```
   /$$$$$$   /$$     /$$   /$$$$$$$   /$$$$$$  /$$$$$$$
  /$$__  $$ /$$$$   /$$$$  | $$__  $$ /$$__  $$| $$__  $$
 |__/  \ $$|_  $$  |_  $$  | $$  \ $$| $$  \__/| $$  \ $$
   /$$$$$$/  | $$    | $$  | $$$$$$$ |  $$$$$$ | $$  | $$
  /$$____/   | $$    | $$  | $$__  $$ \____  $$| $$  | $$
 | $$        | $$    | $$  | $$  \ $$ /$$  \ $$| $$  | $$
 | $$$$$$$$ /$$$$$$ /$$$$$$| $$$$$$$/|  $$$$$$/| $$$$$$$/
 |_____/|_____/|_____/|_____/  _____/ |_____/

 ****************************************************
 ************** The 211BSD man page project *************
 ****************************************************
 ****************** 7 – Miscellaneous ******************
 ****************************************************
```

Inspired by:
==
  SimH   http://simh.trailing-edge.com/
  PiDP11   https://obsolescence.wixsite.com/obsolescence/pidp-11
  BSD 2.11 https://wfjm.github.io/home/211bsd/

Presented by the ShadowTron Blog
==
  https://www.youtube.com/c/shadowtronblog
  www.shadowtron.com
  shadowtronblog <at> gmail <dot> com

Other manuals in the series
==
    Manual 1 - Commands and Application Programs
    Manual 2 - System Calls
    Manual 3 - C Library Subroutines
    Manual 3F – Fortran Library
    Manual 4 - Special Files
    Manual 5 - File Formats
    Manual 6 - Games
==> Manual 7 - Miscellaneous
    Manual 8 - System Maintenance

```
              **********************************
              **** Manual 7 - Miscellaneous ****
              **********************************

Page  Command  Description
====  ========  ====================================================
   3  intro     miscellaneous useful information pages
   4  ascii     map of ASCII character set
   5  environ   user environment
   6  hier      file system hierarchy
  14  hostname  host name resolution description
  15  mailaddr  mail addressing description
  18  man       macros to typeset manual
  20  me        macros for formatting papers
  23  ms        text formatting macros
  27  term      conventional names for terminals
```

NAME
     miscellaneous - miscellaneous useful information pages

DESCRIPTION
     This section contains miscellaneous documentation, mostly in
     the area of text processing macro packages for troff(1).

     ascii   map of ASCII character set
     environ   user environment
     eqnchar   special character definitions for eqn
     hier   file system hierarchy
     mailaddr   mail addressing description
     man   macros to typeset manual pages
     me   macros for formatting papers
     ms   macros for formatting manuscripts
     term   conventional names for terminals

NAME
     ascii - map of ASCII character set

SYNOPSIS
     cat /usr/pub/ascii

DESCRIPTION
     Ascii is a map of the ASCII character set, to be printed as
     needed. It contains:

```
|000 nul|001 soh|002 stx|003 etx|004 eot|005 enq|006 ack|007 bel|
|010 bs |011 ht |012 nl |013 vt |014 np |015 cr |016 so |017 si |
|020 dle|021 dc1|022 dc2|023 dc3|024 dc4|025 nak|026 syn|027 etb|
|030 can|031 em |032 sub|033 esc|034 fs |035 gs |036 rs |037 us |
|040 sp |041  ! |042  " |043  # |044  $ |045  % |046  & |047  ' |
|050  ( |051  ) |052  * |053  + |054  , |055  - |056  . |057  / |
|060  0 |061  1 |062  2 |063  3 |064  4 |065  5 |066  6 |067  7 |
|070  8 |071  9 |072  : |073  ; |074  < |075  = |076  > |077  ? |
|100  @ |101  A |102  B |103  C |104  D |105  E |106  F |107  G |
|110  H |111  I |112  J |113  K |114  L |115  M |116  N |117  O |
|120  P |121  Q |122  R |123  S |124  T |125  U |126  V |127  W |
|130  X |131  Y |132  Z |133  [ |134  \ |135  ] |136  ^ |137  _ |
|140  ` |141  a |142  b |143  c |144  d |145  e |146  f |147  g |
|150  h |151  i |152  j |153  k |154  l |155  m |156  n |157  o |
|160  p |161  q |162  r |163  s |164  t |165  u |166  v |167  w |
|170  x |171  y |172  z |173  { |174  | |175  } |176  ~ |177 del|

| 00 nul| 01 soh| 02 stx| 03 etx| 04 eot| 05 enq| 06 ack| 07 bel|
| 08 bs | 09 ht | 0a nl | 0b vt | 0c np | 0d cr | 0e so | 0f si |
| 10 dle| 11 dc1| 12 dc2| 13 dc3| 14 dc4| 15 nak| 16 syn| 17 etb|
| 18 can| 19 em | 1a sub| 1b esc| 1c fs | 1d gs | 1e rs | 1f us |
| 20 sp | 21  ! | 22  " | 23  # | 24  $ | 25  % | 26  & | 27  ' |
| 28  ( | 29  ) | 2a  * | 2b  + | 2c  , | 2d  - | 2e  . | 2f  / |
| 30  0 | 31  1 | 32  2 | 33  3 | 34  4 | 35  5 | 36  6 | 37  7 |
| 38  8 | 39  9 | 3a  : | 3b  ; | 3c  < | 3d  = | 3e  > | 3f  ? |
| 40  @ | 41  A | 42  B | 43  C | 44  D | 45  E | 46  F | 47  G |
| 48  H | 49  I | 4a  J | 4b  K | 4c  L | 4d  M | 4e  N | 4f  O |
| 50  P | 51  Q | 52  R | 53  S | 54  T | 55  U | 56  V | 57  W |
| 58  X | 59  Y | 5a  Z | 5b  [ | 5c  \ | 5d  ] | 5e  ^ | 5f  _ |
| 60  ` | 61  a | 62  b | 63  c | 64  d | 65  e | 66  f | 67  g |
| 68  h | 69  i | 6a  j | 6b  k | 6c  l | 6d  m | 6e  n | 6f  o |
| 70  p | 71  q | 72  r | 73  s | 74  t | 75  u | 76  v | 77  w |
| 78  x | 79  y | 7a  z | 7b  { | 7c  | | 7d  } | 7e  ~ | 7f del|
```

FILES
     /usr/pub/ascii

NAME
     environ - user environment

SYNOPSIS
     extern char **environ;

DESCRIPTION
     An array of strings called the `environment' is made avail-
     able by execve(2) when a process begins. By convention
     these strings have the form `name=value'.   The following
     names are used by various commands:

     PATH   The sequence of directory prefixes that sh, time,
            nice(1), etc., apply in searching for a file known
            by an incomplete path name. The prefixes are
            separated by `:'. Login(1) sets
            PATH=:/usr/ucb:/bin:/usr/bin.

     HOME   A user's login directory, set by login(1) from the
            password file passwd(5).

     TERM   The kind of terminal for which output is to be
            prepared.   This information is used by commands,
            such as nroff or plot(1G), which may exploit special
            terminal capabilities. See /etc/termcap
            (termcap(5)) for a list of terminal types.

     SHELL   The file name of the users login shell.

     TERMCAP The string describing the terminal in TERM, or the
            name of the termcap file, see
            termcap(5),termcap(3X).

     EXINIT A startup list of commands read by ex(1), edit(1),
            and vi(1).

     USER   The login name of the user.

     PRINTER The name of the default printer to be used by
            lpr(1), lpq(1), and lprm(1).

     Further names may be placed in the environment by the export
     command and `name=value' arguments in sh(1), or by the
     setenv command if you use csh(1). Arguments may also be
     placed in the environment at the point of an execve(2). It
     is unwise to conflict with certain sh(1) variables that are
     frequently exported by `.profile' files: MAIL, PS1, PS2,
     IFS.

SEE ALSO
     csh(1), ex(1), login(1), sh(1), execve(2), system(3),
     termcap(3X), termcap(5)

NAME
     hier - file system hierarchy

DESCRIPTION
     The following outline gives a quick tour through a represen-
     tative directory hierarchy.

     /   root
     /vmunix
        the kernel binary (UNIX itself)
     /lost+found
        directory for connecting detached files for fsck(8)
     /dev/
        devices (4)
        MAKEDEV
            shell script to create special files
        MAKEDEV.local
            site specific part of MAKEDEV
        console
            main console, tty(4)
        tty* terminals, tty(4)
        hp* disks, hp(4)
        rhp* raw disks, hp(4)
        up* UNIBUS disks up(4)
        ...
     /bin/
        utility programs, cf /usr/bin/ (1)
        as   assembler
        cc   C compiler executive, cf /lib/ccom, /lib/cpp,
             /lib/c2
        csh C shell
        ...
     /lib/
        object libraries and other stuff, cf /usr/lib/
        libc.a
            system calls, standard I/O, etc. (2,3,3S)
        ...
        ccom C compiler proper
        cpp C preprocessor
        c2   C code improver
        ...
     /etc/
        essential data and maintenance utilities; sect (8)
        dump dump program dump(8)
        passwd
            password file, passwd(5)
        group
            group file, group(5)
        motd message of the day, login(1)
        termcap
            description of terminal capabilities, termcap(5)
        ttytype

                table of what kind of terminal is on each port,
                ttytype(5)
           mtab mounted file table, mtab(5)
           dumpdates
                dump history, dump(8)
           fstab
                file system configuration table fstab(5)
           disktab
                disk characteristics and partition tables,
                disktab(5)
           hosts
                host name to network address mapping file,
                hosts(5)
           networks
                network name to network number mapping file,
                networks(5)
           protocols
                protocol name to protocol number mapping file,
                protocols(5)
           services
                network services definition file, services(5)
           remote
                names and description of remote hosts for tip(1C),
                remote(5)
           phones
                private phone numbers for remote hosts, as
                described in phones(5)
           ttys properties of terminals, ttys(5)
           getty
                part of login, getty(8)
           init the parent of all processes, init(8)
           rc   shell program to bring the system up
           rc.local
                site dependent portion of rc
           cron the clock daemon, cron(8)
           mount
                mount(8)
           ...
       /sys/
           system source
           h/   header (include) files
                acct.h
                   acct(5)
                stat.h
                   stat(2)
                ...
           sys/ machine independent system source
                init_main.c
                uipc_socket.c
                ufs_syscalls.c
                ...
           conf/

```
              site configuration files
              GENERIC
              ...
         net/ general network source
         netinet/
              DARPA Internet network source
         netimp/
              network code related to use of an IMP
              if_imp.c
              if_imphost.c
              if_imphost.h
              ...
         vax/ source specific to the VAX
              locore.s
              machdep.c
              ...
         vaxuba/
              device drivers for hardware which resides on the
              UNIBUS
              uba.c
              dh.c
              up.c
              ...
         vaxmba/
              device drivers for hardware which resides on the
              MASBUS
              mba.c
              hp.c
              ht.c
              ...
         vaxif
              network interface drivers for the VAX
              if_en.c
              if_ec.c
              if_vv.c
              ...
     /tmp/
         temporary files, usually on a fast device, cf /usr/tmp/
         e*   used by ed(1)
         ctm* used by cc(1)
         ...
     /usr/
         general-pupose directory, usually a mounted file system
         adm/ administrative information
              wtmp login history, utmp(5)
              messages
                 hardware error messages
              tracct
                 phototypesetter accounting, troff(1)
              lpacct
                 line printer accounting lpr(1)
              vaacct, vpacct
```

```
                  varian and versatec accounting vpr(1),
                  vtroff(1), pac(8)
      /usr /bin
         utility programs, to keep /bin/ small
         tmp/ temporaries, to keep /tmp/ small
               stm* used by sort(1)
               raster
                  used by plot(1G)
         dict/
               word lists, etc.
               words
                  principal word list, used by look(1)
               spellhist
                  history file for spell(1)
         games/
               hangman
               lib/ library of stuff for the games
                  quiz.k/
                     what quiz(6) knows
                     index
                           category index
                     africa
                           countries and capitals
                     ...
                  ...
               ...
         include/
               standard #include files
               a.out.h
                  object file layout, a.out(5)
               stdio.h
                  standard I/O, intro(3S)
               math.h
                   (3M)
               ...
               sys/ system-defined layouts, cf /sys/h
               net/ symbolic link to sys/net
               machine/
                  symbolic link to sys/machine
               ...
         lib/ object libraries and stuff, to keep /lib/ small
               atrun
                  scheduler for at(1)
               lint/
                  utility files for lint
                  lint[12]
                     subprocesses for lint(1)
                  llib-lc
                     dummy declarations for /lib/libc.a, used
                     by lint(1)
                  llib-lm
                     dummy declarations for /lib/libc.m
```

```
                ...
             struct/
                passes of struct(1)
             ...
             tmac/
                macros for troff(1)
                tmac.an
                   macros for man(7)
                tmac.s
                   macros for ms(7)
                ...
             font/
                fonts for troff(1)
                ftR  Times Roman
                ftB  Times Bold
                ...
             uucp/
                programs and data for uucp(1C)
                L.sys
                   remote system names and numbers
                uucico
                   the real copy program
                ...
             units
                conversion tables for units(1)
             eign list of English words to be ignored by ptx(1)
      /usr/     man/
         volume 1 of this manual, man(1)
             man0/
                general
                intro
                   introduction to volume 1, ms(7) format
                xx       template for manual page
             man1/
                chapter 1
                as.1
                mount.1m
                ...
             ...
             cat1/
                preformatted pages for section 1
             ...
      msgs/
             messages, cf msgs(1)
             bounds
                highest and lowest message
      new/ binaries of new versions of programs
      preserve/
             editor temporaries preserved here after
             crashes/hangups
      public/
             binaries of user programs - write permission to
```

```
            everyone
        spool/
            delayed execution files
            at/  used by at(1)
            lpd/ used by lpr(1)
               lock present when line printer is active
               cf*  copy of file to be printed, if necessary
               df*  daemon control file, lpd(8)
               tf*  transient control file, while lpr is
                  working
            uucp/
               work files and staging area for uucp(1C)
               LOGFILE
                  summary log
               LOG.*
                  log file for one transaction
            mail/
               mailboxes for mail(1)
               name mail file for user name
               name.lock
                  lock file while name is receiving mail
            secretmail/
               like mail/
            uucp/
               work files and staging area for uucp(1C)
               LOGFILE
                  summary log
               LOG.*
                  log file for one transaction
               mqueue/
                  mail queue for sendmail(8)
        wd   initial working directory of a user, typically wd
             is the user's login name
             .profile
                set environment for sh(1), environ(7)
             .project
                what you are doing (used by ( finger(1) )
             .cshrc
                startup file for csh(1)
             .exrc
                startup file for ex(1)
             .plan
                what your short-term plans are (used by
                finger(1) )
             .netrc
                startup file for various network programs
             .msgsrc
                startup file for msgs(1)
             .mailrc
                startup file for mail(1)
             calendar
                user's datebook for calendar(1)
```

```
      doc/ papers, mostly in volume 2 of this manual,
           typically in ms(7) format
           as/  assembler manual
           c    C manual
           ...
   /usr/    src/
       source programs for utilities, etc.
       bin/ source of commands in /bin
           as/  assembler
           ar.c source for ar(1)
           ...
       usr.bin/
           source for commands in /usr/bin
           troff/
              source for nroff and troff(1)
              font/
                 source for font tables, /usr/lib/font/
                 ftR.c
                      Roman
                 ...
              term/
                 terminal characteristics tables,
                 /usr/lib/term/
                 tab300.c
                      DASI 300
                 ...
              ...
       ucb  source for programs in /usr/ucb
       games/
           source for /usr/games
       lib/ source for programs and archives in /lib
           libc/
              C runtime library
              csu/ startup and wrapup routines needed with
                 every C program
                 crt0.s
                      regular startup
                 mcrt0.s
                      modified startup for cc -p
              sys/ system calls (2)
                 access.s
                 brk.s
                 ...
           stdio/
              standard I/O functions (3S)
              fgets.c
              fopen.c
              ...
           gen/ other functions in (3)
              abs.c
              ...
           net/ network functions in (3N)
```

```
                gethostbyname.c
                    ...
            local/
                source which isn't normally distributed
            new/ source for new versions of commands and library
                routines
            old/ source for old versions of commands and library
                routines
            ucb/ binaries of programs developed at UCB
                ...
                edit editor for beginners
                ex   command editor for experienced users
                ...
                mail mail reading/sending subsystem
                man  on line documentation
                ...
                pi   Pascal translator
                px   Pascal interpreter
                ...
                vi   visual editor
```
SEE ALSO
     ls(1),   apropos(1),   whatis(1),   whereis(1),   finger(1),
     which(1), ncheck(8), find(1), grep(1)
BUGS
     The position of files is subject to change without notice.

NAME
     hostname - host name resolution description

DESCRIPTION
     Hostnames are domains, where a domain is a hierarchical,
     dot-separated list of subdomains; for example, the machine
     monet, in the Berkeley subdomain of the EDU subdomain of the
     ARPANET would be represented as
             monet.Berkeley.EDU
     (with no trailing dot).

     Hostnames are often used with network client and server pro-
     grams, which must generally translate the name to an address
     for use. (This function is generally performed by the
     library routine gethostbyname(3).) Hostnames are resolved by
     the internet name resolver in the following fashion.

     If the name consists of a single component, i.e. contains no
     dot, and if the environment variable ``HOSTALIASES'' is set
     to the name of a file, that file is searched for an string
     matching the input hostname. The file should consist of
     lines made up of two white-space separated strings, the
     first of which is the hostname alias, and the second of
     which is the complete hostname to be substituted for that
     alias. If a case-sensitive match is found between the host-
     name to be resolved and the first field of a line in the
     file, the substituted name is looked up with no further pro-
     cessing.

     If the input name ends with a trailing dot, the trailing dot
     is removed, and the remaining name is looked up with no
     further processing.

     If the input name does not end with a trailing dot, it is
     looked up in the local domain and its parent domains until
     either a match is found or fewer than 2 components of the
     local domain remain. For example, in the domain
     CS.Berkeley.EDU, the name lithium.CChem will be checked
     first as lithium.CChem.CS.Berkeley.EDU and then as
     lithium.CChem.Berkeley.EDU. Lithium.CChem.EDU will not be
     tried, as the there is only one component remaining from the
     local domain.

SEE ALSO
     gethostbyname(3), resolver(5), mailaddr(7), named(8), RFC883

NAME
     mailaddr - mail addressing description

DESCRIPTION
     Mail addresses are based on the ARPANET protocol listed at
     the end of this manual page. These addresses are in the
     general format

          user@domain

     where a domain is a hierarchical dot separated list of sub-
     domains. For example, the address

          eric@monet.berkeley.edu

     is normally interpreted from right to left: the message
     should go to the ARPA name tables (which do not correspond
     exactly to the physical ARPANET), then to the Berkeley gate-
     way, after which it should go to the local host monet. When
     the message reaches monet it is delivered to the user
     ``eric''.

     Unlike some other forms of addressing, this does not imply
     any routing. Thus, although this address is specified as an
     ARPA address, it might travel by an alternate route if that
     were more convenient or efficient. For example, at Berke-
     ley, the associated message would probably go directly to
     monet over the Ethernet rather than going via the Berkeley
     ARPANET gateway.

     Abbreviation.

     Under certain circumstances it may not be necessary to type
     the entire domain name. In general, anything following the
     first dot may be omitted if it is the same as the domain
     from which you are sending the message. For example, a user
     on ``calder.berkeley.edu'' could send to ``eric@monet''
     without adding the ``berkeley.edu'' since it is the same on
     both sending and receiving hosts.

     Certain other abbreviations may be permitted as special
     cases. For example, at Berkeley, ARPANET hosts may be
     referenced without adding the ``berkeley.edu'' as long as
     their names do not conflict with a local host name.

     Compatibility.

     Certain old address formats are converted to the new format
     to provide compatibility with the previous mail system. In
     particular,

        user@host.ARPA

is allowed and

        host:user

is converted to

        user@host

to be consistent with the rcp(1) command.

Also, the syntax

        host!user

is converted to:

        user@host.UUCP

This is normally converted back to the ``host!user'' form
before being sent on for compatibility with older UUCP
hosts.

The current implementation is not able to route messages
automatically through the UUCP network. Until that time you
must explicitly tell the mail system which hosts to send
your message through to get to your final destination.

Case Distinctions.

Domain names (i.e., anything after the ``@'' sign) may be
given in any mixture of upper and lower case with the excep-
tion of UUCP hostnames. Most hosts accept any combination
of case in user names, with the notable exception of MULTICS
sites.

Route-addrs.

Under some circumstances it may be necessary to route a mes-
sage through several hosts to get it to the final destina-
tion. Normally this routing is done automatically, but
sometimes it is desirable to route the message manually.
Addresses which show these relays are termed ``route-
addrs.'' These use the syntax:

        <@hosta,@hostb:user@hostc>

This specifies that the message should be sent to hosta,
from there to hostb, and finally to hostc. This path is
forced even if there is a more efficient path to hostc.

Route-addrs occur frequently on return addresses, since
these are generally augmented by the software at each host.
It is generally possible to ignore all but the
``user@domain'' part of the address to determine the actual
sender.

Postmaster.

Every site is required to have a user or user alias desig-
nated ``postmaster'' to which problems with the mail system
may be addressed.

Other Networks.

Some other networks can be reached by giving the name of the
network as the last component of the domain. This is not a
standard feature and may not be supported at all sites. For
example, messages to CSNET or BITNET sites can often be sent
to ``user@host.CSNET'' or ``user@host.BITNET'' respectively.

BUGS
    The RFC822 group syntax (``group:user1,user2,user3;'') is
    not supported except in the special case of ``group:;''
    because of a conflict with old berknet-style addresses.

    Route-Address syntax is grotty.

    UUCP- and ARPANET-style addresses do not coexist politely.

SEE ALSO
    mail(1), sendmail(8); Crocker, D. H., Standard for the For-
    mat of Arpa Internet Text Messages, RFC822.

NAME
     man - macros to typeset manual

SYNOPSIS
     nroff -man file ...

     troff -man file ...

DESCRIPTION
     These macros are used to lay out pages of this manual. A
     skeleton page may be found in the file
     /usr/man/man.template.

     Any text argument t may be zero to six words. Quotes may be
     used to include blanks in a `word'. If text is empty, spe-
     cial treatment is applied to the next input line with text
     to be printed. In this way .I may be used to italicize a
     whole line, or .SM may be followed by .B to make small bold
     letters.

     A prevailing indent distance is remembered between succes-
     sive indented paragraphs, and is reset to default value upon
     reaching a non-indented paragraph. Default units for
     indents i are ens.

     Type font and size are reset to default values before each
     paragraph, and after processing font and size setting mac-
     ros.

     These strings are predefined by -man:

     *R `(Reg)', trademark symbol in troff.

     *S Change to default type size.

FILES
     /usr/share/tmac/tmac.an
     /usr/man/man.template

SEE ALSO
     troff(1), man(1)

BUGS
     Relative indents don't nest.

REQUESTS
Request   Cause If no   Explanation
          Break Argument
.B t   no   t=n.t.l.*Text t is bold.
.BI t   no   t=n.t.l. Join words of t alternating bold and
                        italic.
.BR t   no   t=n.t.l. Join words of t alternating bold and

```
                         Roman.
.DT        no     .5i 1i...Restore default tabs.
.HP i      yes    i=p.i.*  Set prevailing indent to i. Begin
                         paragraph with hanging indent.
.I t       no     t=n.t.l. Text t is italic.
.IB t      no     t=n.t.l. Join words of t alternating italic
                         and bold.
.IP x i    yes    x=""     Same as .TP with tag x.
.IR t      no     t=n.t.l. Join words of t alternating italic
                         and Roman.
.LP        yes    -        Same as .PP.
.PD d      no     d=.4v    Interparagraph distance is d.
.PP        yes    -        Begin paragraph.  Set prevailing
                         indent to .5i.
.RE        yes    -        End of relative indent.  Set prevail-
                         ing indent to amount of starting .RS.
.RB t      no     t=n.t.l. Join words of t alternating Roman and
                         bold.
.RI t      no     t=n.t.l. Join words of t alternating Roman and
                         italic.
.RS i      yes    i=p.i.   Start relative indent, move left mar-
                         gin in distance i. Set prevailing
                         indent to .5i for nested indents.
.SH t      yes    t=n.t.l. Subhead.
.SM t      no     t=n.t.l. Text t is small.
.TH n c x v m      yes           -Begin page named n of chapter c; x
                         is extra commentary, e.g. `local',
                         for page foot center; v alters page
                         foot left, e.g. `4th Berkeley Distri-
                         bution'; m alters page head center,
                         e.g. `Brand X Programmer's Manual'.
                         Set prevailing indent and tabs to
                         .5i.
.TP i      yes    i=p.i.   Set prevailing indent to i. Begin
                         indented paragraph with hanging tag
                         given by next text line.  If tag
                         doesn't fit, place it on separate
                         line.

* n.t.l. = next text line; p.i. = prevailing indent
```

NAME
     me - macros for formatting papers

SYNOPSIS
     nroff -me [options] file ...
     troff -me [options] file ...

DESCRIPTION
     This package of nroff and troff macro definitions provides a
     canned formatting facility for technical papers in various
     formats. When producing 2-column output on a terminal,
     filter the output through col(1).

     The macro requests are defined below. Many nroff and troff
     requests are unsafe in conjunction with this package, how-
     ever, these requests may be used with impunity after the
     first .pp:

        .bp   begin new page
        .br   break output line here
        .sp n   insert n spacing lines
        .ls n   (line spacing) n=1 single, n=2 double space
        .na   no alignment of right margin
        .ce n   center next n lines
        .ul n   underline next n lines
        .sz +n   add n to point size

     Output of the eqn, neqn, refer, and tbl(1) preprocessors for
     equations and tables is acceptable as input.

FILES
     /usr/share/tmac/tmac.e
     /usr/share/me/*

SEE ALSO
     eqn(1), troff(1), refer(1), tbl(1)
     -me Reference Manual, Eric P. Allman
     Writing Papers with Nroff Using -me

REQUESTS
     In the following list, "initialization" refers to the first
     .pp, .lp, .ip, .np, .sh, or .uh macro. This list is incom-
     plete; see The -me Reference Manual for interesting details.

Request   Initial Cause Explanation
              Value   Break
.(c   -   yes   Begin centered block
.(d   -   no   Begin delayed text
.(f   -   no   Begin footnote
.(l   -   yes   Begin list
.(q   -   yes   Begin major quote
.(x x   -   no   Begin indexed item in index x

```
.(z          -            no    Begin floating keep
.)c          -            yes   End centered block
.)d          -            yes   End delayed text
.)f          -            yes   End footnote
.)l          -            yes   End list
.)q          -            yes   End major quote
.)x          -            yes   End index item
.)z          -            yes   End floating keep
.++ m H      -            no    Define paper section.  m defines the
                                part of the paper, and can be C
                                (chapter), A (appendix), P (prelim-
                                inary, e.g., abstract, table of con-
                                tents, etc.), B (bibliography), RC
                                (chapters renumbered from page one
                                each chapter), or RA (appendix renum-
                                bered from page one).
.+c T        -            yes   Begin chapter (or appendix, etc., as
                                set by .++).  T is the chapter title.
.1c          1            yes   One column format on a new page.
.2c          1            yes   Two column format.
.EN          -            yes   Space after equation produced by eqn
                                or neqn.
.EQ x y      -            yes   Precede equation; break out and add
                                space.  Equation number is y.  The
                                optional argument x may be I to indent
                                equation (default), L to left-adjust
                                the equation, or C to center the equa-
                                tion.
.GE          -            yes   End gremlin picture.
.GS          -            yes   Begin gremlin picture.
.PE          -            yes   End pic picture.
.PS          -            yes   Begin pic picture.
.TE          -            yes   End table.
.TH          -            yes   End heading section of table.
.TS x        -            yes   Begin table; if x is H table has
                                repeated heading.
.ac A N      -            no    Set up for ACM style output.  A is the
                                Author's name(s), N is the total
                                number of pages.  Must be given before
                                the first initialization.
.b x         no     no    Print x in boldface; if no argument
                                switch to boldface.
.ba +n            0       yes   Augments the base indent by n. This
                                indent is used to set the indent on
                                regular text (like paragraphs).
.bc          no     yes   Begin new column
.bi x        no     no    Print x in bold italics (nofill only)
.bu          -            yes   Begin bulleted paragraph
.bx x        no     no    Print x in a box (nofill only).
.ef 'x'y'z'  ''''   no    Set even footer to x  y  z
.eh 'x'y'z'  ''''   no    Set even header to x  y  z
.fo 'x'y'z'  ''''   no    Set footer to x  y  z
```

```
.hx        -           no     Suppress headers and footers on next
                              page.
.he 'x'y'z'   ''''    no     Set header to x   y   z
.hl        -          yes    Draw a horizontal line
.i x       no         no     Italicize x; if x missing, italic text
                              follows.
.ip x y      no        yes    Start indented paragraph, with hanging
                              tag x.  Indentation is y ens (default
                              5).
.lp       yes        yes    Start left-blocked paragraph.
.lo        -          no     Read in a file of local macros of the
                              form .*x.  Must be given before ini-
                              tialization.
.np       1          yes    Start numbered paragraph.
.of 'x'y'z'   '''   no     Set odd footer to x      y   z
.oh 'x'y'z'   ''''   no     Set odd header to x      y   z
.pd        -         yes    Print delayed text.
.pp       no         yes    Begin paragraph.  First line indented.
.r        yes        no     Roman text follows.
.re        -          no     Reset tabs to default values.
.sc       no         no     Read in a file of special characters
                              and diacritical marks.  Must be given
                              before initialization.
.sh n x      -        yes    Section head follows, font automati-
                              cally bold.   n is level of section, x
                              is title of section.
.sk       no         no     Leave the next page blank.  Only one
                              page is remembered ahead.
.sm x      -          no     Set x in a smaller pointsize.
.sz +n        10p     no     Augment the point size by n points.
.th       no         no     Produce the paper in thesis format.
                              Must be given before initialization.
.tp       no         yes    Begin title page.
.u x       -          no     Underline argument (even in troff).
                              (Nofill only).
.uh        -         yes    Like .sh but unnumbered.
.xp x      -          no     Print index x.
```

NAME
     ms - text formatting macros

SYNOPSIS
     nroff -ms [options] file ...
     troff -ms [options] file ...

DESCRIPTION
     This package of nroff and troff macro definitions provides a
     formatting facility for various styles of articles, theses,
     and books. When producing 2-column output on a terminal or
     lineprinter, or when reverse line motions are needed, filter
     the output through col(1). All external -ms macros are
     defined below. Many nroff and troff requests are unsafe in
     conjunction with this package. However, the first four
     requests below may be used with impunity after initializa-
     tion, and the last two may be used even before initializa-
     tion:
         .bp begin new page
         .br break output line
         .sp n insert n spacing lines
         .ce n center next n lines
         .ls n line spacing: n=1 single, n=2 double space
         .na no alignment of right margin
     Font and point size changes with \f and \s are also allowed;
     for example, ``\fIword\fR'' will italicize word. Output of
     the tbl, eqn, and refer(1) preprocessors for equations,
     tables, and references is acceptable as input.

FILES
     /usr/share/tmac/tmac.x
     /usr/share/ms/x.???

SEE ALSO
     eqn(1), refer(1), tbl(1), troff(1)

REQUESTS

Macro Name	Initial Value	Break? Reset?	Explanation
.AB x	-	y	begin abstract; if x=no don't label abstract
.AE	-	y	end abstract
.AI	-	y	author's institution
.AM	-	n	better accent mark definitions
.AU	-	y	author's name
.B x	-	n	embolden x; if no x, switch to boldface
.B1	-	y	begin text to be enclosed in a box
.B2	-	y	end boxed text and print it
.BT	date	n	bottom title, printed at foot of page
.BX x	-	n	print word x in a box
.CM	if t	n	cut mark between pages
.CT	-	y,y	chapter title: page number moved to CF (TM only)
.DA x	if n	n	force date x at bottom of page; today if no x

```
.DE   -       y    end display (unfilled text) of any kind
.DS x y I     y    begin display with keep; x=I,L,C,B; y=indent
.ID y 8n,.5i  y    indented display with no keep; y=indent
.LD   -       y    left display with no keep
.CD   -       y    centered display with no keep
.BD   -       y    block display; center entire block
.EF x -       n    even page footer x (3 part as for .tl)
.EH x -       n    even page header x (3 part as for .tl)
.EN   -       y    end displayed equation produced by eqn
.EQ x y -     y    break out equation; x=L,I,C; y=equation number
.FE   -       n    end footnote to be placed at bottom of page
.FP   -       n    numbered footnote paragraph; may be redefined
.FS x -       n    start footnote; x is optional footnote label
.HD   undef   n    optional page header below header margin
.I x  -       n    italicize x; if no x, switch to italics
.IP x y -     y,y  indented paragraph, with hanging tag x; y=indent
.IX x y -     y    index words x y and so on (up to 5 levels)
.KE   -       n    end keep of any kind
.KF   -       n    begin floating keep; text fills remainder of page
.KS   -       y    begin keep; unit kept together on a single page
.LG   -       n    larger; increase point size by 2
.LP   -       y,y  left (block) paragraph.
.MC x -       y,y  multiple columns; x=column width
.ND x if t    n    no date in page footer; x is date on cover
.NH x y -     y,y  numbered header; x=level, x=0 resets, x=S sets to y
.NL   10p     n    set point size back to normal
.OF x -       n    odd page footer x (3 part as for .tl)
.OH x -       n    odd page header x (3 part as for .tl)
.P1   if TM   n    print header on 1st page
.PP   -       y,y  paragraph with first line indented
.PT   - % -   n    page title, printed at head of page
.PX x -       y    print index (table of contents); x=no suppresses title
.QP   -       y,y  quote paragraph (indented and shorter)
.R    on      n    return to Roman font
.RE   5n      y,y  retreat: end level of relative indentation
.RP x -       n    released paper format; x=no stops title on 1st page
.RS   5n      y,y  right shift: start level of relative indentation
.SH   -       y,y  section header, in boldface
.SM   -       n    smaller; decrease point size by 2
.TA   8n,5n   n    set tabs to 8n 16n ... (nroff) 5n 10n ... (troff)
.TC x -       y    print table of contents at end; x=no suppresses title
.TE   -       y    end of table processed by tbl
.TH   -       y    end multi-page header of table
.TL   -       y    title in boldface and two points larger
.TM   off     n    UC Berkeley thesis mode
.TS x -       y,y  begin table; if x=H table has multi-page header
.UL x -       n    underline x, even in troff
.UX x -       n    UNIX; trademark message first time; x appended
.XA x y -     y    another index entry; x=page or no for none; y=indent
.XE   -       y    end index entry (or series of .IX entries)
.XP   -       y,y  paragraph with first line exdented, others indented
.XS x y -     y    begin index entry; x=page or no for none; y=indent
```

```
.1C   on      y,y  one column format, on a new page
.2C   -       y,y  begin two column format
.]-   -       n    beginning of refer reference
.[0   -       n    end of unclassifiable type of reference
.[N   -       n    N= 1:journal-article, 2:book, 3:book-article, 4:report
```

REGISTERS
     Formatting distances can be controlled in -ms by means of
     built-in number registers. For example, this sets the line
     length to 6.5 inches:
        .nr LL 6.5i
     Here is a table of number registers and their default
     values:

Name	Register Controls	Takes Effect	Default
PS	point size	paragraph	10
VS	vertical spacing	paragraph	12
LL	line length	paragraph	6i
LT	title length	next page	same as LL
FL	footnote length	next .FS	5.5i
PD	paragraph distance	paragraph	1v (if n), .3v (if t)
DD	display distance	displays	1v (if n), .5v (if t)
PI	paragraph indent	paragraph	5n
QI	quote indent	next .QP	5n
FI	footnote indent	next .FS	2n
PO	page offset	next page	0 (if n), ~1i (if t)
HM	header margin	next page	1i
FM	footer margin	next page	1i
FF	footnote format	next .FS	0 (1, 2, 3 available)

     When resetting these values, make sure to specify the
     appropriate units. Setting the line length to 7, for exam-
     ple, will result in output with one character per line.
     Setting FF to 1 suppresses footnote superscripting; setting
     it to 2 also suppresses indentation of the first line; and
     setting it to 3 produces an .IP-like footnote paragraph.

     Here is a list of string registers available in -ms; they
     may be used anywhere in the text:

Name	String's Function
*Q	quote (" in nroff, `` in troff)
*U	unquote (" in nroff, '' in troff)
*-	dash (-- in nroff, - in troff)
*(MO	month (month of the year)
*(DY	day (current date)
**	automatically numbered footnote
*'	acute accent (before letter)
*`	grave accent (before letter)
*^	circumflex (before letter)
*,	cedilla (before letter)
*:	umlaut (before letter)
*~	tilde (before letter)

     When using the extended accent mark definitions available
     with .AM, these strings should come after, rather than

before, the letter to be accented.

BUGS
     Floating keeps and regular keeps are diverted to the same
     space, so they cannot be mixed together with predictable
     results.

NAME
     term - conventional names for terminals

DESCRIPTION
     Certain commands use these terminal names. They are main-
     tained as part of the shell environment (see
     sh(1),environ(7)).

     adm3a   Lear Seigler Adm-3a
     2621   Hewlett-Packard HP262? series terminals
     hp   Hewlett-Packard HP264? series terminals
     c100   Human Designed Systems Concept 100
     h19   Heathkit H19
     mime   Microterm mime in enhanced ACT IV mode
     1620   DIABLO 1620 (and others using HyType II)
     300   DASI/DTC/GSI 300 (and others using HyType I)
     33   TELETYPE(Reg.) Model 33
     37   TELETYPE Model 37
     43   TELETYPE Model 43
     735   Texas Instruments TI735 (and TI725)
     745   Texas Instruments TI745
     dumb   terminals with no special features
     dialup   a terminal on a phone line with no known characteristics
     network   a terminal on a network connection with no known characteristics
     4014   Tektronix 4014
     vt52   Digital Equipment Corp. VT52

     The list goes on and on. Consult /etc/termcap (see
     termcap(5)) for an up-to-date and locally correct list.

     Commands whose behavior may depend on the terminal either
     consult TERM in the environment, or accept arguments of the
     form -Tterm, where term is one of the names given above.

SEE ALSO
     stty(1), tabs(1), plot(1G), sh(1), environ(7) ex(1),
     clear(1), more(1), ul(1), tset(1), termcap(5), termcap(3X),
     ttytype(5)
     troff(1) for nroff

BUGS
     The programs that ought to adhere to this nomenclature do so
     only fitfully.