## 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.

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# 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

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.

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

With the new command \surroundwithmdframed you can use

```
\slash \
```

### 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

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

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.

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### 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.

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An *inhomogeneous linear* differential equation has the form

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

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

```
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 Text

1. in the following ...

An inhomogeneous linear differential equation has the form

$$L[v] = f, (3)$$

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 - 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,
   },
\mathbf{mdfdefinestyle}\{ digression arrows \} \{ \% \}
 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={%
        \hat{P}_1=(P), \hat{P}_2=(O) \text{ in } (x2,y1) \text{ coordinate } (Q);
        \path [excursus arrow,-to]
            (O) |-\%
            (\$(Q)+(12em,0ex)\$) .. controls +(0.16em) and +(185.6em) .. %
            ++(23\text{em},2\text{ex});
        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={%
        \hat{P}_1 = (P), \hat{P}_2 = (O) \text{ in } (x2,y1) \text{ 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]
            Example Text
end{mdframed}
```

\_\_\_ Digression \_\_\_\_\_

An inhomogeneous linear differential equation has the form

$$L[v] = f, (4)$$

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.