NAME

eqn − typeset mathematics

SYNOPSIS

eqn [file] ...

DESCRIPTION

Eqn is a *troff*(I) preprocessor for typesetting mathematics on the Graphics Systems, Inc. phototypesetter. Usage is almost always

eqn file ... | troff

If no files are specified, *eqn* reads from the standard input. A line beginning with ‘‘.EQ’’ marks the start of an equation; the end of an equation is marked by a line beginning with ‘‘.EN’’. Neither of these lines is altered or defined by *eqn*, so you can define them yourself in *troff*(I) to get centering, numbering, etc. All other lines are treated as comments, and passed through untouched.

Spaces, tabs, new-lines, braces, double quotes, tilde, and circumflex are the only delimiters. Braces ‘‘{}’’ are used for grouping. Use tildes ‘‘~’’ to get extra spaces in an equation.

Subscripts and superscripts are produced with the keywords **sub** and **sup.** Thus *x sub i* makes x_i, *a sub i sup 2* produces a_i^2, and *e sup {x sup 2 + y sup 2}* gives $e^{x^2+y^2}$. Fractions are made with**o ver.** *a over b* is $\frac{a}{b}$ and *1 over sqrt {ax sup 2 +bx+c}* is $\frac{1}{\sqrt{ax^2+bx+c}}$; **sqrt** makes square roots.

The keywords **from** and **to** introduce lower and upper limits on arbitrary things: $\lim_{n\to\infty} \sum_0^n x_i$ is made with*lim from {n-> inf} sum from 0 to n x sub i.* Left and right brack ets, braces, etc., of the right height are made with **left** and **right:** *left [x sup 2 + y sup 2 over alpha right] ~=~1* produces $\left[x^2 + \frac{y^2}{\alpha} \right] = 1$. The**right** clause is optional.

Vertical piles of things are made with **pile, lpile, cpile,** and **rpile:** *pile {a above b above c}* produces $\begin{matrix} a \\ b \\ c \end{matrix}$. There can be an arbitrary number of elements in a pile. **lpile** left-justifies, **pile** and **cpile** center , with different vertical spacing, and **rpile** right justifies.

Diacritical marks are made with **dot, dotdot, hat, bar:** *x hat = f(t) bar* is $\hat{x} = \overline{f(t)}$. Default sizes and fonts can be changed with **size n** and various of **roman, italic,** and **bold.**

Keywords like *sum* ($\sum$), *int* ($\int$), *inf* (∞), and shorthands like >=, ($\geq$), ->, ($\rightarrow$), !=, ($\neq$) are recognized. Spell out Greek letters in the desired case, as in *alpha, GAMMA.* Mathematical words like *sin, cos, log* are made Roman automatically. *Troff*(I) four-character escapes like \(ua ($\uparrow$ − for ‘‘up arrow’’) can be used anywhere. Strings enclosed in double quotes "..." are passed through untouched.

SEE ALSO

Typesetting Mathematics − User’s Guide (2nd Edition) by B. W. Kernighan and L. L. Cherry
New Graphic Symbols for EQN and NEQN by C. Scrocca
NROFF/TROFF User’s Manual by J. F. Ossanna
troff(I), neqn(I)

BUGS

Undoubtedly. Watch out for small or large point sizes − it's tuned too well for size 10. Be cautious if inserting horizontal or vertical motions, and of backslashes in general.