Problems

Problem for a Saturday Morning — A Solution

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% Problem for a Saturday Morning --- A Solution
\newdimen\z \z=0pt
\font\big=cmbx10 scaled \magstep5
\newbox\query \setbox\query=\hbox{\raise6pt\hbox{\big\thinspace?\thinspace}}
\newdimen\leftedge \newdimen\rightedge
\leftedge=\hsize \advance\leftedge by-\wd\query \divide\leftedge by 2
\rightedge=\leftedge \advance\rightedge by\wd\query
\parshape 10  \z\hsize  \z\hsize  \z\hsize
 \z\leftedge \rightedge\leftedge  \z\leftedge \rightedge\leftedge
 \z\leftedge \rightedge\leftedge  \z\hsize
\newbox\partialpage \newcount\n
\newdimen\savedvsize \savedvsize=\vsize
\newtoks\savedoutput \savedoutput=\output
\newdimen\savedprevdepth \savedprevdepth=\prevdepth
\output={\global\setbox\partialpage=\vbox{\unvbox255\unskip}}\vfill\break
\topskip=\ht\strutbox \vsize=\topskip
\n=245 % we will store nine lines of text in boxes 246--254
\output={\global\advance\n by 1
 \ifnum\n<255 \global\setbox\n=\box255
 \else \unvbox\partialpage \prevdepth=\savedprevdepth \vskip\parskip
  \box246  \box247  \box248
  \box249 \vskip-\baselineskip \box250
  \box251 \vskip-\baselineskip \box252
  \box253 \vskip-\baselineskip \box254
  \vskip-\baselineskip \moveright\leftedge\hbox{\smash{\box\query}}
  \box255 \global\vsize=\maxdimen \fi}
\noindent This puzzle was suggested to me by Sape Mullender, of the Centre for
Mathematics and Computer Science in Amsterdam. He told me his belief that
``the general design of \TeX\ is better than that of {\it troff}, but the
real guru can make {\it troff\/} do things that you could never do in \TeX.''
As an example, he showed me a page on which {\it troff\/} had typeset a
picture in the middle of a paragraph, with the text going around the picture.
``It's not pretty, but it can be done, and that's what counts,'' he said.
Well, I have to admit that I didn't think of a simple solution until the
next Saturday morning; and I didn't finish debugging it until that
Saturday afternoon. Can you guess how I typeset the paragraph you're
now reading?  (The answer will appear in the next issue. It doesn't
demonstrate the superiority of \TeX\ to {\it troff}, but it does have
some interesting and instructive features.)
\savedprevdepth=\prevdepth
\output{\global\setbox\partialpage=\vbox{\unvbox255\unskip}}\vfill\break
\vsize=\savedvsize \output=\savedoutput
\unvbox\partialpage \prevdepth=\savedprevdepth
% Improvements to this solution are welcome!
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