The `mdframed` package

Examples for `framemethod=tikz`

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In this document I collect various examples for `framemethod=tikz`. Some presented examples are more or less exorbitant.

Contents

1 Loading

In the preamble only the package `mdframed` width the option `framemethod=tikz` is loaded. All other modifications will be done by `\mdfdefinestyle` or `\mdfsetup`.

Note
Every `\global` inside the examples is necessary to work with the package `showexpl`.

2 Examples

All examples have the following settings:

```
\mdfsetup{skipabove=\topskip,skipbelow=\topskip}
\newrobustcmd\ExampleText{%
An \textit{inhomogeneous linear} differential equation
has the form
\begin{align}
L[v ] = f,
\end{align}
where $L$ is a linear differential operator, $v$ is
the dependent variable, and $f$ is a given non−zero
function of the independent variables alone.
}
```

Example 1 – Package listings 2 *Examples*

Example 1 – Package listings

The example below is inspired by the following post on StackExchange Background overflows when using rounded corners for listings (package: 'listings')

Here the solution which can be decorate as usual.

```
\BeforeBeginEnvironment{lstlisting}{%
    \begin{mdframed}[<modification>]%
    \vspace{-0.7em}}
\AfterEndEnvironment{lstlisting}{%
    \vspace{-0.5em}%
    \end{mdframed}}
```

With the new command `\surroundwithmdframed` you can use

```
\surroundwithmdframed{listings}
```

Example 2 – Package multicol

How I wrote in "Known Problems" you can't combine `multicol` with `mdframed`. In a simple way without any breaks you can use:

```
\begin{multicols}{2}
\lipsum[1]
\begin{mdframed}
\ExampleText
\end{mdframed}
\lipsum[2]
\end{multicols}
```

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An *inhomogeneous linear* differential equation has the form

$$L[v] = f, \qquad (1)$$

where L is a linear differential operator, v is the dependent variable, and f is a given non-zero function of the independent variables alone.

Nam dui ligula, fringilla a, euismod sodales, sollicitudin vel, wisi. Morbi auctor lorem non justo. Nam lacus libero, pretium at, lobortis vitae, ultricies et, tellus. Donec aliquet, tortor sed accumsan bibendum, erat ligula aliquet magna, vitae ornare odio metus a mi. Morbi ac orci et nisl hendrerit mollis. Suspendisse ut massa. Cras nec ante. Pellentesque a nulla. Cum sociis natoque penatibus et magnis dis parturient montes, nascetur ridiculus mus. Aliquam tincidunt urna. Nulla ullamcorper vestibulum turpis. Pellentesque cursus luctus mauris.

Example 2 – Package multicol 2 *Examples*

Example 3 – Working in twocolumn mode

```
\twocolumn[%
   \Examplesec{Working in
              twocolumn mode}]
\lipsum[1]\lipsum[2]
\begin{mdframed}[%
     leftmargin=10pt,%
     rightmargin=10pt,%
     linecolor=red,
     backgroundcolor=yellow]
\ExampleText
\end{mdframed}
\lipsum[2]
```

Lorem ipsum dolor sit amet, consectetuer adipiscing elit. Ut purus elit, vestibulum ut, placerat ac, adipiscing vitae, felis. Curabitur dictum gravida mauris. Nam arcu libero, nonummy eget, consectetuer id, vulputate a, magna. Donec vehicula augue eu neque. Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas. Mauris ut leo. Cras viverra metus rhoncus sem. Nulla et lectus vestibulum urna fringilla ultrices. Phasellus eu tellus sit amet tortor gravida placerat. Integer sapien est, iaculis in, pretium quis, viverra ac, nunc. Praesent eget sem vel leo ultrices bibendum. Aenean faucibus. Morbi dolor nulla, malesuada eu, pulvinar at, mollis ac, nulla. Curabitur auctor semper nulla. Donec varius orci eget risus. Duis nibh mi, congue eu, accumsan eleifend, sagittis quis, diam. Duis eget orci sit amet orci dignissim rutrum.

Nam dui ligula, fringilla a, euismod sodales, sollicitudin vel, wisi. Morbi auctor lorem non justo. Nam lacus libero, pretium at, lobortis vitae, ultricies et, tellus. Donec aliquet, tortor sed accumsan bibendum, erat ligula aliquet magna, vitae ornare odio metus a mi. Morbi ac orci et nisl hendrerit mollis. Suspendisse ut massa. Cras nec ante. Pellentesque a nulla. Cum sociis natoque penatibus et magnis dis parturient montes, nascetur ridiculus mus. Aliquam tincidunt urna. Nulla ullamcorper vestibulum turpis. Pellentesque cursus luctus mauris.

An *inhomogeneous linear* differential equation has the form

$$L[v] = f, \qquad (2)$$

where L is a linear differential operator, v is the dependent variable, and f is a given non-zero function of the independent variables alone.

Nam dui ligula, fringilla a, euismod sodales, sollicitudin vel, wisi. Morbi auctor lorem non justo. Nam lacus libero, pretium at, lobortis vitae, ultricies et, tellus. Donec aliquet, tortor sed accumsan bibendum, erat ligula aliquet magna, vitae ornare odio metus a mi. Morbi ac orci et nisl hendrerit mollis. Suspendisse ut massa. Cras nec ante. Pellentesque a nulla. Cum sociis natoque penatibus et magnis dis parturient montes, nascetur ridiculus mus. Aliquam tincidunt urna. Nulla ullamcorper vestibulum turpis. Pellentesque cursus luctus mauris.

Example 4 – Working inside enumerate   *2 Examples*

Example 4 – Working inside enumerate

```
Text Text Text Text Text Text Text Text
\begin{enumerate}
\item in the following \ldots
        \begin{mdframed}[linecolor=blue,linewidth=2]
            \ExampleText
        \end{mdframed}
\item \lipsum[2]
\end{enumerate}
Text Text Text Text Text Text
```

Text Text Text Text Text Text Text Text

1. in the following . . .

   An *inhomogeneous linear* differential equation has the form

   $$L[v] = f, \tag{3}$$

   where L is a linear differential operator, v is the dependent variable, and f is a given non-zero function of the independent variables alone.

2. Nam dui ligula, fringilla a, euismod sodales, sollicitudin vel, wisi. Morbi auctor lorem non justo. Nam lacus libero, pretium at, lobortis vitae, ultricies et, tellus. Donec aliquet, tortor sed accumsan bibendum, erat ligula aliquet magna, vitae ornare odio metus a mi. Morbi ac orci et nisl hendrerit mollis. Suspendisse ut massa. Cras nec ante. Pellentesque a nulla. Cum sociis natoque penatibus et magnis dis parturient montes, nascetur ridiculus mus. Aliquam tincidunt urna. Nulla ullamcorper vestibulum turpis. Pellentesque cursus luctus mauris.

Text Text Text Text Text Text

Example 5 – Position a specific symbol at a line   *2 Examples*

Example 5 – Position a specific symbol at a line

```
\tikzset{
    warningsymbol/.style={
        rectangle,draw=red,
        fill=white,scale=1,
        overlay}}
\mdfdefinestyle{warning}{%
  hidealllines=true,leftline=true,
  skipabove=12,skipbelow=12pt,
  innertopmargin=0.4em,%
  innerbottommargin=0.4em,%
  innerrightmargin=0.7em,%
  rightmargin=0.7em,%
  innerleftmargin=1.7em,%
  leftmargin=0.7em,%
  middlelinewidth=.2em,%
  linecolor=red,%
  fontcolor=red,%
  firstextra={\path let \p1=(P), \p2=(O) in ($(\x2,0)+0.5*(0,\y1)$)
                                 node[warningsymbol] {\$};},%
  secondextra={\path let \p1=(P), \p2=(O) in ($(\x2,0)+0.5*(0,\y1)$)
                                 node[warningsymbol] {\$};},%
  middleextra={\path let \p1=(P), \p2=(O) in ($(\x2,0)+0.5*(0,\y1)$)
                                 node[warningsymbol] {\$};},%
  singleextra={\path let \p1=(P), \p2=(O) in ($(\x2,0)+0.5*(0,\y1)$)
                                 node[warningsymbol] {\$};},%
}
\begin{mdframed}[style=warning]
\ExampleText
\end{mdframed}
```

An *inhomogeneous linear* differential equation has the form

$$L[v] = f, \tag{4}$$

where L is a linear differential operator, v is the dependent variable, and f is a given non-zero function of the independent variables alone.

Example 6 – digression-environement inspired by Tobias Weh

```
\usetikzlibrary{calc,arrows}
\tikzset{
    excursus arrow/.style={%
        line width=2pt,
        draw=gray!40,
        rounded corners=2ex,
    },
    excursus head/.style={
        fill=white,
        font=\bfseries\sffamily,
        text=gray!80,
        anchor=base west,
    },
}
\mdfdefinestyle{digressionarrows}{%
 singleextra={%
        \path let \p1=(P), \p2=(O) in (\x2,\y1) coordinate (Q);
        \path let \p1=(Q), \p2=(O) in (\x1,{(\y1−\y2)/2}) coordinate (M);
        \path [excursus arrow, round cap−to]
            ($(O)+(5em,0ex)$) −| (M) |− %
            ($(Q)+(12em,0ex)$) .. controls +(0:16em) and +(185:6em) .. %
            ++(23em,2ex);
        \node [excursus head] at ($(Q)+(2.5em,−0.75pt)$) {Digression};},
 firstextra={%
        \path let \p1=(P), \p2=(O) in (\x2,\y1) coordinate (Q);
        \path [excursus arrow,−to]
            (O) |− %
            ($(Q)+(12em,0ex)$) .. controls +(0:16em) and +(185:6em) .. %
            ++(23em,2ex);
        \node [excursus head] at ($(Q)+(2.5em,−2pt)$) {Digression};},
 secondextra={%
        \path let \p1=(P), \p2=(O) in (\x2,\y1) coordinate (Q);
        \path [excursus arrow,round cap−]
            ($(O)+(5em,0ex)$) −| (Q);},
 middleextra={%
        \path let \p1=(P), \p2=(O) in (\x2,\y1) coordinate (Q);
        \path [excursus arrow]
            (O) −− (Q);},
    middlelinewidth=2.5em,middlelinecolor=white,
    hidealllines=true,topline=true,
    innertopmargin=0.5ex,
    innerbottommargin=2.5ex,
    innerrightmargin=2pt,
    innerleftmargin=2ex,
    skipabove=0.87\baselineskip,
    skipbelow=0.62\baselineskip,
}

\begin{mdframed}[style=digressionarrows]
            \ExampleText
\end{mdframed}
```

Digression

An *inhomogeneous linear* differential equation has the form

$$L[v] = f, \tag{5}$$

where L is a linear differential operator, v is the dependent variable, and f is a given non-zero function of the independent variables alone.

Example 7 – Theorem style shading background

```
\mdtheorem[%
 apptotikzsetting={\tikzset{mdfbackground/.append style =%
                          {top color=yellow!40!white,
                            bottom color=yellow!80!black},
                        mdfframetitlebackground/.append style =%
                          {top color=purple!40!white,
                            bottom color=purple!80!black}
                        }
                 },
  ,roundcorner=10pt,middlelinewidth=2pt,
  shadow=true,frametitlerule=true,frametitlerulewidth=4pt,
  innertopmargin=10pt,%
  ]{alternativtheorem}{Theorem}
\begin{alternativtheorem}[Inhomogeneous linear]
\ExampleText
\end{alternativtheorem}
```

Theorem 1: Inhomogeneous linear

An *inhomogeneous linear* differential equation has the form

$$L[v] = f, \tag{6}$$

where L is a linear differential operator, v is the dependent variable, and f is a given non-zero function of the independent variables alone.