by rmk
(* |fsg| " 3-Sep-87 15:17")

;;; If COPY.OBJECT is non-NIL then we are COPYing it to this window.

```

(LET ((NBROBJ.DATUM (OR COPY.OBJECT (CDR (READ STREAM)))))
  (NEWOBJ (NUMBEROBJ))
  (WINDOW (\\TEDIT.PRIMARYW TEXTOBJ))
  (TSP.SETUP.FMMENU WINDOW)
  (AND (ILESSP (LENGTH NBROBJ.DATUM)
              3)
        (SETQ NBROBJ.DATUM (CONS NIL NBROBJ.DATUM)))
  (AND (CAR NBROBJ.DATUM)
        (NOT (AND (BOUNDP 'TMAX.PRUNE.NGRAPH)
                  TMAX.PRUNE.NGRAPH))
        (COPY.NGROUP.BRANCH (CAR NBROBJ.DATUM)
                             WINDOW))
  (AND (CADR NBROBJ.DATUM)
        (NOT (GETHASH (CADR NBROBJ.DATUM)
                      (WINDOWPROP WINDOW 'TSP.CODE.ARRAY)))
        (PROGN (TSP.PUTCODE (CADR NBROBJ.DATUM)
                             NEWOBJ WINDOW)
              (IMAGEOBJPROP NEWOBJ 'TAG (CADR NBROBJ.DATUM))))
  (|with| NUMBEROBJ (SETQ NBROBJ.DATUM (NGROUP.FIXUP.RECORDS (CADDR NBROBJ.DATUM)
                                                             COPY.OBJECT))
    (SELECTQ USE
      (NOTE (NOTE.GETFN NEWOBJ NBROBJ.DATUM WINDOW))
      (NGROUP (AND (LISTP FONT)
                  (SETQ FONT (FONTCREATE FONT)))
              (CREATE.NGROUP.NODE REF.TYPE NGROUP.MOTHER NBROBJ.DATUM WINDOW)
              (CREATE.NGROUP.NODE NGROUP.MOTHER NIL NIL WINDOW)
              (ADD.NGROUP.TO.MOTHER.NODE REF.TYPE NGROUP.MOTHER WINDOW)
              (WINDOWPROP WINDOW 'REBUILD.GRAPHFLG T)
              (AND (|fetch| (NGTEMPLATE NG.MANUALINDEX) |of| TEMPLATE)
                  (WINDOWADDPROP WINDOW 'MANUALGROUPS REF.TYPE))
              (|replace| OBJECTDATUM |of| NEWOBJ |with| NBROBJ.DATUM))
              (ERROR "Unknown USE type in NUMBER.GETFN" USE)))
    NEWOBJ)))

```

(NUMBER.COPYFN

(LAMBDA (IMAGE.OBJ SOURCE.STREAM TARGET.STREAM)

; Edited 16-Mar-2024 07:48 by rmk
(* |fsg| " 4-Aug-87 09:46")

;;; Here to COPY a Number Image Object. If we are copying to our own window, we delete the TAG if any so we don't get two ImageObjs with the same TAG name.

```
(SELECTQ (IMAGESTREAMTYPE TARGET.STREAM)
  (TEXT (LET ((SOURCE.WINDOW (\\TEDIT.PRIMARYW TEXTOBJ))
    (TEXTOBJ (TEXTOBJ TARGET.STREAM)))
    (APPLY* (IMAGEOBJPROP IMAGE.OBJ 'GETFN)
      TARGET.STREAM
      (LIST (|with| NUMBEROBJ (|fetch| OBJECTDATUM |of| IMAGE.OBJ)
        (AND (EQ USE 'NGROUP)
          (NEQ SOURCE.STREAM TARGET.STREAM)
          (|for| PARENT |in| (APPEND (LIST.ANCESTORS REF.TYPE NIL SOURCE.WINDOW)
            (LIST REF.TYPE))
          |collect| (CAR (GETHASH PARENT (TSP.GET.NGROUP.ARRAY SOURCE.WINDOW)
            ))))
        (AND (NEQ SOURCE.STREAM TARGET.STREAM)
          (IMAGEOBJPROP IMAGE.OBJ 'TAG))
        (|fetch| OBJECTDATUM |of| IMAGE.OBJ))))))
  (ERROR "Unknown TARGET stream type" (IMAGESTREAMTYPE TARGET.STREAM))))
```

(NUMBER.BUTTONEVENTINFN

(LAMBDA (OBJ STREAM SEL RELX RELY WINDOW HOSTSTREAM BUTTON) (* |fsg| "2-Sep-87 11:09")

(* |Here| |when| |a| |NumberOBJ| |is| |left| |or| |middle| |buttoned.|
 |Left| |just| |dislays| |the| |Tag| |if| |any| |in| |the| |prompt| |window.|
 |Middle| |pops| |up| |a| |menu| |allowing| |this| |user| |to| |do| |various| |things.|)

```
(AND (MOUSESTATE LEFT)
  (COND
    ((IMAGEOBJPROP OBJ 'TAG)
      (|with| NUMBEROBJ (|fetch| OBJECTDATUM |of| OBJ)
        (TEDIT.PROMPTPRINT STREAM (CONCAT "Tag for this " (SELECTQ USE
          (NOTE "Endnote")
          (NGROUP REF.TYPE)
          (ERROR "Undefined USE code" USE))
          " is \"\"\"
          (IMAGEOBJPROP OBJ 'TAG)
          "\"\"\"
          T))))
      (T (TEDIT.PROMPTPRINT STREAM " T))))
  (AND (MOUSESTATE MIDDLE)
    (LET* ((DATUM (|fetch| OBJECTDATUM |of| OBJ))
      (USE (|fetch| (NUMBEROBJ USE) |of| DATUM))
      (REF.TYPE (|fetch| (NUMBEROBJ REF.TYPE) |of| DATUM)))
      (AND (SELECTQ USE
        (NOTE (NOTE.BUTTONEVENTINFN OBJ STREAM WINDOW))
        (NGROUP (NGROUP.BUTTONEVENTINFN REF.TYPE OBJ STREAM WINDOW))
        (ERROR "Undefined USE code" USE))
        (PROGN (TEDIT.PROMPTPRINT STREAM " T)
          'CHANGED))))))
```

(NUMBEROBJ.TEDIT-TO-TEX-FN

```
(LAMBDA (OBJ STREAM)
  (PRIN3 "\\ex{" STREAM)
  (LET ((DATUM (IMAGEOBJPROP OBJ 'OBJECTDATUM)))
    (PRIN3 (CAR DATUM)
      STREAM)
    (PRIN3 (CADR DATUM)
      STREAM))
  (PRIN3 "}" STREAM)
  T))
```

(DEFINEQ

(COPY.NGROUP.BRANCH

(LAMBDA (NGROUP.PARENTS WINDOW)

(* |fsg| "11-Aug-87 09:36")

(* |Build| |the| |NGroup| |database| |for| |the| |parents| |of| |a| |copied| |NGroup| |or| |the| |entire| |NGroup| |database| |on| |a|
 GET.)

```
(|for| PARENT |in| NGROUP.PARENTS |do| (AND PARENT (|with| NUMBEROBJ PARENT (AND (LISTP FONT)
  (SETQ FONT (FONTCREATE FONT)))
  (OR NGROUP.MOTHER (SETQ NGROUP.MOTHER 'NEW.NGROUP))
  (CREATE.NGROUP.NODE REF.TYPE NGROUP.MOTHER PARENT
    WINDOW)
  (CREATE.NGROUP.NODE NGROUP.MOTHER NIL NIL WINDOW)
  (ADD.NGROUP.TO.MOTHER.NODE REF.TYPE NGROUP.MOTHER
    WINDOW))))))
```

(DUMP.NGROUP.GRAPH

(LAMBDA (WINDOW)

(* |fsg| "3-Aug-87 16:03")

```
(* * |Return| \a |list| |of| |the| |NGroup| |graph| |data| |that| |is| PUT |along| |with| |the| |NGroup| |Imageobject|.
We |can| |then| |rebuild| |the| |entire| |NGroup| |graph| |on| \a GET.)
```

```
(LET ((GRAPH.LIST (TCONC NIL)))
  (MAPHASH (TSP.GET.NGROUP.ARRAY WINDOW)
    (FUNCTION (LAMBDA (VAL KEY)
      (AND (NEQ KEY 'NEW.NGROUP)
        (LET ((NGROUP.REC (COPY (CAR VAL))))
          (|with| NUMBEROBJ NGROUP.REC (SETQ FONT (LIST.FONT.PROPS FONT))
            (TCONC GRAPH.LIST NGROUP.REC)))))))
  (WINDOWPROP WINDOW 'DUMPNGROUPGRAPH NIL)
  (CDAR GRAPH.LIST)))
```

(NGROUP.BUTTONEVENTINFN

```
(LAMBDA (REF.TYPE NGROUP.OBJ STREAM WINDOW) (* |fsg| " 5-Aug-87 08:31")
```

```
(* * |Here| |when| |an| |inserted| |NGroup| |is| |middle| |buttoned|.)
```

```
(LET ((TAG (IMAGEOBJPROP NGROUP.OBJ 'TAG))
  (GRAPHW (WINDOWPROP WINDOW 'IMAGEOBJ.MENUW)))
  (MENU (|create| MENU
    TITLE _ (CONCAT REF.TYPE " Menu")
    ITEMS _ (APPEND (COND
      (TAG NGROUP.INSERTED.TAG.ITEMS)
      (T NGROUP.INSERTED.NOTAG.ITEMS))
      NGROUP.INSERTED.MENU.ITEMS)
    CENTERFLG _ T))))
```

(NGROUP.DEFINE.TAG

```
(LAMBDA (REF.TYPE WINDOW NGROUP.OBJ) (* |fsg| " 5-Aug-87 09:26")
```

```
(* * |Define| \a TAG |for| |this| |NGroup| |or| |Change| |the| TAG |if| |it| |already| |exists|.)
```

```
(LET ((OLD.TAG (IMAGEOBJPROP NGROUP.OBJ 'TAG))
  (NEW.TAG (TSP.GET.INCODE (TEXTSTREAM WINDOW))))
  (AND NEW.TAG (NEQ NEW.TAG OLD.TAG)
    (PROGN (AND OLD.TAG (NUMBER.DELETE.TAG WINDOW NGROUP.OBJ))
      (TSP.PUTCODE NEW.TAG NGROUP.OBJ WINDOW)
      (IMAGEOBJPROP NGROUP.OBJ 'TAG NEW.TAG))))))
```

(NUMBER.DELETE.TAG

```
(LAMBDA (WINDOW NGROUP.OBJ) (* |fsg| " 5-Aug-87 09:27")
```

```
(* * |Delete| |this| |Imageobj's| TAG.)
```

```
(TSP.PUTCODE (IMAGEOBJPROP NGROUP.OBJ 'TAG NIL)
  NIL WINDOW)
NIL))
```

(NGROUP.SHOW.TAG

```
(LAMBDA (REF.TYPE WINDOW NGROUP.OBJ) (* |fsg| " 5-Aug-87 08:43")
```

```
(* * |Show| |this| |NGroup's| TAG.)
```

```
(TEDIT.PROMPTPRINT (TEXTSTREAM WINDOW)
  (CONCAT REF.TYPE ": Tag=\"\" (IMAGEOBJPROP NGROUP.OBJ 'TAG)
  "\""))
T)))
```

(CHANGE.INSERTED.NGROUP.FORMAT

```
(LAMBDA (REF.TYPE NGROUP.OBJ STREAM WINDOW FORMAT.FIELD) (* |fsg| " 1-Sep-87 15:33")
```

```
(* * |Change| |an| |inserted| |NGroup's| |entire| |format| |or| \a |selected| |field|.)
```

```
(LET ((GRAPHW (WINDOWPROP WINDOW 'IMAGEOBJ.MENUW))
  (NEW.FORMAT (|for| FIELD |in| (COND
    (FORMAT.FIELD (LIST FORMAT.FIELD))
    (T ' (TXTBEFORE DISPLAY TXTAFTER ABBREVVVAL BEFORE#TXT AFTER#TXT))))
  (|collect| (SELECTQ FIELD
    (TXTBEFORE (CHANGE.NGROUP.FORMAT.TXTBEFORE REF.TYPE GRAPHW NGROUP.OBJ))
    (DISPLAY (CHANGE.NGROUP.FORMAT.DISPLAY REF.TYPE GRAPHW NGROUP.OBJ))
    (TXTAFTER (CHANGE.NGROUP.FORMAT.TXTAFTER REF.TYPE GRAPHW NGROUP.OBJ))
    (ABBREVVVAL (CHANGE.NGROUP.FORMAT.ABBREV REF.TYPE GRAPHW NGROUP.OBJ))
    (BEFORE#TXT (CHANGE.NGROUP.FORMAT.#TEXT REF.TYPE WINDOW NGROUP.OBJ
      'BEFORE))
    (AFTER#TXT (CHANGE.NGROUP.FORMAT.#TEXT REF.TYPE WINDOW NGROUP.OBJ
      'AFTER))
    (ERROR "Unknown NGroup Format field" FIELD))))))
  (APPLY 'OR NEW.FORMAT))))
```

(CHANGE.NGROUP.FORMAT.#TEXT

```
(LAMBDA (REF.TYPE WINDOW NGROUP.OBJ FLAVOR) (* |fsg| "25-Aug-87 14:48")

(* * |Change| |the| |text| |before| |or| |after| |an| |inserted| |NGroup| |regardless| |of| |the| |Text| |Before| |or| |Text| |After|
|toggle| |settings|.))

(|with| NUMBEROBJ (|fetch| OBJECTDATUM |of| NGROUP.OBJ)
  (LET ((OLD.STRING (SELECTQ FLAVOR
    (BEFORE TEXT.BEFORE#)
    TEXT.AFTER#))
    (NEW.STRING (TEDIT.GETINPUT (TEXTSTREAM WINDOW)
      (CONCAT (SELECTQ FLAVOR
        (BEFORE "Text before ")
        "Text after ")
        REF.TYPE ":"))))
    (AND NEW.STRING (SETQ NEW.STRING (CONCAT (SELECTQ FLAVOR
      (BEFORE " ")
      " ")
      (CONVERT.TABS.TO.SPACES NEW.STRING)
      (SELECTQ FLAVOR
        (BEFORE " ")
        " ")))
      (SELECTQ FLAVOR
        (BEFORE (SETQ TEXT.BEFORE# NEW.STRING))
        (SETQ TEXT.AFTER# NEW.STRING))
      (NOT (STREQUAL OLD.STRING NEW.STRING))))))
```

(SHOW.INSERTED.NGROUP.FORMAT

```
(LAMBDA (REF.TYPE NGROUP.OBJ STREAM WINDOW) (* |fsg| "26-Aug-87 12:05")

(* * |Show| |the| |format| |of| |an| |inserted| |NGroup|.))

(|with| NUMBEROBJ (|fetch| OBJECTDATUM |of| NGROUP.OBJ)
  (|with| NGTEMPLATE TEMPLATE (TEDIT.PROMPTPRINT STREAM (CONCAT REF.TYPE ": Display="
    (CONCAT (COND
      (NG.TEXT-BEFORE (CONCAT "\"\"
        NG.TEXT-BEFORE
        "\"\""))
      (T "\"\""))
      NG.CHARTYPE
      (COND
        (NG.TEXT-AFTER (CONCAT "\"\"
          NG.TEXT-AFTER
          "\"\""))
        (T "\"\""))
      " Abbrev="
      (OR ABBREV-VAL "None"))
      T))))))

)
```

(* * |Variable| |and| |Record| |definitions|)

(RPAQQ NGROUP.GRAPH.MENU.ITEMS

```
`((|Change Font| (CHANGE.NGROUP.FONT LABEL GRAPHW)
  "Change this NGroup's entire FONT."
  (SUBITEMS (|Family| (CHANGE.NGROUP.FONT LABEL GRAPHW 'FAMILY)
    "Change this NGroup's font family."
    (|Size| (CHANGE.NGROUP.FONT LABEL GRAPHW 'SIZE)
      "Change this NGroup's font size."
      (|Face| (CHANGE.NGROUP.FONT LABEL GRAPHW 'FACE)
        "Change this NGroup's font face.")))
  (|Show Font| (SHOW.NGROUP.FONT LABEL GRAPHW)
    "Show this NGroup's FONT.")
  (|Change Format| (CHANGE.NGROUP.FORMAT LABEL GRAPHW)
    "Change this NGroup's entire FORMAT."
    (SUBITEMS (|Delimiter Before| (CHANGE.NGROUP.FORMAT LABEL GRAPHW 'TXTBEFORE)
      "Change the delimiter preceding this NGroup."
      (|Display Type| (CHANGE.NGROUP.FORMAT LABEL GRAPHW 'DISPLAY)
        "Change how this NGroup is displayed."
        (|Delimiter After| (CHANGE.NGROUP.FORMAT LABEL GRAPHW 'TXTAFTER)
          "Change the delimiter following this NGroup."
          (|Abbreviate Level| (CHANGE.NGROUP.FORMAT LABEL GRAPHW 'ABBREVVAL)
            "Specify the starting level of this NGroup value."
            (|Starting Value| (CHANGE.NGROUP.FORMAT LABEL GRAPHW 'START)
              "Change this NGroup's starting value."
              (|Table-Of-Contents| (CHANGE.NGROUP.FORMAT LABEL GRAPHW 'TOC)
                "Include this NGroup in the Table-Of-Contents."
                \,@
                (AND (MANUALINDEX.ENABLED? (WINDOWPROP GRAPHW 'TWINDOW))
                  (LIST (LIST 'Manual Index (FUNCTION (CHANGE.NGROUP.FORMAT LABEL GRAPHW
                    'MANINDEX))
                    "Include this NGroup in the Manual Index page numbers."))))))
    (|Show Format| (SHOW.NGROUP.FORMAT LABEL GRAPHW)
      "Show this NGroup's FORMAT.")))
```

(RPAQQ **NGROUP.INSERTED.MENU.ITEMS**

```
((|Change Font| (CHANGE.NGROUP.FONT REF.TYPE GRAPHW NIL NGROUP.OBJ)
  "Change this NGroup's entire FONT."
  (SUBITEMS (|Family| (CHANGE.NGROUP.FONT REF.TYPE GRAPHW 'FAMILY NGROUP.OBJ)
    "Change this NGroup's font family.")
    (|Size| (CHANGE.NGROUP.FONT REF.TYPE GRAPHW 'SIZE NGROUP.OBJ)
    "Change this NGroup's font size.")
    (|Face| (CHANGE.NGROUP.FONT REF.TYPE GRAPHW 'FACE NGROUP.OBJ)
    "Change this NGroup's font face.")))
(|Show Font| (SHOW.NGROUP.FONT REF.TYPE GRAPHW NGROUP.OBJ)
  "Show this NGroup's FONT.")
(|Change Format| (CHANGE.INSERTED.NGROUP.FORMAT REF.TYPE NGROUP.OBJ STREAM WINDOW)
  "Change this NGroup's entire FORMAT."
  (SUBITEMS (|Delimiter Before| (CHANGE.INSERTED.NGROUP.FORMAT REF.TYPE NGROUP.OBJ STREAM WINDOW
    'TXTBEFORE)
    "Change the delimiter preceding this NGroup.")
    (|Display Type| (CHANGE.INSERTED.NGROUP.FORMAT REF.TYPE NGROUP.OBJ STREAM WINDOW
    'DISPLAY)
    "Change how this NGroup is displayed.")
    (|Delimiter After| (CHANGE.INSERTED.NGROUP.FORMAT REF.TYPE NGROUP.OBJ STREAM WINDOW
    'TXTAFTER)
    "Change the delimiter following this NGroup.")
    (|Abbreviate Level| (CHANGE.INSERTED.NGROUP.FORMAT REF.TYPE NGROUP.OBJ STREAM WINDOW
    'ABBREVAL)
    "Specify the starting level of this NGroup value.")
    (|Text Before| (CHANGE.INSERTED.NGROUP.FORMAT REF.TYPE NGROUP.OBJ STREAM WINDOW
    'BEFORE#TXT)
    "Change the text preceding this NGroup.")
    (|Text After| (CHANGE.INSERTED.NGROUP.FORMAT REF.TYPE NGROUP.OBJ STREAM WINDOW
    'AFTER#TXT)
    "Change the text following this NGroup.")))
(|Show Format| (SHOW.INSERTED.NGROUP.FORMAT REF.TYPE NGROUP.OBJ STREAM WINDOW)
  "Show this NGroup's FORMAT.")))
```

```
(RPAQQ NGROUP.INSERTED.NOTAG.ITEMS ((|Define Tag| (NGROUP.DEFINE.TAG REF.TYPE WINDOW NGROUP.OBJ)
  "Define a TAG for this NGroup.")))
```

```
(RPAQQ NGROUP.INSERTED.TAG.ITEMS ((|Change Tag| (NGROUP.DEFINE.TAG REF.TYPE WINDOW NGROUP.OBJ)
  "Change this NGroup's TAG.")
  (|Delete Tag| (NUMBER.DELETE.TAG WINDOW NGROUP.OBJ)
  "Delete this NGroup's TAG.")
  (|Show Tag| (NGROUP.SHOW.TAG REF.TYPE WINDOW NGROUP.OBJ)
  "Show this NGroup's TAG.")))
```

```
(FILESLOAD (COMPILED SYSLOAD)
  TMAX)
```

(RPAQQ? **\\NUMBEROBJ.IMAGEFNS**

```
(IMAGEFNSCREATE (FUNCTION NUMBER.DISPLAYFN)
  (FUNCTION NUMBER.IMAGEBOXFN)
  (FUNCTION NUMBER.PUTFN)
  (FUNCTION NUMBER.GETFN)
  (FUNCTION NUMBER.COPYFN)
  (FUNCTION NUMBER.BUTTONEVENTINFN)
  (FUNCTION NIL)
  (FUNCTION NIL)
  (FUNCTION NIL)
  (FUNCTION XREF.WHENDELETEDFN)
  (FUNCTION NIL)
  (FUNCTION NIL)
  (FUNCTION NUMBER.PREPRINTFN)))
```

```
(DECLARE\ : EVAL@COMPILE DONTCOPY
```

```
(DECLARE\ : EVAL@COMPILE
```

```
(RECORD NGCOUNTER (NCOUNT . ANCESTRY))
```

```
(RECORD NGTEMPLATE (NG.CHARTYPE NG.TEXT-AFTER NG.START NG.ADDTOTOC NG.CURRENTVAL NG.MANUALINDEX NG.TEXT-BEFORE))
```

```
(RECORD NUMBEROBJ (REF.TYPE NUMSTRING USE NGROUP.MOTHER TEMPLATE UPDATED.OBJ TEXT.AFTER# PAGE.NUMBER FONT
  TEXT.BEFORE# ABBREV-VAL))
```

```
)
)
```

FUNCTION INDEX

CHANGE.INSERTED.NGROUP.FORMAT	5	NGROUPP	1	NUMBER.PREPRINTFN	2
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NGCOUNTER	7	NGTEMPLATE	7	NUMBEROBJ	7
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