On-line Tutorial on \LaTeX

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8 Color tables in \LaTeX

8.1 The \colortbl package

In the previous chapters we learnt how to construct tables in \LaTeX that could span even to a number of pages. Here we shall see how to obtain color cells in tables, using David Carlisle’s \colortbl package. This package requires the \color and \array packages.

The \colortbl package provides a number of commands using which one can obtain really colorful tables. We shall demonstrate each of these with the help of simple examples in the following sections.

8.1.1 The \columncolor command

The format for the \columncolor command is

\begin{verbatim}
\columncolor[⟨color model⟩]{⟨color⟩}{⟨left overhang⟩}{⟨right overhang⟩}
\end{verbatim}

Color model  It changes the current color to the argument specified until the end of the current group or the environment. The colors \texttt{black}, \texttt{white}, \texttt{red}, \texttt{green}, \texttt{blue}, \texttt{cyan}, \texttt{magenta}, and \texttt{yellow} should be predefined by any driver. Colors can also be defined by a package, as well as by the use of \texttt{\definecolor}
command\(^1\).

**Color**
It is an optional argument, and is like a specification to the color model given. This is particularly convenient if one wants to use a color without defining it initially.

**Left overhang**
It controls the width of the panel past the widest entry in the column. It is also an optional argument, and takes the value `\tabcolsep` (in `tabular`) and `\arraycolsep` (in `array`).

**Right overhang**
If omitted it defaults to the *left overhang*.

We have a few different tables below that will demonstrate a few possibilities using the `\columncolor` command.

```latex
\begin{tabular}{|l|r|}
  \hline
  \{one\} & \{two\} \\
  \{three\} & \{four\} \\
  \hline
\end{tabular}
```

In the following table both the overhangs are set to `0pt`.

```latex
|\{\textcolor{blue}{blue}\textcolor{gray}{\arraycolsep=gray}[.8][0pt]}\{|khaki\}[0pt]|\{\textcolor{blue}{blue}\textcolor{gray}{\arraycolsep=gray}[.8][0pt]}|
```

The default overhang of `\tabcolsep` produces:

---

\(^1\) For instance, by using the command `\definecolor{myblue}{rgb}{.8,.85,1}`, you can have the color *myblue*.  

It is also possible to have colors like the one below! Using \multicolumn it is possible to change the color of specified rows of a table.

\multicolumn{1}{|>{\columncolor{khaki}}l|} >{\color{blue}\columncolor[gray]{.8}}r|

\rowcolor{lightturquoise} {one} & {two} \\
\rowcolor{honeydew} {three} & {four} \\
\multicolumn{1}{|>{\columncolor{khaki}}|} {five} & \multicolumn{1}{|>{\columncolor{khaki}}}{six} \\
\hline
\end{tabular}

8.1.2. The \rowcolor command

The \rowcolor command is helpful in case a table is made principally by rows. The arguments in \rowcolor are of the form as in \columncolor. Here’s an example:

\begin{tabular}{|l||r|}
\hline
\rowcolor{lightturquoise} {one} & {two} \\
\rowcolor{honeydew} {three} & {four} \\
\multicolumn{1}{|>{\columncolor{khaki}}|} {five} & \multicolumn{1}{|>{\columncolor{khaki}}}{six} \\
\hline
\end{tabular}

A \multicolumn command overrides the default colors for both the current row and column.
8.2. More colors and tricks

In this section we’ll see how to obtain even more colors: colored rules, colored space between two rules, and more.

- Colored rules can be easily obtained wherever desired by replacing the | with something like \{\color{green}\vline\}.
- The above trick still leaves the spaces between || white. In order to obtain colored space one can remove the inter glue, and replace it by a colored rule. For instance,

\begin{verbatim}
!{\color{green}\vline}
@{\color{yellow}\vrule width \doublerulesep}
!{\color{green}\vline}
\end{verbatim}

would change the color of the rules to green, and there would be another yellow rule of thickness equal to \doublerulesep between the two.

- \arrayrulewidth specifies the ‘thickness’ of the rules. The default is set to 0.4pt and can be changed by using, for instance, \setwidth{arrayrulewidth}{1pt} to a value of 1pt.
- \arrayrulecolor takes the same arguments as \color. It can be specified at any point in the table. However, if given in the mid table it affects only the rules that are specified after that point, and any vertical rules in the table ‘preamble’ keep their original colors. For example, the command

\begin{verbatim}
\setlength{arrayrulewidth}{1pt}\arrayrulecolor{blue}
\end{verbatim}

would set the \arrayrulewidth to 1pt and the rule color to blue.

- \doublerulesep specifies the space between the double rules.
\textbf{8.3. Color tables with} \texttt{\textbackslash hhline}

There are many advantages of using \texttt{\textbackslash hhline} (\texttt{hhline} package) to draw horizontal rules instead of \texttt{\textbackslash cline}. Firstly, \texttt{\textbackslash hhline} provides more flexibility in producing the rules particularly because of the way it interacts with the vertical lines. Moreover, sometimes the color of the lines produced by \texttt{\textbackslash cline} doesn’t appear (rather it’s covered up by the color panels in the following row). So it becomes more appropriate if one uses the – rule type in a \texttt{\textbackslash hhline} argument.

The \texttt{\textbackslash hhline} command can be used to produce a single rule, or a double rule. \texttt{\textbackslash hhline} has arguments very similar to those in the ‘preamble’ of an array or tabular.

\begin{itemize}
\item = A double \texttt{hline} equal to the column width.
\item − A single \texttt{hline} equal to the column width.
\item \~ A column with no \texttt{hline}.
\item | A \texttt{vline} which cuts through a double (or single) \texttt{hline}.
\item : A \texttt{vline} which is broken by a double line.
\item # A double hline segment between two vlines.
\item t The top half of a double hline segment.
\item b The bottom half of a double hline segment.
\item ∗ \texttt{\{3\}{==#}} expands to ==###==#, as in the ∗-form for the preamble.
\end{itemize}

We now demonstrate an example of the \texttt{\textbackslash hhline} command in the following table:
A table using \hhline

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Col. 1</th>
<th>Col. 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>abc</td>
<td>def</td>
</tr>
<tr>
<td>2</td>
<td>pqr</td>
<td>lmn</td>
</tr>
<tr>
<td>3</td>
<td>uvw</td>
<td>xyz</td>
</tr>
<tr>
<td>n</td>
<td>pqr</td>
<td>lmn</td>
</tr>
</tbody>
</table>

\arrayrulecolor{white}
\begin{tabular}{c|c}
<table>
<thead>
<tr>
<th>S.No.</th>
<th>Col. 1</th>
<th>Col. 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>abc</td>
<td>def</td>
</tr>
<tr>
<td>2</td>
<td>pqr</td>
<td>lmn</td>
</tr>
<tr>
<td>3</td>
<td>uvw</td>
<td>xyz</td>
</tr>
<tr>
<td>n</td>
<td>pqr</td>
<td>lmn</td>
</tr>
</tbody>
</table>
\end{tabular}
8.4. More Examples of Color Table

All these examples are taken from the TeXLive CDROM. The first example is not a table, but a horizontally packed colorboxes.

cyan (C): 

magenta (M):  

yellow (Y):  

black (K):

\newcommand{\CBox}[1]{\colorbox{cmyk}{#1,0.,0.,0.}{#1}}
\begin{flushleft}
\makebox[30mm][l]{\text{cyan (C):}}
\end{flushleft}
\begin{flushleft}
\makebox[30mm][l]{\text{magenta (M):}}
\end{flushleft}
\begin{flushleft}
\makebox[30mm][l]{\text{yellow (Y):}}
\end{flushleft}
\begin{flushleft}
\makebox[30mm][l]{\text{black (K):}}
\end{flushleft}
This is a column colored table. The same table is made row coloured in the next one.

\setlength{\extrarowheight}{2mm}
\setlength{\tabcolsep}{2mm}
\begin{tabular}{|l|c|c|c|c|}
\hline
\multicolumn{3}{>{\columncolor{yellow}}l}{\color{white}\textsf{LONDON}} & \multicolumn{2}{>{\columncolor{red}}r}{\color{white}\textsf{Price}} \\
\hline
Sydney & OG4G & Thu Oct 10 & Mon Oct 21 or 28 & 11 or 18 days & 999GBP \\
& & Thu Oct 17 & Mon Oct 21 or 28 & 4 or 11 days & 999GBP \\
& OG7A & Sun Oct 13 & Mon Oct 21 or 28 & 8 or 15 days & 999GBP \\
& & Sun Oct 20 & Mon Oct 28 & 8 days & 999GBP \\
\hline
\end{tabular}

\setlength{\extrarowheight}{2mm}
\setlength{\tabcolsep}{2mm}
\begin{tabular}{|l|>{\columncolor{yellow}}c|c|>{\columncolor{yellow}}c|c|>{\columncolor{red}\bfseries}c<\textsc{GBP}|}
\hline
\multicolumn{3}{>{\columncolor{red}}l}{\color{white}\textsf{LONDON}} & \multicolumn{3}{>{\columncolor{red}}r}{\color{white}\textsf{Price}} \\
\hline
Sydney & OG4G & Thu Oct 10 & Mon Oct 21 or 28 & 11 or 18 days & 999GBP \\
& & Thu Oct 17 & Mon Oct 21 or 28 & 4 or 11 days & 999GBP \\
& OG7A & Sun Oct 13 & Mon Oct 21 or 28 & 8 or 15 days & 999GBP \\
& & Sun Oct 20 & Mon Oct 28 & 8 days & 999GBP \\
\hline
\end{tabular}
<table>
<thead>
<tr>
<th>Sydney</th>
<th>OG4G</th>
<th>Thu Oct 10</th>
<th>Mon Oct 21 or 28</th>
<th>11 or 18 days</th>
<th>999</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Thu Oct 17</td>
<td>Mon Oct 21 or 28</td>
<td>4 or 11 days</td>
<td>999</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OG7A</td>
<td>Sun Oct 13</td>
<td>Mon Oct 21 or 28</td>
<td>8 or 15 days</td>
<td>999</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sun Oct 20</td>
<td>Mon Oct 28</td>
<td>8 days</td>
<td>999</td>
</tr>
</tbody>
</table>

\setlength{\extrarowheight}{2mm}
\begin{tabular}{|l|c|c|c|c|c|c|}
\hline
Sydney & OG4G & Thu Oct 10 & Mon Oct 21 or 28 & 11 or 18 days & 999 \\
\rowcolor[gray]{0.5}
& & Thu Oct 17 & Mon Oct 21 or 28 & 4 or 11 days & 999 \\
& & OG7A & Sun Oct 13 & Mon Oct 21 or 28 & 8 or 15 days & 999 \\
\rowcolor[gray]{0.5}
& & Sun Oct 20 & Mon Oct 28 & 8 days & 999 \\
\hline
\end{tabular}
See the rule colours have different ones in the following example.

\setlength{\arrayrulewidth}{2pt}
\arrayrulecolor{green}
\begin{tabular}{|l|c|r|}
\arrayrulecolor{black}\hline
 United Kingdom & London & Thames \\
\arrayrulecolor{blue}\hline
 France & Paris & Seine \\
\arrayrulecolor{black}\cline{1-1}
\arrayrulecolor{red}\cline{2-3}
 Russia & Moscow & Moskva \\
\hline
\end{tabular}
It is possible to keep some cells of a table in white while keeping the whole table in a different colour.

<table>
<thead>
<tr>
<th>Description</th>
<th>Column 1</th>
<th>Column 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Row one</td>
<td>mmmmmm</td>
<td>mmmm</td>
</tr>
<tr>
<td>Row two</td>
<td>mmmm</td>
<td>mmm</td>
</tr>
<tr>
<td>Row three</td>
<td>mmmmmm</td>
<td>mmmmmmm</td>
</tr>
<tr>
<td>Row four</td>
<td>mmmmmm</td>
<td>mmmmm</td>
</tr>
<tr>
<td>Totals</td>
<td>mmmmm</td>
<td>mmmmmmm</td>
</tr>
</tbody>
</table>

\newcommand{\CTPanel}[1]{\multicolumn{1}{>{\columncolor{white}}r|}{#1}}
\setlength{\fboxsep}{3mm}
\colorbox[cmyk]{.40,0,0,0}{\begin{tabular}{l|r|r}
\multicolumn{1}{l|}{\large\textbf{Table title}}
\hline
\textbf{Description} & \textbf{Column 1} & \textbf{Column 2} \\
\hline
Row one & \CTPanel{mmmmm} & \CTPanel{mmmm} \\
Row two & \CTPanel{mmmm} & \CTPanel{mmm} \\
Row three & \CTPanel{mmmmm} & \CTPanel{mmmmmm} \\
Row four & \CTPanel{mmmmm} & \CTPanel{mmmm} \\
Totals & mmmmm & mmmmmmm \\
\end{tabular}}
The \colortbl \ldots
More colors and \ldots
Color tables \ldots
More Examples \ldots

<table>
<thead>
<tr>
<th>Description</th>
<th>Column 1</th>
<th>Column 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Row one</td>
<td>mmmmm</td>
<td>mmmm</td>
</tr>
<tr>
<td>Row two</td>
<td>mmmm</td>
<td>mmm</td>
</tr>
<tr>
<td>Row three</td>
<td>mmmmm</td>
<td>mmmmm</td>
</tr>
<tr>
<td>Row four</td>
<td>mmmmm</td>
<td>mmm</td>
</tr>
<tr>
<td>Totals</td>
<td>mmmmm</td>
<td>mmmmm</td>
</tr>
</tbody>
</table>

\definecolor{Blueb}{cmyk}{.40,0,0,0}
\definecolor{Blued}{cmyk}{.80,0,0,0}
\arrayrulecolor{white}
\begin{tabular}{>{\columncolor{Blued}}l
>{\columncolor{Blued}}r|%
>{\columncolor{Blued}}r}
\multicolumn{3}{>{\columncolor{Blueb}}l}%
\{\large\textbf{Table title}\}\\[2mm]
\rowcolor{white}
\textbf{Description} & \textbf{Column 1} & \textbf{Column 2} \\
Row one & mmmmm & mmmm \hline\hline--
Row two & mmmm & mmm \hline\hline--
Row three & mmmmm & mmmmm \hline\hline--
Row four & mmmmm & mmm \hline\hline--
\rowcolor{white} Totals & mmmmm & mmmmm \\
\end{tabular}
<table>
<thead>
<tr>
<th>Description</th>
<th>Column 1</th>
<th>Column 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Row one</td>
<td>mmmmm</td>
<td>mmmm</td>
</tr>
<tr>
<td>Row two</td>
<td>mmmmm</td>
<td>mmm</td>
</tr>
<tr>
<td>Row three</td>
<td>mmmmm</td>
<td>mmmmmm</td>
</tr>
<tr>
<td>Row four</td>
<td>mmmmm</td>
<td>mmm</td>
</tr>
<tr>
<td>Totals</td>
<td>mmmmm</td>
<td>mmmmmm</td>
</tr>
</tbody>
</table>

\definecolor{Blueb}{cmyk}{.40,0,0,0}
\definecolor{Blued}{cmyk}{.80,0,0,0}
\definecolor{Bluee}{cmyk}{1.0,0,0,0}
\arrayrulecolor{black}
\setlength{\arrayrulewidth}{1mm}
\begin{tabular}{llrrl}
\rowcolor{Blueb}
\qquad&\multicolumn{3}{>{\columncolor{Blueb}}l}{\large\textbf{Table title}}&\qquad\\[2mm
\rowcolor{Blued}& \textbf{Description} & \textbf{Column 1} & \textbf{Column 2}& \\
\hline
\rowcolor{Blued}& Row one & mmmmm & mmmm & \\
\rowcolor{Blued}& Row two & mmmmm & mmm & \\
\rowcolor{Blued}& Row three& mmmmm & mmm & \\
\rowcolor{Blued}& Row four & mmmmm & mmm & \\
\cline{2-3}
\rowcolor{Bluee}& Totals & mmmmm & mmm & \\
\end{tabular}