Paweł Jackowski

Custom overfull text

How to replace a black overfull rule at the end of too long lines of a paragraph?

Well, there is no a direct way to do so, but one should never underestimate \TeX’s bells and whistles. First of all, we can test if the last (h)box was overfull by checking the value of \texttt{\badness}; if it is larger then 10000 it definitely means that the box was overfull (\texttt{\badness} never exceeds 10000 for underfull boxes). Assuming that \texttt{\box0} is the box we want to test, we can say

\begin{verbatim}
\def\ooops{\hbox to\wd0{\setbox0=\hbox to\wd0{\unhbox0}\%
unhbox0 \ifnum\badness>10000 \rlap{\sevenrm\quad Ooops!}\fi}}
\end{verbatim}

And how to get the box that is the line of a paragraph? By setting of the \texttt{\interlinepenalty} parameter to a strongly negative value we can force a page break between every two lines of a paragraph. In the \texttt{\output} routine, we can recognize those special penalties via the \texttt{\outputpenalty} parameter. The \texttt{\output} routine is not necessarily supposed to \texttt{\shipout} the page – it may simply return all its content back to the ‘recent contributions’.

\begin{verbatim}
\interlinepenalty=-50000 % force the break between each two lines
\maxdeadcycles=50 % allow upto 50 \output with no \shipout
\newtoks\orioutput \orioutput=\output % wrap the original \output routine
\output
{\ifnum\outputpenalty>-20000 \the\orioutput
\else \ifnum\outputpenalty<\maxdimen \the\orioutput
\else
\unvbox255 % flush the entire list back
\setbox0=\lastbox % strip the very last box
\nointerlineskip % avoid doubled interline glue
\ooops % make the test and return the box back.
\advance\outputpenalty by50000
\penalty\outputpenalty % weak lie that nothing happened...
\fi\fi}
\hfuzz=\maxdimen % no overfullrule, no messages
\hsize=1.5in % provoke overfulls
... \end{verbatim}

This completely useless example shows a not-so-useless trick, which \texttt{\ooops!} might be used for quite advanced applications, such as line-numbering, \texttt{\ooops!} some kind of paragraph decoration, page optimization and probably many others. Things become \texttt{\ooops!} much more complicated if math displays, \texttt{\marks}, \texttt{\inserts} or \texttt{\vad-}\texttt{\ooops!} justs come into play, but they don’t spoil all of the game.

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