

The `mdframed` package ¹

auto-split frame environment

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v1.4

2012/03/04

The standard methods for framing text (`\fbox` or `\fcolorbox`) require you to handle page breaks by hand, meaning that you have to split the `\fbox` into two. The present package defines the environment `mdframed` which automatically deals with pagebreaks in framed text.

By defining new environments the user may choose between several individual designs.

Linked files: [mdframed-example-default.pdf](#) [mdframed-example-tikz.pdf](#)
[mdframed-example-pstricks.pdf](#) [mdframed-example-texsx.pdf](#)

FYI: I create a repository for `mdframed` on [github](#) where you can [download](#) the current development status.

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1. Motivation

Many users wish to (further) emphasize lemmata, definitions, proofs, etc. The package `mdframed` allows you to create environments with breakable frames. I think an example is the best way to demonstrate its properties.

Theorem 1.1 (Pythagorean theorem) *In any right triangle, the area of the square whose side is the hypotenuse is equal to the sum of the areas of the squares whose sides are the two legs.*

¹Extending the package `framed.sty`

$$a^2 + b^2 = c^2$$

The frame was defined with the following settings.

```
\newmdtheoremenv[outerlinewidth=2,leftmargin=40,%
  rightmargin=40,backgroundcolor=yellow,%
  outerlinecolor=blue,innertopmargin=0pt,%
  splittopskip=\topskip,skipbelow=\baselineskip,%
  skipabove=\baselineskip,ntheorem]{theorem}%
{Theorem}[section]
\begin{theorem}[Pythagorean theorem]
...
\end{theorem}
```

2. Syntax

Loadings `mdframed`

The package itself loads the packages

- `kvoptions`,
- `xparse` (new),
- `etoolbox` and
- `color`.

Depending on the options `mdframed` will load

- `xcolor`,
- `tikz` or
- `pstricks`.

Load the package as usual:

```
\usepackage[<GLOBAL OPTIONS>]{mdframed}
```

Only the option `framemethod` should be loaded by the optional argument of `\usepackage`. All other options should be loaded with `\mdfsetup` or related environments. The package should be loaded after `amsthm` if you need the package.

Provided environment

The package defines only one environment with the following syntax:

```
\begin{mdframed}[<LOCAL OPTIONS>]
  <CONTENT>
\end{mdframed}
```

To create own environments with `mdframed` see section 4.

Autodetecting floats

`mdframed` detects whether the environment is used inside `float` or `minipage` environments. If you use `mdframed` in such an environment `mdframed` will use the option `nobreak` automatically.

Twoside-mode

If you are using `mdframed` inside `twoside`-mode you can set the option `innermargin` and `outermargin` (see section 5.2.1). The length will be ignored if you use the option `usetwoside`.

3. The frames

Normally you can say `mdframed` draws only some lines. To allow page breaks the following designs are supported. If you load the package with `framemethod=default` you can only draw a single line. Inside the gray box the text will be printed.

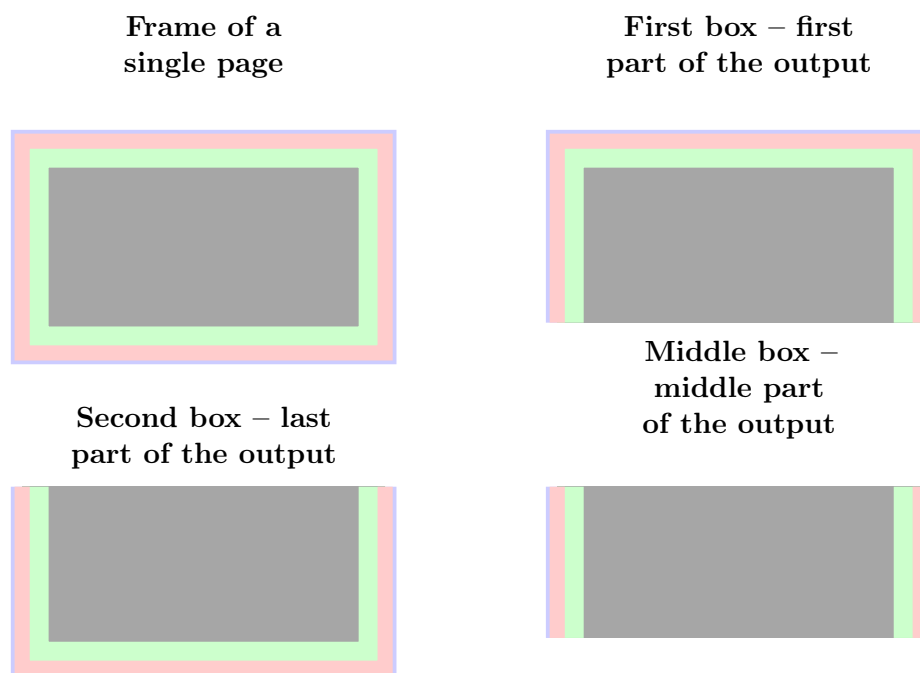


Figure 1: The basic frames

4. Commands

The following commands should countenance your by the handling with `mdframed`

`\newmdenv`

The command has the following syntax:

```
\newmdenv[<MDFRAMED OPTIONS>]{Name of the environment}
```

In this way you can simply use:

```
\newmdenv[linecolor=red,frametitle=Infobox]{infobox}
...
\begin{infobox}[backgroundcolor=yellow]
foo foo foo foo foo foo
\end{infobox}
```

`\renewmdenv`

By using this command you can redefine environments which are created by `\newmdenv`.

`\surroundwithmdframed`

Sometimes you have predefined environments. This commands allows you to set an `environment` surround this predefined environment. To set a `mdframed` around the environment `verbatim` you can simple say without changing the original name.

```
\surroundwithmdframed[linewidth=2pt]{verbatim}
```

`\mdflength`

If you want to work with length defined by `mdframed` (for example `innerleftmargin`) you can now simple use the command `\mdflength`.

```
Some Text \hspace{\mdflength{innerleftmargin}} Some Text

\the\mdflength{innerleftmargin}
```

`\mdfsetup`

To set the options you can use the optional argument of `\usepackage` or you can use the command `\mdfsetup` which is not limited to the preamble. Inside a group the settings work only local.

At this point I want to recommend the using of the command `\mdfsetup` instead of setting package option via the optional argument of `\usepackage`. So you are avoiding breaking of non robust commands.²

`\mdfdefinestyle`

`\mdfdefinestyle` allows the user to define different styles and use as an option of `mdframed` via `style`. The option `style` is explained in section 5.2.3.

Here a small example:

```
\mdfdefinestyle{mystyle}{leftmargin=0pt,%
                        linecolor=blue}

....
\begin{mdframed}[style=mystyle]
foo
\end{mdframed}
```

`\mdfapptodefinestyle`

This commands allows to expand a defined style.³

5. Options

The package provides various options to manipulate frames. In the following section all options are listed. Some internal macros which can be manipulated are not shown in this documentation. The listed options are divided in global and local options. The global options can not be used inside `\mdfsetup`.

²Thanks to Heiko Oberdiek and Philipp Stephani [kvoptions-Declaration von Optionen schlägt fehl](#)

³Thanks to Martin Scharrer and Enrico Gregorio:

<http://tex.stackexchange.com/questions/34684/argument-of-setkeys>

5.1. Global Options

The following options are only global options.

`xcolor` default=`none`

By setting this key, the package `xcolor` will be loaded with the given value(s). Without any value `mdframed` loads the package `color` without any options. If the package `xcolor` is already loaded the given option will be ignored. I recommend to load `xcolor` before `mdframed`.

`framemethod` default=`default`

With this key you can change the way frames are drawn. You can decide whether the frame is drawn with

1. \LaTeX -commands `\hrule`, `\vrule`, `\rule`,
2. `TikZ` (the package `TikZ` will be loaded) or
3. `PSTricks` (the package `pstricks` will be loaded).

The option `framemethod` requires a string. Allowed combinations are listed in the following table.

Table 1: Allowed keys for `framemethod`

Method	Allowed keys
\LaTeX -commands	<code>default</code> , <code>tex</code> , <code>latex</code> , <code>none</code> , <code>0</code>
<code>TikZ</code>	<code>tikz</code> , <code>pgf</code> , <code>1</code>
<code>PSTricks</code>	<code>pstricks</code> , <code>ps</code> , <code>postscript</code> , <code>2</code>

FYI

It is independently whether the `method` is written with no, one or more capital letter.

Note

The manipulation of the frames depends on the option `framemethod`. For further information see below.

5.2. Global and Local Options

The options listed below can be set globally or locally and they are not limited to the preamble. I tried to define self explained names.

5.2.1. Options with lengths

In figure (2) you can see the adjustable lengths (compare also figure (1)) which will be described below. All lengths accept two kinds of input. The first one is a length (e.g. `2pt`) and the second one is a number (e.g. `2`) which will be multiplied by `1 defaultunit`. The figure shows three different colored frames.

I know that the predefined lengths are not well prepared. Maybe I will change it later.

`defaultunit` default=`pt`

see the sentence above.

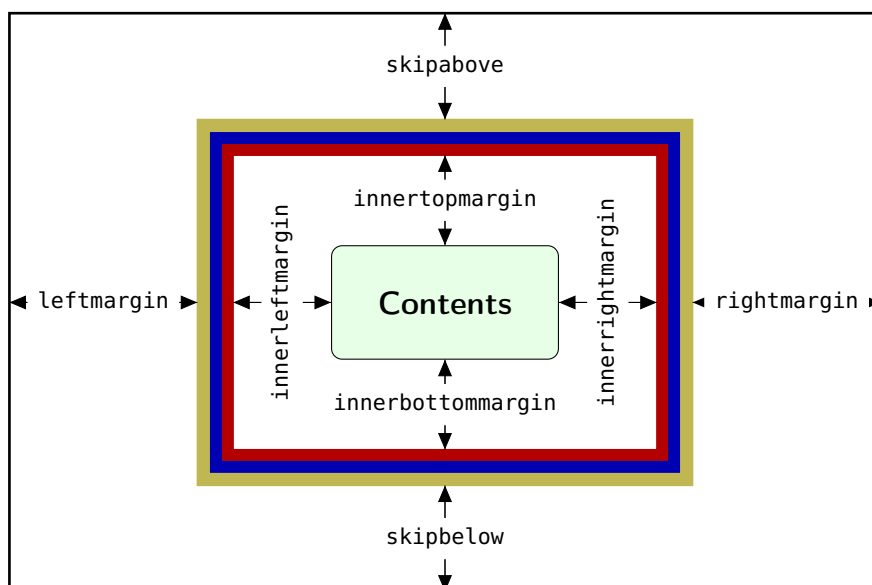


Figure 2: adjustable lengths of mdframed

`skipabove` default=0pt

Sets an additional skip above the frame.

`skipbelow` default=0pt

Sets an additional skip below the frame.

`margin`
This option is not longer supported. Use `leftmargin` and `rightmargin` instead.

`leftmargin` default=0pt

Sets the length of the left margin of the environment.

`rightmargin` default=0pt

Sets the length of the right margin of the environment.

`innerleftmargin` default=10pt

Sets the length of the inner left margin of the environment.

`innerrightmargin` default=10pt

Sets the length of the inner right margin of the environment.

`innertopmargin` default=.4\baselineskip

Sets the length of the inner top margin of the environment.

`innerbottommargin` default=.4\baselineskip

Sets the length of the inner bottom margin of the environment.

The following lengths are not shown in figure (2).

<code>userdefinedwidth</code>	default=0pt
Sets the width of the whole <code>mdframed</code> environment. The width represent the width including the line width and the inner margins. The outer margins will be ignored.	
<code>outermargin</code>	
Sets the length of the outer margin. This option is only available in <code>twoside</code> -mode.	
<code>innermargin</code>	
Sets the length of the inner margin. This option is only available in <code>twoside</code> -mode.	
<code>splittopskip</code>	default=0pt
Sets the length of the skip above the split part of the environment.	
<code>splitbottomskip</code>	default=0pt
Sets the length of the skip below the split part of the environment.	
<code>linewidth</code>	default=0.4pt
Sets the width of the line around the environment.	
<code>roundcorner</code>	default=0pt
Sets the size of the radius of the corners of the frames. This works only with <code>framemethod=TikZ</code> or <code>PSTricks</code> .	
<code>innerlinewidth</code>	default=0pt
Sets the width of the inner line around the environment. This works only with <code>framemethod=TikZ</code> or <code>PSTricks</code> .	
<code>outerlinewidth</code>	default=0pt
Sets the width of the outer line around the environment. This works only with <code>framemethod=TikZ</code> or <code>PSTricks</code> .	
<code>middlelinewidth</code>	default=linewidth
Sets the width of the middle line around the environment. This works only with <code>framemethod=TikZ</code> .	

5.2.2. Colored Options

<code>linecolor</code>	default=black
Sets the color of the line around the environment.	
<code>backgroundcolor</code>	default=white
Sets the color of the background of the environment.	
<code>fontcolor</code>	default=black

Sets the color of the contents of the environment.

`innerlinecolor` default=`linecolor`

Sets the color of the inner line around the environment.
This works only with `framemethod=TikZ` or `PSTricks`.

`middlelinecolor` default=`linecolor`

Sets the color of the middle line around the environment.
This works only with `framemethod=TikZ` or `PSTricks`.

`outerlinecolor` default=`linecolor`

Sets the color of the outer line around the environment.
This works only with `framemethod=TikZ` or `PSTricks`.

5.2.3. General options

`font` default=`{}`

Sets the font of the environment.

`ntheorem` default=`false`

Before setting this boolean key, you have to load the package `ntheorem`. With this option you set the values `\theorempreskipamount` and `\theorempostskipamount` to 0pt.

`nobreak` default=`false`

Sometimes it is useful to prevent a frame from splitting. The `nobreak` option is used for this purpose. If you activate this option you can enable it by setting `nobreak=false`.

`usetwoside` default=`true`

If you set the `twoside` option you can work with `outermargin`. This option disable this and you work with `leftmargin` and `rightmargin`.

`needspace` default=`0pt`

Sometimes it is useful to set a minimum height before a frame should be splitted. For such cases you can use `needspace`. The option requires a length which sets the minimum height before a frame will be splitted.

`style`

If you define a special style with `\mdfdefinestyle` you can use the key `style` to load the style. `mdframed` has no predefined styles yet.

`settings` default=`none`

This option allows the user to commit some macros. An example is shown in the example files.

`align` default=`left`

Sometimes it is useful to align the environment itself. For this you have the option `align` which can be set to the following strings:

- `left`,
- `right` and
- `center`.

The alignments `left` or `right` depend on the given lengths `leftmargin` and `rightmargin`. Later I will present an example to demonstrate my bad English explanation.

`shadow` default=`false`

Draw a shadow. The shadow doesn't influence the bounding box so the shadow can be drawn in the margin without any overflow box. Note if you are using the TikZ you must load the library. `mdframed` doesn't do the job to avoid double loading of a library.

`shadowsize` default=`8pt`

Specify the size of the shadow.

`shadowcolor` default=`black!50`

Specify the color of the shadow.

`pstrickssetting` default=`none`

With this key you can pass several options to `\psset`. For example if you want all lines dashed you will have to set `pstrickssetting={linestyle=dashed}`. It is very important to put the options of `pstrickssetting` in brackets.

This works only with `framemethod=PSTricks`.

`pstricksappsetting` default=`none`

`mdframed` works with defined style for the different elements. By using `\addtopstyle` in combination with this option you can expand the definition. The predefined styles are

- `mdfbackgroundstyle`
- `mdfframetitlebackgroundstyle`
- `mdfouterlinestyle`
- `mdfinnerlinestyle`
- `mdfmiddlelinestyle`

Before you change one please have a look at the file `md-frame-2.mdf` to see the settings. This works only with `framemethod=PSTricks`.

`tikzsetting` default=`none`

With this key you can pass several options to `\tikzset`. Some examples are listed in the next section. It is very important to put the options of `tikzsetting` in brackets.

This works only with `framemethod=TikZ`.

`apptotikzsetting` default=`none`

With this key you can add several options to `tikzsetting`. This key based on the idea of manipulation of predefined keys of `mdframed`. The package `mdframed` defines via `\tikzset` the following keys to draw frames.

- `\tikzset{mdfbox/.style}`
- `\tikzset{mdfcorners/.style}`
- `\tikzset{mdfbackground/.style}`
- `\tikzset{mdfinnerline/.style}`
- `\tikzset{mdfouterline/.style}`
- `\tikzset{mdfmiddleline/.style}`
- `\tikzset{mdfframetitlerule/.style}`
- `\tikzset{mdfframetitlebackground/.style}`
- `\tikzset{mdfshadow/.style}`

Before you change one please have a look at the file **md-frame-1.mdf** to see the settings. This works only with `framemethod=TikZ`.

5.3. Hidden Lines

<code>topline</code>	default=true
Draws a line at the top.	
<code>bottomline</code>	default=true
Draws a line at the bottom.	
<code>leftline</code>	default=true
Draws a line on the left.	
<code>rightline</code>	default=true
Draws a line on the right.	
<code>hidealllines</code>	default=false
With this option you can decide whether all lines should be drawn or not.	

5.4. Frametitle

In this section all relevant options of the frame title will be presented. They are not divided in their properties.

<code>frametitle</code>	default=none
The environment gets a title. To set a title use <code>frametitle={The Title of the frame}</code> as an option of the environment.	
<code>frametitlefont</code>	default=\normalfont\bfseries
Sets the format of the <code>frametitle</code> .	
<code>frametitlealignment</code>	default=\raggedleft

Align the `frametitle`. This option must be set via `\mdfsetup`.

`frametitlerule` default=false

Set this key to `true` to get a line between the frame title and the text.

`frametitlerulewidth` default=.2pt

Sets the width of the line between the text and the title of `mdframed`.

`frametitleaboveskip` default=5pt

Sets the skip of the frame title to the margin above of `mdframed`.

`frametitlebelowskip` default=5pt

Sets the skip of the frame title to the rule of the frame title.

`frametitlebackgroundcolor` default=white

Sets the color of the background of the frametitle

FYI and Note

`mdframed` can't handle page breaks inside the frametitle well. If you get a page break please have a closer look to the output.

If a frame title is given the optional length `innertopmargin` is set between the rule under the frame title and the contents of `mdframed`.

`repeatframetitle` default=false

Repeat the frame title on every frame. The feature is currently not well implemented!!!

5.5. Theorems

In this section is described which commands can help you to define theorem environments with `mdframed`.

`\newmdtheoremenv`

Since the package is often used to highlight theorem environments, I have created a command⁴ to simplify this process. The command has the following syntax:

```
\newmdtheoremenv[<mdframed-options>]{<envname>}%
    [<numberedlike>]{<caption>}[<within>]
```

The last four arguments are equivalent to the command `\newtheorem`. Only the first optional argument is able to pass `mdframed`-options. A simple example is:

```
\theoremstyle{<some style>}
\newmdtheoremenv[linecolor=blue]{lemma}%
    {Lemma}[section]

...
\begin{lemma}[Some title]
    foo foo foo foo foo foo
\end{lemma}
```

⁴Thanks to Martin Scharrer and Enrico Gregorio:
[Own command to create new environment](#)

So far there is no `\renewmdtheoremenv`!

`\mdtheorem`

This is a special kind of `\newtheorem`. The command has the following syntax.

```
\mdtheorem[<mdframed-options>]{<envname>}%
    [<numberedlike>]{<caption>}{<within>}
```

As you can see the arguments are equal to `\newtheorem` but the command ignores every `\theoremstyle`. This is based on the following behavior.

The command `\mdtheorem` creates two environments based on the given first mandatory argument. The first environment is named like the given argument and creates a numbered theorem. The second environment is named like the first mandatory argument with a star. This environment has the same formatting but isn't numbered.

The syntax of the new defined environments is equal to the normal theorem environments.

```
\begin{environment}[optional title]
...
\end{environment}
```

What happened? The caption of the command will be set as the frame title. In this way all options of the frame title are available. Furthermore `mdframed` provides additional options explained below.

`theoremseparator` default={:}

Sets the separator of the caption and the title of the theorem. The `theoremseparator` will be printed only if an theorem title is given.

`theoremtitlefont` default={}

Via the option `frametitlefont` you can manipulate the font of the frame title. The option `theoremtitlefont` allows to set a different font to the title of the theorem.

`theoremspace` `\space`

Sets the space after `theoremseparator`.

Examples can be found in the attached files.

5.6. Footnotes

Inside the environment you can use the command `\footnote` as usual. `mdframed` uses the syntax of environment `minipage` with the same counter.

Every footnote text will be collected inside a box and will be displayed at the end of the environment `mdframed`.

`footnotedistance` default= `\bigskipamount`

The length is the distance between the end of the environment `mdframed` and the displaying of the `\footnoterule`.

`footnoteinside` default=true

The position of the footnotes can be changed with the option `footnoteinside`. The footnotes will be displayed at the end of the environment but you can decide whether the output is inside `mdframed` or after.

Note

The output of the footnotes with the option `footnoteinside=false` are not in a splitted frame. I think it isn't useful because the first line of a new page shouldn't be a footnote.

6. Examples

I outsource the examples in four files to limit the documentation. The files are

mdframed-example-default

Demonstration of examples created with `framemethod=default`.

mdframed-example-tikz

Demonstration of examples created with `framemethod=TikZ`.

mdframed-example-pstricks

Demonstration of examples created with `framemethod=pstricks`.

mdframed-example-texsx

Demonstration of examples like interaction with `listings`

The examples are often not equivalent but normally they can be adapted to another method. So I really recommend to have a look to all example files.

The Korean T_EXGroup created a very nice presentation. I want to show the link because it's really a great work: [kts 2012 mdframed](#).

7. Errors, Warnings and Messages

The package `mdframed` provides different errors, warnings and messages in the `log`-file. Some L^AT_EX-editors like T_EXMaker or T_EXStudio have a special tab for errors and warnings but not for messages. So you should look in the `log-File` itself.

The following errors and warnings are generated by `mdframed`.

The package ... does not exist but
needed by `mdframed`

To avoid this problem you should install the required packages which are listed in section 2.

package option `style` is deprecated
use `framemethod` instead `style`

With version 0.9d `mdframed` changed the meaning of the option `style`. The option is used to load a defined style by `\mdfdefinestyle`. Instead use `framemethod` (see section 5.1).

Unknown `framemethod` `mdframed`

The input string for the option `framemethod` is unknown. See section 5.1.

You have not loaded `ntheorem` yet

To use the option `ntheorem` you have to load the package `ntheorem`.

You have only a width of 3cm

The package `mdframed` calculates the width of the contents based on the given options. If the width of the contents is smaller than 3cm you will get this warnings. You should change the settings to get a greater width.

You got a bad break
you have to change it manually
by changing the `text`, the space
or something else

Sometimes you have enough vertical space for the rules and the space between the rules and the contents but not for the contents itself. In this situation you will get this warning because the contents of this box is empty. You have the possibility to change the settings or include a `\clearpage` in front of the environment `mdframed`. So far I have no idea how to avoid such things.

You got a bad break
because the split box is empty
You have to change the page `settings`
like `enlargethispage` or something else
You got a bad break

See the explanation above.

You got a bad break
because the last split box is empty
You have to change the `settings`

The same reason as above but only in the last box.

Option ... is already consumed
and has no effect on input line ...

If you set a global option inside the document body you will get this warning.

8. Known Problems

In this section I will collect known problems. In case you encounter any further problems, please drop me an email, [marco.daniel at mada-nada.de](mailto:marco.daniel@mada-nada.de).

Do you have any ideas / wishes on further extensions to this package? Please let me know!

1. So far the environment isn't compatible with the package `gmverb`.

9. ToDo

It is important to update the documentation

1. see "Known Problems".
2. So far it isn't possible to combine the environment `\begin{multicols}` of the package `multicol` with `mdframed` with the whole option list.
3. Create new styles.
4. Improve page breaks.
5. Improve footnotes.

6. Improve documentation and examples.
7. Create styles for `frametitle`.

10. Acknowledgements

Dick Nickalls; Dietrich Grau; Piazza Luca; Jobst Hoffmann; Martin Scharrer; Enrico Gregorio;
Heiko Oberdiek; Philipp Stephani.

Thanks for proofreading
Alan Munn and Nahid Shajari
I hope I forgot nobody.

A. More information

In the following section I want to present how to create your own frame.

A.1. How does `mdframed` work?

With the environment `\begin{mdframed} ... \end{mdframed}` the whole contents will be saved in a `\savebox` called `\mdf@splitbox@one`. After the calculation of the width and the height of the `\mdf@splitbox@one` (done by `mdframed.sty`) the box will be set sequentially (done by `md-frame-X.mdf`). The following figure demonstrates this.

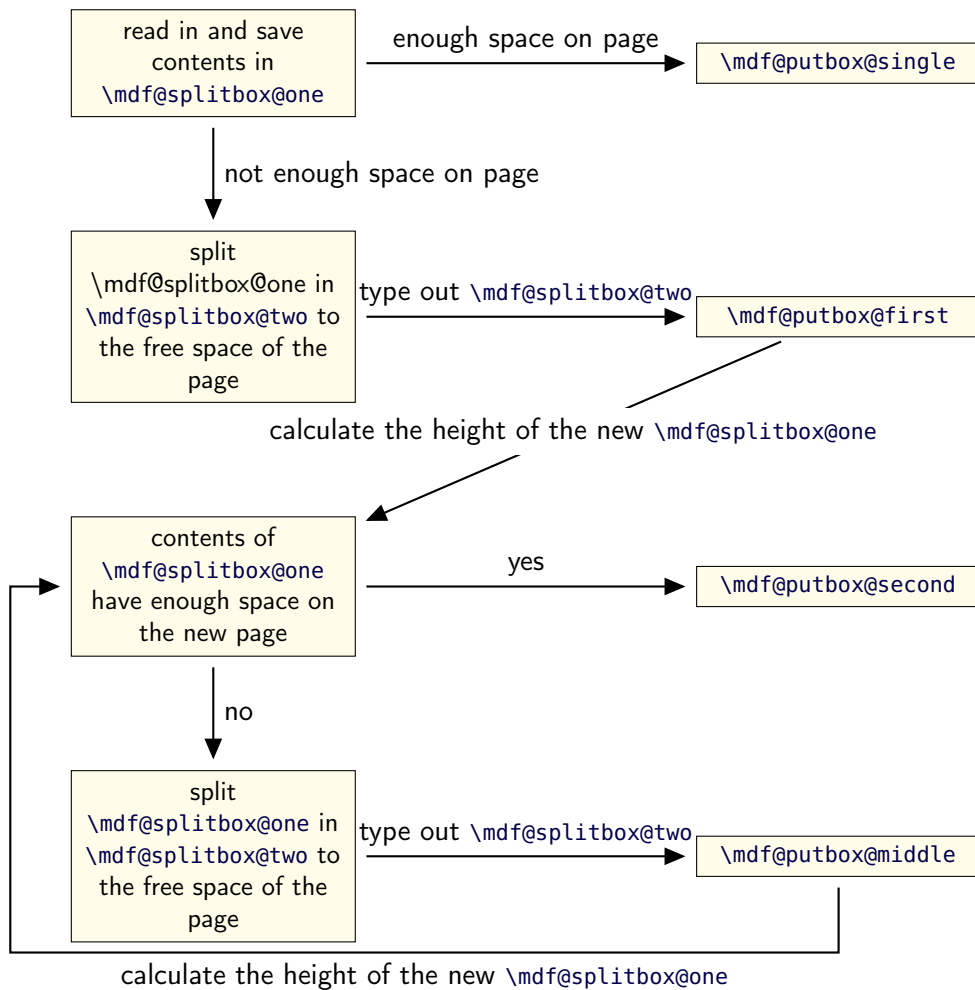


Figure 3: Setting the contents of `mdframed`

The width of the contents is the result of the settings of `leftmargin`, `rightmargin`, `linewidth`, `innerleftmargin` and `innerrightmargin` (see figure (2)).

A.2. The Frametcommands

The package `mdframed` knows four kinds of “Framecommand”. These commands tell `LATEX` how to set the contents of `mdframed`.

`\mdf@putbox@single` This command sets the contents of a single unsplit frame.

`\mdf@putbox@first` This command sets the contents of the first frame of a split frame.

`\mdf@putbox@middle` This command sets the contents of the middle frame of a split frame.

`\mdf@putbox@second` This command sets the contents of the last frame of a split frame.

Using the explained commands we give an example. The command `\box` uses the contents of the savebox and types them out.

First we want to type out the single box without any settings (but with the calculated width).

```
\makeatletter
\def\mdf@putbox@single{\box\mdf@splitbox@one}
\makeatother
```

I am using the command `\leftline` to start the “Framecommands” at the left.

```
\makeatletter
\def\mdf@putbox@single{\leftline{\box\mdf@splitbox@one}}
\makeatother
```

Now you have to know how the lengths are named. Every length which can be modified by the options has the following syntax:

```
\mdf@<Name of the Length>@length
```

For example the leftmargin is:

```
\mdf@leftmargin@length
```

To create only a line at the left with the correct `leftmargin` you can set `\mdf@putboxsingle` as follows

```
\makeatletter
\def\mdf@putbox@single{ %
    \leftline{ %
        \hspace*{\mdf@leftmargin@length} %
        \rule[-\dp\mdf@splitbox@one]{\mdf@linewidth} %
        {\ht\mdf@splitbox@one+\dp\mdf@splitbox@one} %
        \box\mdf@splitbox@one
    } %
}
\makeatother
```

In this way you can do what you want. If you create your own style you can save the file as `md-frame-X.mdf`. `X` must be an integer. In this way you can use the option `framemethod` to load the file by setting `framemethod=X`.

A.3. Revision history

Version 1.4 submitted 4 Mar 2012

- fixed bug in combination with `\marginpar` (Thanks Juan Carlos Trujillo Ortega) • fixed bug with option `font` • fixed bug inside `frametitle` (Thanks Yi, Hoze) • removed unnecessary groups (Thanks Yi, Hoze) • changed the definition of `listings` to allow copy paste of the examples

Version 1.3a submitted 5 Feb 2012

- fixed bug (Thanks to Dietrich Grau)

Version 1.3 submitted 4 Feb 2012

- fixed documentation (Thanks to Dietrich Grau) • added option `shadow` • improved handling `\parindent` and `\parskip` (Thanks to Enrico Gregorio and Joseph Wright)

Version 1.2 submitted 8 Jan 2012

- fixed documentation (Thanks to Dietrich Grau) • fixed bug in combination with `amsthm` • fixed bug in `\newmdtheoremenv` • defined new styles via `\newpsstyle`
- This works only with `framemethod=PSTricks`. • added new commands for interaction with TikZ and PSTricks • expand frame title option by option `frametitulerule`, `frametitulerulewidth`, `frametitlefont`, `frametitleaboveskip`, `frametitlebelowskip`, `frametitlealignment` • removed limitation of three lines for PSTricks • defined new commands `\surroundwithmdframed`, `\mdflength`, `\mdtheorem` • load `xparse` by default • changed internal names • expanded examples

Version 1.0b submitted 9 Dec 2011

- fixes documentation (Thanks to Dietrich Grau) • fixes bug in `\newmdtheoremenv` • fixes bug with overfull boxes (Thanks to Dietrich Grau) • defined `\newpsstylemdfbackgroundstyle` and `mdflinestyle`
- This works only with `framemethod=PSTricks`. • created dtx-file (Thanks to Kevin Godby) • added `\@parboxrestore` to `\mdf@lrbbox`

Version 1.0 submitted 13 Nov 2011

- add option `userdefinedwidth` • add option `align` • add option `apptotikzsetting` • create new command `\mdfapptodefinestyle` • changed internal algorithm • removed `calc` instead using ϵ -TeX `\dimexpr` • expand documentation • trying to fix problems with `xcolor` • fixed bug with `framemethod=pstricks` • create file `mdframed-example-default` • create file `mdframed-example-tikz` • create file `mdframed-example-pstricks` • create file `mdframed-example-texsx` (`texsx` stands for `tex stackexchange`)

Version 0.9g submitted 08 Oct 2011

- fixed documentation • added small footnote compatibility

Version 0.9f submitted 04 Oct 2011

- fixes bugs (thanks to Lars Madsen) • added option `hidealllines` • fixed documentation

Version 0.9e submitted 11 Sep 2011

- working with `twoside` modus

Version 0.9d submitted 10 Sep 2011

- **changed the meaning of the option `style`!!!** (inspired by Lars Madsen) • added option `framemethod` (inspired by Lars Madsen) • added options `needspace` (inspired by Lars Madsen) • added new command `\mdfdefinestyle` (inspired by Lars Madsen) • fixes documentation • renamed `md-frame-3.mdf` to `md-frame-2.mdf`

Version 0.9b submitted 7 Sep 2011

- fixes bugs in `\newmdtheoremenv` (Thanks to Enrico Gregorio)

Version 0.9a submitted 5 Sep 2011

- fixes bugs (Thanks to Lars Madson) • expanded documentation (added revision history)

Version 0.9 submitted 4 Sep 2011

- added option `nobreak` • detecting float environments to prevent split calculation • expand documentation (Thanks to Alan Munn)

Version 0.8a

- fixes bugs • fixes documentation

Version 0.8 submitted 22 Aug 2011

- added commands: `\newmdenv`, `\renewmdenv`, `\newmdtheoremenv` • fixes bugs • fixes documentation

Version 0.7a submitted 6 August 2011

- added option `frametitle` • added option `frametitlefont` • allow twocolumn-mode • changed the calculation
- added option `tikzsetting` • added options for hidden lines for all styles • fixes bugs

Version 0.6a submitted 22 Dec 2010

- fixes bugs • added `\mdfsetup` • expanded documentation

B. Implementation

And finally, here's how it all works...

B.1. The Explanation of mdframed.sty

Id : mdframed.dtx3472012-03-04 13:04:28Zmarco Rev : 347 Author : marco

Date : 2012-03-04 13:04:28 +0100(So, 04.Mr2012)

```
\mdversion
\mdframedpackagename
\mdf@maindate@svn
```

Set package information

```
1 \def\mdversion{v1.4}
2 \def\mdframedpackagename{mdframed}
3 \def\mdf@maindate@svn$#1: #2 #3 #4-#5-#6 #7 #8${#4/#5/#6\space }

4 \NeedsTeXFormat{LaTeX2e}
5 \ProvidesPackage{mdframed}%
6     [\mdf@maindate@svn$Id: mdframed.dtx 347 2012-03-04 13:04:28Z marco $%
7     \mdversion: \mdframedpackagename]
```

```
\mdf@PackageWarning
\mdf@PackageInfo
\mdf@LoadFile@IfExist
```

Set short form of `\PackageWarning`, `\PackageInfo` and `IfFileExists` in combination with `\RequirePackage`.

```
8 \newcommand*\mdf@PackageWarning[1]{\PackageWarning{\mdframedpackagename}{#1}}
9 \newcommand*\mdf@PackageInfo[1]{\PackageInfo{\mdframedpackagename}{#1}}
10 \newcommand*\mdf@LoadFile@IfExist[1]{%
11   \IfFileExists{#1.sty}{%
12     \RequirePackage{#1}%
13   }{%
14     \mdf@PackageWarning{The file #1 does not exist\MessageBreak
15       but needed by \mdframedpackagename\MessageBreak
16       see documentation fo further information
17     }%
18   }
19 }
```

Loading required packages

```
20 \RequirePackage{kvoptions}
21 \RequirePackage{xparse}
22 \RequirePackage{etoolbox}[2011/01/03]
23 \RequirePackage{zref-abspage}
24 \RequirePackage{color}
```

Set the family and the prefix of all options. (see documentation of `kvoptions`)

```
25 \SetupKeyvalOptions{family=mdf,prefix=mdf@}
```

```
\mdf@iflength
\mdf@iflength@check
\mdf@iflength@check
```

Command which checks the input of length options. If the length option is only a number the `defaultunit` will be used. Syntax: `\mdf@iflength{<Input>}{<length>}{<no length>}`

```

26 \newlength{\mdf@templength}
27 \def\mdf@iflength#1{%
28   \afterassignment\mdf@iflength@check%
29   \mdf@templength=#1\mdf@defaultunit\relax\relax
30   \expandafter\endgroup\next
31 }
32 \def\mdf@iflength@check#1{%
33   \begingroup
34   \ifx\relax#1\@empty
35     \def\next{\@secondoftwo}
36   \else
37     \def\next{\@firstoftwo}
38     \expandafter\mdf@iflength@cleanup
39   \fi
40 }
41 \def\mdf@iflength@cleanup#1\relax{}
```

`\mdf@dolist`

Loop used by *mdframed*.

```
42 \DeclareListParser*{\mdf@dolist}{,}
```

`\mdf@option@length`
`\mdf@define@key@length`

Command to define a new length with a default value.

```

\mdf@option@length{<Laengebezeichnung>}{<Defaultwert>}
43 \newrobustcmd*{\mdf@option@length}[2]{%
44   \expandafter\newlength\csname mdfl@#1@length\endcsname%
45   \expandafter\setlength\csname mdfl@#1@length\endcsname{#2}%
46 }
```

Command to create a new length option. `\mdf@define@key@length{<Bezeichnung der Option der Laenge>}`

```

47 \newrobustcmd*{\mdf@define@key@length}[1]{%
48   \define@key{mdf}{#1}{%
49     \def\@tempa{##1}
50     \mdf@iflength{\@tempa}%
51     {\csxdef{mdfl@#1}{\the\mdf@templength}}%
52     {\csxdef{mdfl@#1}{\the\mdf@length}}%
53     \expandafter\setlength\csname mdfl@#1@length\endcsname{\csname mdfl@#1\endcsname}%
54   }%
55 }
```

`\mdf@do@lengthoption`
`\mdf@lengthoption@doubledo`

The loop of `\mdf@dolist` expected one argument. So I have to define two commands to allow a loop with two arguments. The separation for the input is `==`.

```

56 \def\mdf@do@lengthoption#1{%
57   \mdf@lengthoption@doubledo#1\@nil%
58 }
59 \def\mdf@lengthoption@doubledo#1==#2\@nil{}
```

```

60 \mdf@option@length{#1}{#2}%
61 \mdf@define@key@length{#1}%
62 }

```

```

\mdf@do@stringoption
\mdf@stringoption@doubledo

```

Same as `\mdf@do@lengthoption` and `\mdf@lengthoption@doubledo`.

```

63 \def\mdf@do@stringoption#1{%
64   \mdf@stringoption@doubledo#1\@nil%
65 }
66 \def\mdf@stringoption@doubledo#1==#2\@nil{%
67   \expandafter\gdef\csname mdf@#1\endcsname{#2}%
68   \define@key{mdf}{#1}{%
69     \csdef{mdf@#1}{##1}%
70   }%
71 }

```

```

\mdf@do@booloption
\mdf@booloption@doubledo

```

Same as `\mdf@do@lengthoption` and `\mdf@lengthoption@doubledo`.

```

72 \def\mdf@do@booloption#1{%
73   \mdf@booloption@doubledo#1\@nil%
74 }
75 \def\mdf@booloption@doubledo#1==#2\@nil{%
76   \newbool{mdf@#1}\setbool{mdf@#1}{#2}%
77   \define@key{mdf}{#1}[#2]{%
78     \setbool{mdf@#1}{##1}%
79   }%
80 }

```

```

\mdf@do@alignoption
\mdf@alignoption@tripleo

```

Same as `\mdf@do@lengthoption` and `\mdf@lengthoption@doubledo`. Here three arguments are required.

```

81 \def\mdf@do@alignoption#1{%
82   \mdf@alignoption@tripleo#1\@nil%
83 }
84 \def\mdf@alignoption@tripleo#1==#2==#3\@nil{%
85   \csdef{mdf@align@#1@left}{\null\hspace*{#2}}%
86   \csdef{mdf@align@#1@right}{\hspace*{#3}\null}%
87 }

```

Start declaration of options

```

88 \newcounter{mdf@globalstyle@cnt}
89 \defcounter{mdf@globalstyle@cnt}{0}
90 \newcommand*\mdfglobal@style{0}

```

Only provide to be backward compatible

```

91 \define@key{mdf}{style}{%
92   \mdf@PackageWarning{package option style is depreciated^^J
93     use framemethod instead\MessageBreak}%
94   \renewcommand*\mdfglobal@style{#1}%

```

```

95      \defcounter{mdf@globalstyle@cnt}{#1}%
96      \ifcase\value{mdf@globalstyle@cnt}\relax
97          %0 <- kein Grafikpaket
98      \or\mdf@LoadFile@IfExist{tikz}%
99      \or\mdf@LoadFile@IfExist{pstricks-add}%
100     \or\defcounter{mdf@globalstyle@cnt}{2}%
101         \mdf@LoadFile@IfExist{pst-node}%
102     \or\mdf@LoadFile@IfExist{pst-node}%
103     \else\mdf@PackageWarning{Unknown global style \value{mdf@globalstyle@cnt}}%
104     \fi%
105 }

```

\mdf@framemethod

```

106 \providecommand*\mdf@framemethod{}
107 \def\mdf@framemethod@i{}%
108 \def\mdf@framemethod@ii{}%
109 \def\mdf@framemethod@iii{}%

110 \define@key{mdf}{framemethod}[default]{%
111     \lowercase{\def\mdf@tempa{#1}}
112     \forcsvlist{\listadd\mdf@framemethod@i}{default,tex,latex,none,0}
113     \forcsvlist{\listadd\mdf@framemethod@ii}{pgf,tikz,1}
114     \forcsvlist{\listadd\mdf@framemethod@iii}{pstricks,ps,2,postscript}
115     \xifinlist{\mdf@tempa}{\mdf@framemethod@i}%
116         {\def\mdf@@framemethod{default}\defcounter{mdf@globalstyle@cnt}{0}}%
117     {\xifinlist{\mdf@tempa}{\mdf@framemethod@ii}%
118         {\def\mdf@@framemethod{tikz}\defcounter{mdf@globalstyle@cnt}{1}}%
119     {\xifinlist{\mdf@tempa}{\mdf@framemethod@iii}%
120         {\def\mdf@@framemethod{pstricks}\defcounter{mdf@globalstyle@cnt}{2}}}%
121     {%
122         \mdf@LoadFile@IfExist{#1}%
123     }%
124 }%
125 }%
126 \ifcase\value{mdf@globalstyle@cnt}\relax%
127     %0 <- kein Grafikpaket
128     \or\mdf@LoadFile@IfExist{tikz}%
129     \or\mdf@LoadFile@IfExist{pst-node}%
130     \or\mdf@LoadFile@IfExist{pst-node}%
131 \fi%
132 }

```

\mdf@do@lengthoption

Here the declaration of the length option. The input method is explained above.

```

133 \mdf@dolist{\mdf@do@lengthoption}{%
134     {skipabove==\z@},%
135     {skipbelow==\z@},%
136     {leftmargin==\z@},%
137     {rightmargin==\z@},%
138     {innerleftmargin==10pt},%
139     {innerrightmargin==10pt},%

```

```

140 {innertopmargin==0.4\baselineskip},%
141 {innerbottommargin==0.4\baselineskip},%
142 {splittopskip==\z@},%
143 {splitbottomskip==\z@},%
144 {outermargin==\z@},%
145 {innermargin==\z@},%
146 {linewidth==0.4pt},%
147 {innerlinewidth==\z@},%
148 {middlelinewidth==\expandafter\mdf@linewidth@length},%
149 {outerlinewidth==\z@},%
150 {roundcorner==\z@},%
151 {footenotedistance==\medskipamount},
152 {userdefinedwidth==\linewidth},
153 {frametitleaboveskip==5pt},
154 {frametitlebelowskip==5pt},
155 {frametitlerulewidth==.2pt},
156 {frametitleleftmargin==10pt},%
157 {frametitlerightmargin==10pt},%
158 {shadowsize==8pt},%
159 }

```

`\mdf@do@lengthoption`

Here the declaration of the string option. The input method is explained above.

```

160 \mdf@dolist{\mdf@do@stringoption}{%
161   {frametitle=={}},%
162   {defaultunit==pt},%
163   {linecolor==black},%
164   {backgroundcolor==white},%
165   {fontcolor==black},%
166   {frametitlefontcolor==black},%
167   {innerlinecolor==\mdf@linecolor},%
168   {outerlinecolor==\mdf@linecolor},%
169   {middlelinecolor==\mdf@linecolor},%
170   {psroundlinecolor==\mdf@backgroundcolor},%
171   {frametitlerulecolor==\mdf@linecolor},
172   {frametitlebackgroundcolor==\mdf@backgroundcolor},%
173   {shadowcolor==black!50},%
174   {settings=={}},%
175   {frametitlesettings=={}},%
176   {font=={}},%
177   {frametitlefont==\normalfont\bfseries},%
178   {printheight==none},%
179   {alignment=={}},%
180   {frametitlealignment=={}},%
181   {theoremseparator=={:}},%
182   {theoremcountersep=={.}},%
183   {theoremtitlefont=={}},%
184   {theoremspace=={\space}},%
185 }

```

`\mdf@do@booloption`

Here the declaration of the string option. The input method is explained above.

```

186 \mdf@dolist{\mdf@do@booloption}{%
187     {ntheorem==false},%
188     {topline==true},%
189     {leftline==true},%
190     {bottomline==true},%
191     {rightline==true},%
192     {frametitletopline==true},%
193     {frametitleleftline==true},%
194     {frametitlebottomline==true},%
195     {frametitlerightline==true},%
196     {hidealllines==false},%
197     {frametitlerule==false},%
198     {nobreak==false},%
199     {footnoteinside==true},%
200     {usetwoside==true},%
201     {repeatframetitle==false},%Noch nicht richtig implementiert
202     {shadow==false},%
203 }
```

`\mdf@do@alignoption`

Here the declaration of the align option. The input method is explained above.

```

204 \mdf@dolist{\mdf@do@alignoption}{%
205     {left==\mdf@leftmargin@length==\z@},%
206     {center==\fill==\fill},%
207     {right==\fill==\mdf@rightmargin@length},%
208     {outer==\fill==\mdf@rightmargin@length},%not supported yet
209     {outer==\mdf@leftmargin@length==\fill},%not supported yet
210 }
```

`\mdf@align`
`\mdf@makeboxalign@left`
`\mdf@makeboxalign@right`
`\mdf@makeboxalign@right`

Set the alignment.

```

211 \newcommand*\mdf@align{}%
212 \newcommand*\mdf@makeboxalign@left{\null\hspace*{\mdf@leftmargin@length}}%
213 \newcommand*\mdf@makeboxalign@right{}%
214 \define@key{mdf}{align}[left]{%
215     \ifcsundef{mdf@align@#1@left}{%
216         \mdf@PackageWarning{Unknown alignment #1\MessageBreak}%
217         \letcs\mdf@makeboxalign@left{mdf@align@left@left}%
218         \letcs\mdf@makeboxalign@right{mdf@align@left@right}%
219     }{%
220         \def\mdf@makeboxalign@left{\csuse{mdf@align@#1@left}}%
221         \def\mdf@makeboxalign@right{\csuse{mdf@align@#1@right}}%
222     }%
223 }
```

`\mdf@tikzset@local`
`\mdf@psset@local`

Option to pass options to tikz or pstricks

```

224 \def\mdf@tikzset@local{\tikzset{tikzsetting/.style={}}}
225 \define@key{mdf}{tikzsetting}{%
226   \def\mdf@tikzset@local{\tikzset{tikzsetting/.style={#1}}}%
227 }
228 \define@key{mdf}{apptotikzsetting}{%
229   \appto\mdf@tikzset@local{#1}%
230 }
231 \def\mdf@psset@local{}
232 \define@key{mdf}{pstrickssetting}{%
233   \def\mdf@psset@local{#1}%
234 }
235 \def\mdf@pstricks@appendsettings{}
236 \define@key{mdf}{pstricksappsetting}{%
237   \def\mdf@pstricks@appendsettings{#1}%
238 }
239

```

\mdf@xcolor

Problem with xcolor. This part must be reworked!

```

240 \def\mdf@xcolor{}
241 \define@key{mdf}{xcolor}[none]{%
242   \def\@tempa{#1}%
243   \ifpackageloaded{xcolor}{%
244     \let\mdf@xcolor\@empty %ignoriere die Eingabe der Optionen
245     \def\@tempa{}%
246   }{}%
247   \ifx\relax\@tempa\relax\else
248     \PassOptionsToPackage{\mdf@xcolor}{xcolor}%
249     \RequirePackage{xcolor}%
250   \fi%
251 }%

```

\mdf@needspace

Defining the option needspace

```

252 \define@key{mdf}{needspace}[\z@]{%
253   \begingroup%
254     \setlength{\dimen@}{#1}%
255     \vskip\z@\@plus\dimen@%
256     \penalty -100\vskip\z@\@plus -\dimen@%
257     \vskip\dimen@%
258     \penalty 9999%
259     \vskip -\dimen@%
260     \vskip\z@skip % hide the previous |\vskip| from |\addvspace|
261   \endgroup%
262 }

263 \DeclareDefaultOption{%
264   \mdf@PackageWarning{Unknown Option '\CurrentOption' for mdframed}}
265 \ProcessKeyvalOptions*\relax

```

\mdfsetup

Short form of `\setkeys{mdf}`

```
266 \newrobustcmd*{\mdfsetup}{\setkeys{mdf}}
```

`\mdf@style`

Redefinition of the option `style` to use the key in combination with `mdfdefinedstyle`.

```
267 \define@key{mdf}{style}{%
268   \ifcsundef{mdf@definestyle@#1}{%
269     \mdf@PackageWarning{Unknown definedstyle #1^^J
270                       You have to define a style ^^J
271                       via \string\mdfdefinedstyle\MessageBreak
272                       }%
273   }%
274   {\expandafter\expandafter\expandafter\mdfsetup%
275     \expandafter\expandafter\expandafter{\csname mdf@definestyle@#1\endcsname}}%
276 }
```

`\mdf@print@space`

Option to type out the free vertical space of the current page.

```
277 \let\mdf@PackageNoInfo\@gobble
278 \newrobustcmd*{\mdf@ifstrequal@expand{%
279   \expandafter\ifstrequal\expandafter{\mdf@printheight}%
280 }
281 \newrobustcmd*{\mdf@print@space{%
282   %case "none"
283   \mdf@ifstrequal@expand{none}{\def\mdf@tempa{NoInfo}}{%
284     %case "info"
285     \mdf@ifstrequal@expand{info}{\def\mdf@tempa{Info}}{%
286       %case "warning"
287       \mdf@ifstrequal@expand{warning}{\def\mdf@tempa{Warning}}{%
288         %case "unknown"
289         \mdf@PackageWarning{Unknown key for printheight=\mdf@printheight^^J
290                           use none, info or warning}%
291         \def\mdf@tempa{none}%
292       }%
293     }%
294   }%
295   \def\mdf@PackageInfoSpace{\csname mdf@Package\mdf@tempa\endcsname}%
296 }
```

`\new...`

Initialize all commands and length which will we used later

```
297 \newsavebox\mdf@frametitlebox
298 \newsavebox\mdf@footnotebox
299 \newsavebox\mdf@splitbox@one
300 \newsavebox\mdf@splitbox@two
301 \newlength\mdf@splitboxwidth
302 \newlength\mdf@splitboxtotalwidth
303 \newlength\mdf@splitboxheight
304 \newlength\mdf@splitboxdepth
305 \newlength\mdf@splitboxtotalheight
```

```

306 \newlength\mdfframetitleboxwidth
307 \newlength\mdfframetitleboxtotalwidth
308 \newlength\mdfframetitleboxheight
309 \newlength\mdfframetitleboxdepth
310 \newlength\mdfframetitleboxtotalheight
311 \newlength\mdffootnoteboxwidth
312 \newlength\mdffootnoteboxtotalwidth
313 \newlength\mdffootnoteboxheight
314 \newlength\mdffootnoteboxdepth
315 \newlength\mdffootnoteboxtotalheight
316
317 \newlength\mdftotallinewidth
318
319 \newlength\mdfboundingboxwidth
320 \newlength\mdfboundingboxtotalwidth
321
322 \newlength\mdfboundingboxheight
323 \newlength\mdfboundingboxdepth
324 \newlength\mdfboundingboxtotalheight
325
326 \newlength\mdf@freevspace@length
327 \newlength\mdf@horizontalwidthofbox@length
328 \newlength\mdf@verticalmarginwhole@length
329
330 % Command to expand the tikz code. (see md-frame-1.mdf)
331 \newrobustcmd\mdfcreateextratikz{}
332

```

```

\mdf@lrbox
\endmdf@lrbox

```

Modification of the default `\lrbox` and `\endlrbox`

```

333
334 \def\mdf@lrbox#1{%
335 %%patch to work with amsthm
336 \mdf@patchamsthm
337 %%end patch
338 \edef\mdf@restoreparams{%
339 \parindent=\the\parindent \parskip=\the\parskip}
340 \setbox#1\vbox\bgroup
341 \color@begingroup%
342 \mdf@horizontalmargin@equation%
343 \columnwidth=\hsize%
344 \textwidth=\hsize%
345 \@parboxrestore%
346 \mdf@restoreparams%
347 %SETZE
348 \@afterindentfalse%
349 \@afterheading%
350 %STREICHE
351 %\doendpe
352 }
353
354 \def\endmdf@lrbox{\color@endgroup\egroup}

```

355

```
\mdf@ignorevbadness
\mdf@restorevbadness
```

Avoiding warnings during the splitting process by `\vsplit`. see [How to avoid underfull vbox in combination with \vsplit?](#)

```
356 \newrobustcmd*\mdf@ignorevbadness{%
357   \edef\mdf@currentvbadness{\the\vbadness}%
358   \vbadness=\@M%
359   \afterassignment\mdf@restorevbadness}
360 \newrobustcmd*\mdf@restorevbadness{\vbadness=\mdf@currentvbadness\relax}
```

```
\mdf@patchamsth
```

The package `amsthm` provides a not compatible starting of theorem. So I have to change the header of `amsthm`.

```
361 \@ifpackageloaded{amsthm}{%
362   \newrobustcmd\mdf@patchamsth{%
363     \let\mdf@deferred@thm@head\deferred@thm@head
364     \patchcmd{\deferred@thm@head}{\indent}{\relax}{}{}
365   }%
366   \let\mdf@patchamsth\relax}%
```

```
\mdf@trivlist
\endmdf@trivlist
```

Modification of the default `\trivlist` and `\endtrivlist`.

```
367 \def\mdf@trivlist#1{%
368   \setlength{\topsep}{#1}%
369   \partopsep\z@%
370   \parsep\z@%
371   \@nmbrolistfalse%
372   \@trivlist%
373   \labelwidth\z@%
374   \leftmargin\z@%
375   \itemindent\z@%
376   \let\@itemlabel\@empty%
377   \def\makelabel##1{##1}%
378   %% \item\leavevmode\hrule \@height\z@ \@width\linewidth\relax%
379   %% \item\mbox{}\relax% second version
380   \item\relax% first Version
381 }
382 \let\endmdf@trivlist\endtrivlist
383 \patchcmd\endmdf@trivlist\@endparenv\mdf@endparenv{}{}
384 \def\mdf@endparenv{%
385   \addpenalty\@endparpenalty\addvspace\mdf@skipbelow@length\@endpetrue}
386
```

```
\mdf@makebox@out
\mdf@makebox@in
```

```

387 \newrobustcmd*\mdf@makebox@out[2][\linewidth]{%
388 \noindent\hb@xt@\z@{%
389 \noindent\makebox[\dimexpr #1\relax][l]{#2}%
390 \hss}%
391 }%
392 \newrobustcmd*\mdf@makebox@in[2][\mdf@userdefinedwidth@length]{%
393 \noindent\makebox[\dimexpr #1\relax][l]{#2}%
394 }

```

`\mdfdefinestyle`
`\mdfapptodefinestyle`

See explanation of this commands above.

```

395 \newrobustcmd*\mdfdefinestyle[2]{%
396 \csdef{mdf@definestyle@#1}{#2}%
397 }
398 \newrobustcmd*\mdfapptodefinestyle[2]{%
399 \ifcsundef{mdf@definestyle@#1}%
400 {\mdf@PackageWarning{Unknown style #1}}%
401 {\csappto{mdf@definestyle@#1}{, #2}}%
402 }

```

`\mdflength`
`\surroundwithmdframed`

Helper macros to work with *mdframed*

```

403 \newrobustcmd*\mdflength[1]{\csuse{mdf@#1@length}}
404
405 \newrobustcmd*\surroundwithmdframed[2][]{%
406 \BeforeBeginEnvironment{#2}{\begin{mdframed}[#1]}%
407 \AfterEndEnvironment{#2}{\end{mdframed}}%
408 }

```

`\newmdenv`
`\renewmdenv`
`\newmdtheoremenv`
`\mdtheorem`

Defining of the new environment defintions.

```

409 \newrobustcmd*\newmdenv[2][]{%
410 \newenvironment{#2}{%
411 \mdfsetup{#1}%
412 \begin{mdframed}%
413 }{%
414 \end{mdframed}%
415 }%
416 }
417 \newrobustcmd*\renewmdenv[2][]{%
418 \expandafter\let\csname #2\endcsname\relax%
419 \expandafter\let\csname end#2\endcsname\relax%
420 \newmdenv[#1]{#2}%
421 }%
422

```

```

423
424 \DeclareDocumentCommand\newmdtheoremenv{0}{ m o m o }{%
425   \ifboolexpr{ test {\IfNoValueTF {#3}} and test {\IfNoValueTF {#5}} }{%
426     {\newtheorem{#2}{#4}}{%
427       \IfValueTF{#3}{\newtheorem{#2}[#3]{#4}}{%
428         \IfValueTF{#5}{\newtheorem{#2}{#4}[#5]}{%
429           }%
430         \BeforeBeginEnvironment{#2}{%
431           \begin{mdframed}[#1]}%
432         \AfterEndEnvironment{#2}{%
433           \end{mdframed}}%
434       }%
435     }%
436 \DeclareDocumentCommand{\mdtheorem}{ 0{ } m o m o }%
437 {\ifcsdef{#2}%
438   {\mdf@PackageWarning{Environment #2 already exists\MessageBreak}}%
439   {%
440     \IfNoValueTF {#3}%
441     {%#3 not given -- number relationship
442       \IfNoValueTF {#5}
443       {%#3+#5 not given
444         \@definecounter{#2}%
445         \expandafter\xdef\csname the#2\endcsname{\@thmcounter{#2}}
446         \newenvironment{#2}[1][{%
447           \refstepcounter{#2}
448           \ifstrempy{##1}%
449           {\let\@temptitle\relax}%
450           {%
451             \def\@temptitle{\mdf@theoremseparator%
452               \mdf@theoremspace%
453               \mdf@theoremtitlefont%
454               ##1}%
455           }
456           \begin{mdframed}[#1,frametitle={\strut#4\ \csname the#2\endcsname\@temptitle}]]{%
457             {\end{mdframed}}}%
458         \newenvironment{#2*}[1][{%
459           \ifstrempy{##1}{\let\@temptitle\relax}{\def\@temptitle{: \ ##1}}
460           \begin{mdframed}[#1,frametitle={\strut#4\@temptitle}]]{%
461             {\end{mdframed}}}%
462         }%
463         {%#5 given -- reset counter
464           \@definecounter{#2}\@newctr{#2}[#5]%
465           \expandafter\xdef\csname the#2\endcsname{\@thmcounter{#2}}
466           \expandafter\xdef\csname the#2\endcsname{%
467             \expandafter\noexpand\csname the#5\endcsname \@thmcountersep
468             \@thmcounter{#2}}%
469           \newenvironment{#2}[1][{%
470             \refstepcounter{#2}
471             \ifstrempy{##1}%
472             {\let\@temptitle\relax}%
473             {%
474               \def\@temptitle{\mdf@theoremseparator%
475                 \mdf@theoremspace%
476                 \mdf@theoremtitlefont%
477                 ##1}%
478             }

```

```

479     \begin{mdframed}[#1,frametitle={\strut#4\ \csname the#2\endcsname\@temptitle}]]}%
480     {\end{mdframed}}}%
481     \newenvironment{#2*}[1][]{%
482     \ifstrempy{##1}%
483     {\let\@temptitle\relax}%
484     {%
485     \def\@temptitle{\mdf@theoremseparator%
486     \mdf@theoremspace%
487     \mdf@theoremtitlefont%
488     ##1}%
489     }
490     \begin{mdframed}[#1,frametitle={\strut#4\@temptitle}]]}%
491     {\end{mdframed}}}%
492     }%
493     }%
494     {%#3 given -- number relationship
495     \global\@namedef{the#2}{\@nameuse{the#3}}}%
496     \newenvironment{#2}[1][]{%
497     \refstepcounter{#3}
498     \ifstrempy{##1}%
499     {\let\@temptitle\relax}%
500     {%
501     \def\@temptitle{\mdf@theoremseparator%
502     \mdf@theoremspace%
503     \mdf@theoremtitlefont%
504     ##1}%
505     }
506     \begin{mdframed}[#1,frametitle={\strut#4\ \csname the#2\endcsname\@temptitle}]]}%
507     {\end{mdframed}}}%
508     \newenvironment{#2*}[1][]{%
509     \ifstrempy{##1}{\let\@temptitle\relax}{\def\@temptitle{: \ ##1}}
510     \begin{mdframed}[#1,frametitle={\strut#4\@temptitle}]]}%
511     {\end{mdframed}}}%
512     }%
513     }%
514 }
515

```

\mdfframedtitleenv \mdf@frametitle \mdf@setopt@body \mdf@setopt@title
--

Default definition of the frame tile used by *mdframed*.

```

516 %TESTVERSION
517 % \newrobustcmd*\mdf@setopt@title{%
518 %   \ifbool{mdf@frametitle rule}{\booltrue{mdf@bottomline}}{\boolfalse{mdf@bottomline}}}%
519 %   \let\ifmdf@leftline\ifmdf@frametitleleftline%
520 %   \let\ifmdf@topline\ifmdf@frametitletopline%
521 %   \let\ifmdf@rightline\ifmdf@frametitlerightline%
522 %   \let\ifmdf@bottomline\ifmdf@frametitlebottomline%
523 %   \mdfsetup{innerbottommargin=\mdf@titlebelowskip@length,%
524 %             innertopmargin=\mdf@titleaboveskip@length,%
525 %             middlelinecolor=\mdf@frametitle rulecolor,%

```



```

526 %           backgroundcolor=\mdf@frametitlebackgroundcolor,%
527 %           middlelinewidth=\mdf@frametitlerulewidth@length,%
528 %           innerleftmargin=\mdf@frametitleleftmargin@length,%
529 %           innerrightmargin=\mdf@frametitlerightmargin@length,%
530 %           alignment=\mdf@frametitlealignment,
531 %           skipbelow=\z@}%
532 % \def\mdf@linecolor@bottom{\color{\mdf@frametitlebottomrulecolor}}%
533 % \mdf@frametitlesettings%
534 % }
535 %
536 % \newrobustcmd*\mdf@setopt@body{%
537 %   \mdfsetup{topline=false,skipabove=\z@}%
538 %   \unskip\nointerlineskip%
539 % }
540 %
541 % \newrobustcmd\mdfframedtitleenv[1]{%
542 %   \begingroup
543 %     \mdf@setopt@title
544 %     \color@setgroup
545 %     \mdf@frametitlefont
546 %     \mdf@lrbox{\mdf@splitbox@one}%
547 %       \mdf@frametitlealignment
548 %       #1\par\unskip
549 %     \endmdf@lrbox
550 %     \mdf@ignorevbadness
551 %     \global\setbox\mdf@frametitlebox\vbox{\unvbox\mdf@splitbox@one}%
552 %     \mdf@ignorevbadness
553 %     \global\setbox\mdf@splitbox@one\vbox{\unvcopy\mdf@frametitlebox}%
554 %     \detected@mdf@put@frame%
555 %     \color@endgroup%
556 %   \endgroup
557 % }
558 % \newrobustcmd\mdfframedtitleenv[1]{%
559 %   \color@begingroup%
560 %     \mdf@lrbox{\mdf@frametitlebox}%
561 %       \mdf@frametitlealignment%
562 %       \color{\mdf@frametitlefontcolor}%
563 %       \normalfont\mdf@frametitlefont{#1}\par\unskip
564 %     \endmdf@lrbox%
565 %     \mdf@ignorevbadness%
566 %     \global\setbox\mdf@frametitlebox\vbox{\unvbox\mdf@frametitlebox}%
567 %     \global\mdfframetitleboxwidth=\wd\mdf@frametitlebox\relax%
568 %     \global\mdfframetitleboxheight=\ht\mdf@frametitlebox\relax%
569 %     \global\mdfframetitleboxdepth=\dp\mdf@frametitlebox\relax%
570 %     \global\mdfframetitleboxtotalheight=\dimexpr\ht\mdf@frametitlebox+\dp\mdf@frametitlebox
571 %       +\mdf@frametitleaboveskip@length+\mdf@frametitlebelowskip@length\relax%
572 %     \color@endgroup%
573 % }
574 %
575 % \newrobustcmd*\mdf@@frametitle{%
576 %   \mdfframedtitleenv{\mdf@frametitle}%
577 % }
578 %
579 % \newrobustcmd*\mdf@@frametitle@use{%
580 %   \begingroup
581 %     \parskip\z@

```

```

582 \parindent\z@
583 \offinterlineskip
584 \mdf@ignorevbadness%
585 \global\setbox\mdf@splitbox@one\vbox{%
586   \unvcopy\mdf@frametitlebox%
587   \mdf@frametitlerule%
588   \unvbox\mdf@splitbox@one
589 }%
590 \mdf@ignorevbadness%
591 \global\setbox\mdf@splitbox@one\vbox{%
592   \unvbox\mdf@splitbox@one}%
593 \endgroup
594 \mdfsetup{innertopmargin=\mdf@frametitleaboveskip@length}%
595 }

```

`\mdf@checkntheorem`

Command which checks only `ntheorem`. Later I will support also `thmtools`.

```

596
597 \newrobustcmd*\mdf@checkntheorem{%
598   \ifbool{mdf@ntheorem}%
599     {\ifundef{\theorempreskipamount}%
600       {\mdf@PackageWarning{You have not loaded ntheorem yet}}%
601       {\setlength{\theorempreskipamount}{\z@}%
602        \setlength{\theorempostskipamount}{\z@}%
603      }%
604     }{}%
605 }

```

`\mdf@footnoterule`
`\mdf@footnoteoutput`
`\mdf@footnoteinput`

Support for footnotes.

```

606 \newrobustcmd*\mdf@footnoterule{%
607   \kern0\p@%
608   \hrule \@width 1in \kern 2.6\p@}
609 \newrobustcmd*\mdf@footnoteoutput{%
610   \ifvoid\@mpfootins\else
611     \nobreak%
612     \vskip\mdf@footnotedistance@length%
613     \normalcolor%
614     \mdf@footnoterule
615     \unvbox\@mpfootins
616   \fi%
617 }
618 \newrobustcmd*\mdf@footnoteinput{%
619   \def\@mpfn{mpfootnote}%
620   \def\thempfn{\thempfootnote}%
621   \c@mpfootnote\z@%
622   \let\@footnotetext\@mpfootnotetext%
623 }

```

```
\mdf@load@style
\mdf@styledefinition
```

Load the method to draw the frame and set style definition.

```
624 \newrobustcmd*\mdf@load@style{%
625 \ifcase\value{mdf@globalstyle@cnt}\relax%
626   \input{md-frame-0.mdf}%
627 \or\input{md-frame-1.mdf}%
628 \or\input{md-frame-2.mdf}%
629 \or\input{md-frame-3.mdf}%
630 \else%
631   \IfFileExists{md-frame-\value{mdf@globalstyle@cnt}.mdf}%
632   {\input{md-frame-\value{mdf@globalstyle@cnt}.mdf}}%
633   {%
634     \input{md-frame-0.mdf}%
635     \mdf@PackageWarning{The style number \value{mdf@globalstyle@cnt} does not exist^^J
636                       mdframed ues instead style=0 \mdframedpackagename}%
637   }%
638 \fi%
639 }%
640 \mdf@load@style
641
642 \newrobustcmd*\mdf@styledefinition{%AVOID!!!
643   \ifnumequal{\value{mdf@globalstyle@cnt}}{0}%
644   {\deflength{\mdf@innerlinewidth@length}{\z@}%
645    \deflength{\mdf@middlelinewidth@length}{\mdf@linewidth@length}%
646    \deflength{\mdf@outerlinewidth@length}{\z@}%
647    \let\mdf@innerlinecolor\mdf@linecolor%
648    \let\mdf@middlelinecolor\mdf@linecolor%
649    \let\mdf@outerlinecolor\mdf@linecolor%
650   }{}%
651 % \ifnumequal{\value{mdf@globalstyle@cnt}}{2}%
652 % {\deflength{\mdf@innerlinewidth@length}{\z@}%
653 %  \deflength{\mdf@middlelinewidth@length}{\mdf@linewidth@length}%
654 %  \deflength{\mdf@outerlinewidth@length}{\z@}%
655 %  \let\mdf@innerlinecolor\mdf@linecolor%
656 %  }{}%
657 % \ifnumequal{\value{mdf@globalstyle@cnt}}{3}%
658 % {\deflength{\mdf@innerlinewidth@length}{\z@}%
659 %  \deflength{\mdf@middlelinewidth@length}{\mdf@linewidth@length}%
660 %  \deflength{\mdf@outerlinewidth@length}{\z@}%
661 %  \let\mdf@innerlinecolor\mdf@linecolor%
662 %  }{}%
663 }
```

```
\detected@mdf@put@frame
```

Detect whether inside a non breakable environment.

```
664 \let\mdf@reserved@a\@empty
665 \newrobustcmd*\detected@mdf@put@frame{%
666   \ifmdf@nobreak%Option nobreak=true?
667     \def\mdf@reserved@a{\mdf@put@frame@standalone}%
668   \else
669     \def\mdf@reserved@a{\mdf@put@frame}%
670   }
```

```

670 \ifx\@cuptype\undefined
671 \def\mdf@reserved@a{\mdf@put@frame}%
672 \else
673 \mdf@PackageInfo{mdframed inside float ^^J
674 mdframed uses option nobreak \mdframedpackagename}%
675 \def\mdf@reserved@a{\mdf@put@frame@standalone}%
676 \fi
677 %% \ifnum\@floatpenalty<0\relax%Detecting float
678 %% \if@twocolumn%
679 %% \ifx\@cuptype\undefined
680 %% \def\mdf@reserved@a{\mdf@put@frame}%
681 %% \else
682 %% \mdf@PackageInfo{mdframed inside float ^^J
683 %% mdframed uses option nobreak \mdframedpackagename}%
684 %% \def\mdf@reserved@a{\mdf@put@frame@standalone}%
685 %% \fi
686 %% \else
687 %% \mdf@PackageInfo{mdframed inside float ^^J
688 %% mdframed uses option nobreak \mdframedpackagename}%
689 %% \def\mdf@reserved@a{\mdf@put@frame@standalone}%
690 %% \fi%
691 %% \fi%
692 \if@minipage%
693 \mdf@PackageInfo{mdframed inside minipage ^^J
694 mdframed uses option nobreak \mdframedpackagename}%
695 \def\mdf@reserved@a{\mdf@put@frame@standalone}%
696 \fi%
697 \ifinner%
698 \mdf@PackageInfo{mdframed inside a box ^^J
699 mdframed uses option nobreak \mdframedpackagename}%
700 \def\mdf@reserved@a{\mdf@put@frame@standalone}%
701 \fi%
702 \fi%
703 \mdf@reserved@a%
704 }

```

`\mdf@hidealllines@check`

```

705 \newrobustcmd*\mdf@hidealllines@check{%
706 \ifbool{mdf@hidealllines}{%
707 \boolfalse{mdf@leftline}\boolfalse{mdf@rightline}%
708 \boolfalse{mdf@topline}\boolfalse{mdf@bottomline}%
709 \boolfalse{mdf@frametitleleftline}\boolfalse{mdf@frametitlerightline}%
710 \boolfalse{mdf@frametitletopline}\boolfalse{mdf@frametitlebottomline}%
711 }{}%
712 }

```

`\mdframed`
`\mdframed@ii`
`\mdframed@i`

That the user environment.

```
713 \newenvironment{mdframed}[1][[]]{%
```

```

714 \color@begingroup%
715   \mdfsetup{userdefinedwidth=\linewidth,#1}%
716   \mdf@hidealllines@check%
717   \mdf@twoside@checklength%
718   \let\width\z@%
719   \let\height\z@%
720   \mdf@checknththeorem%
721   \mdf@styledefinition%
722   \mdf@footnoteinput%
723   \color{\mdf@fontcolor}%
724   \mdf@font%
725   \ifvmode\nointerlineskip\fi%
726   \mdf@trivlist{\mdf@skipabove@length}%%
727   \ifdefempty{\mdf@frametitle}{\mdf@@frametitle}%
728   \mdf@settings%
729   \mdf@lrbox{\mdf@splitbox@one}%
730 }%
731 {\par\unskip\nointerlineskip\hrule \@height\z@ \@width\hsize%%
732   \ifmdf@footnoteinside%
733     \def\mdf@reserveda{%
734       \mdf@footnoteoutput%
735       \endmdf@lrbox%
736       \ifdefempty{\mdf@frametitle}{\mdf@@frametitle@use}
737       \detected@mdf@put@frame}%
738   \else%
739     \def\mdf@reserveda{%
740       \endmdf@lrbox%
741       \ifdefempty{\mdf@frametitle}{\mdf@@frametitle@use}
742       \detected@mdf@put@frame%
743       \mdf@footnoteoutput%
744     }%
745   \fi%
746   \mdf@reserveda%
747   \endmdf@trivlist%
748 \color@endgroup\@doendpe%
749 }
750
751

```

```

\mdf@twoside@checklength
\mdf@zref@label
\ifmdf@pageodd
\mdf@pageisodd
\mdf@pageiseven
\mdf@@setzref

```

The whole bunch is used to work width twoside mode and uses the correct margins.

```

752 \newtoggle{md:checktwoside}
753 \settoggle{md:checktwoside}{false}
754 \newrobustcmd*\mdf@twoside@checklength{%
755   \if@twoside
756     \ifbool{mdf@usetwoside}%
757       {\mdf@PackageInfo{mdframed works in twoside mode}%
758        \settoggle{md:checktwoside}{true}%
759        \setlength\mdf@rightmargin@length{\mdf@outermargin@length}%
760        \setlength\mdf@leftmargin@length{\mdf@innermargin@length}%

```

```

761     }%
762     {\mdf@PackageInfo{mdframed inside twoside mode but\MessageBreak
763         works with oneside mode}%
764     \settoggle{md:checktwoside}{false}%
765     }%
766 \fi%
767 }
768
769 \newcounter{mdf@zref@counter}%keine doppelten laebes
770 \zref@newprop*{mdf@pagevalue}[0]{\number\value{page}}
771 \zref@addprop{\ZREF@mainlist}{mdf@pagevalue}
772 \newrobustcmd*{\mdf@zref@label{%
773     \stepcounter{mdf@zref@counter}
774     \zref@label{mdf@pagelabel-\number\value{mdf@zref@counter}}}%
775 }
776 \newrobustcmd*{\ifmdf@pageodd{%
777     \zref@refused{mdf@pagelabel-\the\value{mdf@zref@counter}}}%
778     \ifodd\zref@extract{mdf@pagelabel-\the\value{mdf@zref@counter}}{mdf@pagevalue}%
779     \setlength\mdf@rightmargin@length{\mdf@outermargin@length}%
780     \setlength\mdf@leftmargin@length{\mdf@innermargin@length}%
781     \else
782     \setlength\mdf@rightmargin@length{\mdf@innermargin@length}%
783     \setlength\mdf@leftmargin@length{\mdf@outermargin@length}%
784     \fi%
785 }
786 \newrobustcmd*{\mdf@@setzref{%
787     \iftoggle{md:checktwoside}{\mdf@zref@label\ifmdf@pageodd}{}}%
788 }

```

`\mdf@freepagevspace`

```

789 \newrobustcmd*{\mdf@freepagevspace{%
790     \penalty\@M \vskip 2\baselineskip
791     \penalty9999 \vskip -2\baselineskip
792     \penalty9999
793     \ifdimequal{\pagegoal}{\maxdimen}%
794         {\mdf@freevspace@length\vsiz}%
795         {\mdf@freevspace@length=\pagegoal\relax%
796         \advance\mdf@freevspace@length by -\pagetotal\relax%
797         \addtolength\mdf@freevspace@length{\dimexpr-\parskip\relax}\relax%
798         }%
799 }

```

`\mdf@advancelength@horizontalmargin@add`
`\mdf@horizontalsofbox`
`\mdf@horizontalmargin@equation`

Width of the box

```

800 \newrobustcmd*{\mdf@advancelength@horizontalmargin@sub[1]{%
801     \advance\mdf@horizontalsofbox by -\csname mdf@#1@length\endcsname\relax%
802 }
803 \newlength\mdf@horizontalsofbox

```

```

804 \newrobustcmd*\mdf@horizontalmargin@equation{%
805   \setlength{\mdf@horizontalsofbox}{\mdf@userdefinedwidth@length}%
806   \mdf@dolist{\mdf@advancelength@horizontalmargin@sub}{%
807     leftmargin,outerlinewidth,middlelinewidth,%
808     innerlinewidth,innerleftmargin,inerrightmargin,%
809     innerlinewidth,middlelinewidth,outerlinewidth,%
810     rightmargin}%
811   \notbool{mdf@leftline}{%
812     \advance\mdf@horizontalsofbox by \mdf@innerlinewidth@length\relax%
813     \advance\mdf@horizontalsofbox by \mdf@middlelinewidth@length\relax%
814     \advance\mdf@horizontalsofbox by \mdf@outerlinewidth@length\relax%
815   }{}%
816   \notbool{mdf@rightline}{%
817     \advance\mdf@horizontalsofbox by \mdf@innerlinewidth@length\relax%
818     \advance\mdf@horizontalsofbox by \mdf@middlelinewidth@length\relax%
819     \advance\mdf@horizontalsofbox by \mdf@outerlinewidth@length\relax%
820   }{}%
821   \ifdimless{\mdf@horizontalsofbox}{3cm}%
822     {\mdf@PackageWarning{You have only a width of 3cm}}{}
823   \hsize=\mdf@horizontalsofbox%
824 }

```

`\mdf@keep@lines@single`

horizontal space in relation of the lines.

```

825 \newrobustcmd*\mdf@keep@lines@single{%
826   \notbool{mdf@topline}{%
827     \advance\mdf@verticalmarginwhole@length by -\mdf@innerlinewidth@length%
828     \advance\mdf@verticalmarginwhole@length by -\mdf@middlelinewidth@length%
829     \advance\mdf@verticalmarginwhole@length by -\mdf@outerlinewidth@length%
830   }{}%
831   \notbool{mdf@bottomline}{%
832     \advance\mdf@verticalmarginwhole@length by -\mdf@innerlinewidth@length%
833     \advance\mdf@verticalmarginwhole@length by -\mdf@middlelinewidth@length%
834     \advance\mdf@verticalmarginwhole@length by -\mdf@outerlinewidth@length%
835   }{}%
836 }

```

`\mdf@advance@length@verticalmarginwhole`
`\mdf@advance@length@free@space@sub`
`\mdf@advance@length@free@space@add`

Loop macros to calculate the height. Used by `\mdf@dolist`.

```

837 \newrobustcmd*\mdf@advance@length@verticalmarginwhole[1]{%
838   \advance\mdf@verticalmarginwhole@length by \csname md f@#1@length\endcsname\relax%
839 }
840 \newrobustcmd*\mdf@advance@length@free@space@sub[1]{%
841   \advance\dimen@ by -\csname md f@#1@length\endcsname\relax%
842 }
843 \newrobustcmd*\mdf@advance@length@free@space@add[1]{%
844   \advance\dimen@ by \csname md f@#1@length\endcsname\relax%
845 }

```

`\mdf@reset`

Reset changes

```
846 \protected@edef\mdf@reset{\boxmaxdepth\the\boxmaxdepth
847 \splittopskip\the\splittopskip}%
```

`\mdf@put@frame@standalone`

Output of `mdframed` inside a non breakable environment.

```
848 \newrobustcmd*\mdf@put@frame@standalone{\relax%
849 \ifvoid\mdf@splitbox@one\relax
850 \mdf@PackageWarning{The environment is empty\MessageBreak}%
851 \let\mdf@reserved@a\relax%
852 \else
853 %Hier berechnung Box-Inhalt+Rahmen oben und unten
854 \setlength{\mdf@verticalmarginwhole@length}%
855 {\dimexpr\ht\mdf@splitbox@one+\dp\mdf@splitbox@one\relax}%
856 \mdf@dolist{\mdf@advancelength@verticalmarginwhole}{%
857 outerlinewidth,middlelinewidth,innerlinewidth,innertopmargin,
858 innerbottommargin,innerlinewidth,middlelinewidth,outerlinewidth}%
859 \mdf@keeplines@single%
860 \def\mdf@reserved@a{\mdf@putbox@single}%
861 \fi
862 \mdf@reserved@a%
863 }
```

`\mdf@put@frame`

Output of `mdframed` inside a breakable environment. The comparison are only check whether the contents must be split or not.

```
864 \def\mdf@put@frame{\relax%
865 \ifvoid\mdf@splitbox@one\relax
866 \mdf@PackageWarning{The environment is empty\MessageBreak}%
867 \let\mdf@reserved@a\relax%
868 \else
869 \setlength\mdf@boundingboxwidth{\wd\mdf@splitbox@one}%
870 \mdf@print@space%
871 \mdf@freepagevspace@gives \mdf@freevspace@length
872 \mdf@PackageInfoSpace{\the\mdf@freevspace@length before the beginning of \MessageBreak
873 the environment ending on input line \MessageBreak}%
874 \ifdimless{\mdf@freevspace@length}{2\baselineskip}
875 {\mdf@PackageInfo{Not enough space on this page}
876 \vfill\reject%
877 \def\mdf@reserved@a{\mdf@put@frame}%
878 }{%
879 %Hier berechnung Box-Inhalt+Rahmen oben und unten
880 \setlength{\mdf@verticalmarginwhole@length}%
881 {\dimexpr\ht\mdf@splitbox@one+\dp\mdf@splitbox@one\relax}%
882 \mdf@dolist{\mdf@advancelength@verticalmarginwhole}{%
883 outerlinewidth,middlelinewidth,innerlinewidth,innertopmargin,
884 innerbottommargin,innerlinewidth,middlelinewidth,outerlinewidth}%
885 \mdf@keeplines@single%
886 \ifdimless{\mdf@verticalmarginwhole@length}{\mdf@freevspace@length}%
887 {%passt auf Seite%
888 \begingroup
889 \mdf@setzref
```



```

890             \mdf@putbox@single%
891         \endgroup
892         \let\mdf@reserved@a\relax}%
893         {\def\mdf@reserved@a{\mdf@put@frame@i}}%passt nicht auf Seite
894     }%
895 \fi
896 \mdf@reserved@a%
897 }

```

`\mdf@put@frame@i`

Output of the first splitted box.

```

898 \def\mdf@put@frame@i{%Box muss gesplittet werden -- Ausgabe der ersten Teilbox
899 %Berechnung der Splittgroesse -- Linien und Abstand oben
900 %\vbox to 0pt{}%
901 %\rlap{\smash{\the\mdf@freeevspace@length}}%\hrule \@height\z@ \@width\hsize
902 \mdf@freepagevspace@gives \mdf@freeevspace@length
903 %Berechnung ob nur oberen Linien nur auf die Seite passe
904 \dimen@=\the\mdf@freeevspace@length%
905 \dimen@i=\mdf@innertopmargin@length%
906 \advance\dimen@i by \mdf@innerlinewidth@length%
907 \advance\dimen@i by \mdf@middlelinewidth@length%
908 \advance\dimen@i by \mdf@outerlinewidth@length%
909 \advance\dimen@i by 2\baselineskip%
910 \ifdimless{\dimen@}{\dimen@i}%
911     {\hrule \@height\z@ \@width\hsize%
912       \vfill\ject%
913       \def\mdf@reserved@a{\mdf@put@frame}%
914     }{%
915       \mdf@freepagevspace%
916       \dimen@=\the\mdf@freeevspace@length%
917       \mdf@dolist{\mdf@advancelength@freeevspace@sub}{%calculate with \dimen@
918         outerlinewidth,middlelinewidth,innerlinewidth,%
919         innertopmargin,splitbottomskip}%
920       \ifbool{mdf@topline}{%
921         \advance\dimen@ by \mdf@innerlinewidth@length%
922         \advance\dimen@ by \mdf@middlelinewidth@length%
923         \advance\dimen@ by \mdf@outerlinewidth@length%
924       }%
925       \advance\dimen@.8\pageshrink
926       \ifdimless{\ht\mdf@splitbox@one+\dp\mdf@splitbox@one}{\dimen@}%
927         {\mdf@PackageWarning{You got a bad break\MessageBreak
928           you have to change it manually\MessageBreak
929           by changing the text, the space\MessageBreak
930           or something else}%
931         \advance\dimen@ by -1.8\baselineskip\relax%
932       }{%
933 %       \advance\dimen@ by -1pt\relax%Box darf nicht zu Groß werden.
934       \splitmaxdepth\z@ \splittopskip\mdf@splittopskip@length%
935       \mdf@ignorevbadness%
936       \setbox\mdf@splitbox@two\vsplit\mdf@splitbox@one to \dimen@
937       \setbox\mdf@splitbox@two\vbox{\unvbox\mdf@splitbox@two}%
938       \setbox\mdf@splitbox@one\vbox{\unvbox\mdf@splitbox@one}%
939       \ifbool{mdf@repeatframetitle}{%

```

```

940         \setbox\mdf@splitbox@one\vbox{%
941             \vbox to \mdf@splittopskip@length{\hsize\z@}
942             %\par\unskip\nointerlineskip
943             \unvcopy\mdf@frametitlebox%
944             \mdf@@frametitlerule%
945             \vbox to\dimexpr
946                 -\mdf@splittopskip@length+\ht\strutbox+\dp\strutbox
947                 +\mdf@innertopmargin@length\relax{\hsize\z@}%
948             \unvbox\mdf@splitbox@one}%
949     }{}%
950 \ifdimgreater{\ht\mdf@splitbox@two+\dp\mdf@splitbox@two}{\dimen@}%
951 {%Falsch gesplittet
952 \mdf@PackageInfo{Box was splittet wrong\MessageBreak}%
953 \dimen@i=\dimen@
954 \advance\dimen@ by -\ht\mdf@splitbox@two
955 \advance\dimen@ by -\dp\mdf@splitbox@two
956 \advance\dimen@i by 0.5\dimen@
957 \splittopskip\z@%
958 \setbox\mdf@splitbox@one\vbox{\unvbox\mdf@splitbox@two%
959     %benoetigt um Tiefe zu haben
960     \hrule \@height\dp\strutbox \@width\z@
961     \unvbox\mdf@splitbox@one}
962 \splittopskip\mdf@splittopskip@length%
963 \mdf@ignorevbadness%
964 \setbox\mdf@splitbox@two\vsplit\mdf@splitbox@one to \dimen@i
965 \setbox\mdf@splitbox@two\vbox{\unvbox\mdf@splitbox@two}%
966 \setbox\mdf@splitbox@one\vbox{\unvbox\mdf@splitbox@one}%
967 \ifbool{\mdf@repeatframetitle}{%
968     \setbox\mdf@splitbox@one\vbox{%
969         \vbox to \mdf@splittopskip@length{\hsize\z@}
970         %\par\unskip\nointerlineskip
971         \unvcopy\mdf@frametitlebox%
972         \mdf@@frametitlerule%
973         \vbox to\dimexpr
974             -\mdf@splittopskip@length+\ht\strutbox+\dp\strutbox
975             +\mdf@innertopmargin@length\relax{\hsize\z@}%
976         \unvbox\mdf@splitbox@one}%
977     }{}%
978 }{}%
979 \ifvoid\mdf@splitbox@one
980 \mdf@PackageWarning{You got a bad break\MessageBreak
981     because the splittet box is empty\MessageBreak
982     You have to change the page settings\MessageBreak
983     like enlargethispage or something else}%
984 \setbox\mdf@splitbox@one\vbox{\unvbox\mdf@splitbox@two%
985     %benoetigt um Tiefe zu haben
986     \hrule \@height\dp\strutbox \@width\z@
987     \unvbox\mdf@splitbox@one}%
988 \setbox\mdf@splitbox@one\vbox{\unvbox\mdf@splitbox@one}%
989 \enlargethispage{\baselineskip}%
990 \def\mdf@reserved@a{\mdf@put@frame}%
991 \fi
992 \ifvoid\mdf@splitbox@two%pruefe, ob erste Box leer ist
993 \hrule \@height\z@ \@width\hsize
994 \vfill\@eject%
995 \def\mdf@reserved@a{\mdf@put@frame}%

```

```

996     \else
997     \ifdimequal{\ht\mdf@splitbox@two}{0pt}%
998     {\hrule \@height\z@ \@width\hsize%
999     \vfill\ject%
1000     \setbox\mdf@splitbox@one\vbox{\unvbox\mdf@splitbox@two\unvbox\mdf@splitbox@one}
1001     \def\mdf@reserved@a{\mdf@put@frame}%
1002     }%
1003     {%
1004     \begingroup%
1005     \mdf@setzref
1006     \mdf@putbox@first%%Groesse des Splittens passt
1007     \endgroup%
1008     \hrule \@height\z@ \@width\hsize%
1009     \vfill\ject%
1010     \def\mdf@reserved@a{\mdf@put@frame@ii}%
1011     }%
1012     \fi%
1013     }%
1014 \mdf@reserved@a%
1015 }

```

`\mdf@put@frame@ii`

Output of the middle and last box.

```

1016 \def\mdf@put@frame@ii{%Ausgabe der mittleren Box(en) wenn vorhanden
1017 \setlength{\mdf@freevspace@length}{\vsize}%
1018 \setlength{\dimen@}{\dimexpr\ht\mdf@splitbox@one+\dp\mdf@splitbox@one\relax}%
1019 \mdf@dolist{\mdf@advance@length@freevspace@add}{%used \dimen@
1020             outerlinewidth,middlelinewidth,innerlinewidth,%
1021             innerbottommargin}%%Addition der Linien unten
1022 \ifbool{mdf@bottomline}{}%
1023     \advance\dimen@i by \mdf@innerlinewidth@length%
1024     \advance\dimen@i by \mdf@middlelinewidth@length%
1025     \advance\dimen@i by \mdf@outerlinewidth@length%
1026     \relax}%
1027 \ifdimgreater{\dimen@}{\mdf@freevspace@length}%
1028     {%
1029     \advance\mdf@freevspace@length by -\mdf@splitbottomskip@length\relax%
1030     \ifbool{mdf@bottomline}{}%
1031         \advance\dimen@i by -\mdf@innerlinewidth@length%
1032         \advance\dimen@i by -\mdf@middlelinewidth@length%
1033         \advance\dimen@i by -\mdf@outerlinewidth@length%
1034         \relax}%
1035     \splitmaxdepth\z@ \splittopskip\mdf@splittopskip@length%
1036     \mdf@ignorevbadness%
1037     \setbox\mdf@splitbox@two\vsplit\mdf@splitbox@one to \mdf@freevspace@length%
1038     \setbox\mdf@splitbox@two\vbox{\unvbox\mdf@splitbox@two}%PRUEFEN!!!
1039     \setbox\mdf@splitbox@one\vbox{\unvbox\mdf@splitbox@one}%PRUEFEN!!!!
1040     \ifbool{mdf@repeatframetitle}{%
1041         \setbox\mdf@splitbox@one\vbox{%
1042             \vbox to \mdf@splittopskip@length{\hsize\z@}
1043             %\par\unskip\nointerlineskip
1044             \unvcopy\mdf@frametitlebox%
1045             \mdf@@@frametitlerule%
1046             \vbox to\dimexpr

```

```

1047             -\mdf@splittopskip@length+\ht\strutbox+\dp\strutbox
1048             +\mdf@innertopmargin@length\relax{\hsize\z@}%
1049             \unvbox\mdf@splitbox@one}%
1050         }{}%
1051     \ifvoid\mdf@splitbox@one\relax%
1052         \mdf@PackageWarning{You got a bad break\MessageBreak
1053             because the split box is empty\MessageBreak
1054             You have to change the settings}%
1055         \setbox\mdf@splitbox@one{\unvbox\mdf@splitbox@two}%
1056         \def\mdf@reserved@a{\enlargethispage{\baselineskip}\mdf@put@frame@ii}%
1057     \else
1058         \begingroup
1059             \mdf@@setzref
1060             \mdf@putbox@middle%
1061         \endgroup
1062         \hrule \@height\z@ \@width\hsize
1063         \vfill\ject
1064         \def\mdf@reserved@a{\mdf@put@frame@ii}%
1065     \fi
1066 }%Hier die Ausgabe der mittleren Box
1067 {\ifvoid\mdf@splitbox@one
1068     \mdf@PackageWarning{You got a bad break\MessageBreak
1069         because the last split box is empty\MessageBreak
1070         You have to change the settings}%
1071     \setbox\mdf@splitbox@one\vbox{\unvbox\mdf@splitbox@one\hrule \@height\z@ \@width\mdfbounding
1072 \fi%
1073 \ifdimless{\ht\mdf@splitbox@one}{1sp}{%
1074     \mdf@PackageWarning{You got a bad break\MessageBreak
1075         because the last split box is empty\MessageBreak
1076         You have to change the settings}%
1077     %\hb@xt@\z@{\box\mdf@splitbox@one}%
1078     \let\mdf@reserved@a\relax%
1079     \setbox\mdf@splitbox@one\vbox{\unvbox\mdf@splitbox@one\hrule \@height\z@ \@width\mdfboundin
1080 }{}%
1081 \begingroup%
1082     \mdf@@setzref
1083     \mdf@putbox@second%
1084     \hrule \@height\z@ \@width\hsize%
1085 \endgroup%
1086 \let\mdf@reserved@a\relax%
1087 }%Hier kommt die Ausgabe der letzten Box
1088 \mdf@reserved@a%
1089 }
1090

```

```
\mdf@test@ltrb
\mdf@test@ltr
\mdf@test@ltb
\mdf@test@trb
\mdf@test@lrb
\mdf@test@lb
\mdf@test@rb
\mdf@test@tr
\mdf@test@lt
\mdf@test@lr
\mdf@test@tb
\mdf@test@l
\mdf@test@r
\mdf@test@t
\mdf@test@b
\mdf@test@noLine
```

Short forms of checking the option which lines should be drawn.

```

1091 %%%      -----t-----
1092 %%%      |                   |
1093 %%%      |                   |
1094 %%%      |                   |
1095 %%%      l|                   |r
1096 %%%      |                   |
1097 %%%      |                   |
1098 %%%      |-----b-----|
1099 %%%
1100 %%Zusammenhaenge abfragen:
1101 \newrobustcmd*\mdf@test@ltr{%
1102     \ifboolexpr{ (bool {mdf@topline}) and (bool {mdf@bottomline})
1103                 and (bool {mdf@leftline}) and (bool {mdf@rightline})}}
1104 %3-set
1105 \newrobustcmd*\mdf@test@ltr{%
1106     \ifboolexpr{ (bool {mdf@topline}) and not (bool {mdf@bottomline})
1107                 and (bool {mdf@leftline}) and (bool {mdf@rightline})}}
1108 \newrobustcmd*\mdf@test@ltb{%
1109     \ifboolexpr{ (bool {mdf@topline}) and (bool {mdf@bottomline})
1110                 and (bool {mdf@leftline}) and not (bool {mdf@rightline})}}
1111 \newrobustcmd*\mdf@test@trb{%
1112     \ifboolexpr{ (bool {mdf@topline}) and (bool {mdf@bottomline})
1113                 and not (bool {mdf@leftline}) and (bool {mdf@rightline})}}
1114 \newrobustcmd*\mdf@test@lrb{%
1115     \ifboolexpr{ not (bool {mdf@topline}) and (bool {mdf@bottomline})
1116                 and (bool {mdf@leftline}) and (bool {mdf@rightline})}}
1117 %2-set
1118 \newrobustcmd*\mdf@test@lb{%
1119     \ifboolexpr{ not (bool {mdf@topline}) and (bool {mdf@bottomline})
1120                 and (bool {mdf@leftline}) and not (bool {mdf@rightline})}}
1121 \newrobustcmd*\mdf@test@rb{%
1122     \ifboolexpr{ not (bool {mdf@topline}) and (bool {mdf@bottomline})
1123                 and not (bool {mdf@leftline}) and (bool {mdf@rightline})}}
1124 \newrobustcmd*\mdf@test@tr{%
1125     \ifboolexpr{ (bool {mdf@topline}) and not (bool {mdf@bottomline})
1126                 and not (bool {mdf@leftline}) and (bool {mdf@rightline})}}
1127 \newrobustcmd*\mdf@test@lt{%
1128     \ifboolexpr{ (bool {mdf@topline}) and not (bool {mdf@bottomline})

```

```

1129             and (bool {mdf@leftline}) and not (bool {mdf@rightline}}})
1130 \newrobustcmd*{\mdf@test@lr{%
1131     \ifboolexpr{not (bool {mdf@topline}) and not (bool {mdf@bottomline})
1132         and (bool {mdf@leftline}) and (bool {mdf@rightline}}})
1133 \newrobustcmd*{\mdf@test@tb{%
1134     \ifboolexpr{ (bool {mdf@topline}) and (bool {mdf@bottomline})
1135         and not (bool {mdf@leftline}) and not (bool {mdf@rightline}}})
1136 %Einzellinien
1137 \newrobustcmd*{\mdf@test@l{%
1138     \ifboolexpr{ not (bool {mdf@topline}) and not (bool {mdf@bottomline})
1139         and (bool {mdf@leftline}) and not (bool {mdf@rightline}}})
1140 \newrobustcmd*{\mdf@test@r{%
1141     \ifboolexpr{ not (bool {mdf@topline}) and not (bool {mdf@bottomline})
1142         and not (bool {mdf@leftline}) and (bool {mdf@rightline}}})
1143 \newrobustcmd*{\mdf@test@t{%
1144     \ifboolexpr{ (bool {mdf@topline}) and not (bool {mdf@bottomline})
1145         and not (bool {mdf@leftline}) and not (bool {mdf@rightline}}})
1146 \newrobustcmd*{\mdf@test@b{%
1147     \ifboolexpr{ not (bool {mdf@topline}) and (bool {mdf@bottomline})
1148         and not (bool {mdf@leftline}) and not (bool {mdf@rightline}}})
1149 %keine Linien
1150 \newrobustcmd*{\mdf@test@noline{%
1151     \ifboolexpr{ not (bool {mdf@topline}) and not (bool {mdf@bottomline})
1152         and not (bool {mdf@leftline}) and not (bool {mdf@rightline}}})
1153 \newrobustcmd*{\mdf@test@single{%
1154     \ifboolexpr{ not (test {\mdf@test@ltrb} or test {\mdf@test@ltr} or
1155         test {\mdf@test@ltb} or test {\mdf@test@trb} or
1156         test {\mdf@test@lrb} or test {\mdf@test@lb} or
1157         test {\mdf@test@rb} or test {\mdf@test@tr} or
1158         test {\mdf@test@lt} ) }}
1159 %
1160 \DisableKeyvalOption[action=warning,package=mdframed]{mdf}{framemethod}%
1161 \DisableKeyvalOption[action=warning,package=mdframed]{mdf}{xcolor}%
1162
1163 \endinput

```

B.2. The Explanation of md-frame-0.mdf

```

1164 %% Style file for mdframed for package option 'framemethod=default'
1165 %%
1166 %% This package may be distributed under the terms of the LaTeX Project
1167 %% Public License, as described in lppl.txt in the base LaTeX distribution.
1168 %% Either version 1.0 or, at your option, any later version.
1169 %%
1170 %%
1171 %%$Id: mdframed.dtx 347 2012-03-04 13:04:28Z marco $
1172 %

```

```

\mdframed0packagename
\mdf@frame0date@svn

```

local settings

```

1173 \def\mdframed0packagename{md-frame-0}
1174 \def\mdf@frame0date@svn$#1: #2 #3 #4-#5-#6 #7 #8$#{#4/#5/#6\space }
1175 \ProvidesFile{md-frame-0.mdf}%

```

```

1176      [\mdf@frame0date@svn$Id: mdframed.dtx 347 2012-03-04 13:04:28Z marco $%
1177      \mdversion: \mdframed0packagename]

```

```

\mdf@background@default
\mdf@linecolor@default
\mdf@linecolor@bottom

```

short command

```

1178 \def\mdf@background@default{\color{\mdf@backgroundcolor}}
1179 \def\mdf@frametitlebackground@default{\color{\mdf@frametitlebackgroundcolor}}
1180 \def\mdf@shadow@default{\color{\mdf@shadowcolor}}
1181 \def\mdf@innerlinecolor@default{\color{\mdf@innerlinecolor}}
1182 \def\mdf@middlelinecolor@default{\color{\mdf@middlelinecolor}}
1183 \def\mdf@outerlinecolor@default{\color{\mdf@outerlinecolor}}
1184 \def\mdf@frametitlerulecolor@default{\color{\mdf@frametitlerulecolor}}
1185 \let\mdf@linecolor@default\mdf@middlelinecolor@default
1186 \def\mdf@@frametitlerule{%
1187   \ifbool{mdf@frametitlerule}{%
1188     \vbox to \mdf@frametitlerulewidth@length {\hsize\mdf@frametitleboxwidth%
1189       \par\unskip\vskip\mdf@frametitlebelowskip@length%
1190       \rlap{\noindent\hspace*{-\mdf@innerleftmargin@length}%
1191         \mdf@frametitlerulecolor@default%
1192         \rule{\dimexpr\mdf@frametitleboxwidth%
1193           +\mdf@innerleftmargin@length
1194           +\mdf@innerrightmargin@length\relax
1195           }\mdf@frametitlerulewidth@length}%
1196       }}%
1197   }{}
1198   \par\unskip\vskip\mdf@innertopmargin@length%
1199 }%
1200

```

```

\mdf@putbox@single
\mdf@frame@background@single
\mdf@frame@topandbottomline@single
\mdf@frame@leftline@single
\mdf@frame@rightline@single
\mdf@frame@rightline@single

```

The frame of of a non splitted contents of mdframed

```

1201 \def\mdf@frame@background@single{%
1202   \ifbool{mdf@shadow}{%
1203     \rlap{\smash{\mdf@shadow@default%
1204       \rule{\dimexpr-\mdf@boundingboxdepth
1205         -\mdf@shadowsize@length
1206         \ifbool{mdf@bottomline}{-\mdf@middlelinewidth@length}{\relax}%
1207         {\dimexpr\mdf@boundingboxtotalwidth
1208           +\mdf@shadowsize@length
1209           \ifbool{mdf@rightline}{+\mdf@middlelinewidth@length}{\relax}%
1210           {\dimexpr\mdf@boundingboxtotalheight
1211             +\mdf@shadowsize@length
1212             \ifbool{mdf@bottomline}{+\mdf@middlelinewidth@length}{\relax}%
1213           }}%
1214     }}{}%
1215   \rlap{\mdf@background@default%

```

```

1216     \rule[-\mdfboundingboxdepth]%
1217         {\mdfboundingboxtotalwidth}%
1218         {\mdfboundingboxtotalheight}%
1219     }%
1220 }%
1221 \def\mdf@frame@frametitlebackground@single{%
1222     \rlap{\mdf@frametitlebackground@default%
1223         \rule[\dimexpr-\mdfboundingboxdepth+\mdfboundingboxtotalheight-\mdfframetitleboxtotalheight\relax]
1224             {\mdfboundingboxtotalwidth}%
1225             {\mdfframetitleboxtotalheight}%
1226         }%
1227     }%
1228
1229 \def\mdf@frame@topline@single{%
1230     \rlap{\mdf@linecolor@default%
1231         \ifbool{mdf@topline}{%
1232             \rule[\dimexpr\mdfboundingboxheight-\mdfboundingboxdepth%
1233                 +\mdf@innerbottommargin@length+\mdf@innertopmargin@length\relax]%
1234                 {\mdfboundingboxtotalwidth}%
1235                 {\mdf@middlelinewidth@length}}%
1236         }%
1237     }%
1238 }%
1239 \def\mdf@frame@bottomline@single{%
1240     \rlap{\ifbool{mdf@leftline}{\hspace*{-\mdf@middlelinewidth@length}}{\mdf@linecolor@default%
1241         \ifbool{mdf@bottomline}{%
1242             \rule[\dimexpr-\mdfboundingboxdepth-\mdf@middlelinewidth@length\relax]%
1243                 {\dimexpr\mdfboundingboxtotalwidth
1244                     \ifbool{mdf@rightline}{+\mdf@middlelinewidth@length}}%
1245                     \ifbool{mdf@leftline}{+\mdf@middlelinewidth@length}}{\relax}%
1246                 {\mdf@middlelinewidth@length}}%
1247         }%
1248     }%
1249 }%
1250 \def\mdf@frame@leftline@single{%
1251     \llap{\mdf@linecolor@default%
1252         \rule[-\mdfboundingboxdepth]%
1253             {\mdf@middlelinewidth@length}%
1254             {\dimexpr\mdfboundingboxtotalheight%
1255                 \ifbool{mdf@topline}{+\mdf@middlelinewidth@length}}{\relax}%
1256         }%
1257     }%
1258 \def\mdf@frame@rightline@single{%
1259     \rlap{\mdf@linecolor@default%
1260         \hspace*{\mdfboundingboxwidth}%
1261         \hspace*{\mdf@innerrightmargin@length}%
1262         \rule[\dimexpr-\mdfboundingboxdepth%
1263             \relax]%
1264             {\mdf@middlelinewidth@length}%
1265             {\dimexpr\mdfboundingboxtotalheight%
1266                 +\ifbool{mdf@topline}{\mdf@middlelinewidth@length}{0pt}}\relax}%
1267     }%
1268 }%
1269 \def\mdf@putbox@single{%%%% Ausgabe der ungesplitteten Gesamtbox
1270     \ifvoid\mdf@splitbox@one
1271     \else%

```



```

1272 \mdf@makebox@out{%
1273 \mdf@makeboxalign@left%
1274 \setlength{\mdfboundingboxwidth}%
1275 {\wd\mdf@splitbox@one}%
1276 \setlength{\mdfboundingboxtotalwidth}%
1277 {\dimexpr\mdfboundingboxwidth+\mdf@innerleftmargin@length%
1278 +\mdf@innerrightmargin@length\relax}%
1279 \setlength{\mdfboundingboxheight}%
1280 {\dimexpr\ht\mdf@splitbox@one+\dp\mdf@splitbox@one\relax}%
1281 \setlength{\mdfboundingboxdepth}%
1282 {\dimexpr\dp\mdf@splitbox@one+\mdf@innerbottommargin@length\relax}%
1283 \setlength{\mdfboundingboxtotalheight}%
1284 {\dimexpr\mdfboundingboxheight+\mdf@innertopmargin@length%
1285 +\mdf@innerbottommargin@length\relax}%
1286 \setlength{\mdftotallinewidth}{%
1287 \dimexpr\mdf@innerlinewidth@length+\mdf@middlelinewidth@length%
1288 +\mdf@outerlinewidth@length}%
1289 \noindent%
1290 \setlength{\@tempdima}{\dimexpr\mdfboundingboxtotalwidth%
1291 +\ifbool{mdf@leftline}%
1292 {\mdf@middlelinewidth@length}{\z@}%
1293 +\ifbool{mdf@rightline}%
1294 {\mdf@middlelinewidth@length}{\z@}\relax}%
1295 \mdf@makebox@in[\@tempdima]{%
1296 \null%
1297 \ifbool{mdf@leftline}{%
1298 \hspace*{\mdftotallinewidth}%
1299 \mdf@frame@leftline@single%
1300 }{}%
1301 \mdf@frame@topline@single%
1302 \mdf@frame@background@single%
1303 \mdf@frame@bottomline@single%
1304 \ifdefempty{\mdf@frametitle}{\mdf@frame@frametitlebackground@single}%
1305 \hspace*{\mdf@innerleftmargin@length}%
1306 \ifbool{mdf@rightline}{%
1307 \mdf@frame@rightline@single%
1308 }{}%
1309 {\box\mdf@splitbox@one}%
1310 }%
1311 \mdf@makeboxalign@right%
1312 }%
1313 \fi%
1314 }

```

```

\mdf@putbox@first
\mdf@frame@background@first
\mdf@frame@leftline@first
\mdf@frame@topline@first
\mdf@frame@rightline@first

```

The first frame of a splitted contents of *mdframed*

```

1315 \def\mdf@frame@background@first{%
1316 \ifbool{mdf@shadow}{%
1317 \rlap{\smash{\mdf@shadow@default%
1318 \rule[\dimexpr-\mdfboundingboxdepth

```

```

1319             -\mdf@shadowsize@length\relax}%
1320         {\dimexpr\mdfboundingboxtotalwidth
1321             +\mdf@shadowsize@length
1322             \ifbool{mdf@rightline}{+\mdf@middlelinewidth@length}{}\relax}%
1323         {\dimexpr\mdfboundingboxtotalheight
1324             +\mdf@shadowsize@length\relax}%
1325     }%
1326 }}{}%
1327 \rlap{\mdf@background@default%
1328     \rule[-\mdfboundingboxdepth]%
1329         {\mdfboundingboxtotalwidth}%
1330         {\mdfboundingboxtotalheight}%
1331 }%
1332 }%
1333 \def\mdf@frame@frametitlebackground@first{%
1334 \ifdimless{\mdfframetitleboxtotalheight}{\mdfboundingboxtotalheight}%
1335 {%
1336     \rlap{\mdf@frametitlebackground@default%
1337         \rule[\dimexpr-\mdfboundingboxdepth+\mdfboundingboxtotalheight-\mdfframetitleboxtotalheight\relax]
1338             {\mdfboundingboxtotalwidth}%
1339             {\mdfframetitleboxtotalheight}%
1340         }%
1341     \global\mdfframetitleboxtotalheight=-\p@relax%
1342 }{\mdf@PackageWarning{You got a page break inside the frame title\MessageBreak
1343     Current this isn't well supported}%
1344     \rlap{\mdf@frametitlebackground@default%
1345         \rule[-\mdfboundingboxdepth]%
1346             {\mdfboundingboxtotalwidth}%
1347             {\mdfboundingboxtotalheight}%
1348         }%
1349     \global\mdfframetitleboxtotalheight=\dimexpr\mdfframetitleboxtotalheight
1350         -\mdfboundingboxheight
1351         +\mdf@frametitlebelowskip@length
1352         +.5\baselineskip-1pt
1353 %
1354         +\dp\strutbox
1355         \relax%
1356 }%
1357 }%
1358 \def\mdf@frame@leftline@first{%
1359     \llap{\mdf@linecolor@default%
1360         \rule[-\mdfboundingboxdepth]%
1361             {\mdf@middlelinewidth@length}%
1362             {\dimexpr\mdfboundingboxtotalheight%
1363                 +\ifbool{mdf@topline}{\mdf@middlelinewidth@length}{0pt}\relax}%
1364     }%
1365 }%
1366 \def\mdf@frame@topline@first{%
1367     \rlap{\mdf@linecolor@default%
1368         \rule[\dimexpr\mdfboundingboxheight-\mdfboundingboxdepth+
1369             \mdf@splitbottomskip@length+\mdf@innertopmargin@length\relax]%
1370             {\mdfboundingboxtotalwidth}%
1371             {\mdf@middlelinewidth@length}%
1372     }%
1373 }%
1374 \def\mdf@frame@rightline@first{%
1375     \rlap{\mdf@linecolor@default\hspace*{\mdfboundingboxwidth}%

```

```

1375 \hspace*{\mdf@innerrightmargin@length}%
1376 \rule[-\mdfboundingboxdepth]%
1377     {\mdf@middlelinewidth@length}%
1378     {\dimexpr\mdfboundingboxtotalheight%
1379      +\ifbool{mdf@topline}{\mdf@middlelinewidth@length}{0pt}\relax}%
1380 }%
1381 }%
1382 \def\mdf@putbox@first{%% Ausgabe der Teilbox 1
1383 \ifvoid\mdf@splitbox@two
1384 \else%
1385 \mdf@makebox@out[\linewidth]{%
1386 \mdf@makeboxalign@left%
1387 \setlength{\mdfboundingboxwidth}{\wd\mdf@splitbox@two}%
1388 \setlength{\mdfboundingboxtotalwidth}%
1389     {\dimexpr\mdfboundingboxwidth+\mdf@innerleftmargin@length%
1390      +\mdf@innerrightmargin@length\relax}%
1391 \setlength{\mdfboundingboxheight}{\dimexpr\ht\mdf@splitbox@two+\dp\mdf@splitbox@two\relax}%
1392 \setlength{\mdfboundingboxdepth}%
1393     {\dimexpr\dp\mdf@splitbox@two+\mdf@splitbottomskip@length\relax}%
1394 \setlength{\mdfboundingboxtotalheight}%
1395     {\dimexpr\mdfboundingboxheight+\mdf@innertopmargin@length%
1396      +\mdf@splitbottomskip@length\relax}%
1397 \setlength{\@tempdima}%
1398     {\dimexpr\mdfboundingboxtotalwidth%
1399      +\ifbool{mdf@leftline}{\mdf@middlelinewidth@length}{\z@}%
1400      +\ifbool{mdf@rightline}{\mdf@middlelinewidth@length}{\z@}%
1401      \relax}%
1402 \mdf@makebox@in[\@tempdima]{%
1403 \null%
1404 \ifbool{mdf@leftline}{%
1405 \hspace*{\mdf@middlelinewidth@length}%
1406 \mdf@frame@leftline@first}{}%
1407 \ifbool{mdf@topline}{%
1408 \mdf@frame@topline@first}{}%
1409 \mdf@frame@background@first%
1410 \ifdefempty{\mdf@frametitle}{\mdf@frame@frametitlebackground@first}%
1411 \hspace*{\mdf@innerleftmargin@length}%
1412 \ifbool{mdf@rightline}{%
1413 \mdf@frame@rightline@first}{}%
1414 {\box\mdf@splitbox@two}%
1415 }%
1416 \mdf@makeboxalign@right%
1417 }%
1418 \fi%
1419 }

```

```

\mdf@putbox@second
\mdf@frame@background@second
\mdf@frame@leftline@second
\mdf@frame@bottomline@second
\mdf@frame@rightline@second

```

The last frame of of a splitted contents of mdframed

```

1420 \def\mdf@frame@background@second{%
1421 \ifbool{mdf@shadow}{%

```

```

1422 \rlap{\smash{\mdf@shadow@default%
1423 \rule[\dimexpr-\mdfboundingboxdepth
1424 -\mdf@shadowsize@length
1425 \ifbool{mdf@bottomline}{-\mdf@middlelinewidth@length}}{\relax}%
1426 {\dimexpr\mdfboundingboxtotalwidth
1427 +\mdf@shadowsize@length
1428 \ifbool{mdf@rightline}{+\mdf@middlelinewidth@length}}{\relax}%
1429 {\dimexpr\mdfboundingboxtotalheight
1430 +\mdf@shadowsize@length\relax}%
1431 }%
1432 }}{}%
1433 \rlap{\mdf@background@default%
1434 \rule[-\mdfboundingboxdepth]%
1435 {\mdfboundingboxtotalwidth}%
1436 {\mdfboundingboxtotalheight}%
1437 }%
1438 }%
1439 \def\mdf@frame@frametitlebackground@second{%
1440 \ifdimless{\mdfframetitleboxtotalheight}{\z@}%
1441 {}%
1442 {\rlap{\mdf@frametitlebackground@default%
1443 \rule[\dimexpr-\mdfboundingboxdepth+\mdfboundingboxtotalheight-\mdfframetitleboxtotalheight\relax]
1444 {\mdfboundingboxtotalwidth}%
1445 {\mdfframetitleboxtotalheight}%
1446 }%
1447 }%
1448 }%
1449 \def\mdf@frame@leftline@second{%
1450 \llap{\mdf@linecolor@default%
1451 \rule[-\mdfboundingboxdepth]%
1452 {\mdf@middlelinewidth@length}%
1453 {\dimexpr\mdfboundingboxtotalheight}%
1454 }%
1455 }%
1456 \def\mdf@frame@bottomline@second{%
1457 \rlap{\ifbool{mdf@leftline}{\hspace*{-\mdf@middlelinewidth@length}}{\mdf@linecolor@default%
1458 \rule[\dimexpr-\mdfboundingboxdepth-\mdf@middlelinewidth@length\relax]%
1459 {\dimexpr\mdfboundingboxtotalwidth
1460 \ifbool{mdf@rightline}{+\mdf@middlelinewidth@length}}{\relax}%
1461 \ifbool{mdf@leftline}{+\mdf@middlelinewidth@length}}{\relax}%
1462 {\mdf@middlelinewidth@length}%
1463 }%
1464 }%
1465 \def\mdf@frame@rightline@second{%
1466 \rlap{\mdf@linecolor@default\hspace*{\mdfboundingboxwidth}%
1467 \hspace*{\mdf@innerrightmargin@length}%
1468 \rule[-\mdfboundingboxdepth]%
1469 {\mdf@middlelinewidth@length}%
1470 {\mdfboundingboxtotalheight}%
1471 }%
1472 }%
1473 \def\mdf@putbox@second{%
1474 \ifvoid\mdf@splitbox@one%
1475 \else
1476 \mdf@makebox@out{%
1477 \mdf@makeboxalign@left%

```

```

1478 \setlength{\mdfboundingboxwidth}{\wd\mdf@splitbox@one}%
1479 \setlength{\mdfboundingboxtotalwidth}%
1480     {\dimexpr\mdfboundingboxwidth+\mdf@innerleftmargin@length%
1481      +\mdf@innerrightmargin@length\relax}%
1482 \setlength{\mdfboundingboxheight}{\dimexpr\ht\mdf@splitbox@one+\dp\mdf@splitbox@one\relax}%
1483 \setlength{\mdfboundingboxdepth}%
1484     {\dimexpr\dp\mdf@splitbox@one+\mdf@innerbottommargin@length\relax}%
1485 \setlength{\mdfboundingboxtotalheight}%
1486     {\dimexpr\mdfboundingboxheight+\mdf@innerbottommargin@length\relax}%
1487 \setlength{\@tempdima}{\dimexpr\mdfboundingboxtotalwidth%
1488     +\ifbool{mdf@leftline}{\mdf@middlelinewidth@length}{\z@}%
1489     +\ifbool{mdf@rightline}{\mdf@middlelinewidth@length}{\z@}%
1490     \relax}%
1491 \mdf@makebox@in[\@tempdima]{%
1492 \null%
1493   \ifbool{mdf@leftline}{%
1494     \hspace*{\mdf@middlelinewidth@length}%
1495     \mdf@frame@leftline@second}{}%
1496   \mdf@frame@background@second%
1497   \ifbool{mdf@bottomline}{%
1498     \mdf@frame@bottomline@second}{}%
1499   \ifdefempty{\mdf@frametitle}{\mdf@frame@frametitlebackground@second}%
1500   \hspace*{\mdf@innerleftmargin@length}%
1501   \ifbool{mdf@rightline}{%
1502     \mdf@frame@rightline@second}{}%
1503   {\box\mdf@splitbox@one}%
1504 }%
1505 \mdf@makeboxalign@right%
1506 }%
1507 \fi%
1508 }%

```

```

\mdf@putbox@middle
\mdf@frame@background@middle
\mdf@frame@leftline@middle
\mdf@frame@rightline@middle

```

The last frame of of a splitted contents of mdframed

```

1509 \def\mdf@frame@leftline@middle{%
1510   \llap{\mdf@linecolor@default%
1511     \rule[-\mdfboundingboxdepth]%
1512       {\mdf@middlelinewidth@length}%
1513       {\mdfboundingboxtotalheight}%
1514   }%
1515 }%
1516 \def\mdf@frame@background@middle{%
1517   \ifbool{mdf@shadow}{%
1518     \rlap{\smash{\mdf@shadow@default%
1519       \rule[\dimexpr-\mdfboundingboxdepth
1520         -\mdf@shadowsize@length\relax]%
1521         {\dimexpr\mdfboundingboxtotalwidth
1522           +\mdf@shadowsize@length
1523           \ifbool{mdf@rightline}{+\mdf@middlelinewidth@length}{}}\relax}%
1524         {\dimexpr\mdfboundingboxtotalheight\relax}%
1525     }%

```

```

1526   }}{}%
1527   \rlap{\mdf@background@default%
1528     \rule[-\mdfboundingboxdepth]%
1529       {\mdfboundingboxtotalwidth}%
1530       {\mdfboundingboxtotalheight}%
1531   }%
1532 }%
1533 \def\mdf@frame@frametitlebackground@middle{%
1534 \ifdimless{\mdfframetitleboxtotalheight}{\z@}%
1535   {}%
1536   {\rlap{\mdf@frametitlebackground@default%
1537     \rule[\dimexpr-\mdfboundingboxdepth+\mdfboundingboxtotalheight-\mdfframetitleboxtotalheight\relax]
1538       {\mdfboundingboxtotalwidth}%
1539       {\mdfframetitleboxtotalheight}%
1540   }%
1541   \global\mdfframetitleboxtotalheight=-\p@ \relax%
1542 }%
1543 }%
1544 \def\mdf@frame@rightline@middle{%
1545 \rlap{\mdf@linecolor@default\hspace*{\mdfboundingboxwidth}%
1546   \hspace*{\mdf@innerrightmargin@length}%
1547   \rule[-\mdfboundingboxdepth]%
1548     {\mdf@middlelinewidth@length}%
1549     {\mdfboundingboxtotalheight}%
1550 }%
1551 }%
1552 \def\mdf@putbox@middle{%
1553 \ifvoid\mdf@splitbox@two%
1554 \else
1555   \mdf@makebox@out{%
1556     \mdf@makeboxalign@left%
1557     \setlength{\mdfboundingboxwidth}{\wd\mdf@splitbox@two}%
1558     \setlength{\mdfboundingboxtotalwidth}%
1559       {\dimexpr\mdfboundingboxwidth+\mdf@innerleftmargin@length%
1560         +\mdf@innerrightmargin@length\relax}%
1561     \setlength{\mdfboundingboxheight}{\dimexpr\ht\mdf@splitbox@two+\dp\mdf@splitbox@two\relax}%
1562     \setlength{\mdfboundingboxdepth}%
1563       {\dimexpr\dp\mdf@splitbox@two+\mdf@splitbottomskip@length\relax}%
1564     \setlength{\mdfboundingboxtotalheight}%
1565       {\dimexpr\mdfboundingboxheight+\mdf@splitbottomskip@length\relax}%
1566     \setlength{\@tempdima}{\dimexpr\mdfboundingboxtotalwidth%
1567       +\ifbool{mdf@leftline}{\mdf@middlelinewidth@length}{\z@}%
1568       +\ifbool{mdf@rightline}{\mdf@middlelinewidth@length}{\z@}%
1569       \relax}%
1570     \mdf@makebox@in[\@tempdima]{%
1571       \null%
1572       \ifbool{mdf@leftline}{%
1573         \hspace*{\mdf@middlelinewidth@length}%
1574         \mdf@frame@leftline@middle{}}%
1575       \mdf@frame@background@middle%
1576       \ifdefempty{\mdf@frametitle}{\mdf@frame@frametitlebackground@middle}%
1577       \hspace*{\mdf@innerleftmargin@length}%
1578       \ifbool{mdf@rightline}{%
1579         \mdf@frame@rightline@middle{}}%
1580       {\box\mdf@splitbox@two}%
1581   }%

```

```

1582 \mdf@makeboxalign@right%
1583 }
1584 \fi%
1585 }

```

```

1586 \endinput

```

B.3. The Explanation of md-frame-1.mdf

```

1587 %% Style file for mdframed for package option 'framemethod=default'
1588 %%
1589 %% This package may be distributed under the terms of the LaTeX Project
1590 %% Public License, as described in lppl.txt in the base LaTeX distribution.
1591 %% Either version 1.0 or, at your option, any later version.
1592 %%
1593 %%
1594 %%$Id: mdframed.dtx 347 2012-03-04 13:04:28Z marco $
1595 %

```

```

\mdframedIpackagename
\mdf@frameIdate@svn

```

local settings

```

1596 \def\mdframedIpackagename{md-frame-1}
1597 \def\mdf@frameIdate@svn$#1: #2 #3 #4-#5-#6 #7 #8${#4/#5/#6\space }
1598 \ProvidesFile{md-frame-1.mdf}%
1599 [\mdf@frameIdate@svn$Id: mdframed.dtx 347 2012-03-04 13:04:28Z marco $ %
1600 \mdversion: \mdframedIpackagename]
1601 %

```

```

\mdf@tikz@settings

```

Define settings for tikz

```

1602 %Allgemeine Einstellungen fuer tikz
1603 \def\mdf@tikz@settings{%
1604 %
1605 \tikzset{mdfbox/.style={anchor=south west,%
1606 inner sep=0pt,%
1607 outer sep=0pt,%
1608 \mdf@fontcolor,}}% anchor der Ausgabebox ist unten links
1609 \tikzset{mdfcorners/.style={rounded corners=\mdf@roundcorner@length}}%
1610 \tikzset{mdfbackground/.style={fill=\mdf@backgroundcolor,%
1611 draw=\mdf@backgroundcolor}}%
1612 \tikzset{mdfframetitlebackground/.style={fill=\mdf@frametitlebackgroundcolor,%
1613 draw=none,%
1614 rounded corners={max(\mdf@roundcorner@length%
1615 -\mdf@innerlinewidth@length%
1616 -.5\mdf@middlelinewidth@length,0)}}}%
1617 %
1618 \tikzset{mdfouterline/.style={}}%
1619 % nur wenn outerlinewidth>0 wird aussere Linie gezeichnet
1620 \ifdimgreater{\mdf@outerlinewidth@length}{\z@}
1621 {\tikzset{mdfouterline/.append style={%
1622 draw=\mdf@outerlinecolor,%
1623 line width=2\mdf@outerlinewidth@length+\mdf@middlelinewidth@length}}}%

```

```

1624 %
1625 \tikzset{mdfinnerline/.style={}}%
1626 % nur wenn innerlinewidth>0 wird innere Linie gezeichnet
1627 \ifdimgreater{\mdf@innerlinewidth@length}{\z@}
1628   {\tikzset{mdfinnerline/.append style={%
1629     draw=\mdf@innerlinecolor,%
1630     line width=2\mdf@innerlinewidth@length+\mdf@middlelinewidth@length}}}%
1631 %
1632 \tikzset{mdfshadow/.style={drop shadow={%
1633   shadow xshift=\mdf@shadowsize@length-2pt,
1634   shadow yshift=-\mdf@shadowsize@length+2pt,
1635   fill=\mdf@shadowcolor,
1636   every shadow }}}%
1637 %
1638 \mdf@tikzset@local
1639 \tikzset{mdfmiddleline/.style={}}%
1640 % nur wenn middlelinewidth>0 wird mittlere Linie gezeichnet
1641 \ifdimgreater{\mdf@middlelinewidth@length}{\z@}
1642   {\tikzset{mdfmiddleline/.append style={%
1643     preaction={draw=\mdf@middlelinecolor,%
1644       line width=\mdf@middlelinewidth@length},%
1645     line width=\mdf@middlelinewidth@length,%
1646     tikzsetting}}}%
1647   }{}%
1648 }%

```

```

\mdf@tikzbox@tfl
\mdf@tikzbox@otl

```

Befehle fuer Ausgabe von Rahmen und Hintergrund

```

1649 \newrobustcmd*\mdf@tikzbox@tfl[1]{%three or four borders
1650   \clip(0,0)rectangle(\mdf@boundingboxwidth,\mdf@boundingboxheight);%
1651   \begin{scope}[mdfcorners]%
1652     \clip[preaction=mdfouterline]%
1653       [postaction=mdfbackground]%
1654       [postaction=mdfinnerline]#1;%
1655   \end{scope}%
1656   \path[mdfmiddleline,mdfcorners]#1;
1657 }%
1658
1659
1660
1661 \newrobustcmd*\mdf@tikzbox@otl[2]{%one or two borders
1662   \clip(0,0)rectangle(\mdf@boundingboxwidth,\mdf@boundingboxheight);%
1663   \begin{scope}
1664     \path[mdfouterline,mdfcorners]#1;%
1665     \clip[postaction=mdfbackground]#2;%
1666     \path[mdfinnerline,mdfcorners]#1;%
1667   \end{scope}%
1668   \path[mdfmiddleline,mdfcorners]#1;%

```

```

\mdf@put@frametitlerule

```

frametitlerule with tikz

```

1669 \tikzset{mdfframetitlerule/.style={%

```



```

1670   draw=none,
1671   fill=\mdf@frametitlecolor,
1672 }%
1673 }
1674 \def\mdf@@frametitlerule{%
1675   \ifbool{mdf@frametitlerule}{%
1676     \vbox{\hsize0pt
1677       \par\unskip\vskip\mdf@frametitlebelowskip@length
1678       \noindent\rlap{\hspace*{-\mdf@innerleftmargin@length}%
1679       \begingroup%
1680       \pgfmathsetlength{\dimen@}{\mdfframetitleboxwidth+\mdf@innerleftmargin@length+\mdf@innerrightmargin@length}
1681       \tikz\draw[mdfframetitlerule] (0,0)%
1682           rectangle (\dimen@,\mdf@frametitlewidth@length);
1683       \endgroup}
1684     }%
1685   }{}
1686   \par\unskip\vskip\mdf@innertopmargin@length%
1687 }%
1688

```

`\mdf@putbox@single`

Output of the non breakable contents.

```

1689 % Info zu den verwendeten Punkten:
1690 % O ist die untere linke Ecke der Mitte der middleline
1691 % P ist die obere rechte Ecke der Mitte der middleline
1692 % A ist der Punkt fuer den anchor (d.h. die untere linke Ecke) der Ausgabebox
1693 %
1694 \def\mdf@putbox@single{%
1695   \ifvoid\mdf@splitbox@one
1696   \else%
1697     \mdf@makebox@out{%
1698       \mdf@makeboxalign@left%
1699       \mdf@tikz@settings%
1700 %
1701       \setlength\mdfboundingboxwidth{\wd\mdf@splitbox@one}%
1702       \advance\mdfboundingboxwidth by \mdf@innerleftmargin@length\relax%
1703       \advance\mdfboundingboxwidth by \mdf@innerrightmargin@length\relax%
1704       \ifbool{mdf@leftline}{%
1705         \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
1706         \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
1707         \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}}{}%
1708       \ifbool{mdf@rightline}{%
1709         \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
1710         \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
1711         \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}}{}%
1712 %
1713       \setlength\mdfboundingboxheight{\dimexpr\ht\mdf@splitbox@one+\dp\mdf@splitbox@one\relax}%
1714       \advance\mdfboundingboxheight by \mdf@innertopmargin@length\relax%
1715       \advance\mdfboundingboxheight by \mdf@innerbottommargin@length\relax%
1716       \ifbool{mdf@topline}{%
1717         \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
1718         \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
1719         \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}}{}%
1720       \ifbool{mdf@bottomline}{%

```

```

1721 \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
1722 \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
1723 \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}}}%
1724 \mdf@makebox@in[\mdfboundingboxwidth]{%
1725 \null%
1726 \begin{tikzpicture}[remember picture]%
1727 \pgfmathsetlengthmacro\mdf@Ax{+\mdf@innerleftmargin@length}%
1728 \pgfmathsetlengthmacro\mdf@Ay{+\mdf@innerbottommargin@length}%
1729 \pgfmathsetlengthmacro\mdf@Ox{+0pt}%
1730 \pgfmathsetlengthmacro\mdf@Oy{+0pt}%
1731 \pgfmathsetlengthmacro\mdf@Px{+\mdfboundingboxwidth}%
1732 \pgfmathsetlengthmacro\mdf@Py{+\mdfboundingboxheight}%
1733 \ifbool{mdf@leftline}%
1734 {%
1735 \pgfmathsetlengthmacro\mdf@Ax%
1736 {\mdf@Ax+\mdf@outerlinewidth@length+
1737 \mdf@middlelinewidth@length+\mdf@innerlinewidth@length}%
1738 \pgfmathsetlengthmacro\mdf@Ox%
1739 {\mdf@Ox+\mdf@outerlinewidth@length+0.5\mdf@middlelinewidth@length}%
1740 }}}%
1741 \ifbool{mdf@rightline}%
1742 {%
1743 \pgfmathsetlengthmacro\mdf@Px%
1744 {\mdf@Px-\mdf@outerlinewidth@length-0.5\mdf@middlelinewidth@length}%
1745 }}}%
1746 \ifbool{mdf@bottomline}%
1747 {%
1748 \pgfmathsetlengthmacro\mdf@Ay%
1749 {\mdf@Ay+\mdf@outerlinewidth@length+\mdf@middlelinewidth@length%
1750 +\mdf@innerlinewidth@length}%
1751 \pgfmathsetlengthmacro\mdf@Oy%
1752 {\mdf@Oy+\mdf@outerlinewidth@length+0.5\mdf@middlelinewidth@length}%
1753 }}}%
1754 \ifbool{mdf@topline}%
1755 {%
1756 \pgfmathsetlengthmacro\mdf@Py%
1757 {\mdf@Py-\mdf@outerlinewidth@length-0.5\mdf@middlelinewidth@length}%
1758 }}}%
1759 %
1760 \coordinate(0)at(\mdf@Ox,\mdf@Oy);%
1761 \coordinate(P)at(\mdf@Px,\mdf@Py);%
1762 %
1763 \ifbool{mdf@shadow}
1764 {\path[mdfshadow,mdfcorners](0) rectangle (P);}%
1765 %
1766 \begin{scope}[use as bounding box]
1767 \mdf@test@lrb{\mdf@tikzbox@tfl{(0)--(0|-P)--(P)--(P|-0)--cycle)}}}%
1768 %
1769 \mdf@test@ltb{\mdf@tikzbox@tfl{(P|-0)--(0)--(0|-P)--(P)}}}%
1770 \mdf@test@trb{\mdf@tikzbox@tfl{(0|-P)--(P)--(P|-0)--(0)}}}%
1771 \mdf@test@ltr{\mdf@tikzbox@tfl{(0)--(0|-P)--(P)--(P|-0)}}}%
1772 \mdf@test@lrb{\mdf@tikzbox@tfl{(P|-0)--(0)--(0|-P)--(P)}}}%
1773 %
1774 \mdf@test@lb{\mdf@tikzbox@otl{(P|-0)--(0)--(0|-P)}%
1775 {(P)--(P|-0)[mdfcorners]--(0)--(0|-P)}%
1776 }}}%

```

```

1777 \mdf@test@rb{\mdf@tikzbox@otl{(P)--(P|-0)--(0)}%
1778             {(0|-P)--(P)[mdfcorners]--(P|-0)--(0)}%
1779             }{}%
1780 \mdf@test@tr{\mdf@tikzbox@otl{(0|P)--(P)--(P|-0)}%
1781             {(0)--(0|-P)[mdfcorners]--(P)--(P|-0)}%
1782             }{}%
1783 \mdf@test@lt{\mdf@tikzbox@otl{(0)--(0|-P)--(P)}%
1784             {(P|-0)--(0)[mdfcorners]--(0|-P)--(P)}%
1785             }{}%
1786 \mdf@test@lr{\mdf@tikzbox@otl{(0)--(0|-P)(P)--(P|-0)}%
1787             {(0)rectangle(P)}%
1788             }{}%
1789 \mdf@test@tb{\mdf@tikzbox@otl{(0)--(0|P)(0|-P)--(P)}%
1790             {(0)rectangle(P)}%
1791             }{}%
1792 %
1793 \mdf@test@l{\mdf@tikzbox@otl{(0)--(0|-P)}%
1794             {(0)rectangle(P)}%
1795             }{}%
1796 \mdf@test@r{\mdf@tikzbox@otl{(0|P)--(P)}%
1797             {(0)rectangle(P)}%
1798             }{}%
1799 \mdf@test@t{\mdf@tikzbox@otl{(0|-P)--(P)}%
1800             {(0)rectangle(P)}%
1801             }{}%
1802 \mdf@test@b{\mdf@tikzbox@otl{(0)--(0|P)}%
1803             {(0)rectangle(P)}%
1804             }{}%
1805 %
1806 \mdf@test@noline{\path[mdfbackground,mdfcorners](0)rectangle(P);}%
1807 %
1808 %Frametitlebackground
1809 \drawbackgroundframetitle@single
1810 %
1811 \node[mdfbox]at(\mdf@Ax,\mdf@Ay){\box\mdf@splitbox@one};% Ausgabebox einfuegen
1812 \end{scope}
1813 %HIER KOMMT EIN WEITERES MAKRO
1814 \mdfcreateextratikz
1815 \end{tikzpicture}%
1816 }%
1817 \mdf@makeboxalign@right%
1818 }%
1819 \fi
1820 }%
1821 \def\drawbackgroundframetitle@single{%
1822 \ifdefempty{\mdf@frametitle}{}{}%
1823 \drawbackgroundframetitle@single%
1824 }%
1825 }%
1826 \def\drawbackgroundframetitle@@single{%
1827 \begin{scope}%background frame title
1828 \ifbool{mdf@leftline}{
1829 \pgfmathsetlengthmacro\mdf@0x%
1830 {\mdf@0x+\mdf@innerlinewidth@length+0.5\mdf@middlelinewidth@length}
1831 }{}%
1832 \ifbool{mdf@rightline}{%

```

```

1833 \pgfmathsetlengthmacro\mdf@Px%
1834     {\mdf@Px-\mdf@innerlinewidth@length-0.5\mdf@middlelinewidth@length}
1835 }{}%
1836 \ifbool{mdf@topline}{%
1837     \pgfmathsetlengthmacro\mdf@Py%
1838     {\mdf@Py-\mdf@innerlinewidth@length-0.5\mdf@middlelinewidth@length}
1839 }{}%
1840 \pgfmathsetlengthmacro\mdf@Fy
1841     {\mdf@Py-\mdfframetitleboxtotalheight}
1842 \path[mdfframetitlebackground]
1843     (\mdf@0x,\mdf@Fy) -- (\mdf@0x,\mdf@Py)%
1844     --(\mdf@Px,\mdf@Py) --(\mdf@Px,\mdf@Fy);
1845 \end{scope}
1846 }

```

\mdf@putbox@first

Output of the first breakable contents.

```

1847 \def\drawbrackgroundframetitle@first{%
1848 \ifdefempty{\mdf@frametitle}{}{%
1849 \ifdimgreater{\mdfboundingboxheight}{\mdfframetitleboxtotalheight}%
1850 {%
1851 \drawbrackgroundframetitle@@first
1852 \pgfmathsetlength{\global\mdfframetitleboxtotalheight}{-\p@}%
1853 }{\mdf@PackageWarning{You got a page break inside the frame title\MessageBreak
1854     Currently this isn't well supported}%
1855 \drawbrackgroundframetitle@@first
1856 \pgfmathsetlength{\global\mdfframetitleboxtotalheight}%
1857     {\mdfframetitleboxtotalheight-\mdfboundingboxheight-
1858     \mdf@innerlinewidth@length-0.5\mdf@middlelinewidth@length}
1859     +\mdf@frametitlebelowskip@length+\mdf@splitbottomskip@length+\mdf@splittopskip@length}
1860     +\dp\strutbox%
1861 }%
1862 }%
1863 }%
1864 }%
1865 %
1866 \def\drawbrackgroundframetitle@@first{%
1867 \begin{scope}%background frame title
1868 \ifbool{mdf@leftline}{%
1869 \pgfmathsetlengthmacro\mdf@0x%
1870     {\mdf@0x+\mdf@innerlinewidth@length+0.5\mdf@middlelinewidth@length}
1871 }{}%
1872 \ifbool{mdf@rightline}{%
1873 \pgfmathsetlengthmacro\mdf@Px%
1874     {\mdf@Px-\mdf@innerlinewidth@length-0.5\mdf@middlelinewidth@length}
1875 }{}%
1876 \ifbool{mdf@topline}{%
1877 \pgfmathsetlengthmacro\mdf@Py%
1878     {\mdf@Py-\mdf@innerlinewidth@length-0.5\mdf@middlelinewidth@length}
1879 }{}%
1880 \pgfmathsetlengthmacro\mdf@Fy
1881     {\max(0,\mdf@Py-\mdfframetitleboxtotalheight)}
1882 \path[mdfframetitlebackground]
1883     (\mdf@0x,\mdf@Fy) -- (\mdf@0x,\mdf@Py)%

```

```

1884      --(\mdf@Px,\mdf@Py) --(\mdf@Px,\mdf@Fy);
1885      \end{scope}%
1886 }%
1887 %
1888 \def\mdf@putbox@first{%
1889   \ifvoid\mdf@splitbox@two
1890   \else%
1891     \mdf@makebox@out{%
1892       \mdf@makeboxalign@left%
1893       \mdf@tikz@settings%
1894       \setlength\mdfboundingboxwidth{\wd\mdf@splitbox@two}%
1895       \advance\mdfboundingboxwidth by \mdf@innerleftmargin@length\relax%
1896       \advance\mdfboundingboxwidth by \mdf@innerrightmargin@length\relax%
1897       \ifbool{mdf@leftline}{%
1898         \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
1899         \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
1900         \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}}{%
1901       \ifbool{mdf@rightline}{%
1902         \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
1903         \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
1904         \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}}}%
1905 %
1906 \setlength\mdfboundingboxheight{\dimexpr\ht\mdf@splitbox@two+\dp\mdf@splitbox@two\relax}%
1907 \advance\mdfboundingboxheight by \mdf@innertopmargin@length\relax%
1908 \advance\mdfboundingboxheight by \mdf@splitbottomskip@length\relax%
1909 \ifbool{mdf@topline}{%
1910   \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
1911   \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
1912   \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}}}%
1913 %
1914 %\ifdimequal{\pagegoal}{\maxdimen}{\enlargethispage{\baselineskip}}}% ???
1915 \ifdimgreater{\pagegoal-\maxdimen}{0pt}{\enlargethispage{\baselineskip}}}%
1916 \mdf@makebox@in[\mdfboundingboxwidth]{%
1917   \null%
1918   \begin{tikzpicture}[remember picture]
1919 %
1920   \pgfmathsetlengthmacro\mdf@Ax{+\mdf@innerleftmargin@length}%
1921   \pgfmathsetlengthmacro\mdf@Ay{+\mdf@splitbottomskip@length}%
1922   \pgfmathsetlengthmacro\mdf@Ox{+0pt}%
1923   \pgfmathsetlengthmacro\mdf@Oy{+0pt}%
1924   \pgfmathsetlengthmacro\mdf@Px{+\mdfboundingboxwidth}%
1925   \pgfmathsetlengthmacro\mdf@Py{+\mdfboundingboxheight}%
1926   \ifbool{mdf@leftline}
1927   {%
1928     \pgfmathsetlengthmacro\mdf@Ax%
1929       {\mdf@Ax+\mdf@outerlinewidth@length+
1930        \mdf@middlelinewidth@length+\mdf@innerlinewidth@length}%
1931     \pgfmathsetlengthmacro\mdf@Ox%
1932       {\mdf@Ox+\mdf@outerlinewidth@length+0.5\mdf@middlelinewidth@length}%
1933   }{%
1934     \ifbool{mdf@rightline}{%
1935       \pgfmathsetlengthmacro\mdf@Px%
1936       {\mdf@Px-\mdf@outerlinewidth@length-0.5\mdf@middlelinewidth@length}%
1937     }{%
1938       \ifbool{mdf@topline}{%
1939         \pgfmathsetlengthmacro\mdf@Py%

```

```

1940         {\mdf@Py-\mdf@outerlinewidth@length-0.5\mdf@middlelinewidth@length}%
1941     }{}%
1942 %
1943     \coordinate(0)at(\mdf@0x,\mdf@0y);%
1944     \coordinate(P)at(\mdf@Px,\mdf@Py);%
1945 %
1946     \ifbool{mdf@shadow}
1947         {\path[mdfshadow] (0) -- (0|-P) to[mdfcorners] (P) -- (P|-0) -- (0);}%
1948 %
1949     \begin{scope}[use as bounding box]
1950         \ifbool{test {\mdf@test@lrb} or test {\mdf@test@lrb}}%
1951             {\mdf@tikzbox@otl{(0)--(0|-P)--(P)--(P|-0)}}%
1952             {}%
1953         \ifbool{test {\mdf@test@ltb} or test {\mdf@test@ltb}}%
1954             {\mdf@tikzbox@otl{(0)--(0|-P)--(P)}{(P|-0)--(0)[mdfcorners]--(0|-P)--(P)}}%
1955             {}%
1956         \ifbool{test {\mdf@test@trb} or test {\mdf@test@trb}}%
1957             {\mdf@tikzbox@otl{(0|-P)--(P)--(P|-0)}{(0)--(0|-P)[mdfcorners]--(P)--(P|-0)}}%
1958             {}%
1959         \ifbool{test {\mdf@test@lrb} or test {\mdf@test@lrb}}%
1960             {\mdf@tikzbox@otl{(0)--(0|-P)(P)--(P|-0)}{(0)rectangle(P)}}%
1961             {}%
1962         \ifbool{test {\mdf@test@tb} or test {\mdf@test@tb}}%
1963             {\mdf@tikzbox@otl{(0|-P)--(P)}{(0)rectangle(P)}}%
1964             {}%
1965         \ifbool{test {\mdf@test@lb} or test {\mdf@test@lb}}%
1966             {\mdf@tikzbox@otl{(0)--(0|-P)}{(0)rectangle(P)}}%
1967             {}%
1968         \ifbool{test {\mdf@test@rb} or test {\mdf@test@rb}}%
1969             {\mdf@tikzbox@otl{(0|-P)--(P)}{(0)rectangle(P)}}%
1970             {}%
1971         \mdf@test@b{\path[mdfbackground](0)rectangle(P);}%
1972 %
1973         \mdf@test@noline{\path[mdfbackground,mdfcorners](0)--(0|-P)--(P)--(P|-0);}%
1974 %
1975         \drawbrackgroundframetitle@first
1976 %
1977         \node[mdfbox]at(\mdf@Ax,\mdf@Ay){\box\mdf@splitbox@two};% Ausgabebox einfüegen
1978     \end{scope}
1979     %HIER KOMMT EIN WEITERES MAKRO
1980     \mdfcreateextratikz%
1981     \end{tikzpicture}%
1982 }%
1983 \mdf@makeboxalign@right%
1984 }%
1985 \fi
1986 }%

```

\mdf@putbox@middle

Output of the middle breakable contents.

```

1987 \def\drawbrackgroundframetitle@middle{%
1988 \ifdefempty{\mdf@frametitle}{}%
1989 \ifdimless{\mdfframetitleboxtotalheight}{\z@}
1990 {}%

```

```

1991 \drawbackgroundframetitle@@middle%
1992 \pgfmathsetlength{\global\mdfframetitleboxtotalheight}{-\p@}%
1993 }%
1994 }%
1995 }%
1996 %
1997 \def\drawbackgroundframetitle@@middle{%
1998 \begin{scope}%background frame title
1999 \ifbool{mdf@leftline}{%
2000 \pgfmathsetlengthmacro\mdf@0x%
2001 {\mdf@0x+\mdf@innerlinewidth@length+0.5\mdf@middlelinewidth@length}
2002 }{}%
2003 \ifbool{mdf@rightline}{%
2004 \pgfmathsetlengthmacro\mdf@Px%
2005 {\mdf@Px-\mdf@innerlinewidth@length-0.5\mdf@middlelinewidth@length}
2006 }{}%
2007 \pgfmathsetlengthmacro\mdf@Fy
2008 {\mdf@Py-\mdfframetitleboxtotalheight}
2009 \path[mdfframetitlebackground,rounded corners=\z@]
2010 (\mdf@0x,\mdf@Fy) -- (\mdf@0x,\mdf@Py)%
2011 --(\mdf@Px,\mdf@Py) --(\mdf@Px,\mdf@Fy);
2012 \end{scope}
2013 }%
2014 %
2015 \def\mdf@putbox@middle{%
2016 \ifvoid\mdf@splitbox@two
2017 \else%
2018 \mdf@makebox@out{%
2019 \mdf@makeboxalign@left%
2020 \mdf@tikz@settings%
2021 %
2022 \setlength\mdfboundingboxwidth{\wd\mdf@splitbox@two}%
2023 \advance\mdfboundingboxwidth by \mdf@innerleftmargin@length\relax%
2024 \advance\mdfboundingboxwidth by \mdf@innerrightmargin@length\relax%
2025 \ifbool{mdf@leftline}{%
2026 \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
2027 \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
2028 \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}}{}%
2029 \ifbool{mdf@rightline}{%
2030 \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
2031 \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
2032 \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}}{}%
2033 %
2034 \setlength\mdfboundingboxheight{\dimexpr\ht\mdf@splitbox@two+\dp\mdf@splitbox@two\relax}%
2035 \advance\mdfboundingboxheight by \mdf@splitbottomskip@length\relax%
2036 %
2037 \mdf@makebox@in[\mdfboundingboxwidth]{%
2038 \null%
2039 \begin{tikzpicture}[remember picture]
2040 \pgfmathsetlengthmacro\mdf@Ax{+\mdf@innerleftmargin@length}%
2041 \pgfmathsetlengthmacro\mdf@Ay{+\mdf@splitbottomskip@length}%
2042 \pgfmathsetlengthmacro\mdf@0x{+0pt}%
2043 \pgfmathsetlengthmacro\mdf@0y{+0pt}%
2044 \pgfmathsetlengthmacro\mdf@Px{+\mdfboundingboxwidth}%
2045 \pgfmathsetlengthmacro\mdf@Py{+\mdfboundingboxheight}%
2046 \ifbool{mdf@leftline}%

```



```

2047     {%
2048     \pgfmathsetlengthmacro\mdf@Ax%
2049         {\mdf@Ax+\mdf@outerlinewidth@length+
2050         \mdf@middlelinewidth@length+\mdf@innerlinewidth@length}%
2051     \pgfmathsetlengthmacro\mdf@Ox%
2052         {\mdf@Ox+\mdf@outerlinewidth@length+0.5\mdf@middlelinewidth@length}%
2053     }{}%
2054     \ifbool{mdf@rightline}%
2055     {%
2056     \pgfmathsetlengthmacro\mdf@Px%
2057         {\mdf@Px-\mdf@outerlinewidth@length-0.5\mdf@middlelinewidth@length}%
2058     }{}%
2059 %
2060     \coordinate(0)at(\mdf@Ox,\mdf@Oy);%
2061     \coordinate(P)at(\mdf@Px,\mdf@Py);%
2062 %
2063     \ifbool{mdf@shadow}
2064         {\path[mdfshadow](0) rectangle (P);}%
2065 %
2066     \begin{scope}[use as bounding box]
2067     \ifboolexpr{bool {mdf@leftline} and bool {mdf@rightline}}%
2068         {\mdf@tikzbox@otl{(0)--(0|-P)(P)--(P|-0)}{(0)rectangle(P)}}{}%
2069     \ifboolexpr{bool {mdf@leftline} and not (bool {mdf@rightline})}%
2070         {\mdf@tikzbox@otl{(0)--(0|-P)}{(0)rectangle(P)}}{}%
2071     \ifboolexpr{not (bool {mdf@leftline}) and bool {mdf@rightline}}%
2072         {\mdf@tikzbox@otl{(P)--(P|-0)}{(0)rectangle(P)}}{}%
2073     \ifboolexpr{not (bool {mdf@leftline}) and not (bool {mdf@rightline})}%
2074         {\path[mdfbackground](0) rectangle(P);}%
2075 %
2076     \drawbrackgroundframetitle@middle
2077 %
2078     \node[mdfbox]at(\mdf@Ax,\mdf@Ay){\box\mdf@splitbox@two};% Ausgabebox einfuegen
2079     \end{scope}
2080     %HIER KOMMT EIN WEITERES MAKRO
2081     \mdfcreateextratikz
2082     \end{tikzpicture}%
2083     }%
2084     \mdf@makeboxalign@right%
2085     }%
2086 \fi
2087 }%

```

\mdf@putbox@second

Output of the last breakable contents.

```

2088 \def\drawbrackgroundframetitle@second{%
2089 \ifdefempty{\mdf@frametitle}}{}%
2090 \ifdimless{\mdfframetitleboxtotalheight}{\z@}
2091 {}{}%
2092 \drawbrackgroundframetitle@@second%
2093 }%
2094 }%
2095 }%
2096 %
2097 \def\drawbrackgroundframetitle@@second{%

```



```

2098 \begin{scope}%background frame title
2099 \ifbool{mdf@leftline}{
2100 \pgfmathsetlengthmacro\mdf@0x%
2101 {\mdf@0x+\mdf@innerlinewidth@length+0.5\mdf@middlelinewidth@length}
2102 }{}%
2103 \ifbool{mdf@rightline}{%
2104 \pgfmathsetlengthmacro\mdf@Px%
2105 {\mdf@Px-\mdf@innerlinewidth@length-0.5\mdf@middlelinewidth@length}
2106 }{}%
2107 \pgfmathsetlengthmacro\mdf@Fy
2108 {\mdf@Py-\mdfframetitleboxtotalheight}
2109 \path[mdfframetitlebackground,rounded corners=\z@]
2110 (\mdf@0x,\mdf@Fy) -- (\mdf@0x,\mdf@Py)%
2111 -- (\mdf@Px,\mdf@Py) -- (\mdf@Px,\mdf@Fy);
2112 \end{scope}
2113 }%
2114 \def\mdf@putbox@second{%
2115 \ifvoid\mdf@splitbox@one
2116 \else%
2117 \mdf@makebox@out{%
2118 \mdf@makeboxalign@left%
2119 \mdf@tikz@settings%
2120 %
2121 \setlength\mdfboundingboxwidth{\wd\mdf@splitbox@one}%
2122 \advance\mdfboundingboxwidth by \mdf@innerleftmargin@length\relax%
2123 \advance\mdfboundingboxwidth by \mdf@innerrightmargin@length\relax%
2124 \ifbool{mdf@leftline}{%
2125 \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
2126 \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
2127 \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}}{}%
2128 \ifbool{mdf@rightline}{%
2129 \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
2130 \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
2131 \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}}{}%
2132 %
2133 \setlength\mdfboundingboxheight{\dimexpr\ht\mdf@splitbox@one+\dp\mdf@splitbox@one\relax}%
2134 \advance\mdfboundingboxheight by \mdf@innerbottommargin@length\relax%
2135 \ifbool{mdf@bottomline}{%
2136 \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
2137 \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
2138 \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}}{}%
2139 %
2140 \mdf@makebox@in[\mdfboundingboxwidth]{%
2141 \null%
2142 \begin{tikzpicture}[remember picture]
2143 \pgfmathsetlengthmacro\mdf@Ax{+\mdf@innerleftmargin@length}%
2144 \pgfmathsetlengthmacro\mdf@Ay{+\mdf@innerbottommargin@length}%
2145 \pgfmathsetlengthmacro\mdf@0x{+0pt}%
2146 \pgfmathsetlengthmacro\mdf@0y{+0pt}%
2147 \pgfmathsetlengthmacro\mdf@Px{+\mdfboundingboxwidth}%
2148 \pgfmathsetlengthmacro\mdf@Py{+\mdfboundingboxheight}%
2149 \ifbool{mdf@leftline}%
2150 {%
2151 \pgfmathsetlengthmacro\mdf@Ax%
2152 {\mdf@Ax+\mdf@outerlinewidth@length+
2153 \mdf@middlelinewidth@length+\mdf@innerlinewidth@length}%

```

```

2154      \pgfmathsetlengthmacro\mdf@0x%
2155          {\mdf@0x+\mdf@outerlinewidth@length+0.5\mdf@middlelinewidth@length}%
2156      }{}%
2157      \ifbool{mdf@rightline}%
2158      {%
2159          \pgfmathsetlengthmacro\mdf@Px%
2160              {\mdf@Px-\mdf@outerlinewidth@length-0.5\mdf@middlelinewidth@length}%
2161          }{}%
2162      \ifbool{mdf@bottomline}%
2163      {%
2164          \pgfmathsetlengthmacro\mdf@Ay%
2165              {\mdf@Ay+\mdf@outerlinewidth@length+%
2166                  \mdf@middlelinewidth@length+\mdf@innerlinewidth@length}%
2167          \pgfmathsetlengthmacro\mdf@0y%
2168              {\mdf@0y+\mdf@outerlinewidth@length+0.5\mdf@middlelinewidth@length}%
2169          }{}%
2170 %
2171      \coordinate(0)at(\mdf@0x,\mdf@0y);%
2172      \coordinate(P)at(\mdf@Px,\mdf@Py);%
2173 %
2174      \ifbool{mdf@shadow}
2175          {\path[mdfshadow] (0|-P) to[mdfcorners] (0) to[mdfcorners] (P|-0) -- (P) -- (0|-P);}%
2176 %
2177      \begin{scope}[use as bounding box]
2178          \ifboolexpr{test {\mdf@test@ltrb} or test {\mdf@test@lrb}}%
2179              {\mdf@tikzbox@tfl{(P|-0)--(0)--(0|-P)--(P))}%
2180              }{}%
2181          \ifboolexpr{test {\mdf@test@ltb} or test {\mdf@test@lb}}%
2182              {\mdf@tikzbox@otl{(P|-0)--(0)--(0|-P)}{(P)--(P|-0)[mdfcorners]--(0)--(0|-P))}%
2183              }{}%
2184          \ifboolexpr{test {\mdf@test@trb} or test {\mdf@test@rb}}%
2185              {\mdf@tikzbox@otl{(P)--(P|-0)--(0))}{(0|-P)--(P)[mdfcorners]--(P|-0)--(0))}%
2186              }{}%
2187          \ifboolexpr{test {\mdf@test@ltr} or test {\mdf@test@lr}}%
2188              {\mdf@tikzbox@otl{(0)--(0|-P)(P)--(P|-0)}{(0)rectangle(P))}%
2189              }{}%
2190          \ifboolexpr{test {\mdf@test@tb} or test {\mdf@test@b}}%
2191              {\mdf@tikzbox@otl{(0)--(0|-P)}{(0)rectangle(P))}%
2192              }{}%
2193          \ifboolexpr{test {\mdf@test@lt} or test {\mdf@test@l}}%
2194              {\mdf@tikzbox@otl{(0)--(0|-P)}{(0)rectangle(P))}%
2195              }{}%
2196          \ifboolexpr{test {\mdf@test@tr} or test {\mdf@test@r}}%
2197              {\mdf@tikzbox@otl{(0|-P)--(P)}{(0)rectangle(P))}%
2198              }{}%
2199          \mdf@test@t{\path[mdfbackground,mdfcorners](0|-P)--(0)--(0|-P)--(P);}%
2200 %
2201          \mdf@test@noline{\path[mdfbackground,mdfcorners](0|-P)--(0)--(0|-P)--(P);}%
2202 %
2203          \drawbrackgroundframetitle@second
2204 %
2205          \node[mdfbox] at (\mdf@Ax,\mdf@Ay){\box\mdf@splitbox@one};% Ausgabebox einfuegen
2206      \end{scope}
2207      %HIER KOMMT EIN WEITERES MAKRO
2208      \mdfcreateextratikz
2209      \end{tikzpicture}%

```

```

2210     }%
2211     \mdf@makeboxalign@right%
2212     }%
2213     \fi
2214 }%

```

```

2215 \endinput

```

B.4. The Explanation of md-frame-2.mdf / md-frame-3.mdf

```

2216 %% Style file for mdframed for package option 'framemethod=default'
2217 %%
2218 %% This package may be distributed under the terms of the LaTeX Project
2219 %% Public License, as described in lppl.txt in the base LaTeX distribution.
2220 %% Either version 1.0 or, at your option, any later version.
2221 %%
2222 %%
2223 %%$Id: mdframed.dtx 347 2012-03-04 13:04:28Z marco $
2224 %

```

```

\mdframedIIPackagename
\mdf@frameIIDate@svn

```

local settings

```

2225 \def\mdframedIIPackagename{md-frame-2}
2226 \def\mdf@frameIIDate@svn$#1: #2 #3 #4-#5-#6 #7 #8${#4/#5/#6\space }
2227 \ProvidesFile{md-frame-2.mdf}%
2228     [\mdf@frameIIDate@svn$Id: mdframed.dtx 347 2012-03-04 13:04:28Z marco $ %
2229     \mdversion: \mdframedIIPackagename]

```

```

\mdf@ptlength@to@pscode
\ptTps

```

Command to calculate a latex length to postscript

```

2230 \def\mdf@ptlength@to@pscode#1{\pst@number{#1} \pst@number\psxunit div }
2231 \def\mdf@ptlength@to@pscode@length#1{\pst@number{\csname mdf@#1@length\endcsname} \pst@number\psxunit c
2232 \let\ptTps\mdf@ptlength@to@pscode\relax
2233 \let\ptTpsL\mdf@ptlength@to@pscode@length\relax

```

```

\mdfbackgroundstyle
\mdflinestyle
\mdfframetitlerule
\mdfframetitlebackground

```

background and line settings for pstricks

```

2234 \def\mdf@pstricks@settings{%expand by \addtopsstyle
2235     \newpsstyle{mdfbackgroundstyle}%
2236     {linecolor=\mdf@backgroundcolor,fillstyle=solid,%
2237     fillcolor=\mdf@backgroundcolor,linestyle=none,%
2238     ,dimen=middle,%
2239     }%
2240 %
2241     \newpsstyle{mdfframetitlebackgroundstyle}{%
2242     linecolor=\mdf@frametitlebackgroundcolor,

```

```

2243     fillcolor=\mdf@frametitlebackgroundcolor,
2244     fillstyle=solid,linestyle=none,
2245     lineararc=\ifdimgreater{\mdf@roundcorner@length%
2246                 -\mdf@innerlinewidth@length%
2247                 -.5\mdf@middlelinewidth@length}
2248     {\z@}{\dimexpr\mdf@roundcorner@length%
2249             -\mdf@innerlinewidth@length%
2250             -.5\mdf@middlelinewidth@length}{\z@},
2251 }
2252 %
2253 \newsstyle{mdfouterlinestyle}{linestyle=none}%
2254 \ifdimgreater{\mdf@outerlinewidth@length}{\z@}%
2255     {\newsstyle{mdfouterlinestyle}{%
2256         linecolor=\mdf@outerlinecolor,%
2257         linewidth=\dimexpr2\mdf@outerlinewidth@length+\mdf@middlelinewidth@length\relax,
2258         dimen=middle,
2259     }}}%
2260 %
2261 \newsstyle{mdfinnerlinestyle}{linestyle=none}%
2262 \ifdimgreater{\mdf@innerlinewidth@length}{\z@}%
2263     {\newsstyle{mdfinnerlinestyle}{%
2264         linecolor=\mdf@innerlinecolor,%
2265         linewidth=\dimexpr2\mdf@innerlinewidth@length+\mdf@middlelinewidth@length\relax,
2266         dimen=middle,
2267     }}}%
2268 %
2269 \newsstyle{mdfmiddlelinestyle}{linestyle=none}%
2270 \newsstyle{mdfshadow}{shadow=true,shadowcolor=\mdf@shadowcolor,shadowsize=\mdf@shadowsize@length}%
2271 \ifdimgreater{\mdf@middlelinewidth@length}{\z@}%
2272     {\newsstyle{mdfmiddlelinestyle}{%
2273         linewidth=\mdf@middlelinewidth@length,%
2274         linecolor=\mdf@middlelinecolor,dimen=middle
2275     }}}%
2276 \mdfpstricks@appendsettings
2277 }%
2278 %
2279 \newrobustcmd*{\mdf@pstricksbox@fl[2]}{%four lines
2280     \psframe[style=mdfouterlinestyle](#1)(#2)%ausen=3mm
2281     \psframe[style=mdfbackgroundstyle](#1)(#2)%Hintergrund
2282     \psclip{\psframe[style=mdfmiddlelinestyle](#1)(#2)}
2283     \psframe[style=mdfinnerlinestyle](#1)(#2)%innere=3mm
2284     \endpsclip
2285     \psframe[style=mdfmiddlelinestyle](#1)(#2)%mittlere=2mm
2286 }%
2287 \newrobustcmd*{\mdf@pstricksbox@tl[1]}{%three lines
2288     \psline[style=mdfouterlinestyle]#1%ausen=3mm
2289     \psline[style=mdfbackgroundstyle]#1%Hintergrund
2290     \psclip{\psline[style=mdfmiddlelinestyle]#1}
2291     \psline[style=mdfinnerlinestyle]#1%innere=3mm
2292     \endpsclip
2293     \psline[style=mdfmiddlelinestyle]#1%mittlere=2mm
2294 }%
2295 \newrobustcmd*{\mdf@pstricksbox@tcl[2]}{%two combined lines
2296 % #1 background comple
2297 % #2 line path
2298     \psline[style=mdfouterlinestyle]#2%ausen=3mm

```

```

2299 \psline[style=mdfbackgroundstyle]#2%Hintergrund
2300 \psclip{\pscustom[linestyle=none]{
2301     \psline[style=mdfmiddlelinestyle]#2
2302     \psline[linestyle=none,lineararc=0pt]#1}
2303 }
2304 \psframe[style=mdfbackgroundstyle,lineararc=0pt](mdf@0)(mdf@P)%Hintergrund
2305 \psline[style=mdfinnerlinestyle]#2%innere=3mm
2306 \endpsclip
2307 \psline[style=mdfmiddlelinestyle]#2%mittlere=2mm
2308 }%
2309 \newrobustcmd*\mdf@pstricksbox@tncl[2]{%two not combined lines
2310 \begingroup
2311 \psset{lineararc=0pt}
2312 \psline[style=mdfouterlinestyle](mdf@0)#1%ausсен=3mm
2313 \psline[style=mdfouterlinestyle](mdf@P)#2%ausсен=3mm
2314 \psclip{
2315 \pscustom[linestyle=none]{%
2316 \psline[style=mdfmiddlelinestyle](mdf@0)#1%mittlere=2mm
2317 \psline[linestyle=none](mdf@0)#2
2318 \psline[style=mdfmiddlelinestyle](mdf@P)#2%mittlere=2mm
2319 \psline[linestyle=none](mdf@P)#1
2320 }%
2321 }%
2322 \psframe[style=mdfbackgroundstyle,lineararc=0pt](mdf@0)(mdf@P)%Hintergrund
2323 \psline[style=mdfinnerlinestyle](mdf@0)#1%innere=3mm
2324 \psline[style=mdfinnerlinestyle](mdf@P)#2%innere=3mm
2325 \endpsclip
2326 \psline[style=mdfmiddlelinestyle](mdf@0)#1%mittlere=2mm
2327 \psline[style=mdfmiddlelinestyle](mdf@P)#2%mittlere=2mm
2328 \endgroup
2329 }%
2330 \newrobustcmd*\mdf@pstricksbox@ol[1]{%one line
2331 \begingroup
2332 \psset{lineararc=0pt}
2333 \psline[style=mdfouterlinestyle]#1%ausсен=3mm
2334 \psline[style=mdfbackgroundstyle]#1%Hintergrund
2335 \psclip{\pscustom[linestyle=none]{
2336 \psline[style=mdfmiddlelinestyle]#1
2337 \psframe[linestyle=none,fillstyle=none,dimen=inner](mdf@0)(mdf@P)
2338 }}
2339 \psframe[style=mdfbackgroundstyle](mdf@0)(mdf@P)
2340 \psline[style=mdfinnerlinestyle]#1%innere=3mm
2341 \endpsclip
2342 \psline[style=mdfmiddlelinestyle]#1%mittlere=2mm
2343 \endgroup%
2344 }%
2345
2346 %
2347 \newpsstyle{mdfframetitlerule}{%
2348 linecolor=\mdf@frametitlerulecolor,%
2349 fillcolor=\mdf@frametitlerulecolor,%
2350 fillstyle=solid,dimen=outer,%
2351 }
2352 %

```

\mdf@put@frametitulerule

frametitulerule with pstricks

```

2353 \def\mdf@@frametitulerule{%
2354   \ifbool{mdf@frametitulerule}{%
2355     \vbox{\hsize0pt
2356       \par\unskip\vskip\mdf@frametitlebelowskip@length
2357       \noindent\rlap{%
2358         \begingroup%
2359         \begin{pspicture}(0,0)(0,\mdf@frametitulerulewidth@length)
2360           \psframe[style=mdfframetitulerule](!\ptTpsL{innerleftmargin} neg 0)%
2361           (! \ptTpsL{innerrightmargin}
2362             \ptTps{\mdfframetitleboxwidth} add \ptTpsL{frametitulerulewidth})
2363         \end{pspicture}
2364         \endgroup}
2365     }%
2366   }{}
2367   \par\unskip\vskip\mdf@innertopmargin@length%
2368 }%
2369 %
2370 % \begin{macro}{mdf@putbox@single}
2371 % Single output
2372 %   \begin{macrocode}
2373 % Info zu den verwendeten Punkten:
2374 % 0 ist die untere linke Ecke der Mitte der middleline
2375 % P ist die obere rechte Ecke der Mitte der middleline
2376 % A ist der Punkt fuer den anchor (d.h. die untere linke Ecke) der Ausgabebox
2377 \def\mdf@putbox@single{%
2378   \ifvoid\mdf@splitbox@one
2379     \else%
2380     \mdf@makebox@out{%
2381       \mdf@makeboxalign@left%
2382       \setlength\mdfboundingboxwidth{\wd\mdf@splitbox@one}%
2383       \advance\mdfboundingboxwidth by \mdf@innerleftmargin@length\relax%
2384       \advance\mdfboundingboxwidth by \mdf@innerrightmargin@length\relax%
2385       \ifbool{mdf@leftline}{%
2386         \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
2387         \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
2388         \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}{}%
2389       \ifbool{mdf@rightline}{%
2390         \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
2391         \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
2392         \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}{}%
2393     }%
2394     \setlength\mdfboundingboxheight{\dimexpr\ht\mdf@splitbox@one+\dp\mdf@splitbox@one\relax}%
2395     \advance\mdfboundingboxheight by \mdf@innerbottommargin@length\relax%
2396     \advance\mdfboundingboxheight by \mdf@innertopmargin@length\relax%
2397     \ifbool{mdf@topline}{%
2398       \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
2399       \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
2400       \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}{}%
2401     \ifbool{mdf@bottomline}{%
2402       \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
2403       \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
2404       \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}{}%
2405   }%

```

```

2406 \setlength\mdftotalllinewidth{\dimexpr\mdf@innerlinewidth@length%
2407                                     +\mdf@middlelinewidth@length
2408                                     +\mdf@outerlinewidth@length\relax}%
2409 \psset{unit=1truecm}%
2410 \mdf@makebox@in[\mdf@boundingboxwidth]{%
2411     \null%
2412     \begin{pspicture}(0,0)(\mdf@boundingboxwidth,\mdf@boundingboxheight)
2413         \mdfpstricks@settings%
2414         \psset{lineararc=\mdf@roundcorner@length, cornersize=absolut,}%
2415         \expandafter\psset\expandafter{\mdf@psset@local}%
2416         \pnode(\mdf@innerleftmargin@length,\mdf@innerbottommargin@length){mdf@A}
2417         \pnode(0,0){mdf@0}
2418         \pnode(\mdf@boundingboxwidth,\mdf@boundingboxheight){mdf@P}
2419         \ifbool{mdf@leftline}%
2420             {%
2421                 \nodexn{(\mdf@A)+(\mdf@outerlinewidth@length,0)
2422                         +(\mdf@middlelinewidth@length,0)
2423                         +(\mdf@innerlinewidth@length,0)}{mdf@A}%
2424                 \nodexn{(\mdf@0)+(\mdf@outerlinewidth@length,0)
2425                         +0.5(\mdf@middlelinewidth@length,0)}{mdf@0}%
2426             }{}%
2427         \ifbool{mdf@rightline}%
2428             {%
2429                 \nodexn{(\mdf@P)-(\mdf@outerlinewidth@length,0)
2430                         -0.5(\mdf@middlelinewidth@length,0)}{mdf@P}%
2431             }{}%
2432         \ifbool{mdf@bottomline}%
2433             {%
2434                 \nodexn{(\mdf@A)+(0,\mdf@outerlinewidth@length)
2435                         +(0,\mdf@middlelinewidth@length)
2436                         +(0,\mdf@innerlinewidth@length)}{mdf@A}%
2437                 \nodexn{(\mdf@0)+(0,\mdf@outerlinewidth@length)
2438                         +0.5(0,\mdf@middlelinewidth@length)}{mdf@0}%
2439             }{}%
2440         \ifbool{mdf@topline}%
2441             {%
2442                 \nodexn{(\mdf@P)-(0,\mdf@outerlinewidth@length)
2443                         -0.5(0,\mdf@middlelinewidth@length)}{mdf@P}
2444             }{}%
2445         \ifbool{mdf@shadow}
2446             {\psframe[style=mdfshadow](mdf@0)(mdf@P)}{}
2447 %
2448 %Four lines
2449 \mdf@test@lrb{\mdf@pstricksbox@fl{mdf@0}{mdf@P}}{}
2450 %three lines
2451 \mdf@test@ltb{\mdf@pstricksbox@tl{(mdf@P|mdf@0)(mdf@0)(mdf@0|mdf@P)(mdf@P)}}{}
2452 \mdf@test@trb{\mdf@pstricksbox@tl{(mdf@0)(mdf@P|mdf@0)(mdf@P)(mdf@0|mdf@P)}}{}
2453 \mdf@test@ltr{\mdf@pstricksbox@tl{(mdf@0)(mdf@0|mdf@P)(mdf@P)(mdf@P|mdf@0)}}{}
2454 \mdf@test@lrb{\mdf@pstricksbox@tl{(mdf@0|mdf@P)(mdf@0)(mdf@P|mdf@0)(mdf@P)}}{}
2455 %two lines combined
2456 \mdf@test@lb{\mdf@pstricksbox@tcl{(mdf@P|mdf@0)(mdf@P)(mdf@0|mdf@P)}%
2457                                     {(mdf@0|mdf@P)(mdf@0)(mdf@P|mdf@0)}}{}
2458 \mdf@test@rb{\mdf@pstricksbox@tcl{(mdf@P)(mdf@0|mdf@P)(mdf@0)}%
2459                                     {(mdf@0)(mdf@P|mdf@0)(mdf@P)}}{}
2460 \mdf@test@tr{\mdf@pstricksbox@tcl{(mdf@P|mdf@0)(mdf@0)(mdf@0|mdf@P)}%
2461                                     {(mdf@0|mdf@P)(mdf@P)(mdf@P|mdf@0)}}{}

```



```

2462      \mdf@test@lt{\mdf@pstricksbox@tcl{(mdf@0)(mdf@P|mdf@0)(mdf@P)}}%
2463      {(mdf@0)(mdf@0|mdf@P)(mdf@P)}}{}
2464      %two lines not combinded combinded
2465      \mdf@test@lr{\mdf@pstricksbox@tncl{(mdf@0|mdf@P)}}{(mdf@P|mdf@0)}
2466      {}
2467      \mdf@test@tb{\mdf@pstricksbox@tncl{(mdf@P|mdf@0)}}{(mdf@0|mdf@P)}
2468      {}
2469      %single line
2470      \mdf@test@l{\mdf@pstricksbox@ol{(mdf@0)(mdf@0|mdf@P)}}{}
2471      \mdf@test@r{\mdf@pstricksbox@ol{(mdf@P)(mdf@P|mdf@0)}}{}
2472      \mdf@test@t{\mdf@pstricksbox@ol{(mdf@P)(mdf@0|mdf@P)}}{}
2473      \mdf@test@b{\mdf@pstricksbox@ol{(mdf@0)(mdf@P|mdf@0)}}{}
2474      %no line
2475      \mdf@test@noline{\psframe[style=mdfbackgroundstyle](mdf@0)(mdf@P)}}{}
2476 %    }
2477      %Frametitlebackground
2478      \drawbackgroundframetitle@single
2479      %output%
2480      \rput[bl](mdf@A){\box\mdf@splitbox@one}
2481 %    \psdot(mdf@A)\uput[90](mdf@A){mdf at A}
2482 %    \psdot(mdf@P)\uput[90](mdf@P){mdf at P}
2483 %    \psdot(mdf@0)\uput[90](mdf@0){mdf at 0}
2484 %
2485 %    \endpsclip
2486      \end{pspicture}%
2487  }%
2488      \mdf@makeboxalign@right%
2489  }%
2490 \fi
2491 }%
2492 \def\drawbackgroundframetitle@single{%
2493   \ifdefempty{\mdf@frametitle}}{}{%
2494     \drawbackgroundframetitle@@single%
2495   }%
2496 }%
2497 \def\drawbackgroundframetitle@@single{%
2498   \begingroup%
2499     \ifbool{mdf@leftline}{%
2500       \nodexn{(mdf@0)+(\mdf@innerlinewidth@length,0)
2501         +0.5(\mdf@middlelinewidth@length,0)}{mdf@0}%
2502     }{}%
2503     \ifbool{mdf@rightline}{%
2504       \nodexn{(mdf@P)-(\mdf@innerlinewidth@length,0)
2505         -0.5(\mdf@middlelinewidth@length,0)}{mdf@P}%
2506     }{}%
2507     \ifbool{mdf@topline}{%
2508       \nodexn{(mdf@P)-(0,\mdf@innerlinewidth@length)
2509         -0.5(0,\mdf@middlelinewidth@length)}{mdf@P}%
2510     }{}%
2511     \nodexn{(mdf@P)-(0,\mdfframetitleboxtotalheight)}{mdf@F}%
2512     \psline[style=mdfframetitlebackgroundstyle](mdf@0|mdf@F)(mdf@0|mdf@P)
2513     (mdf@P)(mdf@P|mdf@F)%
2514   \endgroup
2515 }

```


\mdf@putbox@first

First output

```

2516 \def\mdf@putbox@first{%
2517   \ifvoid\mdf@splitbox@two
2518   \else%
2519     \mdf@makebox@out{%
2520       \mdf@makeboxalign@left%
2521       %\ifbool{mdf@leftline}{\hspace*{\mdf@middlelinewidth@length}}{}%
2522       \setlength\mdfboundingboxwidth{\wd\mdf@splitbox@two}%
2523       \advance\mdfboundingboxwidth by \mdf@innerleftmargin@length\relax%
2524       \advance\mdfboundingboxwidth by \mdf@innerrightmargin@length\relax%
2525       \ifbool{mdf@leftline}{%
2526         \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
2527         \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
2528         \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}%{}%
2529       \ifbool{mdf@rightline}{%
2530         \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
2531         \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
2532         \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}%{}%
2533       \setlength\mdfboundingboxheight{\dimexpr\ht\mdf@splitbox@two+\dp\mdf@splitbox@two\relax}%
2534       \advance\mdfboundingboxheight by \mdf@innertopmargin@length\relax%
2535       \advance\mdfboundingboxheight by \mdf@splitbottomskip@length\relax%
2536       \ifbool{mdf@topline}{%
2537         \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
2538         \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
2539         \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}%{}%
2540       \psset{linear=\mdf@roundcorner@length, cornersize=absolute}%
2541       \expandafter\psset\expandafter{\mdf@psset@local}%
2542       \mdf@makebox@in[\mdfboundingboxwidth]{%
2543         \null%
2544         \psset{unit=1truecm}%
2545         \ifdimgreater{\mdfboundingboxheight}{\vsize}
2546           {\begin{pspicture}(0,0)(\mdfboundingboxwidth,\vsize)}
2547           {\begin{pspicture}(0,0)(\mdfboundingboxwidth,\mdfboundingboxheight)}
2548             \mdf@psstricks@settings%
2549             \psset{linear=\mdf@roundcorner@length, cornersize=absolute}%
2550             \expandafter\psset\expandafter{\mdf@psset@local}%
2551             \pnode(\mdf@innerleftmargin@length,\mdf@splitbottomskip@length){mdf@A}
2552             \pnode(0,0){mdf@O}
2553             \pnode(\mdfboundingboxwidth,\mdfboundingboxheight){mdf@P}
2554             \ifbool{mdf@leftline}%
2555               {%
2556                 \nodexn{(\mdf@A)+(\mdf@outerlinewidth@length,0)
2557                   +(\mdf@middlelinewidth@length,0)
2558                   +(\mdf@innerlinewidth@length,0)}{mdf@A}
2559                 \nodexn{(\mdf@O)+(\mdf@outerlinewidth@length,0)
2560                   +0.5(\mdf@middlelinewidth@length,0)}{mdf@O}
2561               }{}%
2562             \ifbool{mdf@rightline}%
2563               {%
2564                 \nodexn{(\mdf@P)-(\mdf@outerlinewidth@length,0)
2565                   -0.5(\mdf@middlelinewidth@length,0)}{mdf@P}
2566               }{}%
2567             \ifbool{mdf@topline}%
2568               {%

```

```

2569      \nodexn{(mdf@P)-(0,\mdf@outerlinewidth@length)
2570              -0.5(0,\mdf@middlelinewidth@length)}{mdf@P}
2571      }{}%
2572      \ifbool{mdf@shadow}
2573      {
2574        \pscustom[style=mdfshadow,linestyle=none]{%
2575          \psline[linejoin=2,linecap=1,](mdf@P|mdf@0)(mdf@P)(mdf@0|mdf@P)%
2576          \psline[linejoin=2,linecap=1,lineararc=\z@](mdf@0|mdf@P)(mdf@0)(mdf@P|mdf@0)
2577          \closedshadow
2578        }
2579      }{}
2580      %
2581      \psclip{
2582      %Four or Three lines
2583      \ifboolexpr{test {\mdf@test@ltrb} or test {\mdf@test@ltr}}%
2584      {\mdf@pstricksbox@tl{(mdf@0)(mdf@0|mdf@P)(mdf@P)(mdf@P|mdf@0)}}%
2585      }{}%
2586      %two combined lines
2587      \ifboolexpr{test {\mdf@test@ltb} or test {\mdf@test@lt}}%
2588      {\mdf@pstricksbox@tcl{(mdf@0)(mdf@P|mdf@0)(mdf@P)}%
2589      {(mdf@0)(mdf@0|mdf@P)(mdf@P)}}%
2590      }{}%
2591      \ifboolexpr{test {\mdf@test@trb} or test {\mdf@test@tr}}%
2592      {\mdf@pstricksbox@tcl{(mdf@P|mdf@0)(mdf@0)(mdf@0|mdf@P)}%
2593      {(mdf@0|mdf@P)(mdf@P)(mdf@P|mdf@0)}}%
2594      }{}%
2595      %two not combined lines
2596      \ifboolexpr{test {\mdf@test@lrb} or test {\mdf@test@lr}}%
2597      {\mdf@pstricksbox@tncl{(mdf@0|mdf@P)}{(mdf@P|mdf@0)}}%
2598      }{}%
2599      %single line
2600      \ifboolexpr{test {\mdf@test@tb} or test {\mdf@test@t}}%
2601      {\mdf@pstricksbox@ol{(mdf@P)(mdf@0|mdf@P)}}%
2602      }{}%
2603      \ifboolexpr{test {\mdf@test@lb} or test {\mdf@test@l}}%
2604      {\mdf@pstricksbox@ol{(mdf@0)(mdf@0|mdf@P)}}%
2605      }{}%
2606      \ifboolexpr{test {\mdf@test@rb} or test {\mdf@test@r}}%
2607      {\mdf@pstricksbox@ol{(mdf@P)(mdf@P|mdf@0)}}%
2608      }{}%
2609      %no line
2610      \mdf@test@b{\psframe[style=mdfbackgroundstyle](mdf@0)(mdf@P)}{}%
2611      \mdf@test@noline{\psframe[style=mdfbackgroundstyle](mdf@0)(mdf@P)}{}%
2612      %
2613      }
2614      %Frametitlebackground
2615      \drawbackgroundframetitle@first
2616      %output%
2617      \rput[bl](mdf@A){\box\mdf@splitbox@two}
2618      \psdot(mdf@A)\uput[90](mdf@A){mdf at A}
2619      \psdot(mdf@P)\uput[90](mdf@P){mdf at P}
2620      \psdot(mdf@0)\uput[90](mdf@0){mdf at 0}
2621      \endpsclip
2622      \end{pspicture}
2623      }%
2624      \mdf@makeboxalign@right%
2625      }%
2626      \fi
2627      }%
2628      \def\drawbackgroundframetitle@first{%
2629      \ifdefempty{\mdf@frametitle}}{}%
2630      \ifdimgreater{\mdf@boundingboxheight}{\mdf@frametitleboxtotalheight}%
2631      {%
2632      \drawbackgroundframetitle@@first
2633      \global\mdf@frametitleboxtotalheight=-\p@%

```

```

2625 }{\mdf@PackageWarning{You got a page break inside the frame title\MessageBreak
2626           Currently this isn't well supported}%
2627   \drawbrackgroundframetitle@@first
2628   \global\mdfframetitleboxtotalheight=\dimexpr\mdfframetitleboxtotalheight
2629           -\mdfboundingboxheight
2630           -\mdf@innerlinewidth@length-0.5\mdf@middlelinewidth@length%
2631           +\mdf@frametitlebelowskip@length+\mdf@splitbottomskip@length
2632           +\mdf@splittopskip@length
2633           +\dp\strutbox\relax%
2634 }%
2635 }%
2636 }%
2637 \def\drawbrackgroundframetitle@@first{%
2638   \begingroup%
2639   \ifbool{mdf@leftline}{%
2640     \nodexn{(\mdf@0)+(\mdf@innerlinewidth@length,0)
2641             +0.5(\mdf@middlelinewidth@length,0)}{\mdf@0}%
2642     }{}%
2643   \ifbool{mdf@rightline}{%
2644     \nodexn{(\mdf@P)-(\mdf@innerlinewidth@length,0)
2645             -0.5(\mdf@middlelinewidth@length,0)}{\mdf@P}%
2646     }{}%
2647   \ifbool{mdf@topline}{%
2648     \nodexn{(\mdf@P)-(0,\mdf@innerlinewidth@length)
2649             -0.5(0,\mdf@middlelinewidth@length)}{\mdf@P}%
2650     }{}%
2651   \ifdimgreater{\mdfboundingboxheight}{\mdfframetitleboxtotalheight}
2652     {\nodexn{(\mdf@P)-(0,\mdfframetitleboxtotalheight)}{\mdf@F}}%
2653     {\nodexn{(\mdf@0)}{\mdf@F}}%
2654   \psline[style=mdfframetitlebackgroundstyle](\mdf@0|\mdf@F)(\mdf@0|\mdf@P)
2655           (\mdf@P)(\mdf@P|\mdf@F)%
2656   \endgroup
2657 }

```

\mdf@putbox@middle

Middle output

```

2658 \def\mdf@putbox@middle{%
2659   \ifvoid\mdf@splitbox@two
2660   \else%
2661     \mdf@makebox@out{%
2662       \mdf@makeboxalign@left%
2663       % \ifbool{mdf@leftline}{\hspace*{\mdf@middlelinewidth@length}}{}%
2664       \setlength\mdfboundingboxwidth{\wd\mdf@splitbox@two}%
2665       \advance\mdfboundingboxwidth by \mdf@innerleftmargin@length\relax%
2666       \advance\mdfboundingboxwidth by \mdf@innerrightmargin@length\relax%
2667       \ifbool{mdf@leftline}{%
2668         \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
2669         \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
2670         \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}{}%
2671       \ifbool{mdf@rightline}{%
2672         \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
2673         \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
2674         \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}{}%
2675       \setlength\mdfboundingboxheight{\dimexpr\ht\mdf@splitbox@two+\dp\mdf@splitbox@two\relax}%

```

```

2676 \advance\mdfboundingboxheight by \mdf@splitbottomskip@length\relax%
2677 \psset{unit=1truecm}%
2678 \mdf@makebox@in[\mdfboundingboxwidth]{%
2679 \null%
2680 \ifdimgreater{\mdfboundingboxheight}{\vsize}
2681 {\begin{pspicture}(0,0)(\mdfboundingboxwidth,\vsize)}
2682 {\begin{pspicture}(0,0)(\mdfboundingboxwidth,\mdfboundingboxheight)}
2683 \mdfpstricks@settings%
2684 \psset{lineararc=0pt, cornersize=absolut,}%
2685 \expandafter\psset\expandafter{\mdf@psset@local}%
2686 %%%
2687 \pnode(\mdf@innerleftmargin@length,\mdf@splitbottomskip@length){mdf@A}
2688 \pnode(0,0){mdf@0}
2689 \pnode(\mdfboundingboxwidth,\mdfboundingboxheight){mdf@P}
2690 \ifbool{mdf@leftline}%
2691 {%
2692 \nodexn{(mdf@A)+(\mdf@outerlinewidth@length,0)
2693 +(\mdf@middlelinewidth@length,0)
2694 +(\mdf@innerlinewidth@length,0)}{mdf@A}
2695 \nodexn{(mdf@0)+(\mdf@outerlinewidth@length,0)
2696 +0.5(\mdf@middlelinewidth@length,0)}{mdf@0}
2697 }{}%
2698 \ifbool{mdf@rightline}%
2699 {%
2700 \nodexn{(mdf@P)-(\mdf@outerlinewidth@length,0)
2701 -0.5(\mdf@middlelinewidth@length,0)}{mdf@P}
2702 }{}%
2703 %%
2704 %%
2705 \ifbool{mdf@shadow}
2706 {\psframe[style=mdfshadow](mdf@0)(mdf@P)}{}
2707 \ifboolexpr{bool {mdf@leftline} and bool {mdf@rightline}}%
2708 {\mdf@pstricksbox@tncl{(mdf@0|mdf@P)}{(mdf@P|mdf@0)}}{}%
2709 \ifboolexpr{bool {mdf@leftline} and not (bool {mdf@rightline})}%
2710 {\mdf@pstricksbox@ol{(mdf@0)(mdf@0|mdf@P)}}{}%
2711 \ifboolexpr{not (bool {mdf@leftline}) and bool {mdf@rightline}}%
2712 {\mdf@pstricksbox@ol{(mdf@P)(mdf@P|mdf@0)}}{}%
2713 \ifboolexpr{not (bool {mdf@leftline}) and not (bool {mdf@rightline})}%
2714 {\psframe[style=mdfbackgroundstyle](mdf@0)(mdf@P)}{}%
2715 %Frametitlebackground
2716 \drawbrackgroundframetitle@middle
2717 %output%
2718 \rput[bl](mdf@A){\box\mdf@splitbox@two}
2719 % \psdot(mdf@A)\uput[90](mdf@A){mdf at A}
2720 % \psdot(mdf@P)\uput[90](mdf@P){mdf at P}
2721 % \psdot(mdf@0)\uput[90](mdf@0){mdf at 0}
2722 \end{pspicture}%
2723 }%
2724 \mdf@makebox@align@right%
2725 }%
2726 \fi
2727 }%
2728 \def\drawbrackgroundframetitle@middle{%
2729 \ifdefempty{\mdf@frametitle}}{}{%
2730 \ifdimless{\mdfframetitleboxtotalheight}{\z@}
2731 {}{}%

```

```

2732 \drawbackgroundframetitle@@middle
2733 \global\mdfframetitleboxtotalheight=-\p@relax%
2734 }%
2735 }%
2736 }%
2737 \def\drawbackgroundframetitle@@middle{%
2738 \begingroup%
2739 \ifbool{mdf@leftline}{%
2740 \nodexn{(mdf@0)+(\mdf@innerlinewidth@length,0)
2741 +0.5(\mdf@middlelinewidth@length,0)}{mdf@0}%
2742 }{}%
2743 \ifbool{mdf@rightline}{%
2744 \nodexn{(mdf@P)-(\mdf@innerlinewidth@length,0)
2745 -0.5(\mdf@middlelinewidth@length,0)}{mdf@P}%
2746 }{}%
2747 \nodexn{(mdf@P)-(0,\mdfframetitleboxtotalheight)}{mdf@F}%
2748 \psline[style=mdfframetitlebackgroundstyle,linearc=\z@](mdf@0|mdf@F)(mdf@0|mdf@P)
2749 (mdf@P)(mdf@P|mdf@F)%
2750 \endgroup
2751 }

```

\mdf@putbox@second

Last output

```

2752 \def\mdf@putbox@second{
2753 \ifvoid\mdf@splitbox@one
2754 \else%
2755 \mdf@makebox@out{%
2756 \mdf@makeboxalign@left%
2757 % \ifbool{mdf@leftline}{\hspace*{\mdf@middlelinewidth@length}}{}%
2758 \setlength\mdfboundingboxwidth{\wd\mdf@splitbox@one}%
2759 \advance\mdfboundingboxwidth by \mdf@innerleftmargin@length\relax%
2760 \advance\mdfboundingboxwidth by \mdf@innerrightmargin@length\relax%
2761 \ifbool{mdf@leftline}{%
2762 \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
2763 \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
2764 \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}}{}%
2765 \ifbool{mdf@rightline}{%
2766 \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
2767 \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
2768 \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}}{}%
2769 \setlength\mdfboundingboxheight{\dimexpr\ht\mdf@splitbox@one+\dp\mdf@splitbox@one\relax}%
2770 \advance\mdfboundingboxheight by \mdf@innerbottommargin@length\relax%
2771 \ifbool{mdf@bottomline}{%
2772 \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
2773 \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
2774 \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}}{}%
2775 \psset{unit=1truecm}%
2776 \mdf@makebox@in[\mdfboundingboxwidth]{%
2777 \null%
2778 \begin{pspicture}(0,0)(\mdfboundingboxwidth,\mdfboundingboxheight)
2779 \mdfpstricks@settings%
2780 \psset{linearc=\mdf@roundcorner@length,cornercsize=absolut,}%
2781 \expandafter\psset\expandafter{\mdf@psset@local}%
2782 \pnode(\mdf@innerleftmargin@length,\mdf@innerbottommargin@length){mdf@A}

```

```

2783 \node(0,0){mdf@0}
2784 \node(\mdfboundingboxwidth,\mdfboundingboxheight){mdf@P}
2785 \ifbool{mdf@leftline}%
2786 {%
2787 \nodexn{(mdf@A)+(\mdf@outerlinewidth@length,0)
2788 +(\mdf@middlelinewidth@length,0)
2789 +(\mdf@innerlinewidth@length,0)){mdf@A}
2790 \nodexn{(mdf@0)+(\mdf@outerlinewidth@length,0)
2791 +0.5(\mdf@middlelinewidth@length,0)){mdf@0}
2792 }{}%
2793 \ifbool{mdf@rightline}%
2794 {%
2795 \nodexn{(mdf@P)-(\mdf@outerlinewidth@length,0)
2796 -0.5(\mdf@middlelinewidth@length,0)){mdf@P}
2797 }{}%
2798 \ifbool{mdf@bottomline}%
2799 {%
2800 \nodexn{(mdf@A)+(0,\mdf@outerlinewidth@length)
2801 +(0,\mdf@middlelinewidth@length)
2802 +(0,\mdf@innerlinewidth@length)){mdf@A}
2803 \nodexn{(mdf@0)+(0,\mdf@outerlinewidth@length)
2804 +0.5(0,\mdf@middlelinewidth@length)){mdf@0}
2805 }{}%
2806 %%
2807 \ifbool{mdf@shadow}
2808 {\pscustom[style=mdfshadow,linestyle=none]{%
2809 \psline[linejoin=2,linecap=1,](mdf@0|mdf@P)(mdf@0)(mdf@P|mdf@0)(mdf@P)%
2810 \psline[linejoin=2,linecap=1,lineararc=\z@](mdf@0|mdf@P)(mdf@P)
2811 \closedshadow
2812 }
2813 }}
2814 %Four + Three
2815 \ifboolexpr{test {\mdf@test@lrb} or test {\mdf@test@lrb}}%
2816 {\mdf@pstricksbox@tl{(mdf@0|mdf@P)(mdf@0)(mdf@P|mdf@0)(mdf@P)}}{}%
2817 %Two combined
2818 \ifboolexpr{test {\mdf@test@ltb} or test {\mdf@test@lb}}%
2819 {\mdf@pstricksbox@tcl{(mdf@P|mdf@0)(mdf@P)(mdf@0|mdf@P)}}%
2820 {(mdf@0|mdf@P)(mdf@0)(mdf@P|mdf@0)}}{}
2821 \ifboolexpr{test {\mdf@test@trb} or test {\mdf@test@rb}}%
2822 {\mdf@pstricksbox@tcl{(mdf@P)(mdf@0|mdf@P)(mdf@0)}}%
2823 {(mdf@0)(mdf@P|mdf@0)(mdf@P)}}{}
2824 %Two not combined
2825 \ifboolexpr{test {\mdf@test@ltr} or test {\mdf@test@lr}}%
2826 {\mdf@pstricksbox@tncl{(mdf@0|mdf@P)}{(mdf@P|mdf@0)}}{}%
2827 %one line
2828 \ifboolexpr{test {\mdf@test@tb} or test {\mdf@test@b}}%
2829 {\mdf@pstricksbox@ol{(mdf@0)(mdf@P|mdf@0)}}{}
2830 \ifboolexpr{test {\mdf@test@lt} or test {\mdf@test@l}}%
2831 {\mdf@pstricksbox@ol{(mdf@0)(mdf@0|mdf@P)}}{}
2832 \ifboolexpr{test {\mdf@test@tr} or test {\mdf@test@r}}%
2833 {\mdf@pstricksbox@ol{(mdf@P)(mdf@P|mdf@0)}}{}
2834 %no line
2835 \mdf@test@t{\psframe[style=mdfbackgroundstyle](mdf@0)(mdf@P)}{}%
2836 \mdf@test@noline{\psframe[style=mdfbackgroundstyle](mdf@0)(mdf@P)}{}%
2837 %Frametitlebackground
2838 \drawbackgroundframetitle@second

```

```

2839      %output%
2840      \rput[bl](mdf@A){\box\mdf@splitbox@one}
2841 %      \psdot(mdf@A)\uput[90](mdf@A){mdf at A}
2842 %      \psdot(mdf@P)\uput[90](mdf@P){mdf at P}
2843 %      \psdot(mdf@O)\uput[90](mdf@O){mdf at O}
2844      \end{pspicture}%
2845      }%
2846      \mdf@makeboxalign@right%
2847      }%
2848 \fi
2849 }%
2850 \def\drawbackgroundframetitle@second{%
2851 \ifdefempty{\mdf@frametitle}{\}%
2852 \ifdimless{\mdfframetitleboxtotalheight}{\z@}
2853 {\}%
2854 \drawbackgroundframetitle@@second
2855 }%
2856 }%
2857 }%
2858 \def\drawbackgroundframetitle@@second{%
2859 \begingroup%
2860 \ifbool{mdf@leftline}{%
2861 \nodexn{(mdf@O)+(\mdf@innerlinewidth@length,0)
2862 +0.5(\mdf@middlelinewidth@length,0)}{mdf@O}%
2863 }{%
2864 \ifbool{mdf@rightline}{%
2865 \nodexn{(mdf@P)-(\mdf@innerlinewidth@length,0)
2866 -0.5(\mdf@middlelinewidth@length,0)}{mdf@P}%
2867 }{%
2868 \nodexn{(mdf@P)-(0,\mdfframetitleboxtotalheight)}{mdf@F}%
2869 \psline[style=mdfframetitlebackgroundstyle,linear=\z@](mdf@O|mdf@F)(mdf@O|mdf@P)
2870 (mdf@P)(mdf@P|mdf@F)%
2871 \endgroup
2872 }
2873 \endinput
2874 %eof

```

C. The file *mdframed-example-default*

```

2875 %Documentation of the package mdframed
2876 %$Id: mdframed.dtx 347 2012-03-04 13:04:28Z marco $
2877 \setcounter{errorcontextlines}{999}
2878 \documentclass[parskip=false,english,11pt]{ltxmdf}
2879 \ltxmdfsetifoot $Id: mdframed.dtx 347 2012-03-04 13:04:28Z marco $
2880
2881 \usepackage{showexpl}
2882 \lstset{style=lstltxmdf,explpreset={pos=b,rframe={}},}
2883
2884 \newcommand\Loadedframemethod{default}
2885 \usepackage[framemethod=\Loadedframemethod]{mdframed}
2886
2887 \title{The \Pack{mdframed} package}
2888 \subtitle{Examples for \Opt{framemethod=\Loadedframemethod}}
2889 \author{\href{mailto:marco.daniel@mada-nada.de}{Marco Daniel}}

```



```

2890 \date{\mdfdateID$Id: mdfamed.dtx 347 2012-03-04 13:04:28Z marco $}
2891 \version{\mdversion}
2892 \introduction{In this document I collect various examples for \Opt{framemethod=\Loadedframemethod}.
2893 Some presented examples are more or less exorbitant.}
2894
2895 \mdfsetup{skipabove=\topskip,skipbelow=\topskip}
2896 \newrobustcmd\ExampleText{%
2897     An \textit{inhomogeneous linear} differential equation has the form
2898     \begin{align}
2899         L[v] = f,
2900     \end{align}
2901     where  $L$  is a linear differential operator,  $v$  is
2902     the dependent variable, and  $f$  is a given non-zero
2903     function of the independent variables alone.
2904 }
2905
2906 \newcounter{examplecount}
2907 \setcounter{examplecount}{0}
2908 \renewcommand\thesubsection{}
2909 \newcommand\Examplesec[1]{%
2910 \stepcounter{examplecount}%
2911 \subsection{Example~\arabic{examplecount}~---~#1\relax}%
2912 }
2913
2914 \begin{document}
2915 \maketitle
2916 \section{Loading}
2917 In the preamble only the package \Pack{mdfamed} with the option \Opt{framemethod=\Loadedframemethod}
2918
2919 {\large\color{red!50!black}
2920 \NOTE Every \Cmd{global} inside the examples is necessary to work with the package \Pack{showexpl}.}
2921
2922 \section{Examples}
2923 All examples have the following settings:
2924
2925 \begin{tltxmdfexample}
2926 \mdfsetup{skipabove=\topskip,skipbelow=\topskip}
2927 \newrobustcmd\ExampleText{%
2928 An \textit{inhomogeneous linear} differential equation
2929 has the form
2930 \begin{align}
2931 L[v] = f,
2932 \end{align}
2933 where  $L$  is a linear differential operator,  $v$  is
2934 the dependent variable, and  $f$  is a given non-zero
2935 function of the independent variables alone.
2936 }
2937 \end{tltxmdfexample}
2938 \clearpage
2939 \Examplesec{very simple}
2940 \begin{LTXexample}
2941 \global\mdfdefinestyle{exampledefault}{%
2942     linecolor=red,linewidth=3pt,%
2943     leftmargin=1cm,rightmargin=1cm
2944 }
2945 \begin{mdfamed}[style=exampledefault]

```



```

2946 \ExampleText
2947 \end{mdframed}
2948 \end{LTXexample}
2949
2950 \Examplesec{hidden line + frame title}
2951 \begin{LTXexample}
2952 \global\mdfapptodefinestyle{exampledefault}{%
2953   topline=false,rightline=true,bottomline=false}
2954 \begin{mdframed}[style=exampledefault,frametitle={Inhomogeneous linear}]
2955 \ExampleText
2956 \end{mdframed}
2957 \end{LTXexample}
2958 \clearpage
2959
2960 \Examplesec{colored frame title}
2961 \begin{LTXexample}
2962
2963 \global\mdfapptodefinestyle{exampledefault}{%
2964   rightline=true,innerleftmargin=10,innerrightmargin=10,
2965   frametitle=rule=true,frametitle=rulecolor=green,
2966   frametitlebackgroundcolor=yellow,
2967   frametitle=rulewidth=2pt}
2968 \begin{mdframed}[style=exampledefault,frametitle={Inhomogeneous linear}]
2969 \ExampleText
2970 \end{mdframed}
2971 \end{LTXexample}
2972
2973 \Examplesec{framed picture which is centered}
2974 \begin{LTXexample}
2975 \begin{mdframed}[userdefinedwidth=6cm,align=center,
2976   linecolor=blue,linewidth=4pt]
2977 \includegraphics[width=\linewidth]{donald-duck}
2978 \end{mdframed}
2979 \end{LTXexample}
2980
2981 \clearpage
2982 \Examplesec{Theorem environments}
2983 \begin{LTXexample}
2984 \mdfdefinestyle{theoremstyle}{%
2985   linecolor=red,linewidth=2pt,%
2986   frametitle=rule=true,%
2987   frametitlebackgroundcolor=gray!20,
2988   innertopmargin=\topskip,
2989 }
2990 \mdtheorem[style=theoremstyle]{definition}{Definition}
2991 \begin{definition}
2992 \ExampleText
2993 \end{definition}
2994 \begin{definition}[Inhomogeneous linear]
2995 \ExampleText
2996 \end{definition}
2997 \begin{definition*}[Inhomogeneous linear]
2998 \ExampleText
2999 \end{definition*}
3000 \end{LTXexample}
3001

```

```

3002
3003 \clearpage
3004 \Examplesec{theorem with separate header and the help of TikZ (complex)}
3005 \begin{LTExample}
3006 \newcounter{theo}[section]
3007 \newenvironment{theo}[1][]{%
3008   \stepcounter{theo}%
3009   \ifstrempy{#1}%
3010   {\mdfsetup{%
3011     frametitle={%
3012       \tikz[baseline=(current bounding box.east),outer sep=0pt]
3013       \node[anchor=east,rectangle,fill=blue!20]
3014       {\strut Theorem~\thetheo};}}
3015   }%
3016   {\mdfsetup{%
3017     frametitle={%
3018       \tikz[baseline=(current bounding box.east),outer sep=0pt]
3019       \node[anchor=east,rectangle,fill=blue!20]
3020       {\strut Theorem~\thetheo:~#1};}}%
3021   }%
3022   \mdfsetup{innertopmargin=10pt,linecolor=blue!20,%
3023     linewidth=2pt,topline=true,
3024     frametitleaboveskip=\dimexpr-\ht\strutbox\relax,}
3025   \begin{mdframed}[]\relax%
3026   }\end{mdframed}}
3027 \begin{theo}[Inhomogeneous Linear]
3028 \ExampleText
3029 \end{theo}
3030
3031 \begin{theo}
3032 \ExampleText
3033 \end{theo}
3034 \end{LTExample}
3035
3036 \clearpage
3037 \Examplesec{hide only a part of a line}
3038 The example below is inspired by the following post on StackExchange \href{http://tex.stackexchange.com}
3039 \begin{LTExample}
3040 \makeatletter
3041 \newlength{\interruptlength}
3042 \setlength{\interruptlength}{2.5ex}
3043 \newrobustcmd\overlaplines{%
3044   \appto\mdf@frame@leftline@single{%
3045     \llap{\color{white}%
3046       \rule[\dimexpr-\mdfboundingboxdepth+\interruptlength\relax]{%
3047         {\mdf@middlelinewidth@length}%
3048         {\dimexpr\mdfboundingboxtotalheight%
3049           \ifbool{mdf@topline}{+\mdf@middlelinewidth@length}{}}
3050         -2\interruptlength\relax}%
3051     }%
3052   }%
3053   \appto\mdf@frame@rightline@single{%
3054     \rlap{\color{white}%
3055       \hspace*{\mdfboundingboxwidth}%
3056       \hspace*{\mdf@innerrightmargin@length}%
3057       \rule[\dimexpr-\mdfboundingboxdepth%

```

```

3058         +\interruptlength\relax]%
3059     {\mdf@middlelinewidth@length}%
3060     {\dimexpr\mdfboundingboxtotalheight%
3061         +\ifbool{mdf@topline}{\mdf@middlelinewidth@length}{0pt}
3062         -2\interruptlength\relax}%
3063     }%
3064 }%
3065 }
3066 \makeatother
3067 \overlapiines
3068
3069 \begin{mdframed}[linecolor=blue,linewidth=8pt]
3070 \ExampleText
3071 \end{mdframed}
3072 \end{LTXexample}
3073 \end{document}
3074 \endinput

```

D. The file mdframed-example-tikz

```

3075 %Documenation of the package mdframed
3076 %$Id: mdframed.dtx 347 2012-03-04 13:04:28Z marco $
3077 \setcounter{errorcontextlines}{999}
3078 \documentclass[parskip=false,english,11pt]{ltxmdf}
3079 \ltxmdfsetifoot $Id: mdframed.dtx 347 2012-03-04 13:04:28Z marco $
3080
3081
3082 \usepackage{showexpl}
3083 \lstset{style=lstltxmdf,explpreset={pos=b,rframe={}},}
3084
3085 \newcommand\Loadedframemethod{TikZ}
3086 \usepackage[framemethod=\Loadedframemethod]{mdframed}
3087
3088 \title{The \Pack{mdframed} package}
3089 \subtitle{Examples for \Opt{framemethod=\Loadedframemethod}}
3090 \author{\href{mailto:marco.daniel@mada-nada.de}{Marco Daniel}}
3091 \date{\mdfdateID$Id: mdframed.dtx 347 2012-03-04 13:04:28Z marco $}
3092 \version{\mdversion}
3093 \introduction{In this document I collect various examples for \Opt{framemethod=\Loadedframemethod}.
3094 Some presented examples are more or less exorbitant.}
3095
3096 \mdfsetup{skipabove=\topskip,skipbelow=\topskip}
3097 \newrobustcmd\ExampleText{%
3098     An \textit{inhomogeneous linear} differential equation has the form
3099     \begin{align}
3100         L[v] &= f,
3101     \end{align}
3102     where  $L$  is a linear differential operator,  $v$  is
3103     the dependent variable, and  $f$  is a given non-zero
3104     function of the independent variables alone.
3105 }
3106
3107 \newcounter{examplecount}
3108 \setcounter{examplecount}{0}
3109 \renewcommand\thesubsection{}
3110 \newcommand\Examplesec[1]{%

```

```

3111 \stepcounter{examplecount}%
3112 \subsection{Example~\arabic{examplecount}~---~#1\relax}%
3113 }
3114
3115 \begin{document}
3116 \maketitle
3117 \section{Loading}
3118 In the preamble only the package \Pack{mdfamed} with the option \Opt{framemethod=\Loadedframemethod}
3119
3120 {\large\color{red!50!black}
3121 \NOTE Every \Cmd{global} inside the examples is necessary to work with the package \Pack{showexpl}.}
3122
3123 \section{Examples}
3124 All examples have the following settings:
3125
3126 \begin{tltxmdfexample}
3127 \mdfsetup{skipabove=\topskip,skipbelow=\topskip}
3128 \newrobustcmd\ExampleText{%
3129 An \textit{inhomogeneous linear} differential equation
3130 has the form
3131 \begin{align}
3132 L[v] = f,
3133 \end{align}
3134 where  $L$  is a linear differential operator,  $v$  is
3135 the dependent variable, and  $f$  is a given non-zero
3136 function of the independent variables alone.
3137 }
3138 \end{tltxmdfexample}
3139 \clearpage
3140 \ExampleText{round corner}
3141 \begin{LTExample}
3142 \global\mdfdefinestyle{exampledefault}{%
3143     outerlinewidth=5pt,innerlinewidth=0pt,
3144     outerlinecolor=red,roundcorner=5pt
3145 }
3146 \begin{mdfamed}[style=exampledefault]
3147 \ExampleText
3148 \end{mdfamed}
3149 \end{LTExample}
3150
3151 \Examplesec{hidden line + frame title}
3152 \begin{LTExample}
3153 \global\mdfapptodefinestyle{exampledefault}{%
3154     topline=false,leftline=false,
3155 \begin{mdfamed}[style=exampledefault,frametitle={Inhomogeneous linear}]
3156 \ExampleText
3157 \end{mdfamed}
3158 \end{LTExample}
3159 \clearpage
3160 \Examplesec{framed picture which is centered}
3161 \begin{LTExample}
3162 \begin{mdfamed}[userdefinedwidth=6cm,align=center,
3163     linecolor=blue,middlelinewidth=4pt,roundcorner=5pt]
3164 \includegraphics[width=\linewidth]{donald-duck}
3165 \end{mdfamed}
3166 \end{LTExample}

```

```

3167
3168 \Examplesec{Gimmick}
3169 \begin{LTXexample}
3170 \mdfsetup{splitbottomskip=0.8cm, splittopskip=0cm,
3171           innerrightmargin=2cm, innertopmargin=1cm,%
3172           innerlinewidth=2pt, outerlinewidth=2pt,
3173           middlelinewidth=10pt, backgroundcolor=red,
3174           linecolor=blue, middlelinecolor=gray,
3175           tikzsetting={draw=yellow, line width=3pt,%
3176                       dashed,%
3177                       dash pattern= on 10pt off 3pt},
3178           rightline=false, bottomline=false}
3179 \begin{mdframed}
3180 \ExampleText
3181 \end{mdframed}
3182 \end{LTXexample}
3183
3184 \Examplesec{complex example with TikZ}
3185
3186 \begin{tltxmdfexample}
3187 \tikzstyle{titregris} =
3188     [draw=gray, thick, fill=white, shading = exersicetitle, %
3189     text=gray, rectangle, rounded corners,
3190     right, minimum height=.7cm]
3191
3192 \pgfdeclarehorizontalshading{exersicebackground}{100bp}
3193 {color(0bp)=(green!40);
3194 color(100bp)=(black!5)}
3195
3196 \pgfdeclarehorizontalshading{exersicetitle}{100bp}
3197 {color(0bp)=(red!40);
3198 color(100bp)=(black!5)}
3199
3200 \newcounter{exercise}
3201 \renewcommand\theexercise{Exercise~\arabic{exercise}}
3202 \makeatletter
3203 \def\mdf@@exercisepoints{}
3204 \define@key{mdf}{exercisepoints}{%
3205     \def\mdf@@exercisepoints{#1}
3206 }
3207 \renewrobustcmd\mdfcreateextratikz{%
3208     \node[titregris,xshift=1cm] at (P-|0) %
3209         {\mdf@frametitlefont{\theexercise}~};
3210     \ifdefempty{\mdf@@exercisepoints}%
3211         {}%
3212     {\node[titregris,left,xshift=-1cm] at (P)%
3213         {\mdf@frametitlefont{\mdf@@exercisepoints points}~};}%
3214 }
3215 \makeatother
3216
3217 \mdfdefinestyle{exercisestyle}{%
3218     outerlinewidth=1pt,
3219     innerlinewidth=0pt,
3220     roundcorner=2pt,
3221     linecolor=gray,
3222     tikzsetting={shading = exersicebackground},

```

```

3223 innertopmargin=1.2\baselineskip,
3224 skipabove={\dimexpr0.5\baselineskip+\topskip\relax},
3225 needspace=3\baselineskip,
3226 frametitlefont=\sffamily\bfseries,
3227 settings={\global\stepcounter{exercise}},
3228 }
3229
3230 \begin{mdframed}[style=exercisestyle,]
3231 \ExampleText
3232 \end{mdframed}
3233
3234 \begin{mdframed}[style=exercisestyle,exercisepoints=10]
3235 \ExampleText
3236 \end{mdframed}
3237 \end{tltxmdfexample}
3238
3239 \tikzstyle{titregris} =
3240     [draw=gray, thick, fill=white, shading = exersicetitle, %
3241     text=gray, rectangle, rounded corners,
3242     right,minimum height=.7cm]
3243
3244 \pgfdeclarehorizontalshading{exersicebackground}{100bp}
3245 {color(0bp)=(green!40);
3246 color(100bp)=(black!5)}
3247
3248 \pgfdeclarehorizontalshading{exersicetitle}{100bp}
3249 {color(0bp)=(red!40);
3250 color(100bp)=(black!5)}
3251
3252 \newcounter{exercise}
3253 \renewcommand\theexercise{Exercise~\n\arabic{exercise}}
3254 \makeatletter
3255 \def\mdf@@exercisepoints{}
3256 \define@key{mdf}{exercisepoints}{%
3257     \def\mdf@@exercisepoints{#1}
3258 }
3259 \newrobustcmd\mdfcreateextratikzlocal{%
3260     \node[titregris,xshift=1cm] at (P-|0) {\textbf{\theexercise}~};
3261     \ifdefempty{\mdf@@exercisepoints}%
3262     {}%
3263     {\node[titregris,left,xshift=-1cm] at (P)%
3264         {\mdf@frametitlefont{\mdf@@exercisepoints points}~};}%
3265 }
3266 \makeatother
3267
3268 \mdfdefinestyle{exercisestyle}{%
3269     outerlinewidth=1pt,
3270     innerlinewidth=0pt,
3271     roundcorner=2pt,
3272     linecolor=gray,
3273     tikzsetting={shading = exersicebackground},
3274     innertopmargin=1.2\baselineskip,
3275     skipabove={\dimexpr0.5\baselineskip+\topskip\relax},
3276     needspace=3\baselineskip,
3277     frametitlefont=\sffamily\bfseries,
3278     settings={\global\stepcounter{exercise}\let\mdfcreateextratikz\mdfcreateextratikzlocal},

```

```

3279   }
3280
3281 \begin{mdframed}[style=exercisestyle,]
3282 \ExampleText
3283 \end{mdframed}
3284
3285 \begin{mdframed}[style=exercisestyle,exercisepoints=10]
3286 \ExampleText
3287 \end{mdframed}
3288
3289 \clearpage
3290 \Examplesec{Theorem environments}
3291 \begin{LTXexample}
3292 \mdfdefinestyle{theoremstyle}{%
3293     linecolor=red,linewidth=2pt,%
3294     frametitlerule=true,%
3295     apptotikzsetting={\tikzset{mdfframetitlebackground/.append style={%
3296         shade,left color=white, right color=blue!20}}},
3297     frametitlerulecolor=green!60,
3298     frametitlerulewidth=1pt,
3299     innertopmargin=\topskip,
3300   }
3301 \mdtheorem[style=theoremstyle]{definition}{Definition}
3302 \begin{definition}[Inhomogeneous linear]
3303 \ExampleText
3304 \end{definition}
3305 \begin{definition*}[Inhomogeneous linear]
3306 \ExampleText
3307 \end{definition*}
3308 \end{LTXexample}
3309
3310 \end{document}
3311 \endinput

```

E. The file *mdframed-example-pstricks*

```

3312 %Documenation of the package mdframed
3313 %$Id: mdframed.dtx 347 2012-03-04 13:04:28Z marco $
3314 \setcounter{errorcontextlines}{999}
3315 \documentclass[parskip=false,english,11pt]{ltxmdf}
3316 \ltxmdfsetifoot$Id: mdframed.dtx 347 2012-03-04 13:04:28Z marco $
3317
3318 \lstDeleteShortInline{[]}
3319 \newcommand\Loadedframemethod{PSTricks}
3320 \usepackage[framemethod=\Loadedframemethod]{mdframed}
3321
3322 \usepackage{showexpl}
3323 \lstset{style=lstltxmdf,explpreset={pos=b,rframe={}},}
3324
3325 \title{The \Pack{mdframed} package}
3326 \subtitle{Examples for \Opt{framemethod=\Loadedframemethod}}
3327 \author{\href{mailto:marco.daniel@mada-nada.de}{Marco Daniel}}
3328 \date{\mdfdateID$Id: mdframed.dtx 347 2012-03-04 13:04:28Z marco $}
3329 \version{\mdversion}
3330 \introduction{In this document I collect various examples for \Opt{framemethod=\Loadedframemethod}.
3331 Some presented examples are more or less exorbitant.}

```

```

3332
3333 \mdfsetup{skipabove=\topskip,skipbelow=\topskip}
3334 \newrobustcmd\ExampleText{%
3335     An \textit{inhomogeneous linear} differential equation has the form
3336     \begin{align}
3337         L[v] = f,
3338     \end{align}
3339     where  $L$  is a linear differential operator,  $v$  is
3340     the dependent variable, and  $f$  is a given non-zero
3341     function of the independent variables alone.
3342 }
3343
3344 \newcounter{examplecount}
3345 \setcounter{examplecount}{0}
3346 \renewcommand\thesubsection{}
3347 \newcommand\Examplesec[1]{%
3348     \stepcounter{examplecount}%
3349     \subsection{Example~\arabic{examplecount}~---~#1\relax}%
3350 }
3351
3352 \begin{document}
3353 \maketitle
3354 \section{Loading}
3355 In the preamble only the package \Pack{mdframed} with the option \Opt{framemethod=Loadedframemethod}
3356
3357 {\large\color{red!50!black}
3358 \NOTE Every \Cmd{global} inside the examples is necessary to work with the package \Pack{showexpl}.}
3359 X
3360 \section{Examples}
3361 All examples have the following settings:
3362
3363 \begin{tltxmdfexample}
3364 \mdfsetup{skipabove=\topskip,skipbelow=\topskip}
3365 \newrobustcmd\ExampleText{%
3366     An \textit{inhomogeneous linear} differential equation
3367     has the form
3368     \begin{align}
3369         L[v] = f,
3370     \end{align}
3371     where  $L$  is a linear differential operator,  $v$  is
3372     the dependent variable, and  $f$  is a given non-zero
3373     function of the independent variables alone.
3374 }
3375 \end{tltxmdfexample}
3376 \clearpage
3377
3378 \Examplesec{very simple}
3379 \begin{LTExample}
3380 \global\mdfdefinestyle{exampledefault}{%
3381     linecolor=red,middlelinewidth=3pt,%
3382     leftmargin=1cm,rightmargin=1cm
3383 }
3384 \begin{mdframed}[style=exampledefault,roundcorner=5]
3385 \ExampleText
3386 \end{mdframed}
3387 \end{LTExample}

```



```

3388
3389 \Examplesec{hidden line + frame title}
3390 \begin{LTExample}
3391 \global\mdfapptodefinestyle{exampledefault}{%
3392   topline=false,rightline=false,bottomline=false,
3393   frametitlerule=true,innertopmargin=6pt,
3394   outerlinewidth=6pt,outerlinecolor=blue,
3395   pstricksappsetting={\addtopsstyle{mdfouterlinestyle}{linestyle=dashed}},
3396   innerlinecolor=yellow,innerlinewidth=5pt}%
3397 \begin{mdframed}[style=exampledefault,frametitle={Inhomogeneous linear}]
3398 \ExampleText
3399 \end{mdframed}
3400 \end{LTExample}
3401
3402 \clearpage
3403
3404 \Examplesec{Dash Lines}
3405 \begin{LTExample}
3406 \global\mdfdefinestyle{exampledefault}{%
3407   pstrickssetting={linestyle=dashed,},linecolor=red,linewidth=5pt}
3408 \begin{mdframed}[style=exampledefault,]
3409 \ExampleText
3410 \end{mdframed}
3411 \end{LTExample}
3412
3413 \Examplesec{Double Lines}
3414 \begin{LTExample}
3415 \global\mdfdefinestyle{exampledefault}{%
3416   pstrickssetting={doubleline=true,doublesep=6pt},
3417   linecolor=red,linewidth=5pt,middlelinewidth=4pt}
3418 \begin{mdframed}[style=exampledefault,]
3419 \ExampleText
3420 \end{mdframed}
3421 \end{LTExample}
3422
3423 \Examplesec{Shadow frame}
3424 \begin{LTExample}
3425 \newmdenv[shadow=true,
3426           shadowsize=11pt,
3427           linewidth=8pt,
3428           frametitlerule=true,
3429           roundcorner=10pt,
3430           ]{myshadowbox}
3431 \begin{myshadowbox}[frametitle={Inhomogeneous linear}]
3432 \ExampleText
3433 \end{myshadowbox}
3434 \end{LTExample}
3435 \end{document}
3436 \endinput

```

F. The file *mdframed-example-texsx*

```

3437 %Documentation of the package mdframed
3438 %$Id: mdframed.dtx 347 2012-03-04 13:04:28Z marco $
3439 \setcounter{errorcontextlines}{999}
3440 \documentclass[parskip=false,english,11pt,ltxlipsum]{ltxmdf}

```

```

3441 \ltxmdfsetifoot $Id: mdfamed.dtx 347 2012-03-04 13:04:28Z marco $
3442
3443
3444 \usepackage{showexpl}
3445 \lstset{style=lstltxmdf,explpreset={pos=b,rframe={}},}
3446
3447 \newcommand\Loadedframemethod{default}
3448 \usepackage[framemethod=\Loadedframemethod]{mdfamed}
3449
3450 \title{The \Pack{mdfamed} package}
3451 \subtitle{Examples for \Opt{framemethod=\Loadedframemethod}}
3452 \author{\href{mailto:marco.daniel@mada-nada.de}{Marco Daniel}}
3453 \date{\mdfdateID$Id: mdfamed.dtx 347 2012-03-04 13:04:28Z marco $}
3454 \version{\mdversion}
3455 \introduction{In this document I collect various examples for \Opt{framemethod=\Loadedframemethod}.
3456 Some presented examples are more or less exorbitant.}
3457
3458 \mdfsetup{skipabove=\topskip,skipbelow=\topskip}
3459 \newrobustcmd\ExampleText{%
3460     An \textit{inhomogeneous linear} differential equation has the form
3461     \begin{align}
3462         L[v] = f,
3463     \end{align}
3464     where  $L$  is a linear differential operator,  $v$  is
3465     the dependent variable, and  $f$  is a given non-zero
3466     function of the independent variables alone.
3467 }
3468
3469 \newcounter{examplecount}
3470 \setcounter{examplecount}{0}
3471 \renewcommand\thesubsection{}
3472 \newcommand\Examplesec[1]{%
3473 \stepcounter{examplecount}%
3474 \subsection{Example~\arabic{examplecount}~---~\#1\relax}%
3475 }
3476
3477 \begin{document}
3478 \maketitle
3479 \section{Loading}
3480 In the preamble only the package \Pack{mdfamed} with the option \Opt{framemethod=\Loadedframemethod}
3481
3482 {\large\color{red!50!black}
3483 \NOTE Every \Cmd{global} inside the examples is necessary to work with the package \Pack{showexpl}.}
3484
3485 \section{Examples}
3486 All examples have the following settings:
3487
3488 \begin{tltxmdfexample}
3489 \mdfsetup{skipabove=\topskip,skipbelow=\topskip}
3490 \newrobustcmd\ExampleText{%
3491 An \textit{inhomogeneous linear} differential equation
3492 has the form
3493 \begin{align}
3494 L[v] = f,
3495 \end{align}
3496 where  $L$  is a linear differential operator,  $v$  is

```

```

3497 the dependent variable, and  $f$  is a given non-zero
3498 function of the independent variables alone.
3499 }
3500 \end{tltxmdfexample}
3501 \clearpage
3502 \Examplesec{Package listings}
3503 The example below is inspired by the following post on StackExchange \href{http://tex.stackexchange.com}
3504
3505 Here the solution which can be decorate as usual.
3506
3507 \begin{tltxmdfexample}[moretexcs={BeforeBeginEnvironment,AfterEndEnvironment},morekeywords={lstlisting}]
3508 \BeforeBeginEnvironment{lstlisting}{%
3509     \begin{mdframed}[<modification>%
3510         \vspace{-0.7em}}
3511 \AfterEndEnvironment{lstlisting}{%
3512     \vspace{-0.5em}%
3513     \end{mdframed}}
3514 \end{tltxmdfexample}
3515
3516 With the new command \Cmd{surroundwithmdframed} you can use
3517 \begin{tltxmdfexample}[moretexcs={BeforeBeginEnvironment,AfterEndEnvironment},morekeywords={lstlisting}]
3518 \surroundwithmdframed{listings}
3519 \end{tltxmdfexample}
3520
3521 \Examplesec{Package multicols}
3522 How I wrote in \enquote{Known Problems} you can't combine \Pack{multicols} with \Pack{mdframed}. In a s
3523 \begin{LTXexample}
3524 \begin{multicols}{2}
3525 \lipsum[1]
3526 \begin{mdframed}
3527 \ExampleText
3528 \end{mdframed}
3529 \lipsum[2]
3530 \end{multicols}
3531 \end{LTXexample}
3532 \clearpage
3533 \twocolumn[\Examplesec{Working in twocolumn mode}]
3534 \begin{tltxmdfexample}
3535 \twocolumn[%
3536     \Examplesec{Working in
3537         twocolumn mode}]
3538 \lipsum[1]\lipsum[2]
3539 \begin{mdframed}[%
3540     leftmargin=10pt,%
3541     rightmargin=10pt,%
3542     linecolor=red,
3543     backgroundcolor=yellow]
3544 \ExampleText
3545 \end{mdframed}
3546 \lipsum[2]
3547 \end{tltxmdfexample}
3548 \lipsum[1]\lipsum[2]
3549 \begin{mdframed}[leftmargin=10pt,%
3550     rightmargin=10pt,%
3551     linecolor=red,
3552     backgroundcolor=yellow]

```

```
3553 \ExampleText
3554 \end{mdframed}
3555 \lipsum[2]
3556 \clearpage
3557 \onecolumn
3558 \Examplesec{Working inside enumerate}
3559 \begin{LTXexample}
3560 Text Text Text Text Text Text Text Text
3561 \begin{enumerate}
3562 \item in the following \ldots
3563     \begin{mdframed}[linecolor=blue,linewidth=2]
3564     \ExampleText
3565     \end{mdframed}
3566 \item \lipsum[2]
3567 \end{enumerate}
3568 Text Text Text Text Text Text
3569 \end{LTXexample}
3570 \end{document}
3571 \endinput
```

G. Change History

v1.0a		v1.1release	
General: Created dtx and fixes bugs	1	General: Added <code>\mbox</code> to the definition.	
v1.0b		<code>\item\mbox\relax</code> – Need for amsthm	28
General: added command <code>\@parboxrestore</code>		changed definition of <code>\mdf@lrbox</code> (Thanks	
to <code>\mdf@lrbox</code>	27	Lars Madsen)	27
removed <code>\setbox\mdf@splitbox@two</code>		Changed the enddefinition of <code>mdframed</code> .	
<code>\vbox\unvbox \mdf@splitbox@two</code> . . .	40	Uses now <code>\@doendpe</code> instead of	
v1.1beta		<code>\endparenv</code>	35
General: added command to avoid overfull		Edit algorithm to combine the	
box warning by <code>vsplit</code>	28	saveboxes <code>\mdf@frametitlebox</code> and	
Added frametitle detection to		<code>\mdf@splitboxone</code> by the predefined set-	
<code>\detected@mdf@put@frame</code>	34	tings: <code>\parskip\z@</code> , <code>\parindent\z@</code> and	
added lost semicolons	54	<code>\offinterlineskip</code>	31
Added method frame title via <code>\savebox</code> .	31	v1.2a	
Added option <code>frametitlerulecolor</code> ,		General: take account of <code>\parskip</code> for the	
<code>frametitlebackgroundcolor</code> , <code>font</code> . . .	23	vertical calculation	37
Added option <code>titleaboveskip</code> ,		v1.3	
<code>titlebelowskip</code> , <code>frametitlerulewidth</code>	22	General: Added option <code>shadow</code>	23
Added option <code>usetwoside</code>	23	Use now <code>\item\mbox\relax</code>	28
Changed the definition of <code>\mdf@trivlist</code>	35	v1.3a	
Create new <code>\savebox</code> and renamed		General: fixes bug with <code>\@doendpe</code> (Thanks	
<code>\@tempboxa</code>	26	Dietrich Grau)	27
Defining <code>mdframed</code> with <code>\newenvironment</code>	35	v1.4	
Joining all new definitions	26	General: Changed the detecting of float en-	
Redefinition of <code>\newmdtheoremenv</code> . – Now		vironments. Now <code>mdframed</code> uses only	
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