

# The mdfamed package

Examples for `framemethod=default`

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

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## 1 Loading

In the preamble only the package `mdfamed` with the option `framemethod=default` 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 – very simple

```
\global\mdfdefinestyle{exampledefault}{%
  \linecolor=red,\linewidth=3pt,%
  \leftmargin=1cm,\rightmargin=1cm
}
\begin{mdframed}[style=exampledefault]
\ExampleText
\end{mdframed}
```

An *inhomogeneous linear* differential equation has the form

$$L[v] = f, \tag{1}$$

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.

## Example 2 – hidden line + frame title

```
\global\mdfapptodefinestyle{exampledefault}{%
  \topline=false,\rightline=true,\bottomline=false}
\begin{mdframed}[style=exampledefault,\frametitle={Inhomogeneous linear}]
\ExampleText
\end{mdframed}
```

**Inhomogeneous linear**

An *inhomogeneous linear* differential equation has the form

$$L[v] = f, \tag{2}$$

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.

## Example 3 – colored frame title

```
\global\mdfapptodefinestyle{exampledefault}{%
  rightline=true,innerleftmargin=10,innerrightmargin=10,
  frametitlerule=true,frametitlerulecolor=green,
  frametitlebackgroundcolor=yellow,
  frametitlerulewidth=2pt}
\begin{mdframed}[style=exampledefault,frametitle={Inhomogeneous linear}]
\ExampleText
\end{mdframed}
```

**Inhomogeneous linear**

An *inhomogeneous linear* differential equation has the form

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

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.

## Example 4 – framed picture which is centered

```
\begin{mdframed}[userdefinedwidth=6cm,align=center,
  linecolor=blue,linewidth=4pt]
\includegraphics[width=\linewidth]{donald-duck}
\end{mdframed}
```



## Example 5 – Theorem environments

```

\mdfdefinestyle{theoremstyle}{%
  \linecolor=red,\linewidth=2pt,%
  \frametitle=rule=true,%
  \frametitlebackgroundcolor=gray!20,
  \innertopmargin=\topskip,
}
\mdtheorem[style=theoremstyle]{definition}{Definition}
\begin{definition}
\ExampleText
\end{definition}
\begin{definition}[Inhomogeneous linear]
\ExampleText
\end{definition}
\begin{definition*}[Inhomogeneous linear]
\ExampleText
\end{definition*}

```

**Definition 1**

An *inhomogeneous linear* differential equation has the form

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

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.

**Definition 2: Inhomogeneous linear**

An *inhomogeneous linear* differential equation has the form

$$L[v] = f, \quad (5)$$

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.

**Definition: Inhomogeneous linear**

An *inhomogeneous linear* differential equation has the form

$$L[v] = f, \quad (6)$$

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.

**Example 6 – theorem with separate header and the help of TikZ (complex)**

```

\newcounter{theo}[section]
\newenvironment{theo}[1]{}{ %
\stepcounter{theo}%
\ifstrempy{#1}%
{\mdfsetup{ %
frametitle={ %
\tikz[baseline=(current bounding box.east),outer sep=0pt]
\node[anchor=east,rectangle,fill=blue!20]
{\strut Theorem~\thetheo};}}
}%
{\mdfsetup{ %
frametitle={ %
\tikz[baseline=(current bounding box.east),outer sep=0pt]
\node[anchor=east,rectangle,fill=blue!20]
{\strut Theorem~\thetheo:~#1};}} %
}%
\mdfsetup{innertopmargin=10pt,linecolor=blue!20,%
linewidth=2pt,topline=true,
frametitleaboveskip=\dimexpr-\ht\strutbox\relax,}
\begin{mdframed}[]\relax%
}{\end{mdframed}}
\begin{theo}[Inhomogeneous Linear]
\ExampleText
\end{theo}

\begin{theo}
\ExampleText
\end{theo}

```

**Theorem 1: Inhomogeneous Linear**

An *inhomogeneous linear* differential equation has the form

$$L[v] = f, \quad (7)$$

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.

**Theorem 2**

An *inhomogeneous linear* differential equation has the form

$$L[v] = f, \quad (8)$$

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 – hide only a part of a line**

The example below is inspired by the following post on StackExchange [Theorem decorations that stay with theorem environment](#)

```
\makeatletter
\newlength{\interruptlength}
\setlength{\interruptlength}{2.5ex}
\newrobustcmd\overlapiines{ %
\appto\mdf@frame@leftline@single{ %
\llap{\color{white} %
\rule[\dimexpr-\mdfboundingboxdepth+\interruptlength\relax]{ %
{\mdf@middlelinewidth@length} %
{\dimexpr\mdfboundingboxtotalheight %
\ifbool{mdf@topline}{+\mdf@middlelinewidth@length}{ %
-2\interruptlength\relax} %
}} %
}%
}%
\appto\mdf@frame@rightline@single{ %
\rlap{\color{white} %
\hspace*{\mdfboundingboxwidth} %
\hspace*{\mdf@innerrightmargin@length} %
\rule[\dimexpr-\mdfboundingboxdepth %
+\interruptlength\relax]{ %
{\mdf@middlelinewidth@length} %
{\dimexpr\mdfboundingboxtotalheight %
+\ifbool{mdf@topline}{+\mdf@middlelinewidth@length}{0pt} %
-2\interruptlength\relax} %
}} %
}%
}%
}
\makeatother
\overlapiines
\begin{mdframed}[linecolor=blue,linewidth=8pt]
\ExampleText
\end{mdframed}
```

An *inhomogeneous linear* differential equation has the form

$$L[v] = f, \tag{9}$$

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.