Hints & Tricks

Glistering

Peter Wilson

Not all that tempts your wand'ring eyes
And heedless hearts, is lawful prize;
Nor all, that glisters, gold.

Ode to a Favourite Cat

THOMAS GRAY

The aim of this column is to provide odd hints or small pieces of code that might help in solving a problem or two. I have learnt to my cost that the quickest way to get a correct answer to a question on the comp.text.tex (ctt) newsgroup is to give an incorrect answer. I hope that the ideas below
always work but as the column title implies, there might be some dross among the nuggets.

Corrections, suggestions, and contributions will always be welcome.

One of the less frequently asked questions on ctt is whether there is a package for typesetting forms, and the answer is 'no'. Nevertheless forms are still typeset via \LaTeX.

Little boxes on the hillside, little boxes made of ticky tacky.

Little boxes, little boxes, little boxes all the same.

\textit{Little boxes}

MALVINA REYNOLDS, 1961

(Popularised by Pete Seeger)

1 Tick boxes

One common component of a form is the tick box.

Can you produce a tick box? Yes \□\ No \□

Can I produce a tick box? Yes \□\ No \□

The empty boxes above were produced by the \texttt{\tickbox} macro defined below, and the \texttt{\xbox} command produced the checked box.

\begin{verbatim}
\newcommand*{\tickbox}{%\fboxsep 0pt\framebox[\height]{\vphantom{M}}}\newcommand*{\xbox}{%\fboxsep 0pt\framebox[\height]{\vphantom{M}$\times$}}
\end{verbatim}

If you want a bit bigger box, like \□\□, you could use this larger \texttt{\Tickbox} instead of \texttt{\tickbox}.

\newcommand*{\Tickbox}{\framebox{\phantom{M}}}

The length \texttt{\fboxsep} is the space between the frame of a \texttt{\framebox} and its contents, so you can adjust the size of this kind of box by changing \texttt{\fboxsep} or by using a different phantom character.

Or you might prefer \□\□ from

\begin{verbatim}
\newcommand*{\TickBox}{%\fboxsep 0pt\fbox{\rule{0em}{1em}\rule{1em}{0em}}}
\end{verbatim}

This definition uses invisible rules (a \texttt{\rule} with zero height or width cannot be seen) to control the size of the tightly fitting \texttt{\fbox}. In this case, as the rules are the same length as the box is square.

2 Blanks, dashes and rules

Along the lines of checkboxes, another regular component of a form is \underline{\phantom{something}}

The last sentence ended with \texttt{\hrulefill{}}. to give a rule that stretched to margin. You can use \texttt{\hrulefill} more than once in a line, such as in the next line where it is used twice.

Last name: \underline{\phantom{something}} First: \underline{\phantom{something}}

Or, you may want to have a rule of a particular length. The rule in the following line is just long enough for the word ‘something’ to be typeset:

Put \underline{\phantom{something}} here.

Put something here.

The previous two lines were input as:

\begin{verbatim}
Put \underline{\phantom{something}} here. \hrulefill{}
Put something here.
\end{verbatim}

Here is a variety of rules and blanks. In each case I've shown the code of the interesting part of the sentence above the typeset result.

1. \ldots in \texttt{\rule{10mm}{0.4pt}} the \ldots Fill in _____ the blank.
2. \ldots in \texttt{\hrulefill{}} the \ldots Fill in \hrulefill{} the blank.
3. \ldots in \texttt{\xfill[0.5ex]} the \ldots Fill in \xfill[0.5ex] the blank.
4. \ldots in \texttt{\srule{something}} the \ldots Fill in \srule{something} the blank.
5. \ldots in \texttt{\srule[0.5ex]{something}} the \ldots Fill in \srule[0.5ex]{something} the blank.
6. \ldots in \texttt{\phantom{something}} the \ldots Fill in \phantom{something} the blank.

The macros used above are part of \LaTeX with the exceptions of \texttt{\xfill} and \texttt{\srule} which are defined below.

The \texttt{\xfill[\langle len \rangle]} macro is like \texttt{\hrulefill} in that it draws a rule in the available space but you can use the optional \langle \texttt{len} \rangle length argument to raise or lower the rule with respect to the baseline.

\begin{verbatim}
\newcommand*{\xfill}[1][0pt]{%\cleaders\leaders\hbox to 1pt{\hss\raisebox{#1}{\rule{1.2pt}{0.4pt}}\hss}\hfill}
\end{verbatim}

The \texttt{\rule[\langle len \rangle]}{\langle text \rangle} draws a rule the same length as the \langle text \rangle, but does not typeset the \langle text \rangle.

You can use the optional \langle \texttt{len} \rangle argument to alter the height of the rule with respect to the baseline.

\begin{verbatim}
\newcommand*{\srule}[2][0pt]{%\setbox0\hbox{#2}\rule[#1]{\wd0}{0.4pt}}
\end{verbatim}

The \texttt{\rule} command has an optional argument, which is the amount to raise (lower) the rule from its normal position at the baseline. \LaTeX provides two dashes, the en-dash (–), input as -- and the em-dash (—), input as ---. En-dashes are used as the separator in a number range, like 2–4. Depending on your country’s typesetting tradition an en-dash or an em-dash may be used instead of a comma as a phrase separator in normal text. Longer dashes may be used to indicate that something is missing: a 2em dash (---) for missing letters in a word and a 3em dash (----) to indicate a missing word. You can use \texttt{\rule} as a basis for longer dashes; for instance
### Customs Declaration

<table>
<thead>
<tr>
<th>Gift</th>
<th>Documents</th>
<th>Commercial sample</th>
<th>Other</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Quantity and detailed description of contents</th>
<th>Weight</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Toy</td>
<td>15 lb.</td>
<td></td>
</tr>
<tr>
<td>Scarf</td>
<td>12 lb.</td>
<td></td>
</tr>
</tbody>
</table>

For commercial items only

If known, HS tariff number and country of origin of goods

<table>
<thead>
<tr>
<th>Total Weight</th>
<th>Total Value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

I, the undersigned, whose name and address are given on the item, certify that the particulars given in this declaration are correct and that this item does not contain any dangerous article or articles prohibited by legislation or by postal or customs regulations.

Date and sender's signature

---

**PS Form 1234, March 2004**

```
\newcommand*{\iiemdash}{\text{2em dash}}
\newcommand*{\iiiemdash}{\text{3em dash}}
\newcommand{\CONT}{\text{CUSTOMS DECLARATION}}
\newcommand{\CVAL}{\text{COMMERCIAL SAMPLE}}
```

3 Forms

I have found that often the easiest way for me to define a form is to use the `picture` environment as this lets me place things just where I want them. Here is a possibly boring example for a customs declaration form; the real form is about 10% smaller than the example.

```
\newcommand{\form}{% 
  \setlength{\unitlength}{1mm} 
  \begin{picture}(79,80) 
    \sffamily \scriptsize \thicklines 
    \put(0,0){\line(1,0){80}} 
    \put(0,5){\line(1,0){80}} 
    \put(2,4){\makebox(0,0)[tl]{\normalsize PS Form \textbf{1234}, March 2004}}} 
\end{picture}}
```

The variable parts of the form (i.e., the non-commercial answers) are represented by the uppercase commands, which have to be defined for any specific instance of the `\form`. For the example shown the code to complete and display it is:

```
\let\GBX\xbox \let\DBX\tickbox 
\let\OBX\tickbox \let\CBX\tickbox
\newcommand{\CONT}{\text{COMMERCIAL SAMPLE}} 
\newcommand{\CVAL}{\text{COMMERCIAL SAMPLE}} 
\begin{figure} 
\centering 
\form 
\end{figure}
```
4 Letters

I received the following\(^1\) from Michael Barr regarding string comparisons. Perhaps someone can help?

Following your column in the recent issue of TUGboat [1] I have a problem in string comparisons that I don’t think is solvable. At least I couldn’t. Suppose you want to decide if an argument ultimately expands to nothing. Or if two arguments have the same ultimate expansion. What I was finally led to was similar to your \texttt{\texttt{\texttt{strcfstr}}} on page 340, [Ed. reproduced here]

\begin{verbatim}
\newif\ifsame
\newcommand{\strcfstr}[2]{% 
  \samefalse
  \begingroup
  \def\1{#1}\def\2{#2}%
  \ifx\1\2\endgroup \sametrue
  \else \endgroup \samefalse\fi
\end{verbatim}

except with \texttt{\texttt{\texttt{\texttt{def}}} replaced by \texttt{\texttt{edef}}}. This worked until the day that the argument (I was actually testing for being empty, but the difficulty is the same) happened to be a matrix. At this point, I got a curious error message about misplaced \texttt{\texttt{&}}. It turns out that while you can put a matrix (or any alignment) into a \texttt{\texttt{def}}, you cannot put one into an \texttt{\texttt{edef}}. This is a built-in ‘feature’ (pronounced ‘bug’) of \texttt{\texttt{T\textsc{e}X}}, one that will not be repaired and one that it is apparently impossible to overcome.

Michael Barr

References


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\(^1\) I have exercised editorial privilege on the original.