```
(RPAQQ PRINTFNCOMS
       [(* * PRINTFN)
        (FNS PF PF* PRINTFN PRINTFNDEF FINDFNDEF PFCOPYBYTES DISPLAYP)
        (INITVARS (PFDEFAULT 'PFCOPYBYTES))
        (DECLARE%: DONTCOPY (MACROS PFPRINCHAR PFOUTCHAR))
        (P (MOVD? 'COPYBYTES 'PFCOPYBYTES))
        (USERMACROS PF)
        (GLOBALVARS **COMMENT**FLG LASTWORD PFDEFAULT FILERDTBL USEMAPFLG)
        (DECLARE%: DONTEVAL@LOAD DOEVAL@COMPILE DONTCOPY COMPILERVARS (ADDVARS (NLAMA PF* PF)
                                                                              (NLAML)
                                                                              (LAMA])


           (* * PRINTFN)

(DEFINEQ

(PF
  [NLAMBDA FN                                               ; Edited 14-Sep-2023 22:52 by rmk
                                                            ; Edited  4-Apr-2018 11:13 by rmk:
```

;; RMK; Fixed to skip compiled files, also to use FUNCTIONS as well as FNS. That might not help, if FUNCTIONS are not included in the filemap.

;; Print from files known to masterscope database before looking at whereis database. Note, however, that it also prefers the masterscope
;; database to incore files

;; If FN is NIL, prints the function named by LASTWORD

;; If FN is a list, then extra args are interpreted as:

;; OUTPUT FILE

;; ...

```
    (RESETLST
        (PROG (OUT OTHERARGS IFILES)
              (SETQ FN (NLAMBDA.ARGS FN))                   ; Grab the args as a list
              [COND
                 ((LISTP FN)                                ; If it's a list, take the first element as the function name.
                  (SETQ OTHERARGS (CDR FN))
                  (SETQ FN (CAR FN]
              (COND
                 (FN                                        ; FN name specified; use it.
                  (SETQ LASTWORD FN))
                 (T                                         ; Not specified, use LASTWORD
                  (SETQ FN LASTWORD)))
              [SETQ IFILES (OR (CAR OTHERARGS)
                               (APPEND (WHEREIS FN 'FNS T)
                                       (WHEREIS FN 'FUNCTIONS T]
              [RESETSAVE (OUTPUT (COND
                                    ((CADR OTHERARGS)       ; An output file was specified; if not open for output, open it.
                                     (OR (OPENP (CADR OTHERARGS)
                                                'OUTPUT)
                                         (WINDOWP (CADR OTHERARGS))
                                         (PROGN [RESETSAVE (SETQ OUT (OPENSTREAM (CADR OTHERARGS)
                                                                                 'OUTPUT))
                                                           '(PROGN (CLOSEF? OLDVALUE]
                                                OUT)))
                                    (T                      ; otherwise, use primary output.
                                     T]                     ; skip compiled files
              (FOR FILE INSIDE IFILES UNLESS (MEMB (FILENAMEFIELD FILE 'EXTENSION)
                                                   *COMPILED-EXTENSIONS*)
                 DO (PRINTFN FN FILE))))])


(PF*
  [NLAMBDA FN                                               ; Edited 10-Jun-87 11:09 by jds

;;; Print the function FN (or LASTWORD), with comments visible to the user.

    (RESETVARS (**COMMENT**FLG)
               (APPLY (FUNCTION PF)
                      FN])
```

⟨**PRINTFN**
```
  [LAMBDA (FN FROMFILE TOFILE)                                      ; Edited 17-Oct-2021 18:00 by rmk:
    (PROG ((LOC (FINDFNDEF FN FROMFILE)))
          (COND
             ((LISTP LOC)
              (PRINTFNDEF (CAR LOC)
                      TOFILE
                      (CADR LOC)
                      (CADDR LOC)
                      (CADDDR LOC))
              (RETURN FN))
             ((EQ LOC 'FILE.NOT.FOUND)
              (printout TOFILE "file " FROMFILE " not found." T))
             (T (printout TOFILE FN " not found on " LOC "." T])
```

⟨**PRINTFNDEF**
```
  [LAMBDA (SRCFIL DSTFIL START END TYPE)                            ; Edited  7-Oct-2021 20:51 by rmk:
```
    ;; RMK: It wasn't clear what PFDEFAULT was doing, or why. I've assigned it a meaning here: the name of the function to call to print a function
    ;; on a display stream. Initialized to PFCOPYBYTES
```
    (RESETLST
        (LET (TEM)
            [COND
               ((SETQ TEM (GETSTREAM DSTFIL 'OUTPUT T))
                (SETQ DSTFIL TEM))
               (T (RESETSAVE (SETQ DSTFIL (OPENSTREAM DSTFIL 'OUTPUT))
                        '(PROGN (CLOSEF? OLDVALUE]
            [COND
               ((SETQ TEM (GETSTREAM SRCFIL 'INPUT T))
                (RESETSAVE NIL (LIST 'SETFILEPTR TEM (GETFILEPTR TEM)))
                (SETQ SRCFIL TEM))
               (T (RESETSAVE (SETQ SRCFIL (OPENSTREAM SRCFIL 'INPUT))
                        '(PROGN (CLOSEF? OLDVALUE]
            (PRINTOUT DSTFIL "{from " .P2 (FULLNAME SRCFIL)
                    "}" T))
        (APPLY* (CL:IF (DISPLAYP DSTFIL)
                    PFDEFAULT
                    (FUNCTION COPYBYTES))
              SRCFIL DSTFIL START END)
        (TERPRI DSTFIL))])
```

⟨**FINDFNDEF**
```
  [LAMBDA (FN FROMFILE)
```
    ;; Edited 15-Mar-2022 00:18 by rmk: Changed FINDFILE to FINDFILE-WITH-EXTENSIONS   (* bvm%: "27-Aug-86 16:27")

;;; Locates FNS definition of FN on FROMFILE. If found, returns a list (file start end type); if file not found, returns symbol FILE.NOT.FOUND; if file
;;; found but not fn, returns full name of file that was found

                (* * "Locates FNS definition of FN on FROMFILE. If found, returns a list (file start end type); if file not found, returns symbol
                FILE.NOT.FOUND; if file found but not fn, returns full name of file that was found")

```
    (LET (FULL MAP VALUE)
        (COND
           ((NOT (SETQ FULL (FINDFILE-WITH-EXTENSIONS FROMFILE)))
            'FILE.NOT.FOUND)
           [(COND
               ((SETQ MAP (OR (GETFILEMAP FULL)
                            (LOADFILEMAP FULL)))
```
                ;; First clause is quick check when the file already has a map. LOADFILEMAP will find file map, rebuild if necessary and rewrite it
                ;; on file if updatemapflg is T.
```
                (AND (for GROUP in (CDR MAP) thereis (SETQ VALUE (FASSOC FN GROUP)))
                    (LIST FULL (CADR VALUE)
                            (CDDR VALUE)
                            'MAP]
           (T FULL])
```

⟨**PFCOPYBYTES**
```
  [LAMBDA (SRCFIL DSTFIL START END NOTERPRI)
```
    ;; Edited 19-Jun-2022 00:01 by rmk: Changed #CHARS to NBYTES, to be clear about what we are counting

    ;; Edited 2-Dec-2021 13:27 by rmk:

    ;; Edited 8-Oct-2021 00:17 by rmk:

    ;; Edited 24-Mar-93 14:16 by rmk:

    ;; RMK: Added NOTERPRI to at least give caller control over whether a TERPRI is done just in the case of copying the whole file.   (* lmm: "28-Sep-86 14:38")

    ;; RMK: What does FLG do? It isn't referenced. It seems to be passed as the value of PFDEFAULT from PRINTFNDEF, and that variable is
    ;; initialized to NIL. I'm removing it.

    ;; copy from SRCFIL to DSTFIL, paying attention to font changes. Other stuff about truncating lines gone away. Interprets all possible EOL
    ;; conventions as EOL. Has to call \INCHAR-\INCCODE macros in order to keep track of character count--READDCODE doesn't do that.

```
      ;; If END is NIL and START is given, then START is the number of characters to copy from the current file position.  Otherwise, copy to the end of
      ;; the file.
         (DECLARE (GLOBALVARS CHANGECHAR COMMENTFLG **COMMENT**FLG))
         (RESETLST
             (PROG ((SSTRM (\INSTREAMARG SRCFIL))
                     (DSTRM (\OUTSTREAMARG DSTFIL))
                    FONTARRAY CHARCODE NBYTES MAXFONT)
                     (DECLARE (SPECVARS . T))                              ; In particular, NBYTES must be a specvar for \INCCODE
                     (COND
                        ((IMAGESTREAMP DSTRM)
                         (SETQ FONTARRAY (FONTMAPARRAY))
                         (SETQ MAXFONT (ARRAYSIZE FONTARRAY))
                         (RESETSAVE NIL (LIST (FUNCTION DSPFONT)
                                                 (DSPFONT NIL DSTRM)
                                               DSTRM))
                         (DSPFONT (ELT FONTARRAY 1)
                                 DSTRM)))
                     [SETQ NBYTES (COND
                                    (END (SETFILEPTR SSTRM START)

                                         ;; Doesn't call \SETFILEPTR cause START has to be checked

                                         (IDIFFERENCE (COND
                                                        ((EQ END −1)
                                                         (GETEOFPTR SSTRM))
                                                        (T END))
                                                    START))
                                    (START)
                                    (T                                     ; Copy everything from here to the end-of-file
                                       (SETQ START (GETFILEPTR SSTRM))
                                       (IDIFFERENCE (GETEOFPTR SSTRM)
                                               (GETFILEPTR SSTRM]
                     (COND
                        ((ILEQ NBYTES 0)
                         (RETURN T)))                                      ; Nothing to do
             LP  (COND
                        ((ILEQ NBYTES 0)
                         (CL:WHEN (AND (EQ START 0)
                                        (EOFP SSTRM))                       ; RMK: We copied the whole file, why should we do a TERPRI
                              (OR NOTERPRI (TERPRI DSTRM)))
                         (RETURN T)))
                     (SETQ CHARCODE (\INCCODE.EOLC SSTRM ANY.EOLC 'NBYTES NBYTES))
                     (IF (EQ CHARCODE (CONSTANT (CHARCODE.DECODE FONTESCAPECHAR)))
                         THEN  ;; No EOL check on font character, otherwise we would be limited to 9 fonts

                                 (SETQ CHARCODE (\INCCODE SSTRM 'NBYTES NBYTES))
                                 (CL:WHEN (AND (IGEQ MAXFONT CHARCODE)
                                                 (NEQ CHARCODE 0))
                                      (DSPFONT (ELT FONTARRAY CHARCODE)
                                             DSTRM))
                       ELSE (\OUTCHAR DSTRM CHARCODE))
                     (GO LP)))])
```

(**DISPLAYP**
```
  [LAMBDA (STREAM)                                                        (* AJB "23-Sep-85 14:53")
     (LET ((STRM (\OUTSTREAMARG STREAM T)))
         (AND STRM (OR (DISPLAYSTREAMP STRM)
                         (IMAGESTREAMTYPEP STRM 'TEXT]

)
```

```
(RPAQ? PFDEFAULT 'PFCOPYBYTES)

(DECLARE%: DONTCOPY

(DECLARE%: EVAL@COMPILE

(PUTPROPS PFPRINCHAR MACRO ((CC)
                                (COND
                                   (EOLFLG (TERPRI DSTRM)
                                           (SETQ EOLFLG NIL)
                                           (SETQ HPOS LMAR)))
                                (COND
                                   ((NOT (ZEROP %#SPACES))
                                    (FRPTQ (COND
                                              ((OR FLG STRFLG)
                                               %#SPACES)
                                              (T (FOLDHI %#SPACES 2)))
                                         (PFOUTCHAR (CHARCODE SPACE)))
                                    (SETQ %#SPACES 0)))
                                (PFOUTCHAR CC)))

(PUTPROPS PFOUTCHAR MACRO ((CC)
                                ([LAMBDA (WIDTH)
                                    (COND
                                       ((AND WIDTH (IGREATERP (add HPOS WIDTH)
```

```
                                                  RMAR))        (* past RIGHT margin, force eol)
                                  (TERPRI DSTRM)
                                  (SETQ HPOS WIDTH)))
                            (\OUTCHAR DSTRM CC]
                         (\STREAMCHARWIDTH CC DSTRM \PRIMTERMTABLE))))
)
)

(MOVD? 'COPYBYTES 'PFCOPYBYTES)

(ADDTOVAR EDITMACROS [PF NIL (ORR [(E (APPLY* 'PF (FIRSTATOM (%##]
                                      ((E 'PF?])

(ADDTOVAR EDITCOMSA PF)

(DECLARE%: DOEVAL@COMPILE DONTCOPY

(GLOBALVARS **COMMENT**FLG LASTWORD PFDEFAULT FILERDTBL USEMAPFLG)
)

(DECLARE%: DONTEVAL@LOAD DOEVAL@COMPILE DONTCOPY COMPILERVARS

(ADDTOVAR NLAMA PF* PF)

(ADDTOVAR NLAML )

(ADDTOVAR LAMA )
)

(PUTPROPS PRINTFN COPYRIGHT ("Venue & Xerox Corporation" 1986 1987 1990 1999 2018 2021))
```

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