The delarray package

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1 Examples

The addition to \texttt{array.sty} added in \texttt{delarray.sty} is a system of implicit \texttt{\left} \texttt{\right} pairs. If you want an array surrounded by parentheses, you can enter:
\begin{array}({cc})
  (a b \\
    c d)
\end{array}

Similarly if an environment equivalent to \texttt{Plain} \TeX's \texttt{cases} could be defined by:
\begin{array}{{{LL}}}
\end{array}

\begin{array}
  f(x) = \left\{
    \begin{array}l
      0 \\
      \sin(x)/x
    \end{array}
  \right.
\end{array}

\begin{array}
  \text{if } x = 0 \\
  \text{otherwise}
\end{array}

Here L is supposed to denote a column of left aligned L-R text. It may be defined via: \texttt{\newcolumntype{L}{>{$}l<{$}}}, as discussed in \texttt{array.sty}. Note that as the delimiters must always be used in pairs, the '.' must be used to denote a 'null delimiter'.

This feature is especially useful if the \texttt{[t]} or \texttt{[b]} arguments are also used. In these cases the result is not equivalent to surrounding the environment by \texttt{\left}...\texttt{\right}, as can be seen from the following example:

\begin{array}
  \begin{pmatrix} 1 \\
    2 \\
    3 \end{pmatrix} \quad \begin{pmatrix} 1 \\
    2 \\
    3 \end{pmatrix} \quad \text{not} \quad \begin{pmatrix} 1 \\
    2 \\
    3 \end{pmatrix} \quad \begin{pmatrix} 1 \\
    2 \\
    3 \end{pmatrix}
\end{array}

\begin{array}
  \begin{array}t(c)\end{array} 1\backslash2\backslash3 \end{array}
\begin{array}c(c)\end{array} 1\backslash2\backslash3 \end{array}
\begin{array}b(c)\end{array} 1\backslash2\backslash3 \end{array}
\quad\text{\quad not} \quad \text{\quad not}

\end{array}

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\left( \begin{array}{c} 1 \\ 2 \\ 3 \end{array} \right)

\left( \begin{array}{c} 1 \\ 2 \\ 3 \end{array} \right)

\left( \begin{array}{c} 1 \\ 2 \\ 3 \end{array} \right)

2 The Macros

1 (*package)
2 \RequirePackage{array}[1994/02/03]
3 \@tabarray
4 \@@array
5 \@tabarray
6 \@tabarray
7 \@tabarray
8 \@tabarray
9 \@tabarray
10 \@tabarray
11 \@tabarray
12 \@tabarray
13 \@tabarray
14 \@tabarray
15 \@tabarray

\@tabarray

This macro tests for an optional bracket and then calls up \@@array or \@@array[c] (as default).
3 \def\@tabarray\@@array[\ifnextchar[\@@array{\@@array[\array[c]]}
4 \def\@tabarray\@@array[\ifnextchar[\@@array{\@@array[\array[c]]}
5 \def\@tabarray\@@array[\ifnextchar[\@@array{\@@array[\array[c]]}
6 \def\@tabarray\@@array[\ifnextchar[\@@array{\@@array[\array[c]]}

\@tabarray

This macro tests for an optional delimiter before the left brace of the main preamble argument. If there is no delimiter, \arrayleft and \arrayright are made a no-ops, and \array is called with the positional argument. Otherwise call \delarray.
4 \def\@array[\#1]\@@array[\ifnextchar[\@@array{\@@array[\array[c]]}
5 \def\@array[\#1]\@@array[\ifnextchar[\@@array{\@@array[\array[c]]}
6 \def\@array[\#1]\@@array[\ifnextchar[\@@array{\@@array[\array[c]]}

\@tabarray

We now know that we have an array (or tabular) with delimiters.
7 \def\@delarray[\#1]\#2\#3\#4{\%
8 \setbox\z@\hbox{$\left\#2\right\#4$}\%

The following line is completely redundant but it does catch errors involving delimiters before the processing of the alignment begins. A common error is likely to be omitting the '.' in a \cases-type construction. This causes the first token of the alignment to be gobbled, possibly causing lots of spurious errors before the cause of the error, the missing delimiter, is discovered as \arrayright puts the alignment and the delimiters together.
8 \setbox\z@\hbox{$\left\#2\right\#4$}\%

In the case of a 'c' argument we do not need to rebox the alignment, so we can define \arrayleft and \arrayright just to insert the delimiters.
9 \if\#1c\def\arrayleft{\left\#2}\def\arrayright{\right\#4}\%

Otherwise we (should) have a \[t\] or \[b\] argument, so first we store the alignment, without delimiters in box0.
10 \else\def\arrayleft{\setbox\z@}\%

Then after the alignment is finished:
11 \def\arrayright{\%
12 \dimen@=\dp\z@\%
13 \advance\dimen@-\ht\z@\%
14 \divide \dimen@ by \tw@\%
15 \advance\dimen@ by fontdimen22 \textfont\tw@0

2
Now lower the alignment and the delimiters into place.
\lower\dimen0\hbox{$\left#2\vcenter{\unvbox\z@}\right#4$}}%
End the \if#1c
\fi
Now that we have defined \@arrayleft and \@arrayright, call \@array.
\@array[#1]{#3}}
(//package)

2.1 newarray.sty
All the features of the old newarray style option have been merged into the array or delarray options.