

The mdframed package

auto-split frame environment

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v1.6

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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.*

¹TikZ implementation

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

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.

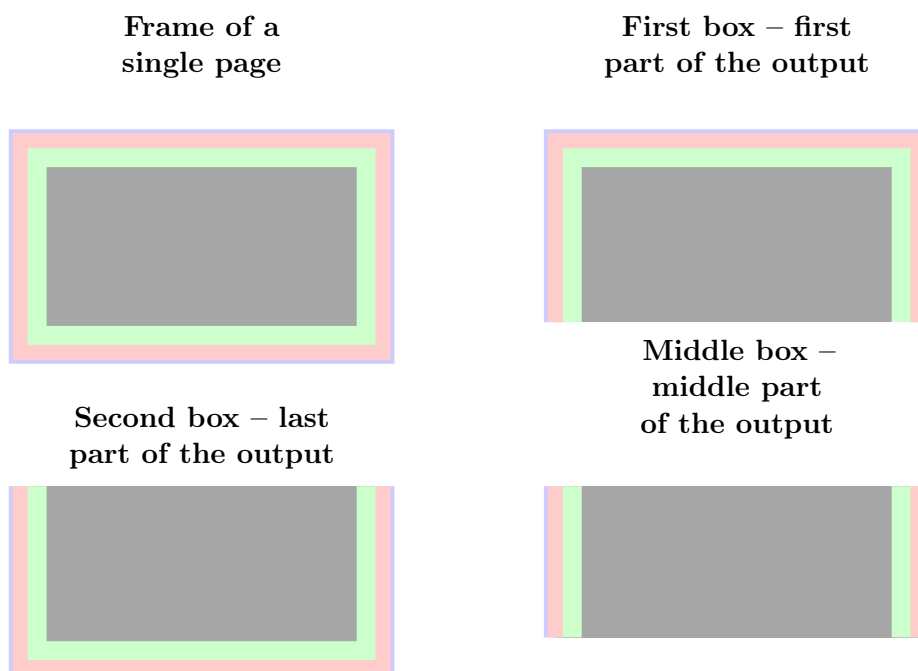


Figure 1: The basic frames

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

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. 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`.

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.

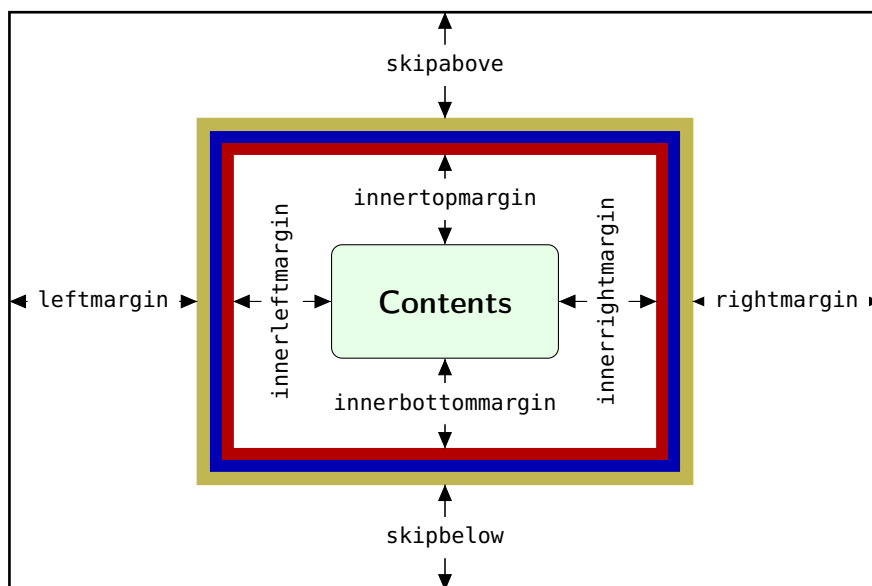


Figure 2: adjustable lengths of `mdframed`

`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. This option has an effect only in `singleside-mode` or, in `twoside-mode`, if the option `usetwoside=false` has been given. See also options `outermargin` and `innermargin`.

`rightmargin`

`default=0pt`

Sets the length of the right margin of the environment. This option has an effect only in `singleside-mode` or, in `twoside-mode`, if the option `usetwoside=false` has been given. See also options `outermargin` and `innermargin`.

`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).

`userdefinedwidth` default=0pt

Sets the width of the whole `mdframed` environment. The width represent the width including the line width and the inner margins. The outer margins will be ignored.

`outermargin`

Sets the length of the outer margin. This option is only available in `twoside`-mode.

`innermargin`

Sets the length of the inner margin. This option is only available in `twoside`-mode.

`splittopskip` default=0pt

Sets the length of the skip above the split part of the environment.

`splitbottomskip` default=0pt

Sets the length of the skip below the split part of the environment.

`linewidth` default=0.4pt

Sets the width of the line around the environment.

`roundcorner` default=0pt

Sets the size of the radius of the corners of the frames.

This works only with `framemethod=TikZ` or `PSTricks`.

`innerlinewidth` default=0pt

Sets the width of the inner line around the environment.

This works only with `framemethod=TikZ` or `PSTricks`.

`outerlinewidth` default=0pt

Sets the width of the outer line around the environment.

This works only with `framemethod=TikZ` or `PSTricks`.

`middlelinewidth` default=linewidth

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

5.2.2. Colored Options

`linecolor` default=black

Sets the color of the line around the environment.

`backgroundcolor` default=white

Sets the color of the background of the environment.

`fontcolor` 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

`everyline` default=false

Allows to draw a bottom and a top line at splitted frames.

`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 overfull 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`.

`singleextra` default={}

With this key you can put extra material to the drawing environment of `mdframed` only for a non splitted frame.

This works only with `framemethod=TikZ` and `PSTricks`.

`firstextra` default={}

With this key you can put extra material to the drawing environment of `mdframed` only for the first part of the splitted frame.

This works only with `framemethod=TikZ` and `PSTricks`.

`middleextra` default={}

With this key you can put extra material to the drawing environment of `mdframed` only for the middle part of the splitted frame.

This works only with `framemethod=TikZ` and `PSTricks`.

`secondextra` default={}
 With this key you can put extra material to the drawing environment of `mdframed` only for the second part of the splitted frame.
 This works only with `framemethod=TikZ` and `PSTricks`.

5.3. Hidden Lines

`topline` default=true
 Draws a line at the top.

`bottomline` default=true
 Draws a line at the bottom.

`leftline` default=true
 Draws a line on the left.

`rightline` default=true
 Draws a line on the right.

`hidealllines` 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.

`frametitle` default=none
 The environment gets a title. To set a title use `frametitle={The Title of the frame}` as an option of the environment.

`frametitlefont` default=\normalfont\bfseries
 Sets the format of the `frametitle`.

`frametitlealignment` 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}
```

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.

⁴Thanks to Martin Scharrer and Enrico Gregorio:

[Own command to create new environment](#)

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 depreciated
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`.
2. If you load the package `picins` the frame will no be splitted. That based on a problem of the package 'picins' which defines `\@captive` global. To work with the package `picins` you can use the following hack.

```

\usepackage{picins}
\makeatletter
\let\@captive\@undefined
\def\newcaption{%
\begingroup%
\def\@captive{figure}%
\refstepcounter\@captive\@dblarg{\@newcaption\@captive}%
\endgroup%
}
\makeatother
    
```

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`.
8. Create an inline version of `mdframed` that's works like `\fbox`
9. Add `\ht\strutbox` to file `md-frame-1.mdf`

10. Acknowledgements

Dick Nickalls; Dietrich Grau; Piazza Luca; Jobst Hoffmann; Martin Scharrer; Enrico Gregorio; Heiko Oberdiek; Philipp Stephani; Nicolas Markey⁵ .

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I hope I forgot nobody.

⁵Many thanks for improving the splitting algorithm

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.

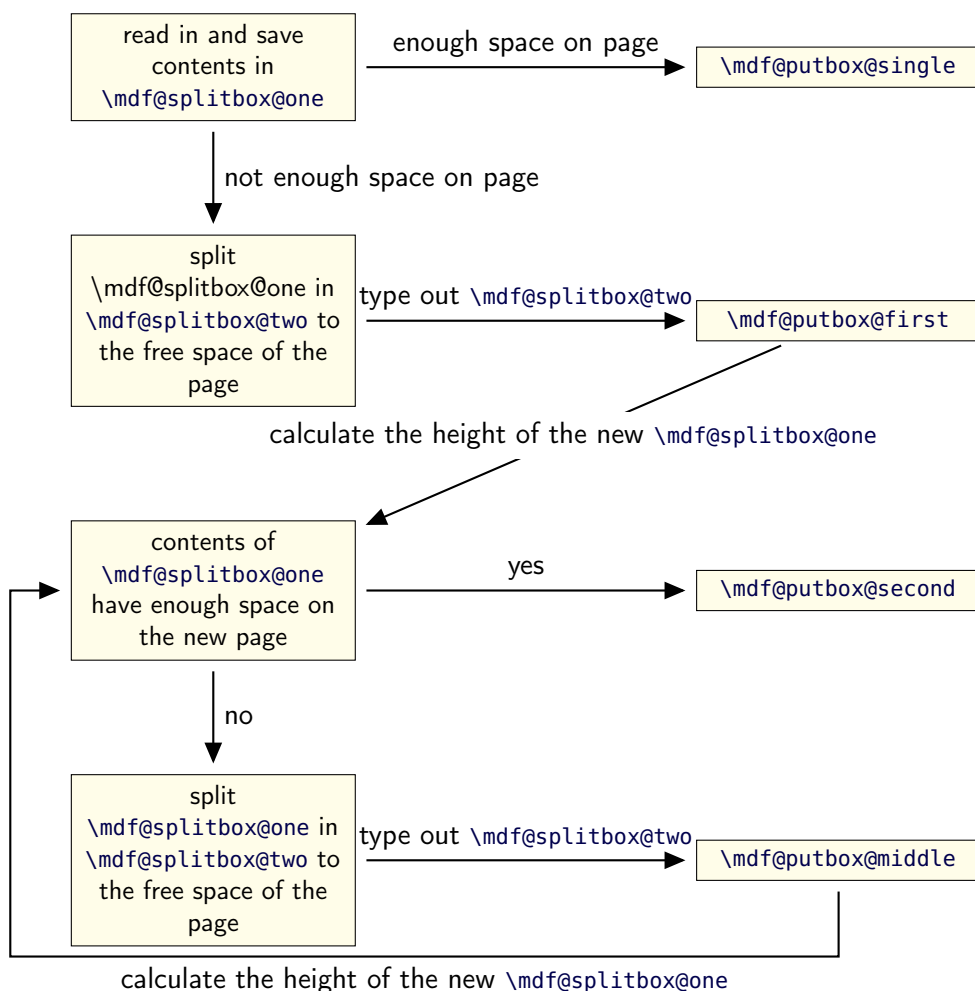


Figure 3: Setting the contents of `mdframed`

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

A.2. The Framecommands

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 1.6 submitted DD MMM 2012

- Expand and improved the splitting algorithm with a great idea of Nicolas Markey • Tobias Weh inspired the excurs-environment not Tobias Schwan. Sorry, I fixed it. • Improved `\mdtheorem` to handle `\listtheorems` provided by `ntheorem`.

Version 1.5 submitted 10 Mar 2012

- fixed bug (Thanks Nicolas Roy) • expanded documentation (Thanks Martin Wilhelm Leidig)
- added options `singleextra`, `firstextra`, `middleextra` and `secondextra` • expanded examples

Version 1.4d submitted 30 Mar 2012

- fixed bug (Thanks Nicolas Roy) • added approach to documentation to work with `picins`
- new implementation of option `hidealllines`, now you can set `\mdfsetup{hidealllines=true,leftline=true}` printing only the left line (inspired by Tobias Weh)
- added option `everyline` to draw a top and bottom line at splitted frames

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 unnessary 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 `frametitlerule`, `frametitlerulewidth`, `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@lrbox`

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 fixe 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.dtx3942012-04-29 21:29:59Zmarco Rev : 394 Author : marco

Date : 2012-04-29 21:29:59 +0200(So, 29 Apr 2012)

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

Set package information

```
1 \def\mdversion{v1.6}
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 394 2012-04-29 21:29:59Z 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 {extratopheight==\z@},%
160 }

```

`\mdf@do@lengthoption`

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

```

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

```

190 }

`\mdf@do@booloption`

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

```

191 \mdf@dolist{\mdf@do@booloption}{%
192   {ntheorem==false},%
193   {topline==true},%
194   {leftline==true},%
195   {bottomline==true},%
196   {rightline==true},%
197   {frametitletopline==true},%
198   {frametitleleftline==true},%
199   {frametitlebottomline==true},%
200   {frametitlerightline==true},%
201 %   {hidealllines==false},%
202   {frametitlerule==false},%
203   {nobreak==false},%
204   {footnoteinside==true},%
205   {usetwoside==true},%
206   {repeatframetitle==false},% Noch nicht richtig implementiert
207   {shadow==false},%
208   {everyline==false},%
209 }
210 %special boolflag hidealllines:
211 \newbool{mdf@hidealllines}%
212 \define@key{mdf}{hidealllines}[false]{%
213 \setbool{mdf@hidealllines}{#1}%
214 \ifbool{mdf@hidealllines}{%
215   \kvsetkeys{mdf}{leftline=false,topline=false,rightline=false,bottomline=false}%
216 }}}%
217 }
```

`\mdf@do@alignoption`

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

```

218 \mdf@dolist{\mdf@do@alignoption}{%
219   {left==\mdf@leftmargin@length==\z@},%
220   {center==\fill==\fill},%
221   {right==\fill==\mdf@rightmargin@length},%
222   {outer==\fill==\mdf@rightmargin@length},%not supported yet
223   {outer==\mdf@leftmargin@length==\fill},%not supported yet
224 }
```

```

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

Set the alignment.

```

225 \newcommand*\mdf@align{}%
226 \newcommand*\mdf@makeboxalign@left{\null\hspace*{\mdf@leftmargin@length}}%
227 \newcommand*\mdf@makeboxalign@right{}%
```

```

228 \define@key{mdf}{align}[left]{%
229   \ifcsundef{mdf@align@#1@left}{%
230     \mdf@PackageWarning{Unknown alignment #1\MessageBreak}%
231     \letcs\mdf@makeboxalign@left{mdf@align@left@left}%
232     \letcs\mdf@makeboxalign@right{mdf@align@left@right}%
233   }{%
234     \def\mdf@makeboxalign@left{\csuse{mdf@align@#1@left}}%
235     \def\mdf@makeboxalign@right{\csuse{mdf@align@#1@right}}%
236   }%
237 }

```

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

Option to pass options to tikz or pstricks

```

238 \def\mdf@tikzset@local{\tikzset{tikzsetting/.style={}}}
239 \define@key{mdf}{tikzsetting}{%
240   \def\mdf@tikzset@local{\tikzset{tikzsetting/.style={#1}}}%
241 }
242 \define@key{mdf}{apptotikzsetting}{%
243   \appto\mdf@tikzset@local{#1}%
244 }
245 \def\mdf@psset@local{}
246 \define@key{mdf}{pstrickssetting}{%
247   \def\mdf@psset@local{#1}%
248 }
249 \def\mdf@pstricks@appendsettings{}
250 \define@key{mdf}{pstricksappsetting}{%
251   \def\mdf@pstricks@appendsettings{#1}%
252 }
253

```

`\mdf@xcolor`

Problem with xcolor. This part must be reworked!

```

254 \def\mdf@xcolor{}
255 \define@key{mdf}{xcolor}[none]{%
256   \def\@tempa{#1}%
257   \@ifpackageloaded{xcolor}{%
258     \let\mdf@xcolor\@empty %ignoriere die Eingabe der Optionen
259     \def\@tempa{}%
260   }{%
261     \ifx\relax\@tempa\relax\else
262       \PassOptionsToPackage{\mdf@xcolor}{xcolor}%
263       \RequirePackage{xcolor}%
264     \fi%
265   }%

```

`\mdf@needspace`

Defining the option needspace

```

266 \define@key{mdf}{needspace}[\z@]{%
267   \begingroup%
268     \setlength{\dimen@}{#1}%

```

```

269      \vskip\z@\@plus\dimen@%
270      \penalty -100\vskip\z@\@plus -\dimen@%
271      \vskip\dimen@%
272      \penalty 9999%
273      \vskip -\dimen@%
274      \vskip\z@skip % hide the previous |\vskip| from |\addvspace|
275      \endgroup%
276 }

```

```

277 \DeclareDefaultOption{%
278   \mdf@PackageWarning{Unknown Option '\CurrentOption' for mdframed}}
279 \ProcessKeyvalOptions*\relax

```

\mdfsetup

Short form of `\setkeys{mdf}`

```

280 \newrobustcmd*{\mdfsetup}{\kvsetkeys{mdf}}

```

\mdf@style

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

```

281 \define@key{mdf}{style}{%
282   \ifcsundef{mdf@definestyle@#1}{%
283     \mdf@PackageWarning{Unknown definedstyle #1^^J
284       You have to define a style ^^J
285       via \string\mdfdefinedstyle\MessageBreak
286     }%
287   }%
288   {\expandafter\expandafter\expandafter\mdfsetup%
289     \expandafter\expandafter\expandafter{\csname mdf@definestyle@#1\endcsname}}}%
290 }%

```

\mdf@print@space

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

```

291 \let\mdf@PackageNoInfo\@gobble
292 \newrobustcmd*{\mdf@ifstrequal@expand{%
293   \expandafter\ifstrequal\expandafter{\mdf@printheight}%
294 }
295 \newrobustcmd*{\mdf@print@space{%
296   %case "none"
297   \mdf@ifstrequal@expand{none}{\def\mdf@tempa{NoInfo}}}%
298   %case "info"
299   \mdf@ifstrequal@expand{info}{\def\mdf@tempa{Info}}}%
300   %case "warning"
301   \mdf@ifstrequal@expand{warning}{\def\mdf@tempa{Warning}}}%
302   %case "unknown"
303   \mdf@PackageWarning{Unknown key for printheight=\mdf@printheight^^J
304     use none, info or warning}%
305   \def\mdf@tempa{none}%
306 }%
307 }%
308 }%

```

```

309 \def\mdf@PackageInfoSpace{\csname md f@Package\md f@tempa\endcsname}%
310 }

```

\new...

Initialize all commands and length which will we used later

```

311 \newsavebox\mdf@frametitlebox
312 \newsavebox\mdf@footnotebox
313 \newsavebox\mdf@splitbox@one
314 \newsavebox\mdf@splitbox@two
315 \newsavebox\mdf@splitbox@save
316 \newlength\mdfsplitboxwidth
317 \newlength\mdfsplitboxtotalwidth
318 \newlength\mdfsplitboxheight
319 \newlength\mdfsplitboxdepth
320 \newlength\mdfsplitboxtotalheight
321 \newlength\mdfframetitleboxwidth
322 \newlength\mdfframetitleboxtotalwidth
323 \newlength\mdfframetitleboxheight
324 \newlength\mdfframetitleboxdepth
325 \newlength\mdfframetitleboxtotalheight
326 \newlength\mdffootnoteboxwidth
327 \newlength\mdffootnoteboxtotalwidth
328 \newlength\mdffootnoteboxheight
329 \newlength\mdffootnoteboxdepth
330 \newlength\mdffootnoteboxtotalheight
331
332 \newlength\mdftotallinewidth
333
334 \newlength\mdfboundingboxwidth
335 \newlength\mdfboundingboxtotalwidth
336
337 \newlength\mdfboundingboxheight
338 \newlength\mdfboundingboxdepth
339 \newlength\mdfboundingboxtotalheight
340
341 \newlength\mdf@freevspace@length
342 \newlength\mdf@horizontalwidthofbox@length
343 \newlength\mdf@verticalmarginwhole@length
344
345 % Command to expand the tikz code. (see md-frame-1.mdf)
346 \newrobustcmd\mdfcreateextratikz{}
347

```

\mdf@loop

Creating a loop to iterate the correct splitting point

```

348 \def\mdf@loop#1\mdf@repeat{%
349   \def\mdf@iterate{#1}%
350   \mdf@iterate%
351   \let\mdf@iterate\relax
352 }
353 \let\mdf@repeat\relax

```

```
\mdf@lrbox
\endmdf@lrbox
```

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

```
354
355 \def\mdf@lrbox#1{%
356   %%patch to work with amsthm
357   \mdf@patchamsthm
358   %%end patch
359   \edef\mdf@restoreparams{%
360     \parindent=\the\parindent \parskip=\the\parskip}
361   \setbox#1\vbox\bgroup
362   \color@begingroup%
363   \mdf@horizontalmargin@equation%
364   \columnwidth=\hsize%
365   \textwidth=\hsize%
366   \@parboxrestore%
367   \mdf@restoreparams%
368   %SETZE
369   \@afterindentfalse%
370   \@afterheading%
371   %STREICHE
372   %\doendpe
373 }
374
375 \def\endmdf@lrbox{\color@endgroup\egroup}
376
```

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

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

```
377 \newrobustcmd*\mdf@ignorevbadness{%
378   \edef\mdf@currentvbadness{\the\vbadness}%
379   \vbadness=\@M%
380   \afterassignment\mdf@restorevbadness}
381 \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`.

```
382 \@ifpackageloaded{amsthm}{%
383   \newrobustcmd\mdf@patchamsthm{%
384     \let\mdf@deferred@thm@head\deferred@thm@head
385     \patchcmd{\deferred@thm@head}{\indent}{}%
386       {\mdf@PackageInfo{mdframed detected package amsthm ^^J
387         changed the theoerem header of amsthm\MessageBreak}%
388       }{%
389         \mdf@PackageInfo{mdframed detected package amsthm ^^J
390         changed the theoerem header of amsthm failed\MessageBreak}%
391       }%
392     }%
393   }\let\mdf@patchamsthm\relax}%
```

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

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

```
394 \def\mdf@trivlist#1{%
395   \setlength{\topsep}{#1}%
396   \partopsep\z@%
397   \parsep\z@%
398   \@nmblistfalse%
399   \@trivlist%
400   \labelwidth\z@%
401   \leftmargin\z@%
402   \itemindent\z@%
403   \let\@itemlabel\@empty%
404   \def\makelabel##1{##1}%
405   % \item\leavevmode\hrule \@height\z@ \@width\linewidth\relax%
406   % \item\mbox{}\relax% second version
407   \item\relax% first Version
408 }
409 \let\endmdf@trivlist\endtrivlist
410 \patchcmd\endmdf@trivlist\@endparenv\mdf@endparenv{}}{}
411 \def\mdf@endparenv{%
412   \addpenalty\@endparpenalty\addvspace\mdf@skipbelow@length\@endpetrue}
413
```

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

```
414 \newrobustcmd*\mdf@makebox@out[2][\linewidth]{%
415   \noindent\hb@xt@\z@{%
416     \noindent\makebox[\dimexpr #1\relax][l]{#2}%
417     \hss}%
418 }%
419 \newrobustcmd*\mdf@makebox@in[2][\mdf@userdefinedwidth@length]{%
420   \noindent\makebox[\dimexpr #1\relax][l]{#2}%
421 }
```

```
\mdfdefinestyle
\mdfapptodefinestyle
```

See explanation of this commands above.

```
422 \newrobustcmd*\mdfdefinestyle[2]{%
423   \csdef{mdf@definestyle@#1}{#2}%
424 }
425 \newrobustcmd*\mdfapptodefinestyle[2]{%
426   \ifcsundef{mdf@definestyle@#1}%
427     {\mdf@PackageWarning{Unknown style #1}}%
428     {\csappto{mdf@definestyle@#1}{, #2}}%
429 }
```

```
\mdflength
\surroundwithmdframed
```

Helper macros to work with *mdframed*

```

430 \newrobustcmd*{\mdflength}[1]{\csuse{mdf@#1@length}}
431
432 \newrobustcmd*{\surroundwithmdframed}[2][]{%
433   \BeforeBeginEnvironment{#2}{\begin{mdframed}[#1]}%
434   \AfterEndEnvironment{#2}{\end{mdframed}}}%
435 }

```

```

\newmdenv
\renewmdenv
\newmdtheoremenv
\mdtheorem

```

Defining of the new environment definitions.

```

436 \newrobustcmd*{\newmdenv}[2][]{%
437   \newenvironment{#2}{%
438     \mdfsetup{#1}%
439     \begin{mdframed}%
440   }{%
441     \end{mdframed}%
442   }%
443 }
444 \newrobustcmd*{\renewmdenv}[2][]{%
445   \expandafter\let\csname #2\endcsname\relax%
446   \expandafter\let\csname end#2\endcsname\relax%
447   \newmdenv[#1]{#2}%
448 }%
449
450
451 \DeclareDocumentCommand\newmdtheoremenv{0}{m o m o }{%
452   \ifboolexpr{ test {\IfNoValueTF {#3}} and test {\IfNoValueTF {#5}} }{%
453     {\newtheorem{#2}{#4}}{%
454       \IfValueTF{#3}{\newtheorem{#2}[#3]{#4}}{%
455         \IfValueTF{#5}{\newtheorem{#2}{#4}[#5]}{%
456           }%
457       }%
458     }%
459     \BeforeBeginEnvironment{#2}{%
460       \begin{mdframed}[#1]}%
461     \AfterEndEnvironment{#2}{%
462       \end{mdframed}}%
463   }
464   \newrobustcmd*{\mdf@thm@caption}[2]{%
465     \AtBeginDocument{%
466       \@ifpackageloaded{ntheorem}%
467       {\renewrobustcmd*{\mdf@thm@caption}{\thm@thmcaption}}{%
468         }%
469     }
470   \DeclareDocumentCommand{\mdtheorem}{0}{m o m o }%
471   {\ifcsdef{#2}%
472     {\mdf@PackageWarning{Environment #2 already exists\MessageBreak}}%
473     {%
474       \IfNoValueTF {#3}%
475       {%#3 not given -- number relationship
476         \IfNoValueTF {#5}

```



```

477     {%#3+#5 not given
478     \@definecounter{#2}%
479     \expandafter\xdef\csname the#2\endcsname{\@thmcounter{#2}}%
480     \newenvironment{#2}[1][{%
481         \refstepcounter{#2}%
482         \ifstrepty{##1}%
483             {\let\@temptitle\relax}%
484             {%
485                 \def\@temptitle{\mdf@theoremseparator%
486                     \mdf@theoremspace%
487                     \mdf@theoremtitlefont%
488                     ##1}%
489                 \mdf@thm@caption{#2}{\csname the#2\endcsname}{##1}}%
490             }%
491     \begin{mdframed}[#1,frametitle={\strut#4\ \csname the#2\endcsname\@temptitle}]]%
492     {\end{mdframed}}}%
493 \newenvironment{#2*}[1][{%
494     \ifstrepty{##1}{\let\@temptitle\relax}{\def\@temptitle{: \ ##1}}%
495     \begin{mdframed}[#1,frametitle={\strut#4\@temptitle}]]%
496     {\end{mdframed}}}%
497 }%
498 {%#5 given -- reset counter
499 \@definecounter{#2}\@newctr{#2}[#5]%
500 \expandafter\xdef\csname the#2\endcsname{\@thmcounter{#2}}%
501 \expandafter\xdef\csname the#2\endcsname{%
502     \expandafter\noexpand\csname the#5\endcsname \@thmcountersep%
503     \@thmcounter{#2}}%
504 \newenvironment{#2}[1][{%
505     \refstepcounter{#2}%
506     \ifstrepty{##1}%
507         {\let\@temptitle\relax}%
508         {%
509             \def\@temptitle{\mdf@theoremseparator%
510                 \mdf@theoremspace%
511                 \mdf@theoremtitlefont%
512                 ##1}%
513             \mdf@thm@caption{#2}{\csname the#2\endcsname}{##1}}%
514         }
515     \begin{mdframed}[#1,frametitle={\strut#4\ \csname the#2\endcsname\@temptitle}]]%
516     {\end{mdframed}}}%
517 \newenvironment{#2*}[1][{%
518     \ifstrepty{##1}%
519         {\let\@temptitle\relax}%
520         {%
521             \def\@temptitle{\mdf@theoremseparator%
522                 \mdf@theoremspace%
523                 \mdf@theoremtitlefont%
524                 ##1}%
525             \mdf@thm@caption{#2}{\csname the#2\endcsname}{##1}}%
526         }%
527     \begin{mdframed}[#1,frametitle={\strut#4\@temptitle}]]%
528     {\end{mdframed}}}%
529 }%
530 }%
531 {%#3 given -- number relationship
532 \global\@namedef{the#2}{\@nameuse{the#3}}%

```

```

533     \newenvironment{#2}[1][]{%
534         \refstepcounter{#3}%
535         \ifstrepty{##1}%
536             {\let\@temptitle\relax}%
537             {%
538                 \def\@temptitle{\mdf@theoremseparator%
539                     \mdf@theoremspace%
540                     \mdf@theoremtitlefont%
541                     ##1}%
542                 \mdf@thm@caption{#2}{\csname the#2\endcsname}{##1}}%
543             }
544     \begin{mdframed}[#1,frametitle={\strut#4\ \csname the#2\endcsname\@temptitle}]]%
545     {\end{mdframed}}}%
546 \newenvironment{#2*}[1][]{%
547     \ifstrepty{##1}{\let\@temptitle\relax}{\def\@temptitle{: \ ##1}}%
548     \begin{mdframed}[#1,frametitle={\strut#4\@temptitle}]]%
549     {\end{mdframed}}}%
550 }%
551 }%
552 }
553

```

```

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

```

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

```

554 %TESTVERSION
555 % \newrobustcmd*\mdf@setopt@title{%
556 %     \ifbool{mdf@frametitle@rule}{\booltrue{mdf@bottomline}}{\boolfalse{mdf@bottomline}}%
557 %     \let\ifmdf@leftline\ifmdf@frametitle@leftline%
558 %     \let\ifmdf@topline\ifmdf@frametitle@topline%
559 %     \let\ifmdf@rightline\ifmdf@frametitle@rightline%
560 %     \let\ifmdf@bottomline\ifmdf@frametitle@bottomline%
561 %     \mdfsetup{innerbottommargin=\mdf@titlebelowskip@length,%
562 %         innertopmargin=\mdf@titleaboveskip@length,%
563 %         middlelinecolor=\mdf@frametitle@rulecolor,%
564 %         backgroundcolor=\mdf@frametitle@backgroundcolor,%
565 %         middlelinewidth=\mdf@frametitle@rulewidth@length,%
566 %         innerleftmargin=\mdf@frametitle@leftmargin@length,%
567 %         innerrightmargin=\mdf@frametitle@rightmargin@length,%
568 %         alignment=\mdf@frametitle@alignment,%
569 %         skipbelow=\z@}%
570 %     \def\mdf@linecolor@bottom{\color{\mdf@frametitle@bottomrulecolor}}%
571 %     \mdf@frametitle@settings%
572 % }
573 %
574 % \newrobustcmd*\mdf@setopt@body{%
575 %     \mdfsetup{topline=false,skipabove=\z@}%
576 %     \unskip\nointerlineskip%
577 % }
578 %
579 % \newrobustcmd\mdfframedtitleenv[1]{%

```

```

580 % \beginngroup
581 % \mdf@setopt@title
582 % \color@setgroup
583 % \mdf@frametitlefont
584 % \mdf@lrbox{\mdf@splitbox@one}%
585 % \mdf@frametitlealignment
586 % #1\par\unskip
587 % \endmdf@lrbox
588 % \mdf@ignorevbadness
589 % \global\setbox\mdf@frametitlebox\vbox{\unvbox\mdf@splitbox@one}%
590 % \mdf@ignorevbadness
591 % \global\setbox\mdf@splitbox@one\vbox{\unvcopy\mdf@frametitlebox}%
592 % \detected@mdf@put@frame%
593 % \color@endgroup%
594 % \endgroup
595 % }
596 \newrobustcmd\mdfframedtitleenv[1]{%
597 % \color@beginngroup%%
598 % \mdf@lrbox{\mdf@frametitlebox}%
599 % \mdf@frametitlealignment%
600 % \color{\mdf@frametitlefontcolor}%
601 % \normalfont\mdf@frametitlefont{#1}\par\unskip
602 % \endmdf@lrbox%
603 % \mdf@ignorevbadness%
604 % \global\setbox\mdf@frametitlebox\vbox{\unvbox\mdf@frametitlebox}%
605 % \global\mdfframetitleboxwidth=\wd\mdf@frametitlebox\relax%
606 % \global\mdfframetitleboxheight=\ht\mdf@frametitlebox\relax%
607 % \global\mdfframetitleboxdepth=\dp\mdf@frametitlebox\relax%
608 % \global\mdfframetitleboxtotalheight=\dimexpr\ht\mdf@frametitlebox+\dp\mdf@frametitlebox
609 % +\mdf@frametitleaboveskip@length+\mdf@frametitlebelowskip@length\relax%
610 % \setbox\mdf@frametitlebox\vbox{\unvbox\mdf@frametitlebox}%
611 % \mdfframetitleboxwidth=\wd\mdf@frametitlebox\relax%
612 % \mdfframetitleboxheight=\ht\mdf@frametitlebox\relax%
613 % \mdfframetitleboxdepth=\dp\mdf@frametitlebox\relax%
614 % \mdfframetitleboxtotalheight=\dimexpr\ht\mdf@frametitlebox+\dp\mdf@frametitlebox
615 % +\mdf@frametitleaboveskip@length+\mdf@frametitlebelowskip@length\relax%
616 % \color@endgroup%
617 % }
618
619 \newrobustcmd*\mdf@@frametitle{%
620 % \mdfframedtitleenv{\mdf@frametitle}%
621 % }
622
623 \newrobustcmd*\mdf@@frametitle@use{%
624 % \beginngroup
625 % \parskip\z@
626 % \parindent\z@
627 % \offinterlineskip
628 % \mdf@ignorevbadness%
629 % \global\setbox\mdf@splitbox@one\vbox{%
630 % \setbox\mdf@splitbox@one\vbox{%
631 % \unvcopy\mdf@frametitlebox%
632 % \mdf@@frametitlerule%
633 % \unvbox\mdf@splitbox@one
634 % }%
635 % \mdf@ignorevbadness%

```

```

636 \setbox\mdf@splitbox@one\vbox{%
637   \unvbox\mdf@splitbox@one}%
638
639 % \global\setbox\mdf@splitbox@one\vbox{%
640 %   \unvbox\mdf@splitbox@one}%
641 % \endgroup
642 \mdfsetup{innertopmargin=\mdf@frametitleaboveskip@length}%
643 }

```

`\mdf@checkntheorem`

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

```

644
645 \newrobustcmd*\mdf@checkntheorem{%
646   \ifbool{mdf@ntheorem}%
647     {\ifundef{\theorempreskipamount}%
648       {\mdf@PackageWarning{You have not loaded ntheorem yet}}%
649       {\setlength{\theorempreskipamount}{\z@}%
650        \setlength{\theorempostskipamount}{\z@}%
651       }}%
652   }{}%
653 }

```

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

Support for footnotes.

```

654 \newrobustcmd*\mdf@footnoterule{%
655   \kern0\p@
656   \hrule \@width 1in \kern 2.6\p@}
657 \newrobustcmd*\mdf@footnoteoutput{%
658   \ifvoid\@mpfootins\else
659     \nobreak%
660     \vskip\mdf@footnotedistance@length%
661     \normalcolor%
662     \mdf@footnoterule
663     \unvbox\@mpfootins
664   \fi%
665 }
666 \newrobustcmd*\mdf@footnoteinput{%
667   \def\@mpfn{mpfootnote}%
668   \def\thempfn{\thempfootnote}%
669   \c@mpfootnote\z@%
670   \let\@footnotetext\@mpfootnotetext%
671 }

```

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

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

```

672 \newrobustcmd*\mdf@load@style{%
673 \ifcase\value{mdf@globalstyle@cnt}\relax%
674   \input{md-frame-0.mdf}%

```

```

675 \or\input{md-frame-1.mdf}%
676 \or\input{md-frame-2.mdf}%
677 \or\input{md-frame-3.mdf}%
678 \else%
679   \IfFileExists{md-frame-\value{mdf@globalstyle@cnt}.mdf}%
680   {\input{md-frame-\value{mdf@globalstyle@cnt}.mdf}}%
681   {%
682     \input{md-frame-0.mdf}%
683     \mdf@PackageWarning{The style number \value{mdf@globalstyle@cnt} does not exist^^J
684                        mdframed uses instead style=0 \mdframedpackagename}%
685   }%
686 \fi%
687 }%
688 \mdf@load@style
689
690 \newrobustcmd*{\mdf@styledefinition}{%AVOID!!!Needed for framemethod=default
691   \ifnumequal{\value{mdf@globalstyle@cnt}}{0}%
692   {\deflength{\mdf@innerlinewidth@length}{\z@}%
693    \deflength{\mdf@middlelinewidth@length}{\mdf@linewidth@length}%
694    \deflength{\mdf@outerlinewidth@length}{\z@}%
695    \let\mdf@innerlinecolor\mdf@linecolor%
696    \let\mdf@middlelinecolor\mdf@linecolor%
697    \let\mdf@outerlinecolor\mdf@linecolor%
698   }{}%
699 }

```

`\detected@mdf@put@frame`

Detect whether inside a non breakable environment.

```

700 \let\mdf@reserved@a\@empty
701 \newrobustcmd*{\detected@mdf@put@frame}{%
702   \ifmdf@nobreak%Option nobreak=true?
703     \def\mdf@reserved@a{\mdf@put@frame@standalone}%
704   \else
705     \def\mdf@reserved@a{\mdf@put@frame}%
706     \ifx\@cuptype\@undefined
707       \def\mdf@reserved@a{\mdf@put@frame}%
708     \else
709       \mdf@PackageInfo{mdframed inside float ^^J
710                      mdframed uses option nobreak \mdframedpackagename}%
711       \def\mdf@reserved@a{\mdf@put@frame@standalone}%
712     \fi
713   %% \ifnum\@floatpenalty<0\relax%Detecting float
714   %% \if@twocolumn%
715   %% \ifx\@cuptype\@undefined
716   %% \def\mdf@reserved@a{\mdf@put@frame}%
717   %% \else
718   %% \mdf@PackageInfo{mdframed inside float ^^J
719   %%                  mdframed uses option nobreak \mdframedpackagename}%
720   %% \def\mdf@reserved@a{\mdf@put@frame@standalone}%
721   %% \fi
722   %% \else
723   %% \mdf@PackageInfo{mdframed inside float ^^J
724   %%                  mdframed uses option nobreak \mdframedpackagename}%

```

```

725 %%          \def\mdf@reserved@a{\mdf@put@frame@standalone}%
726 %%          \fi%
727 %%          \fi%
728 \if@minipage%
729     \mdf@PackageInfo{mdframed inside minipage ^^J
730                     mdframed uses option nobreak \mdframedpackagename}%
731     \def\mdf@reserved@a{\mdf@put@frame@standalone}%
732     \fi%
733 \ifinner%
734     \mdf@PackageInfo{mdframed inside a box ^^J
735                     mdframed uses option nobreak \mdframedpackagename}%
736     \def\mdf@reserved@a{\mdf@put@frame@standalone}%
737     \fi%
738 \fi%
739 \mdf@reserved@a%
740 }

```

```
\mdf@hidealllines@check
```

```

741 \newrobustcmd*\mdf@hidealllines@check{%
742 \ifbool{mdf@hidealllines}{%
743     \boolfalse{mdf@leftline}\boolfalse{mdf@rightline}%
744     \boolfalse{mdf@topline}\boolfalse{mdf@bottomline}%
745     \boolfalse{mdf@frametitleleftline}\boolfalse{mdf@frametitlerightline}%
746     \boolfalse{mdf@frametitletopline}\boolfalse{mdf@frametitlebottomline}%
747 }{}%
748 }

```

```

\mdframed
\mdframed@ii
\mdframed@i

```

That the user environment.

```

749 \newenvironment{mdframed}[1][{}]{%
750 \color@begingroup%
751     \mdfsetup{userdefinedwidth=\linewidth,#1}%
752 %%          \mdf@hidealllines@check%
753     \mdf@twoside@checklength%
754     \let\width\z@%
755     \let\height\z@%
756     \mdf@checkntheorem%
757     \mdf@styledefinition%
758     \mdf@footnoteinput%
759     \color{\mdf@fontcolor}%
760     \mdf@font%
761     \ifvmode\nointerlineskip\fi%
762     \mdf@trivlist{\mdf@skipabove@length}%
763     \ifdefempty{\mdf@frametitle}{}\{\mdf@frametitle}%
764     \mdf@settings%
765     \mdf@lrbox{\mdf@splitbox@one}%
766 }%
767 {\par\unskip\ifvmode\nointerlineskip\hrule \@height\z@ \@width\hsize\fi%
768     \ifmdf@footnoteinside%

```

```

769 \def\mdf@reserveda{%
770 \mdf@footnoteoutput%
771 \endmdf@lrbox%
772 \ifdefempty{\mdf@frametitle}{\mdf@@frametitle@use}
773 \detected@mdf@put@frame}%
774 \else%
775 \def\mdf@reserveda{%
776 \endmdf@lrbox%
777 \ifdefempty{\mdf@frametitle}{\mdf@@frametitle@use}
778 \detected@mdf@put@frame%
779 \mdf@footnoteoutput%
780 }%
781 \fi%
782 \mdf@reserveda%
783 \endmdf@trivlist%
784 \color@endgroup\@doendpe%
785 }
786
787

```

```

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

```

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

```

788 \newtoggle{md:checktwoside}
789 \settoggle{md:checktwoside}{false}
790 \newrobustcmd*\mdf@twoside@checklength{%
791 \if@twoside
792 \ifbool{mdf@usetwoside}%
793 {\mdf@PackageInfo{mdframed works in twoside mode}%
794 \settoggle{md:checktwoside}{true}%
795 \setlength\mdf@rightmargin@length{\mdf@outermargin@length}%
796 \setlength\mdf@leftmargin@length{\mdf@innermargin@length}%
797 }%
798 {\mdf@PackageInfo{mdframed inside twoside mode but\MessageBreak
799 works with oneside mode}%
800 \settoggle{md:checktwoside}{false}%
801 }%
802 \fi%
803 }
804
805 \newcounter{mdf@zref@counter}%keine doppelten laebes
806 \zref@newprop*\mdf@pagevalue}[0]{\number\value{page}}
807 \zref@addprop{\ZREF@mainlist}{mdf@pagevalue}
808 \newrobustcmd*\mdf@zref@label{%
809 \stepcounter{mdf@zref@counter}
810 \zref@label{mdf@pagelabel-\number\value{mdf@zref@counter}}%
811 }
812 \newrobustcmd*\if@mdf@pageodd{%
813 \zref@refused{mdf@pagelabel-\the\value{mdf@zref@counter}}%
814 \ifodd\zref@extract{mdf@pagelabel-\the\value{mdf@zref@counter}}{mdf@pagevalue}%
815 \setlength\mdf@rightmargin@length{\mdf@outermargin@length}%

```

```

816      \setlength\mdf@leftmargin@length{\mdf@innermargin@length}%
817    \else
818      \setlength\mdf@rightmargin@length{\mdf@innermargin@length}%
819      \setlength\mdf@leftmargin@length{\mdf@outermargin@length}%
820    \fi%
821  }
822  \newrobustcmd*\mdf@@setzref{%
823    \iftoggle{md:checktwoside}{\mdf@zref@label\if@mdf@pageodd}{}}%
824  }

```

`\mdf@freepagevspace`

```

825  \newrobustcmd*\mdf@freepagevspace{%
826    \penalty\@M\relax \vskip 2\baselineskip\relax
827    \penalty9999\relax \vskip -2\baselineskip\relax
828    \penalty9999\relax
829    \ifdimequal{\pagegoal}{\maxdimen}%
830      {\mdf@freevspace@length\vsize}%
831      {\mdf@freevspace@length=\pagegoal\relax%
832        \advance\mdf@freevspace@length by -\pagetotal\relax%
833        \addtolength\mdf@freevspace@length{\dimexpr-\parskip\relax}\relax%
834      }%
835  }

```

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

Width of the box

```

836  \newrobustcmd*\mdf@advancelength@horizontalmargin@sub[1]{%
837    \advance\mdf@horizontalsofbox by -\csname md f@#1@length\endcsname\relax%
838  }
839  \newlength\mdf@horizontalsofbox
840  \newrobustcmd*\mdf@horizontalmargin@equation{%
841    \setlength{\mdf@horizontalsofbox}{\mdf@userdefinedwidth@length}%
842    \mdf@dolist{\mdf@advancelength@horizontalmargin@sub}{%
843      leftmargin,outerlinewidth,middlelinewidth,%
844      innerlinewidth,innerleftmargin,inerrightmargin,%
845      innerlinewidth,middlelinewidth,outerlinewidth,%
846      rightmargin}%
847    \notbool{mdf@leftline}{%
848      \advance\mdf@horizontalsofbox by \mdf@innerlinewidth@length\relax%
849      \advance\mdf@horizontalsofbox by \mdf@middlelinewidth@length\relax%
850      \advance\mdf@horizontalsofbox by \mdf@outerlinewidth@length\relax%
851    }{}%
852    \notbool{mdf@rightline}{%
853      \advance\mdf@horizontalsofbox by \mdf@innerlinewidth@length\relax%
854      \advance\mdf@horizontalsofbox by \mdf@middlelinewidth@length\relax%
855      \advance\mdf@horizontalsofbox by \mdf@outerlinewidth@length\relax%
856    }{}%
857    \ifdimless{\mdf@horizontalsofbox}{3cm}%
858      {\mdf@PackageWarning{You have only a width of 3cm}}{}

```



```

859 \hsize=\mdf@horizontalsofbox%
860 }

```

`\mdf@keeplines@single`

horizontal space in relation of the lines.

```

861 \newrobustcmd*\mdf@keeplines@single{%
862   \notbool{mdf@topline}{%
863     \advance\mdf@verticalmarginwhole@length by -\mdf@innerlinewidth@length%
864     \advance\mdf@verticalmarginwhole@length by -\mdf@middlelinewidth@length%
865     \advance\mdf@verticalmarginwhole@length by -\mdf@outerlinewidth@length%
866   }{}%
867   \notbool{mdf@bottomline}{%
868     \advance\mdf@verticalmarginwhole@length by -\mdf@innerlinewidth@length%
869     \advance\mdf@verticalmarginwhole@length by -\mdf@middlelinewidth@length%
870     \advance\mdf@verticalmarginwhole@length by -\mdf@outerlinewidth@length%
871   }{}%
872 }

```

`\mdf@advancelength@verticalmarginwhole`
`\mdf@advancelength@freevspace@sub`
`\mdf@advancelength@freevspace@add`

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

```

873 \newrobustcmd*\mdf@advancelength@verticalmarginwhole[1]{%
874   \advance\mdf@verticalmarginwhole@length by \csname mdf@#1@length\endcsname\relax%
875 }
876 \newrobustcmd*\mdf@advancelength@freevspace@sub[1]{%
877   \advance\dimen@ by -\csname mdf@#1@length\endcsname\relax%
878 }
879 \newrobustcmd*\mdf@advancelength@freevspace@add[1]{%
880   \advance\dimen@ by \csname mdf@#1@length\endcsname\relax%
881 }

```

`\mdf@reset`

Reset changes

```

882 \protected@edef\mdf@reset{\boxmaxdepth\the\boxmaxdepth
883   \splittopskip\the\splittopskip}%

```

`\mdf@put@frame@standalone`

Output of `mdframed` inside a non breakable environment.

```

884 \newrobustcmd*\mdf@put@frame@standalone{\relax%
885   \ifvoid\mdf@splitbox@one\relax
886     \mdf@PackageWarning{The environment is empty\MessageBreak}%
887     \let\mdf@reserved@a\relax%
888   \else
889     %Hier berechnung Box-Inhalt+Rahmen oben und unten
890     \setlength{\mdf@verticalmarginwhole@length}{%
891       {\dimexpr\ht\mdf@splitbox@one+\dp\mdf@splitbox@one\relax}%
892     \mdf@dolist{\mdf@advancelength@verticalmarginwhole}{%
893       outerlinewidth,middlelinewidth,innerlinewidth,innertopmargin,

```

```

894             innerbottommargin,innerlinewidth,middlelinewidth,outerlinewidth}%
895     \mdf@keeplines@single%
896     \def\mdf@reserved@a{\mdf@putbox@single}%
897     \fi
898     \mdf@reserved@a%
899 }

```

`\mdf@put@frame`

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

```

900 \def\mdf@put@frame{\relax%
901   \ifvoid\mdf@splitbox@one\relax
902     \mdf@PackageWarning{The environment is empty\MessageBreak}%
903     \let\mdf@reserved@a\relax%
904   \else
905     \setlength\mdfboundingboxwidth{\wd\mdf@splitbox@one}%
906     \mdf@print@space%
907     \mdf@freepagevspace%gives \mdf@freevspace@length%
908     \mdf@PackageInfoSpace{\the\mdf@freevspace@length before the beginning of \MessageBreak
909       the environment ending on input line \MessageBreak}%
910     %% If not enough space when starting to split, jump to next page
911     \ifdimless{\mdf@freevspace@length}{2\baselineskip}%
912       {%
913         \mdf@PackageInfo{Not enough space on this page}%
914         \vfill\reject%
915         \def\mdf@reserved@a{\mdf@put@frame}%
916       }{%
917         %Hier berechnung Box-Inhalt+Rahmen oben und unten
918         \setlength{\mdf@verticalmarginwhole@length}%
919           {\dimexpr\ht\mdf@splitbox@one+\dp\mdf@splitbox@one\relax}%
920         \mdf@dolist{\mdf@advance@length@verticalmarginwhole}{%
921           outerlinewidth,middlelinewidth,innerlinewidth,innertopmargin,%
922           innerbottommargin,innerlinewidth,middlelinewidth,outerlinewidth}%
923         \mdf@keeplines@single%
924         %% If box fits on current page, put box, else put@frame@i
925         \ifdimless{\mdf@verticalmarginwhole@length}{\mdf@freevspace@length}%
926           {%passt auf Seite%
927             \begingroup%
928               \mdf@@setzref%
929               \mdf@putbox@single%
930             \endgroup%
931             \let\mdf@reserved@a\relax}%
932           {%passt nicht auf Seite
933             \def\mdf@reserved@a{\mdf@put@frame@i}%
934           }%
935       }%
936   \fi
937   \mdf@reserved@a%
938 }

```

`\mdf@put@frame@i`

Output of the first splitted box.

```

939 \def\mdf@put@frame@i{%Box muss gesplittet werden -- Ausgabe der ersten Teilbox
940 %Berechnung der Splittgroesse -- Linien und Abstand oben
941 %\vbox to 0pt{%
942 %\rlap{\smash{\the\mdf@freevspace@length}}%\hrule \@height\z@ \@width\hsize
943 \mdf@freepagevspace%gives \mdf@freevspace@length
944 %Berechnung ob nur oberen Linien nur auf die Seite passe
945 \dimen@=\the\mdf@freevspace@length%
946 \dimen@i=\mdf@innertopmargin@length%
947 \advance\dimen@i by \mdf@innerlinewidth@length%
948 \advance\dimen@i by \mdf@middlelinewidth@length%
949 \advance\dimen@i by \mdf@outerlinewidth@length%
950 \advance\dimen@i by 2\baselineskip%
951 \ifdimless{\dimen@}{\z@}{\dimen@i=\z@}{}%
952 \ifdimless{\dimen@i}{\z@}{\dimen@i=\@ne\relax\dimen@=\z@}{}%
953 %% \dimen@i corresponds to the size of a box with 1 line. If we don't have at least that:
954 \ifdimless{\dimen@}{\dimen@i}%
955   {% then we go to next page
956     \hrule \@height\z@ \@width\hsize%
957     \vfill\@eject%
958     \def\mdf@reserved@a{\mdf@put@frame}%
959   }{% if we have some room for a non-empty box:
960     \mdf@dolist{\mdf@advance\length@freevspace@sub}{%calculate with \dimen@
961       outerlinewidth,middlelinewidth,innerlinewidth,%
962       innertopmargin,splitbottomskip}%
963     \ifbool{mdf@everyline}{%
964       \ifbool{mdf@bottomline}{%
965         \advance\dimen@ by -\mdf@innerlinewidth@length%
966         \advance\dimen@ by -\mdf@middlelinewidth@length%
967         \advance\dimen@ by -\mdf@outerlinewidth@length%
968       }{}%
969     }{}%
970     \ifbool{mdf@topline}{%
971       \advance\dimen@ by -\mdf@innerlinewidth@length%
972       \advance\dimen@ by -\mdf@middlelinewidth@length%
973       \advance\dimen@ by -\mdf@outerlinewidth@length%
974     }{}%
975     \advance\dimen@.8\pageshrink
976     %% if box fits: this is a problem, because \@mdf@put@frame should have seen it...
977     \ifdimless{\ht\mdf@splitbox@one+\dp\mdf@splitbox@one}{\dimen@}%
978       {%
979         \mdf@PackageWarning{You got a bad break\MessageBreak
980           you have to change it manually\MessageBreak
981           by changing the text, the space\MessageBreak
982           or something else}%
983         \advance\dimen@ by -1.8\baselineskip\relax%
984       }{}%
985     \splitmaxdepth\z@ \splittopskip\mdf@splittopskip@length%
986     \setbox\mdf@splitbox@save\vbox{\unvcopy\mdf@splitbox@one}%save the original box
987     \mdf@ignorevbadness%
988     \setbox\mdf@splitbox@two\vsplit\mdf@splitbox@one to \dimen@
989     \setbox\mdf@splitbox@two\vbox{\unvbox\mdf@splitbox@two}%
990     \setbox\mdf@splitbox@one\vbox{\unvbox\mdf@splitbox@one}%
991     %% Now we try to see if the recently split box fits on page.
992     %% If not, we iteratively reduce the target size, until the box fits.
993     \dimen@i=\dimen@\relax%
994     \@tempcnta=\z@\relax%

```

```

995 \mdf@loop
996 \ifdimgreater{\ht\mdf@splitbox@two+\dp\mdf@splitbox@two}{\dimen@}%
997   {%Falsch gesplittet
998     %% Debugging information
999     %\immediate\message{^^Jmdframed[974]: box two too big^^J
1000     %\the\ht\mdf@splitbox@two^^J
1001     %\the\dp\mdf@splitbox@two^^J
1002     %\the\dimen@}
1003     \mdf@PackageInfo{Box was splittet wrong\MessageBreak}%
1004     \global\advance\dimen@i by -1pt\relax
1005     %\immediate\message{\the\dimen@i^^J}
1006     \splittopskip\z@%
1007     %% reuse original box for splitting
1008     %% this could probably be optimized a bit... (by directly using \mdf@splitbox@save)
1009     \setbox\mdf@splitbox@one\vbox{\unvbox\mdf@splitbox@save}%
1010     \splittopskip\mdf@splittopskip@length%
1011     \mdf@ignorevbadness%
1012     \setbox\mdf@splitbox@save\vbox{\unvcopy\mdf@splitbox@one}%
1013     \setbox\mdf@splitbox@two\vsplit\mdf@splitbox@one to \dimen@i
1014     \setbox\mdf@splitbox@two\vbox{\unvbox\mdf@splitbox@two}%
1015     \setbox\mdf@splitbox@one\vbox{\unvbox\mdf@splitbox@one}%
1016     \advance\@tempcnta by \@ne
1017     \ifnum\@tempcnta>\@m
1018       \let\mdf@iterate\relax%
1019     \fi
1020     %% loop
1021     \expandafter\mdf@iterate
1022   }{}
1023 \mdf@repeat
1024 \ifvoid\mdf@splitbox@one\relax
1025   %%\immediate\message{^^Jmdframed[1013]: box one empty^^J
1026   %% \the\ht\mdf@splitbox@two^^J
1027   %% \the\dp\mdf@splitbox@two^^J
1028   %% \the\dimen@}
1029   %% restart from beginning, with enlarged page
1030   \setbox\mdf@splitbox@one\vbox{\unvbox\mdf@splitbox@two}%
1031   \setbox\mdf@splitbox@one\vbox{\unvbox\mdf@splitbox@one}%
1032   \enlargethispage{\baselineskip}%
1033   %\advance\vsiz by 2pt
1034   \def\mdf@reserved@a{\mdf@put@frame}%
1035 \else
1036   %% if box one non-empty but very small: same problem...
1037   \ifdimless{\ht\mdf@splitbox@one+\dp\mdf@splitbox@one}{1sp}%
1038     {% debug information
1039       %\immediate\message{^^Jmdframed[1035]: box one empty^^J
1040       % \the\ht\mdf@splitbox@two^^J
1041       % \the\dp\mdf@splitbox@two^^J
1042       % \the\dimen@}
1043       \setbox\mdf@splitbox@one\vbox{\unvbox\mdf@splitbox@two}%
1044       \setbox\mdf@splitbox@one\vbox{\unvbox\mdf@splitbox@one}%
1045       \enlargethispage{\baselineskip}%
1046       \def\mdf@reserved@a{\mdf@put@frame}%
1047     }%
1048     {% Here, remaining box is not empty. We start working with the first box
1049       \ifvoid\mdf@splitbox@two%pruefe, ob erste Box leer ist
1050         %% first box is empty. We add a small rule and restart from beginning

```

```

1051      %\immediate\message{^^Jmdframed[1026]: box two empty^^J
1052      % \the\ht\mdf@splitbox@two^^J
1053      % \the\dp\mdf@splitbox@two^^J
1054      % \the\dimen@}
1055      \hrule \@height\@size pt \@width\z@%
1056      \hrule \@height\z@ \@width\hsize%
1057      %
1058      \def\mdf@reserved@a{\mdf@put@frame}%
1059  \else
1060      \ifdimequal{\ht\mdf@splitbox@two+\dp\mdf@splitbox@two}{1sp}%
1061      {% first box almost empty...
1062      %\immediate\message{^^Jmdframed[1033]: box two zero-sized^^J
1063      % \the\ht\mdf@splitbox@two^^J
1064      % \the\dp\mdf@splitbox@two^^J
1065      % \the\dimen@}
1066      \hrule \@height\z@ \@width\hsize%
1067      %\vfill\@eject%
1068      %\setbox\mdf@splitbox@one\vbox{\unvbox\mdf@splitbox@two\unvbox\mdf@splitbox@one}%
1069      \setbox\mdf@splitbox@one\vbox{\unvbox\mdf@splitbox@save}%
1070      \def\mdf@reserved@a{\mdf@put@frame}%
1071      }%
1072      {% Good: both boxes are non-empty
1073      %\immediate\message{^^Jmdframed[1040]: box one and two non-empty^^J
1074      % \the\ht\mdf@splitbox@one^^J
1075      % \the\dp\mdf@splitbox@one^^J
1076      % \the\ht\mdf@splitbox@two^^J
1077      % \the\dp\mdf@splitbox@two^^J}
1078      \begingroup%
1079      %% we write box two
1080      \mdf@@setzref
1081      \mdf@putbox@first%%Groesse des Splittens passt
1082      \endgroup%
1083      \hrule \@height\z@ \@width\hsize%
1084      \vfill\@eject%
1085      \def\mdf@reserved@a{\mdf@put@frame@ii}%
1086      }%
1087      \fi
1088      }% closes "else" part of \ifdimless
1089      \fi
1090      }% closes "else" part of \ifdimless
1091      %% Now we do what we promised...
1092      \mdf@reserved@a%
1093  }

```

`\mdf@put@frame@ii`

Output of the middle and last box.

```

1094 \def\mdf@put@frame@ii{%Ausgabe der mittleren Box(en) wenn vorhanden
1095  %% Here the aim is to fill the whole page
1096  \setlength{\mdf@freevspace@length}{\vsize}%
1097  \setlength{\mdf@dimen@}{\dimexpr\ht\mdf@splitbox@one+\dp\mdf@splitbox@one\relax}%
1098  \mdf@dolist{\mdf@advance@length@freevspace@add}{%used \mdf@dimen@
1099    outerlinewidth,middlelinewidth,innerlinewidth,%
1100    innerbottommargin}%%Addition der Linien unten
1101  \ifbool{\mdf@everyline}{%

```

```

1102 \ifbool{mdf@topline}{%
1103   \advance\dimen@ by \mdf@innerlinewidth@length%
1104   \advance\dimen@ by \mdf@middlelinewidth@length%
1105   \advance\dimen@ by \mdf@outerlinewidth@length%
1106 }{}%
1107 }{}%
1108 \ifbool{mdf@bottomline}{%
1109   \advance\dimen@ by \mdf@innerlinewidth@length%
1110   \advance\dimen@ by \mdf@middlelinewidth@length%
1111   \advance\dimen@ by \mdf@outerlinewidth@length%
1112 }{}%
1113 %% if box larger than available space
1114 \ifdimgreater{\dimen@}{\mdf@freevspace@length}%
1115 {%
1116   \advance\mdf@freevspace@length by -\mdf@splitbottomskip@length\relax%
1117   %\advance\mdf@freevspace@length by .5\ht\strutbox\relax%
1118   \ifbool{mdf@everyline}{%
1119     \ifbool{mdf@topline}{%
1120       \advance\mdf@freevspace@length by -\mdf@innerlinewidth@length%
1121       \advance\mdf@freevspace@length by -\mdf@middlelinewidth@length%
1122       \advance\mdf@freevspace@length by -\mdf@outerlinewidth@length%
1123     }{}%
1124     \ifbool{mdf@bottomline}{%
1125       \advance\mdf@freevspace@length by -\mdf@innerlinewidth@length%
1126       \advance\mdf@freevspace@length by -\mdf@middlelinewidth@length%
1127       \advance\mdf@freevspace@length by -\mdf@outerlinewidth@length%
1128     }{}%
1129   }{}%
1130   \splitmaxdepth\z@ \splittopskip\mdf@splittopskip@length%
1131   \mdf@ignorevbadness%
1132   \setbox\mdf@splitbox@save\ vbox{\unvcopy\mdf@splitbox@one}%
1133   \setbox\mdf@splitbox@two\vsplit\mdf@splitbox@one to \mdf@freevspace@length%
1134   \setbox\mdf@splitbox@two\ vbox{\unvbox\mdf@splitbox@two}%PRUEFEN!!!
1135   \setbox\mdf@splitbox@one\ vbox{\unvbox\mdf@splitbox@one}%PRUEFEN!!!
1136   %% TODO: check if at the right place
1137   \ifbool{mdf@repeatframetitle}{%
1138     \setbox\mdf@splitbox@one\ vbox{%
1139       \vbox to \mdf@splittopskip@length{\hsize\z@}
1140       %\par\unskip\nointerlineskip
1141       \unvcopy\mdf@frametitlebox%
1142       \mdf@@frametitlerule%
1143       \vbox to\dimexpr
1144         -\mdf@splittopskip@length+\ht\strutbox+\dp\strutbox
1145         +\mdf@innertopmargin@length\relax{\hsize\z@}%
1146       \unvbox\mdf@splitbox@one}%
1147   }{}%
1148   %% If second box is empty
1149   \ifvoid\mdf@splitbox@one\relax%
1150     %\immediate\message{^^Jmdframed[1125] Box two empty^^J}
1151     %% We don't warn, as we try to solve the problem ourselves
1152     %\mdf@PackageWarning{You got a bad break\MessageBreak
1153     % because the split box is empty\MessageBreak
1154     % You have to change the settings}%
1155     \setbox\mdf@splitbox@one\ vbox{\unvbox\mdf@splitbox@two}%
1156     \advance\vsizeroot\size2pt
1157     \def\mdf@reserved@a{\mdf@put@frame@ii}%

```

```

1158 \else
1159   %% second box non empty, but almost...
1160   \ifdimless{\ht\mdf@splitbox@one+\dp\mdf@splitbox@one}{1sp}%
1161   {%
1162     %\immediate\message{^^Jmdframed[1147] Box two empty^^J\the\vsiz^^J}
1163     %\mdf@PackageWarning{You got a bad break\MessageBreak
1164     % because the split box is empty\MessageBreak
1165     % You have to change the settings}%
1166     \setbox\mdf@splitbox@one\vbox{\unvbox\mdf@splitbox@two}%
1167     \advance\vsiz 2pt
1168     \def\mdf@reserved@a{\mdf@put@frame@ii}%
1169   }{% second box not empty. We assume that first box is ok also, since
1170   % we have a whole page...
1171   % However, first box could be too large...
1172   \setlength\dimen@{\vsiz}
1173   \dimen@i=\dimen@
1174   \mdf@loop
1175   \ifdimgreater{\ht\mdf@splitbox@two+\dp\mdf@splitbox@two}{\dimen@}%
1176   {%Falsch gesplittet
1177     %\immediate\message{^^Jmdframed[1138]: box two too big^^J
1178     % \the\ht\mdf@splitbox@two^^J
1179     % \the\dp\mdf@splitbox@two^^J
1180     % \the\dimen@}
1181     \mdf@PackageInfo{Box was splittet wrong\MessageBreak}%
1182     \global\advance\dimen@i by -1pt
1183     %\immediate\message{\the\dimen@i^^J}
1184     \splittopskip\z@%
1185     \setbox\mdf@splitbox@one\vbox{\unvbox\mdf@splitbox@save}%
1186     \splittopskip\mdf@splittopskip@length%
1187     \mdf@ignorevbadness%
1188     \setbox\mdf@splitbox@save\vbox{\unvcopy\mdf@splitbox@one}%
1189     \setbox\mdf@splitbox@two\vsplit\mdf@splitbox@one to \dimen@i
1190     \setbox\mdf@splitbox@two\vbox{\unvbox\mdf@splitbox@two}%
1191     \setbox\mdf@splitbox@one\vbox{\unvbox\mdf@splitbox@one}%
1192     \expandafter\mdf@iterate
1193   }{}
1194   \mdf@repeat
1195   %% Now we output the box
1196   \begingroup
1197     \mdf@@setzref
1198     \mdf@putbox@middle%
1199   \endgroup
1200   \hrule \@height\z@ \@width\hsize
1201   \vfill\@eject
1202   \def\mdf@reserved@a{\mdf@put@frame@ii}%
1203 }
1204 \fi
1205 }
1206 {%% Box not larger than available space: first test for emptiness
1207 %% (should not be, as we tried to avoid this previously)
1208 \ifvoid\mdf@splitbox@one
1209   \mdf@PackageWarning{You got a bad break\MessageBreak
1210   because the last split box is empty\MessageBreak
1211   You have to change the settings}%
1212   \setbox\mdf@splitbox@one\vbox{\unvbox\mdf@splitbox@one%
1213   \hrule \@height\z@ \@width\mdf@boundingboxwidth}%

```

```

1214 \fi%
1215 \ifdimless{\ht\mdf@splitbox@one+\dp\mdf@splitbox@one}{1sp}{%
1216 \mdf@PackageWarning{You got a bad break\MessageBreak
1217 because the last split box is empty\MessageBreak
1218 You have to change the settings}%
1219 %\hb@xt@{\z@{\box\mdf@splitbox@one}%
1220 \let\mdf@reserved@a\relax%
1221 \setbox\mdf@splitbox@one\vbox{\unvbox\mdf@splitbox@one%
1222 \hrule \@height\z@ \@width\mdf@boundingboxwidth}%
1223 }{}}%
1224 \begingroup%
1225 \mdf@setzref
1226 \mdf@putbox@second%
1227 %\hrule \@height\z@ \@width\hsize%
1228 \endgroup%
1229 \let\mdf@reserved@a\relax%
1230 }%Hier kommt die Ausgabe der letzten Box
1231 \mdf@reserved@a%
1232 }

```

```
\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.

```

1233 %%%%      t
1234 %%%%      |
1235 %%%%      |
1236 %%%%      |
1237 %%%%  l|      |r
1238 %%%%      |
1239 %%%%      |
1240 %%%%      |
1241 %%%%      b
1242 %%Zusammenhaenge abfragen:
1243 \newrobustcmd*{\mdf@test@ltrb}{%
1244     \ifboolexpr{ (bool {mdf@topline}) and (bool {mdf@bottomline})
1245                 and (bool {mdf@leftline}) and (bool {mdf@rightline})}}
1246 %3-set
1247 \newrobustcmd*{\mdf@test@ltr}{%
1248     \ifboolexpr{ (bool {mdf@topline}) and not (bool {mdf@bottomline})
1249                 and (bool {mdf@leftline}) and (bool {mdf@rightline})}}
1250 \newrobustcmd*{\mdf@test@ltb}{%

```



```

1251 \ifboolexpr{ (bool {mdf@topline}) and (bool {mdf@bottomline})
1252             and (bool {mdf@leftline}) and not (bool {mdf@rightline})}}
1253 \newrobustcmd*{\mdf@test@trb}%
1254 \ifboolexpr{ (bool {mdf@topline}) and (bool {mdf@bottomline})
1255             and not (bool {mdf@leftline}) and (bool {mdf@rightline})}}
1256 \newrobustcmd*{\mdf@test@lrb}%
1257 \ifboolexpr{ not (bool {mdf@topline}) and (bool {mdf@bottomline})
1258             and (bool {mdf@leftline}) and (bool {mdf@rightline})}}
1259 %2-set
1260 \newrobustcmd*{\mdf@test@lb}%
1261 \ifboolexpr{ not (bool {mdf@topline}) and (bool {mdf@bottomline})
1262             and (bool {mdf@leftline}) and not (bool {mdf@rightline})}}
1263 \newrobustcmd*{\mdf@test@rb}%
1264 \ifboolexpr{ not (bool {mdf@topline}) and (bool {mdf@bottomline})
1265             and not (bool {mdf@leftline}) and (bool {mdf@rightline})}}
1266 \newrobustcmd*{\mdf@test@tr}%
1267 \ifboolexpr{ (bool {mdf@topline}) and not (bool {mdf@bottomline})
1268             and not (bool {mdf@leftline}) and (bool {mdf@rightline})}}
1269 \newrobustcmd*{\mdf@test@lt}%
1270 \ifboolexpr{ (bool {mdf@topline}) and not (bool {mdf@bottomline})
1271             and (bool {mdf@leftline}) and not (bool {mdf@rightline})}}
1272 \newrobustcmd*{\mdf@test@lr}%
1273 \ifboolexpr{not (bool {mdf@topline}) and not (bool {mdf@bottomline})
1274             and (bool {mdf@leftline}) and (bool {mdf@rightline})}}
1275 \newrobustcmd*{\mdf@test@tb}%
1276 \ifboolexpr{ (bool {mdf@topline}) and (bool {mdf@bottomline})
1277             and not (bool {mdf@leftline}) and not (bool {mdf@rightline})}}
1278 %Einzellinien
1279 \newrobustcmd*{\mdf@test@l}%
1280 \ifboolexpr{ not (bool {mdf@topline}) and not (bool {mdf@bottomline})
1281             and (bool {mdf@leftline}) and not (bool {mdf@rightline})}}
1282 \newrobustcmd*{\mdf@test@r}%
1283 \ifboolexpr{ not (bool {mdf@topline}) and not (bool {mdf@bottomline})
1284             and not (bool {mdf@leftline}) and (bool {mdf@rightline})}}
1285 \newrobustcmd*{\mdf@test@t}%
1286 \ifboolexpr{ (bool {mdf@topline}) and not (bool {mdf@bottomline})
1287             and not (bool {mdf@leftline}) and not (bool {mdf@rightline})}}
1288 \newrobustcmd*{\mdf@test@b}%
1289 \ifboolexpr{ not (bool {mdf@topline}) and (bool {mdf@bottomline})
1290             and not (bool {mdf@leftline}) and not (bool {mdf@rightline})}}
1291 %keine Linien
1292 \newrobustcmd*{\mdf@test@noline}%
1293 \ifboolexpr{ not (bool {mdf@topline}) and not (bool {mdf@bottomline})
1294             and not (bool {mdf@leftline}) and not (bool {mdf@rightline})}}
1295 \newrobustcmd*{\mdf@test@single}%
1296 \ifboolexpr{ not (test {\mdf@test@lrb} or test {\mdf@test@ltr} or
1297                     test {\mdf@test@ltb} or test {\mdf@test@trb} or
1298                     test {\mdf@test@lrb} or test {\mdf@test@lb} or
1299                     test {\mdf@test@rb} or test {\mdf@test@tr} or
1300                     test {\mdf@test@lt} ) }}
1301 %
1302 \DisableKeyvalOption[action=warning,package=mdframed]{mdf}{framemethod}%
1303 \DisableKeyvalOption[action=warning,package=mdframed]{mdf}{xcolor}%
1304
1305 \endinput

```

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

```

1306 %% Style file for mdframed for package option 'framemethod=default'
1307 %%
1308 %% This package may be distributed under the terms of the LaTeX Project
1309 %% Public License, as described in lppl.txt in the base LaTeX distribution.
1310 %% Either version 1.0 or, at your option, any later version.
1311 %%
1312 %%
1313 %%$Id: mdframed.dtx 394 2012-04-29 21:29:59Z marco $
1314 %

```

```

\mdframed0packagename
\mdf@frame0date@svn

```

local settings

```

1315 \def\mdframed0packagename{md-frame-0}
1316 \def\mdf@frame0date@svn$1: #2 #3 #4-#5-#6 #7 #8${#4/#5/#6\space }
1317 \ProvidesFile{md-frame-0.mdf}%
1318     [\mdf@frame0date@svn$Id: mdframed.dtx 394 2012-04-29 21:29:59Z marco $]
1319     \mdversion: \mdframed0packagename]

```

```

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

```

short command

```

1320 \def\mdf@background@default{\color{\mdf@backgroundcolor}}
1321 \def\mdf@frametitlebackground@default{\color{\mdf@frametitlebackgroundcolor}}
1322 \def\mdf@shadow@default{\color{\mdf@shadowcolor}}
1323 \def\mdf@innerlinecolor@default{\color{\mdf@innerlinecolor}}
1324 \def\mdf@middlelinecolor@default{\color{\mdf@middlelinecolor}}
1325 \def\mdf@outerlinecolor@default{\color{\mdf@outerlinecolor}}
1326 \def\mdf@frametitlerulecolor@default{\color{\mdf@frametitlerulecolor}}
1327 \let\mdf@linecolor@default\mdf@middlelinecolor@default
1328 \def\mdf@@frametitlerule{%
1329   \ifbool{mdf@frametitlerule}{%
1330     \vbox to \mdf@frametitlerulewidth@length {\hsize\mdfframetitleboxwidth%
1331       \par\unskip\vskip\mdf@frametitlebelowskip@length%
1332       \rlap{\noindent\hspace*{-\mdf@innerleftmargin@length}%
1333         \mdf@frametitlerulecolor@default%
1334         \rule{\dimexpr\mdfframetitleboxwidth%
1335           +\mdf@innerleftmargin@length
1336           +\mdf@innerrightmargin@length\relax
1337         }{\mdf@frametitlerulewidth@length}%
1338       }}%
1339   }{}
1340   \par\unskip\vskip\mdf@innertopmargin@length%
1341 }%
1342

```

```

\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 a non splitted contents of mdframed

```

1343 \def\mdf@frame@background@single{%
1344   \ifbool{mdf@shadow}{%
1345     \rlap{\smash{\mdf@shadow@default%
1346       \rule[\dimexpr-\mdfboundingboxdepth
1347         -\mdf@shadowsize@length
1348         \ifbool{mdf@bottomline}{-\mdf@middlelinewidth@length}{}}\relax}%
1349       {\dimexpr\mdfboundingboxtotalwidth
1350         +\mdf@shadowsize@length
1351         \ifbool{mdf@rightline}{+\mdf@middlelinewidth@length}{}}\relax}%
1352       {\dimexpr\mdfboundingboxtotalheight
1353         +\mdf@shadowsize@length
1354         \ifbool{mdf@bottomline}{+\mdf@middlelinewidth@length}{}}\relax}%
1355     }%
1356   }%
1357   \rlap{\mdf@background@default%
1358     \rule[-\mdfboundingboxdepth]%
1359       {\mdfboundingboxtotalwidth}%
1360       {\mdfboundingboxtotalheight}%
1361     }%
1362 }%
1363 \def\mdf@frame@frametitlebackground@single{%
1364   \rlap{\mdf@frametitlebackground@default%
1365     \rule[\dimexpr-\mdfboundingboxdepth+\mdfboundingboxtotalheight-\mdfframetitleboxtotalheight\relax]
1366       {\mdfboundingboxtotalwidth}%
1367       {\mdfframetitleboxtotalheight}%
1368     }%
1369 }%
1370
1371 \def\mdf@frame@topline@single{%
1372   \rlap{\mdf@linecolor@default%
1373     \ifbool{mdf@topline}{%
1374       \rule[\dimexpr\mdfboundingboxheight-\mdfboundingboxdepth%
1375         +\mdf@innerbottommargin@length+\mdf@innertopmargin@length\relax]%
1376       {\mdfboundingboxtotalwidth}%
1377       {\mdf@middlelinewidth@length}}%
1378     }%
1379 }%
1380 }%
1381 \def\mdf@frame@bottomline@single{%
1382   \rlap{\ifbool{mdf@leftline}{\hspace*{-\mdf@middlelinewidth@length}}{\mdf@linecolor@default%
1383     \ifbool{mdf@bottomline}{%
1384       \rule[\dimexpr-\mdfboundingboxdepth-\mdf@middlelinewidth@length\relax]%
1385       {\dimexpr\mdfboundingboxtotalwidth
1386         \ifbool{mdf@rightline}{+\mdf@middlelinewidth@length}{}}%
1387         \ifbool{mdf@leftline}{+\mdf@middlelinewidth@length}{}}\relax}%
1388       {\mdf@middlelinewidth@length}}%
1389     }%
1390 }%

```

```

1391 }%
1392 \def\mdf@frame@leftline@single{%
1393   \llap{\mdf@linecolor@default%
1394     \rule[-\mdfboundingboxdepth]{\mdf@middlelinewidth@length}%
1395     {\dimexpr\mdfboundingboxtotalheight%
1396       \ifbool{mdf@topline}{+\mdf@middlelinewidth@length}{}}\relax}%
1397 }%
1398 }%
1399 }%
1400 \def\mdf@frame@rightline@single{%
1401   \rlap{\mdf@linecolor@default%
1402     \hspace*{\mdfboundingboxwidth}%
1403     \hspace*{\mdf@innerrightmargin@length}%
1404     \rule[\dimexpr-\mdfboundingboxdepth%
1405       \relax]{\mdf@middlelinewidth@length}%
1406     {\dimexpr\mdfboundingboxtotalheight%
1407       +\ifbool{mdf@topline}{\mdf@middlelinewidth@length}{0pt}}\relax}%
1408 }%
1409 }%
1410 }%
1411 \def\mdf@putbox@single{%%%% Ausgabe der ungesplitteten Gesamtbox
1412   \ifvoid\mdf@splitbox@one
1413   \else%
1414     \mdf@makebox@out{%
1415       \mdf@makeboxalign@left%
1416       \setlength{\mdfboundingboxwidth}%
1417         {\wd\mdf@splitbox@one}%
1418       \setlength{\mdfboundingboxtotalwidth}%
1419         {\dimexpr\mdfboundingboxwidth+\mdf@innerleftmargin@length%
1420           +\mdf@innerrightmargin@length\relax}%
1421       \setlength{\mdfboundingboxheight}%
1422         {\dimexpr\ht\mdf@splitbox@one+\dp\mdf@splitbox@one\relax}%
1423       \setlength{\mdfboundingboxdepth}%
1424         {\dimexpr\dp\mdf@splitbox@one+\mdf@innerbottommargin@length\relax}%
1425       \setlength{\mdfboundingboxtotalheight}%
1426         {\dimexpr\mdfboundingboxheight+\mdf@innertopmargin@length%
1427           +\mdf@innerbottommargin@length\relax}%
1428       \setlength{\mdftotallinewidth}{%
1429         \dimexpr\mdf@innerlinewidth@length+\mdf@middlelinewidth@length%
1430         +\mdf@outerlinewidth@length}%
1431       \noindent%
1432       \setlength{\@tempdima}{\dimexpr\mdfboundingboxtotalwidth%
1433         +\ifbool{mdf@leftline}%
1434           {\mdf@middlelinewidth@length}{\z@}%
1435         +\ifbool{mdf@rightline}%
1436           {\mdf@middlelinewidth@length}{\z@}\relax}%
1437       \mdf@makebox@in[\@tempdima]{%
1438         \null%
1439         \ifbool{mdf@leftline}{%
1440           \hspace*{\mdftotallinewidth}%
1441           \mdf@frame@leftline@single%
1442         }{}%
1443         \mdf@frame@topline@single%
1444         \mdf@frame@background@single%
1445         \mdf@frame@bottomline@single%
1446         \ifdefempty{\mdf@frametitle}{\mdf@frame@frametitlebackground@single}%

```

```

1447      \hspace*{\mdf@innerleftmargin@length}%
1448      \ifbool{mdf@rightline}{%
1449        \mdf@frame@rightline@single%
1450      }{}%
1451      {\box\mdf@splitbox@one}%
1452    }%
1453    \mdf@makeboxalign@right%
1454  }%
1455  \fi%
1456 }

```

```

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

```

The first frame of of a splitted contents of mdframed

```

1457 \def\mdf@frame@background@first{%
1458   \ifbool{mdf@shadow}{%
1459     \rlap{\smash{\mdf@shadow@default%
1460       \rule[\dimexpr-\mdf@boundingboxdepth
1461         -\mdf@shadowsize@length\relax]%
1462         {\dimexpr\mdf@boundingboxtotalwidth
1463           +\mdf@shadowsize@length
1464           \ifbool{mdf@rightline}{+\mdf@middlelinewidth@length}}{\relax}%
1465         {\dimexpr\mdf@boundingboxtotalheight
1466           +\mdf@shadowsize@length\relax}%
1467       }%
1468     }}{}%
1469     \rlap{\mdf@background@default%
1470       \rule[-\mdf@boundingboxdepth]%
1471         {\mdf@boundingboxtotalwidth}%
1472         {\mdf@boundingboxtotalheight}%
1473     }%
1474   }%
1475 \def\mdf@frame@frametitlebackground@first{%
1476   \ifdimless{\mdfframetitleboxtotalheight}{\mdf@boundingboxtotalheight}%
1477   {%
1478     \rlap{\mdf@frametitlebackground@default%
1479       \rule[\dimexpr-\mdf@boundingboxdepth+\mdf@boundingboxtotalheight-\mdfframetitleboxtotalheight\relax]
1480         {\mdf@boundingboxtotalwidth}%
1481         {\mdfframetitleboxtotalheight}%
1482     }%
1483     \global\mdfframetitleboxtotalheight=-\p@ \relax%
1484   }{\mdf@PackageWarning{You got a page break inside the frame title\MessageBreak
1485     Current this isn't well supported}%
1486     \rlap{\mdf@frametitlebackground@default%
1487       \rule[-\mdf@boundingboxdepth]%
1488         {\mdf@boundingboxtotalwidth}%
1489         {\mdf@boundingboxtotalheight}%
1490     }%
1491     \global\mdfframetitleboxtotalheight=\dimexpr\mdfframetitleboxtotalheight
1492       -\mdf@boundingboxheight
1493       +\mdf@frametitlebelowskip@length

```

```

1494             +.5\baselineskip-1pt
1495 %             +\dp\strutbox
1496             \relax%
1497 }%
1498 }%
1499 \def\mdf@frame@leftline@first{%
1500   \llap{\mdf@linecolor@default%
1501     \rule[-\mdfboundingboxdepth]%
1502       {\mdf@middlelinewidth@length}%
1503       {\dimexpr\mdfboundingboxtotalheight%
1504         +\ifbool{mdf@topline}{\mdf@middlelinewidth@length}{0pt}\relax}%
1505   }%
1506 }%
1507 \def\mdf@frame@topline@first{%
1508   \rlap{\mdf@linecolor@default%
1509     \rule[\dimexpr\mdfboundingboxheight-\mdfboundingboxdepth+%
1510       \mdf@splitbottomskip@length+\mdf@innertopmargin@length\relax]%
1511     {\mdfboundingboxtotalwidth}%
1512     {\mdf@middlelinewidth@length}%
1513   }%
1514 }
1515 \def\mdf@frame@rightline@first{%
1516   \rlap{\mdf@linecolor@default\hspace*{\mdfboundingboxwidth}%
1517     \hspace*{\mdf@innerrightmargin@length}%
1518     \rule[-\mdfboundingboxdepth]%
1519       {\mdf@middlelinewidth@length}%
1520       {\dimexpr\mdfboundingboxtotalheight%
1521         +\ifbool{mdf@topline}{\mdf@middlelinewidth@length}{0pt}\relax}%
1522   }%
1523 }%
1524 \def\mdf@frame@bottomline@first{%
1525   \rlap{\ifbool{mdf@leftline}{\hspace*{-\mdf@middlelinewidth@length}}{\mdf@linecolor@default%
1526     \ifbool{mdf@bottomline}{%
1527       \rule[\dimexpr-\mdfboundingboxdepth-\mdf@middlelinewidth@length\relax]%
1528         {\dimexpr\mdfboundingboxtotalwidth
1529           \ifbool{mdf@rightline}{+\mdf@middlelinewidth@length}{}%
1530           \ifbool{mdf@leftline}{+\mdf@middlelinewidth@length}{}\relax}%
1531         {\mdf@middlelinewidth@length}}%
1532     }{}%
1533   }%
1534 }%
1535 \def\mdf@putbox@first{%%%% Ausgabe der Teilbox 1
1536   \ifvoid\mdf@splitbox@two
1537   \else%
1538     \mdf@makebox@out[\linewidth]{%
1539       \mdf@makeboxalign@left%
1540       \setlength{\mdfboundingboxwidth}{\wd\mdf@splitbox@two}%
1541       \setlength{\mdfboundingboxtotalwidth}%
1542         {\dimexpr\mdfboundingboxwidth+\mdf@innerleftmargin@length%
1543           +\mdf@innerrightmargin@length\relax}%
1544       \setlength{\mdfboundingboxheight}{\dimexpr\ht\mdf@splitbox@two+\dp\mdf@splitbox@two\relax}%
1545       \setlength{\mdfboundingboxdepth}%
1546         {\dimexpr\dp\mdf@splitbox@two+\mdf@splitbottomskip@length\relax}%
1547       \setlength{\mdfboundingboxtotalheight}%
1548         {\dimexpr\mdfboundingboxheight+\mdf@innertopmargin@length%
1549           +\mdf@splitbottomskip@length\relax}%

```

```

1550 \setlength{\@tempdima}%
1551         {\dimexpr\mdfboundingboxtotalwidth%
1552                 +\ifbool{mdf@leftline}{\mdf@middlelinewidth@length}{\z@}%
1553                 +\ifbool{mdf@rightline}{\mdf@middlelinewidth@length}{\z@}%
1554                 \relax}%
1555 \mdf@makebox@in[\@tempdima]{%
1556     \null%
1557     \ifbool{mdf@leftline}{%
1558         \hspace*{\mdf@middlelinewidth@length}%
1559         \mdf@frame@leftline@first}{}%
1560     \ifbool{mdf@everyline}%
1561         {\mdf@frame@bottomline@first}{}%
1562     \ifbool{mdf@topline}{%
1563         \mdf@frame@topline@first}{}%
1564     \mdf@frame@background@first%
1565     \ifdefempty{\mdf@frametitle}{\mdf@frame@frametitlebackground@first}%
1566     \hspace*{\mdf@innerleftmargin@length}%
1567     \ifbool{mdf@rightline}{%
1568         \mdf@frame@rightline@first}{}%
1569     {\box\mdf@splitbox@two}%
1570 }%
1571 \mdf@makeboxalign@right%
1572 }%
1573 \fi%
1574 }

```

```

\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

```

1575 \def\mdf@frame@background@second{%
1576     \ifbool{mdf@shadow}{%
1577         \rlap{\smash{\mdf@shadow@default%
1578             \rule[\dimexpr-\mdfboundingboxdepth
1579                 -\mdf@shadowsize@length
1580                 \ifbool{mdf@bottomline}{-\mdf@middlelinewidth@length}{\relax}%
1581                 {\dimexpr\mdfboundingboxtotalwidth
1582                     +\mdf@shadowsize@length
1583                     \ifbool{mdf@rightline}{+\mdf@middlelinewidth@length}{\relax}%
1584                     {\dimexpr\mdfboundingboxtotalheight
1585                         +\mdf@shadowsize@length\relax}%
1586                 }%
1587             }}}%
1588         \rlap{\mdf@background@default%
1589             \rule[-\mdfboundingboxdepth]%
1590                 {\mdfboundingboxtotalwidth}%
1591                 {\mdfboundingboxtotalheight}%
1592             }%
1593     }%
1594 \def\mdf@frame@frametitlebackground@second{%
1595     \ifdimless{\mdfframetitleboxtotalheight}{\z@}%
1596     {}%

```

```

1597 {\rlap{\mdf@frametitlebackground@default%
1598 \rule[\dimexpr-\mdfboundingboxdepth+\mdfboundingboxtotalheight-\mdfframetitleboxtotalheight\relax]
1599 {\mdfboundingboxtotalwidth}%
1600 {\mdfframetitleboxtotalheight}%
1601 }%
1602 }%
1603 }%
1604 \def\mdf@frame@leftline@second{%
1605 \llap{\mdf@linecolor@default%
1606 \rule[-\mdfboundingboxdepth]%
1607 {\mdf@middlelinewidth@length}%
1608 {\dimexpr\mdfboundingboxtotalheight}%
1609 }%
1610 }%
1611 \def\mdf@frame@bottomline@second{%
1612 \rlap{\ifbool{mdf@leftline}{\hspace*{-\mdf@middlelinewidth@length}}{\mdf@linecolor@default%
1613 \rule[\dimexpr-\mdfboundingboxdepth-\mdf@middlelinewidth@length\relax]%
1614 {\dimexpr\mdfboundingboxtotalwidth
1615 \ifbool{mdf@rightline}{+\mdf@middlelinewidth@length}{%
1616 \ifbool{mdf@leftline}{+\mdf@middlelinewidth@length}{\relax}%
1617 {\mdf@middlelinewidth@length}%
1618 }%
1619 }%
1620 \def\mdf@frame@rightline@second{%
1621 \rlap{\mdf@linecolor@default\hspace*{\mdfboundingboxwidth}%
1622 \hspace*{\mdf@innerrightmargin@length}%
1623 \rule[-\mdfboundingboxdepth]%
1624 {\mdf@middlelinewidth@length}%
1625 {\mdfboundingboxtotalheight}%
1626 }%
1627 }%
1628 \def\mdf@frame@topline@second{%
1629 \rlap{\ifbool{mdf@leftline}{\hspace*{-\mdf@middlelinewidth@length}}{\mdf@linecolor@default%
1630 \ifbool{mdf@topline}{%
1631 \rule[\dimexpr\mdfboundingboxheight-\mdfboundingboxdepth%
1632 +\mdf@innerbottommargin@length\relax]%
1633 {\dimexpr\mdfboundingboxtotalwidth
1634 \ifbool{mdf@rightline}{+\mdf@middlelinewidth@length}{%
1635 \ifbool{mdf@leftline}{+\mdf@middlelinewidth@length}{\relax
1636 }%
1637 {\mdf@middlelinewidth@length}}%
1638 {}%
1639 }%
1640 }%
1641 }%
1642 \def\mdf@putbox@second{%
1643 \ifvoid\mdf@splitbox@one%
1644 \else
1645 \mdf@makebox@out{%
1646 \mdf@makeboxalign@left%
1647 \setlength{\mdfboundingboxwidth}{\wd\mdf@splitbox@one}%
1648 \setlength{\mdfboundingboxtotalwidth}%
1649 {\dimexpr\mdfboundingboxwidth+\mdf@innerleftmargin@length%
1650 +\mdf@innerrightmargin@length\relax}%
1651 \setlength{\mdfboundingboxheight}{\dimexpr\ht\mdf@splitbox@one+\dp\mdf@splitbox@one\relax}%
1652 \setlength{\mdfboundingboxdepth}%

```



```

1653         {\dimexpr\dp\mdf@splitbox@one+\mdf@innerbottommargin@length\relax}%
1654     \setlength{\mdfboundingboxtotalheight}%
1655         {\dimexpr\mdfboundingboxheight+\mdf@innerbottommargin@length\relax}%
1656     \setlength{\@tempdima}{\dimexpr\mdfboundingboxtotalwidth%
1657         +\ifbool{mdf@leftline}{\mdf@middlelinewidth@length}{\z@}%
1658         +\ifbool{mdf@rightline}{\mdf@middlelinewidth@length}{\z@}%
1659         \relax}%
1660     \mdf@makebox@in[\@tempdima]{%
1661     \null%
1662         \ifbool{mdf@leftline}{%
1663             \hspace*{\mdf@middlelinewidth@length}%
1664             \mdf@frame@leftline@second}{}%
1665         \ifbool{mdf@everyline}%
1666             {\mdf@frame@topline@second}{}%
1667         \mdf@frame@background@second%
1668         \ifbool{mdf@bottomline}{%
1669             \mdf@frame@bottomline@second}{}%
1670         \ifdefempty{\mdf@frametitle}{\mdf@frame@frametitlebackground@second}%
1671         \hspace*{\mdf@innerleftmargin@length}%
1672         \ifbool{mdf@rightline}{%
1673             \mdf@frame@rightline@second}{}%
1674         {\box\mdf@splitbox@one}%
1675     }%
1676     \mdf@makeboxalign@right%
1677 }%
1678 \fi
1679 }%

```

```

\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

```

1680 \def\mdf@frame@leftline@middle{%
1681     \llap{\mdf@linecolor@default%
1682         \rule[-\mdfboundingboxdepth]%
1683             {\mdf@middlelinewidth@length}%
1684             {\mdfboundingboxtotalheight}}%
1685 }%
1686 }%
1687 \def\mdf@frame@background@middle{%
1688     \ifbool{mdf@shadow}{%
1689         \rlap{\smash{\mdf@shadow@default%
1690             \rule[\dimexpr-\mdfboundingboxdepth%
1691                 -\mdf@shadowsize@length\relax]%
1692                 {\dimexpr\mdfboundingboxtotalwidth%
1693                     +\mdf@shadowsize@length%
1694                     \ifbool{mdf@rightline}{+\mdf@middlelinewidth@length}{\z@}\relax}%
1695                 {\dimexpr\mdfboundingboxtotalheight\relax}}%
1696         }%
1697     }{}%
1698     \rlap{\mdf@background@default%
1699         \rule[-\mdfboundingboxdepth]%
1700             {\mdfboundingboxtotalwidth}}%

```

```

1701         {\mdfboundingboxtotalheight}%
1702     }%
1703 }%
1704 \def\mdf@frame@frametitlebackground@middle{%
1705     \ifdimless{\mdfframetitleboxtotalheight}{\z@}%
1706     {%
1707         {\rlap{\mdf@frametitlebackground@default%
1708             \rule[\dimexpr-\mdfboundingboxdepth+\mdfboundingboxtotalheight-\mdfframetitleboxtotalheight\relax]
1709                 {\mdfboundingboxtotalwidth}%
1710                 {\mdfframetitleboxtotalheight}%
1711             }%
1712             \global\mdfframetitleboxtotalheight=-\p@\relax%
1713         }%
1714     }%
1715 \def\mdf@frame@rightline@middle{%
1716     \rlap{\mdf@linecolor@default\hspace*{\mdfboundingboxwidth}%
1717         \hspace*{\mdf@innerrightmargin@length}%
1718         \rule[-\mdfboundingboxdepth]%
1719             {\mdf@middlelinewidth@length}%
1720             {\mdfboundingboxtotalheight}%
1721     }%
1722 }%
1723 \def\mdf@frame@topline@middle{%
1724     \rlap{\ifbool{mdf@leftline}{\hspace*{-\mdf@middlelinewidth@length}}{\mdf@linecolor@default%
1725         \ifbool{mdf@topline}{%
1726             \rule[\dimexpr\mdfboundingboxtotalheight-\mdfboundingboxdepth\relax]%
1727                 {\dimexpr\mdfboundingboxtotalwidth
1728                     \ifbool{mdf@rightline}{+\mdf@middlelinewidth@length}{}}%
1729                     \ifbool{mdf@leftline}{+\mdf@middlelinewidth@length}{}}\relax
1730             }%
1731             {\mdf@middlelinewidth@length}}}%
1732     }%
1733 }%
1734 }%
1735 \def\mdf@frame@bottomline@middle{%
1736     \rlap{\ifbool{mdf@leftline}{\hspace*{-\mdf@middlelinewidth@length}}{\mdf@linecolor@default%
1737         \ifbool{mdf@bottomline}{%
1738             \rule[\dimexpr-\mdfboundingboxdepth-\mdf@middlelinewidth@length\relax]%
1739                 {\dimexpr\mdfboundingboxtotalwidth
1740                     \ifbool{mdf@rightline}{+\mdf@middlelinewidth@length}{}}%
1741                     \ifbool{mdf@leftline}{+\mdf@middlelinewidth@length}{}}\relax}%
1742             {\mdf@middlelinewidth@length}}}%
1743     }%
1744 }%
1745 }%
1746
1747 \def\mdf@putbox@middle{%
1748     \ifvoid\mdf@splitbox@two%
1749     \else
1750         \mdf@makebox@out{%
1751             \mdf@makeboxalign@left%
1752             \setlength{\mdfboundingboxwidth}{\wd\mdf@splitbox@two}%
1753             \setlength{\mdfboundingboxtotalwidth}%
1754                 {\dimexpr\mdfboundingboxwidth+\mdf@innerleftmargin@length%
1755                     +\mdf@innerrightmargin@length\relax}%
1756             \setlength{\mdfboundingboxheight}{\dimexpr\ht\mdf@splitbox@two+\dp\mdf@splitbox@two\relax}%

```

```

1757 \setlength{\mdfboundingboxdepth}%
1758         {\dimexpr\dp\mdf@splitbox@two+\mdf@splitbottomskip@length\relax}%
1759 \setlength{\mdfboundingboxtotalheight}%
1760         {\dimexpr\mdfboundingboxheight+\mdf@splitbottomskip@length\relax}%
1761 \setlength{\@tempdima}{\dimexpr\mdfboundingboxtotalwidth%
1762         +\ifbool{mdf@leftline}{\mdf@middlelinewidth@length}{\z@}%
1763         +\ifbool{mdf@rightline}{\mdf@middlelinewidth@length}{\z@}%
1764         \relax}%
1765 \mdf@makebox@in[\@tempdima]{%
1766     \null%
1767     \ifbool{mdf@leftline}{%
1768         \hspace*{\mdf@middlelinewidth@length}%
1769         \mdf@frame@leftline@middle}{}%
1770     \mdf@frame@background@middle%
1771     \ifbool{mdf@everyline}%
1772         {\mdf@frame@topline@middle}{}%
1773     \ifdefempty{\mdf@frametitle}{\mdf@frame@frametitlebackground@middle}%
1774     \ifbool{mdf@everyline}%
1775         {\mdf@frame@bottomline@middle}{}%
1776     \hspace*{\mdf@innerleftmargin@length}%
1777     \ifbool{mdf@rightline}{%
1778         \mdf@frame@rightline@middle}{}%
1779     {\box\mdf@splitbox@two}%
1780 }%
1781 \mdf@makeboxalign@right%
1782 }
1783 \fi%
1784 }

1785 \endinput

```

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

```

1786 %% Style file for mdframed for package option 'framemethod=default'
1787 %%
1788 %% This package may be distributed under the terms of the LaTeX Project
1789 %% Public License, as described in lppl.txt in the base LaTeX distribution.
1790 %% Either version 1.0 or, at your option, any later version.
1791 %%
1792 %%
1793 %%$Id: mdframed.dtx 394 2012-04-29 21:29:59Z marco $
1794 %

```

```

\mdframedIpackagename
\mdf@frameIdate@svn

```

local settings

```

1795 \def\mdframedIpackagename{md-frame-1}
1796 \def\mdf@frameIdate@svn$#1: #2 #3 #4-#5-#6 #7 #8${#4/#5/#6\space }
1797 \ProvidesFile{md-frame-1.mdf}%
1798     [\mdf@frameIdate@svn$Id: mdframed.dtx 394 2012-04-29 21:29:59Z marco $ %
1799     \mdversion: \mdframedIpackagename]
1800 %

```

```
\mdf@tikz@settings
```

Define settings for tikz

```

1801 %Allgemeine Einstellungen fuer tikz
1802 \def\mdf@tikz@settings{%
1803 %
1804 \tikzset{mdfbox/.style={anchor=south west,%
1805                         inner sep=0pt,%
1806                         outer sep=0pt,%
1807                         \mdf@fontcolor,}}% anchor der Ausgabebox ist unten links
1808 \tikzset{mdfcorners/.style={rounded corners=\mdf@roundcorner@length}}%
1809 \tikzset{mdfbackground/.style={fill=\mdf@backgroundcolor,%
1810                                draw=\mdf@backgroundcolor}}%
1811 \tikzset{mdfframetitlebackground/.style={fill=\mdf@frametitlebackgroundcolor,%
1812                                             draw=none,%
1813                                             rounded corners={max(\mdf@roundcorner@length%
1814                                                                -\mdf@innerlinewidth@length%
1815                                                                -.5\mdf@middlelinewidth@length,0)}}}%
1816 %
1817 \tikzset{mdfouterline/.style={}}%
1818 % nur wenn outerlinewidth>0 wird aussere Linie gezeichnet
1819 \ifdimgreater{\mdf@outerlinewidth@length}{\z@}
1820   {\tikzset{mdfouterline/.append style={%
1821            draw=\mdf@outerlinecolor,%
1822            line width=2\mdf@outerlinewidth@length+\mdf@middlelinewidth@length}}}%
1823 %
1824 \tikzset{mdfinnerline/.style={}}%
1825 % nur wenn innerlinewidth>0 wird innere Linie gezeichnet
1826 \ifdimgreater{\mdf@innerlinewidth@length}{\z@}
1827   {\tikzset{mdfinnerline/.append style={%
1828            draw=\mdf@innerlinecolor,%
1829            line width=2\mdf@innerlinewidth@length+\mdf@middlelinewidth@length}}}%
1830 %
1831 \tikzset{mdfshadow/.style={drop shadow={%
1832                                shadow xshift=\mdf@shadowsize@length-2pt,
1833                                shadow yshift=-\mdf@shadowsize@length+2pt,
1834                                fill=\mdf@shadowcolor,
1835                                every shadow }}}%
1836 %
1837 \mdf@tikzset@local
1838 \tikzset{mdfmiddleline/.style={}}%
1839 % nur wenn middlelinewidth>0 wird mittlere Linie gezeichnet
1840 \ifdimgreater{\mdf@middlelinewidth@length}{\z@}
1841   {\tikzset{mdfmiddleline/.append style={%
1842            preaction={draw=\mdf@middlelinecolor,%
1843                      line width=\mdf@middlelinewidth@length},%
1844                      line width=\mdf@middlelinewidth@length,%
1845                      tikzsetting}}}%
1846   }{}%
1847 }%

```

```

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

```

Befehle fuer Ausgabe von Rahmen und Hintergrund

```

1848 \newrobustcmd*\mdf@tikzbox@tfl[1]{%three or four borders
1849   \clip(0,0)rectangle(\mdfboundingboxwidth,\mdfboundingboxheight);%

```

```

1850 \begin{scope}[mdfcorners]%
1851 \clip[preaction=mdfouterline]%
1852 [postaction=mdfbackground]%
1853 [postaction=mdfinnerline]#1;%
1854 \end{scope}%
1855 \path[mdfmiddleline,mdfcorners]#1;
1856 }%
1857
1858
1859
1860 \newrobustcmd*{\mdf@tikzbox@otl[2]}{%one or two borders
1861 \clip(0,0)rectangle(\mdfboundingboxwidth,\mdfboundingboxheight);%
1862 \begin{scope}
1863 \path[mdfouterline,mdfcorners]#1;%
1864 \clip[postaction=mdfbackground]#2;%
1865 \path[mdfinnerline,mdfcorners]#1;%
1866 \end{scope}%
1867 \path[mdfmiddleline,mdfcorners]#1;}%

```

\mdf@put@frametitlerule

frametitlerule with tikz

```

1868 \tikzset{mdfframetitlerule/.style={%
1869 draw=none,
1870 fill=\mdf@frametitlerulecolor,
1871 }%
1872 }
1873 \def\mdf@@@frametitlerule{%
1874 \ifbool{mdf@frametitlerule}{%
1875 \vbox{\hsize0pt
1876 \par\unskip\vskip\mdf@frametitlebelowskip@length
1877 \noindent\rlap{\hspace*{-\mdf@innerleftmargin@length}}%
1878 \begingroup%
1879 \pgfmathsetlength{\dimen@}{\mdfframetitleboxwidth+\mdf@innerleftmargin@length+\mdf@innerrightmargin@length}%
1880 \tikz\draw[mdfframetitlerule] (0,0)%
1881 rectangle (\dimen@,\mdf@frametitlerulewidth@length);
1882 \endgroup}
1883 }%
1884 }{}
1885 \par\unskip\vskip\mdf@innertopmargin@length%
1886 }%
1887

```

\mdf@putbox@single

Output of the non breakable contents.

```

1888 % Info zu den verwendeten Punkten:
1889 % O ist die untere linke Ecke der Mitte der middleline
1890 % P ist die obere rechte Ecke der Mitte der middleline
1891 % A ist der Punkt fuer den anchor (d.h. die untere linke Ecke) der Ausgabebox
1892 %
1893 \def\mdf@putbox@single{%
1894 \ifvoid\mdf@splitbox@one
1895 \else%
1896 \mdf@makebox@out{%

```

```

1897 \mdf@makeboxalign@left%
1898 \mdf@tikz@settings%
1899 %
1900 \setlength\mdfboundingboxwidth{\wd\mdf@splitbox@one}%
1901 \advance\mdfboundingboxwidth by \mdf@innerleftmargin@length\relax%
1902 \advance\mdfboundingboxwidth by \mdf@innerrightmargin@length\relax%
1903 \ifbool{mdf@leftline}{%
1904   \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
1905   \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
1906   \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}}{%
1907 \ifbool{mdf@rightline}{%
1908   \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
1909   \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
1910   \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}}}%
1911 %
1912 \setlength\mdfboundingboxheight{\dimexpr\ht\mdf@splitbox@one+\dp\mdf@splitbox@one\relax}%
1913 \advance\mdfboundingboxheight by \mdf@innertopmargin@length\relax%
1914 \advance\mdfboundingboxheight by \mdf@innerbottommargin@length\relax%
1915 \ifbool{mdf@topline}{%
1916   \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
1917   \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
1918   \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}}{%
1919 \ifbool{mdf@bottomline}{%
1920   \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
1921   \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
1922   \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}}}%
1923 \mdf@makebox@in[\mdfboundingboxwidth]{%
1924 \null%
1925 \begin{tikzpicture}[remember picture]%
1926   \pgfmathsetlengthmacro\mdf@Ax{+\mdf@innerleftmargin@length}%
1927   \pgfmathsetlengthmacro\mdf@Ay{+\mdf@innerbottommargin@length}%
1928   \pgfmathsetlengthmacro\mdf@Ox{+0pt}%
1929   \pgfmathsetlengthmacro\mdf@Oy{+0pt}%
1930   \pgfmathsetlengthmacro\mdf@Px{+\mdfboundingboxwidth}%
1931   \pgfmathsetlengthmacro\mdf@Py{+\mdfboundingboxheight}%
1932   \ifbool{mdf@leftline}%
1933     {%
1934       \pgfmathsetlengthmacro\mdf@Ax%
1935         {\mdf@Ax+\mdf@outerlinewidth@length+
1936          \mdf@middlelinewidth@length+\mdf@innerlinewidth@length}%
1937       \pgfmathsetlengthmacro\mdf@Ox%
1938         {\mdf@Ox+\mdf@outerlinewidth@length+0.5\mdf@middlelinewidth@length}%
1939     }%
1940   \ifbool{mdf@rightline}%
1941     {%
1942       \pgfmathsetlengthmacro\mdf@Px%
1943         {\mdf@Px-\mdf@outerlinewidth@length-0.5\mdf@middlelinewidth@length}%
1944     }%
1945   \ifbool{mdf@bottomline}%
1946     {%
1947       \pgfmathsetlengthmacro\mdf@Ay%
1948         {\mdf@Ay+\mdf@outerlinewidth@length+\mdf@middlelinewidth@length
1949          +\mdf@innerlinewidth@length}%
1950       \pgfmathsetlengthmacro\mdf@Oy%
1951         {\mdf@Oy+\mdf@outerlinewidth@length+0.5\mdf@middlelinewidth@length}%
1952     }%

```

```

1953 \ifbool{mdf@topline}%
1954 {%
1955     \pgfmathsetlengthmacro\mdf@Py%
1956         {\mdf@Py-\mdf@outerlinewidth@length-0.5\mdf@middlelinewidth@length}%
1957     }{}%
1958 %
1959 \coordinate(0)at(\mdf@0x,\mdf@0y);%
1960 \coordinate(P)at(\mdf@Px,\mdf@Py);%
1961 %
1962 \ifbool{mdf@shadow}
1963     {\path[mdfshadow,mdfcorners](0) rectangle (P);}%
1964 %
1965 \begin{scope}[use as bounding box]
1966     \mdf@test@lrb{\mdf@tikzbox@tfl{(0)--(0|-P)--(P)--(P|-0)--cycle)}}{}%
1967 %
1968     \mdf@test@ltb{\mdf@tikzbox@tfl{(P|-0)--(0)--(0|-P)--(P)}}{}%
1969     \mdf@test@trb{\mdf@tikzbox@tfl{(0|-P)--(P)--(P|-0)--(0)}}{}%
1970     \mdf@test@ltr{\mdf@tikzbox@tfl{(0)--(0|-P)--(P)--(P|-0)}}{}%
1971     \mdf@test@lrb{\mdf@tikzbox@tfl{(P|-0)--(0)--(0|-P)--(P)}}{}%
1972 %
1973     \mdf@test@lb{\mdf@tikzbox@otl{(P|-0)--(0)--(0|-P)}}%
1974         {(P)--(P|-0)[mdfcorners]--(0)--(0|-P)}%
1975     }{}%
1976     \mdf@test@rb{\mdf@tikzbox@otl{(P)--(P|-0)--(0)}}%
1977         {(0|-P)--(P)[mdfcorners]--(P|-0)--(0)}%
1978     }{}%
1979     \mdf@test@tr{\mdf@tikzbox@otl{(0|-P)--(P)--(P|-0)}}%
1980         {(0)--(0|-P)[mdfcorners]--(P)--(P|-0)}%
1981     }{}%
1982     \mdf@test@lt{\mdf@tikzbox@otl{(0)--(0|-P)--(P)}}%
1983         {(P|-0)--(0)[mdfcorners]--(0|-P)--(P)}%
1984     }{}%
1985     \mdf@test@lr{\mdf@tikzbox@otl{(0)--(0|-P)(P)--(P|-0)}}%
1986         {(0)rectangle(P)}%
1987     }{}%
1988     \mdf@test@tb{\mdf@tikzbox@otl{(0)--(0|-P)(0|-P)--(P)}}%
1989         {(0)rectangle(P)}%
1990     }{}%
1991 %
1992     \mdf@test@l{\mdf@tikzbox@otl{(0)--(0|-P)}}%
1993         {(0)rectangle(P)}%
1994     }{}%
1995     \mdf@test@r{\mdf@tikzbox@otl{(0|-P)--(P)}}%
1996         {(0)rectangle(P)}%
1997     }{}%
1998     \mdf@test@t{\mdf@tikzbox@otl{(0|-P)--(P)}}%
1999         {(0)rectangle(P)}%
2000     }{}%
2001     \mdf@test@b{\mdf@tikzbox@otl{(0)--(0|-P)}}%
2002         {(0)rectangle(P)}%
2003     }{}%
2004 %
2005     \mdf@test@noline{\path[mdfbackground,mdfcorners](0)rectangle(P);}%
2006 %
2007     %Frametitlebackground
2008     \drawbackgroundframetitle@single

```

```

2009 %
2010     \node[mdfbox]at(\mdf@Ax,\mdf@Ay){\box\mdf@splitbox@one};% Ausgabebox einfuegen
2011     \end{scope}
2012     %HIER KOMMT EIN WEITERES MAKRO
2013     \mdf@singleextra
2014     \mdfcreateextratikz
2015     \end{tikzpicture}%
2016     }%
2017     \mdf@makeboxalign@right%
2018     }%
2019 \fi
2020 }%
2021 \def\drawbackgroundframetitle@single{%
2022 \ifdefempty{\mdf@frametitle}{\}%
2023     \drawbackgroundframetitle@@single%
2024 }%
2025 }%
2026 \def\drawbackgroundframetitle@@single{%
2027     \begin{scope}%background frame title
2028     \ifbool{mdf@leftline}{
2029         \pgfmathsetlengthmacro\mdf@0x%
2030             {\mdf@0x+\mdf@innerlinewidth@length+0.5\mdf@middlelinewidth@length}
2031         }{}%
2032     \ifbool{mdf@rightline}{%
2033         \pgfmathsetlengthmacro\mdf@Px%
2034             {\mdf@Px-\mdf@innerlinewidth@length-0.5\mdf@middlelinewidth@length}
2035         }{}%
2036     \ifbool{mdf@topline}{%
2037         \pgfmathsetlengthmacro\mdf@Py%
2038             {\mdf@Py-\mdf@innerlinewidth@length-0.5\mdf@middlelinewidth@length}
2039         }{}%
2040     \pgfmathsetlengthmacro\mdf@Fy
2041         {\mdf@Py-\mdfframetitleboxtotalheight}
2042     \path[mdfframetitlebackground]
2043         (\mdf@0x,\mdf@Fy) -- (\mdf@0x,\mdf@Py)%
2044         --(\mdf@Px,\mdf@Py) --(\mdf@Px,\mdf@Fy);
2045     \end{scope}
2046 }

```

`\mdf@putbox@first`

Output of the first breakable contents.

```

2047 \def\drawbackgroundframetitle@first{%
2048 \ifdefempty{\mdf@frametitle}{\}%
2049 \ifdimgreater{\mdf@boundingboxheight}{\mdfframetitleboxtotalheight}%
2050 {\%
2051     \drawbackgroundframetitle@@first
2052     \pgfmathsetlength{\global\mdfframetitleboxtotalheight}{-\p@}%
2053 }{\mdf@PackageWarning{You got a page break inside the frame title\MessageBreak
2054     Currently this isn't well supported}%
2055     \drawbackgroundframetitle@@first
2056     \pgfmathsetlength{\global\mdfframetitleboxtotalheight}%
2057         {\mdfframetitleboxtotalheight-\mdf@boundingboxheight-
2058             \mdf@innerlinewidth@length-0.5\mdf@middlelinewidth@length%
2059             +\mdf@frametitlebelowskip@length+\mdf@splitbottomskip@length+\mdf@splittopskip@length}

```



```

2060             +\dp\strutbox%
2061         }%
2062     }%
2063 }%
2064 }%
2065 %
2066 \def\drawbackgroundframetitle@@first{%
2067 \begin{scope}%background frame title
2068     \ifbool{mdf@leftline}{%
2069         \pgfmathsetlengthmacro\mdf@0x%
2070             {\mdf@0x+\mdf@innerlinewidth@length+0.5\mdf@middlelinewidth@length}
2071         }{}%
2072     \ifbool{mdf@rightline}{%
2073         \pgfmathsetlengthmacro\mdf@Px%
2074             {\mdf@Px-\mdf@innerlinewidth@length-0.5\mdf@middlelinewidth@length}
2075         }{}%
2076     \ifbool{mdf@topline}{%
2077         \pgfmathsetlengthmacro\mdf@Py%
2078             {\mdf@Py-\mdf@innerlinewidth@length-0.5\mdf@middlelinewidth@length}
2079         }{}%
2080     \pgfmathsetlengthmacro\mdf@Fy
2081         {max(0,\mdf@Py-\mdfframetitleboxtotalheight)}
2082     \path[mdfframetitlebackground]
2083         (\mdf@0x,\mdf@Fy) -- (\mdf@0x,\mdf@Py)%
2084         --(\mdf@Px,\mdf@Py) --(\mdf@Px,\mdf@Fy);
2085 \end{scope}%
2086 }%
2087 %
2088 \def\mdf@putbox@first{%
2089 \ifvoid\mdf@splitbox@two
2090 \else%
2091 \mdf@makebox@out{%
2092 \mdf@makeboxalign@left%
2093 \mdf@tikz@settings%
2094 \setlength\mdfboundingboxwidth{\wd\mdf@splitbox@two}%
2095 \advance\mdfboundingboxwidth by \mdf@innerleftmargin@length\relax%
2096 \advance\mdfboundingboxwidth by \mdf@innerrightmargin@length\relax%
2097 \ifbool{mdf@leftline}{%
2098 \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
2099 \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
2100 \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}}{}%
2101 \ifbool{mdf@rightline}{%
2102 \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
2103 \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
2104 \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}}{}%
2105 \setlength\mdfboundingboxheight{\dimexpr\ht\mdf@splitbox@two+\dp\mdf@splitbox@two\relax}%
2106 \advance\mdfboundingboxheight by \mdf@innertopmargin@length\relax%
2107 \advance\mdfboundingboxheight by \mdf@splitbottomskip@length\relax%
2108 \ifbool{mdf@topline}{%
2109 \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
2110 \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
2111 \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}}{}%
2112 %%%%%%%%%
2113 \ifbool{mdf@everyline}{%
2114 \ifbool{mdf@bottomline}{%
2115 \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%

```

```

2116      \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
2117      \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}}}%
2118  }}}%
2119  %%%%%%%%%%
2120  %\ifdimequal{\pagegoal}{\maxdimen}{\enlargethispage{\baselineskip}}}% ???
2121  \ifdimgreater{\pagegoal-\maxdimen}{0pt}}{\enlargethispage{\baselineskip}}}%
2122  \mdf@makebox@in[\mdfboundingboxwidth]{%
2123  \null%
2124  \begin{tikzpicture}[remember picture]
2125      \pgfmathsetlengthmacro\mdf@Ax{+\mdf@innerleftmargin@length}%
2126      \pgfmathsetlengthmacro\mdf@Ay{+\mdf@splitbottomskip@length}%
2127      \pgfmathsetlengthmacro\mdf@Ox{+0pt}%
2128      \pgfmathsetlengthmacro\mdf@Oy{+0pt}%
2129      \pgfmathsetlengthmacro\mdf@Px{+\mdfboundingboxwidth}%
2130      \pgfmathsetlengthmacro\mdf@Py{+\mdfboundingboxheight}%
2131      \ifbool{mdf@leftline}{%
2132          {%
2133              \pgfmathsetlengthmacro\mdf@Ax%
2134                  {\mdf@Ax+\mdf@outerlinewidth@length+
2135                  \mdf@middlelinewidth@length+\mdf@innerlinewidth@length}%
2136              \pgfmathsetlengthmacro\mdf@Ox%
2137                  {\mdf@Ox+\mdf@outerlinewidth@length+0.5\mdf@middlelinewidth@length}%
2138              }}}%
2139      \ifbool{mdf@rightline}{%
2140          \pgfmathsetlengthmacro\mdf@Px%
2141              {\mdf@Px-\mdf@outerlinewidth@length-0.5\mdf@middlelinewidth@length}%
2142          }}}%
2143      \ifbool{mdf@topline}{%
2144          \pgfmathsetlengthmacro\mdf@Py%
2145              {\mdf@Py-\mdf@outerlinewidth@length-0.5\mdf@middlelinewidth@length}%
2146          }}}%
2147  %%
2148      \ifbool{mdf@everyline}{%
2149          \ifbool{mdf@bottomline}{%
2150              {%
2151                  \pgfmathsetlengthmacro\mdf@Ay%
2152                      {\mdf@Ay+\mdf@outerlinewidth@length+\mdf@middlelinewidth@length
2153                      +\mdf@innerlinewidth@length}%
2154                  \pgfmathsetlengthmacro\mdf@Oy%
2155                      {\mdf@Oy+\mdf@outerlinewidth@length+0.5\mdf@middlelinewidth@length}%
2156                  }}}%
2157              \ifbool{mdf@topline}{%
2158                  {%
2159                      \pgfmathsetlengthmacro\mdf@Py%
2160                          {\mdf@Py-\mdf@outerlinewidth@length-0.5\mdf@middlelinewidth@length}%
2161                      }}}%
2162              }}}%
2163  %%
2164      \coordinate(0)at(\mdf@Ox,\mdf@Oy);%
2165      \coordinate(P)at(\mdf@Px,\mdf@Py);%
2166      \ifbool{mdf@shadow}{
2167          {\path[mdfshadow] (0) -- (0|-P) to[mdfcorners] (P) -- (P|-0) -- (0);}}}%
2168      \begin{scope}[use as bounding box]
2169  %%%%%%%%%%
2170      \ifbool{mdf@everyline}{%
2171          \mdf@test@ltrb{\mdf@tikzbox@tfl{(0)--(0|-P)--(P)--(P|-0)--cycle)}}}%

```

```

2172 \mdf@test@ltb{\mdf@tikzbox@tfl{(P|-0)--(0)--(0|-P)--(P))}}}%
2173 \mdf@test@trb{\mdf@tikzbox@tfl{(0|-P)--(P)--(P|-0)--(0))}}}%
2174 \mdf@test@ltr{\mdf@tikzbox@tfl{(0)--(0|-P)--(P)--(P|-0))}}}%
2175 \mdf@test@lrb{\mdf@tikzbox@tfl{(P|-0)--(0)--(0|-P)--(P))}}}%
2176 \mdf@test@lb{\mdf@tikzbox@otl{(P|-0)--(0)--(0|-P))}%
2177         {(P)--(P|-0)[mdfcorners]--(0)--(0|-P))}%
2178     }}}%
2179 \mdf@test@rb{\mdf@tikzbox@otl{(P)--(P|-0)--(0))}%
2180         {(0|-P)--(P)[mdfcorners]--(P|-0)--(0))}%
2181     }}}%
2182 \mdf@test@tr{\mdf@tikzbox@otl{(0|-P)--(P)--(P|-0))}%
2183         {(0)--(0|-P)[mdfcorners]--(P)--(P|-0))}%
2184     }}}%
2185 \mdf@test@lt{\mdf@tikzbox@otl{(0)--(0|-P)--(P))}%
2186         {(P|-0)--(0)[mdfcorners]--(0|-P)--(P))}%
2187     }}}%
2188 \mdf@test@lr{\mdf@tikzbox@otl{(0)--(0|-P)(P)--(P|-0))}%
2189         {(0)rectangle(P))}%
2190     }}}%
2191 \mdf@test@tb{\mdf@tikzbox@otl{(0)--(0|-P)(0|-P)--(P))}%
2192         {(0)rectangle(P))}%
2193     }}}%
2194 \mdf@test@l{\mdf@tikzbox@otl{(0)--(0|-P))}%
2195         {(0)rectangle(P))}%
2196     }}}%
2197 \mdf@test@r{\mdf@tikzbox@otl{(0|-P)--(P))}%
2198         {(0)rectangle(P))}%
2199     }}}%
2200 \mdf@test@t{\mdf@tikzbox@otl{(0|-P)--(P))}%
2201         {(0)rectangle(P))}%
2202     }}}%
2203 \mdf@test@b{\mdf@tikzbox@otl{(0)--(0|-P))}%
2204         {(0)rectangle(P))}%
2205     }}}%
2206 \mdf@test@noline{\path[mdfbackground,mdfcorners](0)rectangle(P);}%
2207 }{
2208 \ifboolexpr{test {\mdf@test@ltrb} or test {\mdf@test@ltr}}%
2209     {\mdf@tikzbox@tfl{(0)--(0|-P)--(P)--(P|-0))}}%
2210     {}%
2211 \ifboolexpr{test {\mdf@test@ltb} or test {\mdf@test@lt}}%
2212     {\mdf@tikzbox@otl{(0)--(0|-P)--(P))}{(P|-0)--(0)[mdfcorners]--(0|-P)--(P))}%
2213     {}%
2214 \ifboolexpr{test {\mdf@test@trb} or test {\mdf@test@tr}}%
2215     {\mdf@tikzbox@otl{(0|-P)--(P)--(P|-0))}{(0)--(0|-P)[mdfcorners]--(P)--(P|-0))}%
2216     {}%
2217 \ifboolexpr{test {\mdf@test@lrb} or test {\mdf@test@lr}}%
2218     {\mdf@tikzbox@otl{(0)--(0|-P)(P)--(P|-0))}{(0)rectangle(P))}%
2219     {}%
2220 \ifboolexpr{test {\mdf@test@tb} or test {\mdf@test@t}}%
2221     {\mdf@tikzbox@otl{(0|-P)--(P))}{(0)rectangle(P))}%
2222     {}%
2223 \ifboolexpr{test {\mdf@test@lb} or test {\mdf@test@l}}%
2224     {\mdf@tikzbox@otl{(0)--(0|-P))}{(0)rectangle(P))}%
2225     {}%
2226 \ifboolexpr{test {\mdf@test@rb} or test {\mdf@test@r}}%
2227     {\mdf@tikzbox@otl{(0|-P)--(P))}{(0)rectangle(P))}%

```

```

2228     {}%
2229     \mdf@test@b{\path[mdfbackground](0)rectangle(P);}{}%
2230     \mdf@test@noline{\path[mdfbackground,mdfcorners](0)--(0|-P)--(P)--(P|-0);}{}%
2231   }
2232   %%%%%%%%%%
2233   \drawbrackgroundframetitle@first
2234   \node[mdfbox]at(\mdf@Ax,\mdf@Ay){\box\mdf@splitbox@two};% Ausgabebox einfuegen
2235   \end{scope}
2236   %HIER KOMMT EIN WEITERES MAKRO
2237   \mdf@firstextra
2238   \mdfcreateextratikz%
2239   \end{tikzpicture}%
2240   }%
2241   \mdf@makeboxalign@right%
2242   }%
2243   \fi
2244   }%

```

\mdf@putbox@middle

Output of the middle breakable contents.

```

2245 \def\drawbrackgroundframetitle@middle{%
2246   \ifdefempty{\mdf@frametitle}{}{}%
2247   \ifdimless{\mdfframetitleboxtotalheight}{\z@}
2248   {}{}%
2249   \drawbrackgroundframetitle@@middle%
2250   \pgfmathsetlength{\global\mdfframetitleboxtotalheight}{-\p@}%
2251   }%
2252   }%
2253   }%
2254   %
2255 \def\drawbrackgroundframetitle@@middle{%
2256   \begin{scope}%background frame title
2257     \ifbool{mdf@leftline}{
2258       \pgfmathsetlengthmacro\mdf@0x%
2259       {\mdf@0x+\mdf@innerlinewidth@length+0.5\mdf@middlelinewidth@length}
2260     }{}%
2261     \ifbool{mdf@rightline}{%
2262       \pgfmathsetlengthmacro\mdf@Px%
2263       {\mdf@Px-\mdf@innerlinewidth@length-0.5\mdf@middlelinewidth@length}
2264     }{}%
2265     \pgfmathsetlengthmacro\mdf@Fy
2266     {\mdf@Py-\mdfframetitleboxtotalheight}
2267     \path[mdfframetitlebackground,rounded corners=\z@]
2268     (\mdf@0x,\mdf@Fy) -- (\mdf@0x,\mdf@Py)%
2269     -- (\mdf@Px,\mdf@Py) -- (\mdf@Px,\mdf@Fy);
2270   \end{scope}
2271   }%
2272   %
2273 \def\drawbrackgroundframetitle@@middle{%
2274   \begin{scope}%background frame title
2275     \ifbool{mdf@leftline}{
2276       \pgfmathsetlengthmacro\mdf@0x%
2277       {\mdf@0x+\mdf@innerlinewidth@length+0.5\mdf@middlelinewidth@length}
2278     }{}%

```

```

2279 \ifbool{mdf@rightline}{%
2280 \pgfmathsetlengthmacro\mdf@Px%
2281 {\mdf@Px-\mdf@innerlinewidth@length-0.5\mdf@middlelinewidth@length}
2282 }{}%
2283 \pgfmathsetlengthmacro\mdf@Fy
2284 {\mdf@Py-\mdfframetitleboxtotalheight}
2285 \path[mdfframetitlebackground,rounded corners=\z@]
2286 (\mdf@Ox,\mdf@Fy) -- (\mdf@Ox,\mdf@Py)%
2287 -- (\mdf@Px,\mdf@Py) -- (\mdf@Px,\mdf@Fy);
2288 \end{scope}
2289 }%
2290 \def\mdf@putbox@middle{%
2291 \ifvoid\mdf@splitbox@two
2292 \else%
2293 \mdf@makebox@out{%
2294 \mdf@makeboxalign@left%
2295 \mdf@tikz@settings%
2296 \setlength\mdfboundingboxwidth{\wd\mdf@splitbox@two}%
2297 \advance\mdfboundingboxwidth by \mdf@innerleftmargin@length\relax%
2298 \advance\mdfboundingboxwidth by \mdf@innerrightmargin@length\relax%
2299 \ifbool{mdf@leftline}{%
2300 \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
2301 \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
2302 \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}}{}%
2303 \ifbool{mdf@rightline}{%
2304 \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
2305 \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
2306 \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}}{}%
2307 \setlength\mdfboundingboxheight{\dimexpr\ht\mdf@splitbox@two+\dp\mdf@splitbox@two\relax}%
2308 \advance\mdfboundingboxheight by \mdf@splitbottomskip@length\relax%
2309 %%%%%%%%%%
2310 \ifbool{mdf@everyline}{%
2311 \ifbool{mdf@topline}{%
2312 \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
2313 \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
2314 \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}}{}%
2315 \ifbool{mdf@bottomline}{%
2316 \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
2317 \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
2318 \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}}{}%
2319 }{}%
2320 %%%%%%%%%%
2321 \mdf@makebox@in[\mdfboundingboxwidth]{%
2322 \null%
2323 \begin{tikzpicture}[remember picture]
2324 \pgfmathsetlengthmacro\mdf@Ax{+\mdf@innerleftmargin@length}%
2325 \pgfmathsetlengthmacro\mdf@Ay{+\mdf@splitbottomskip@length}%
2326 \pgfmathsetlengthmacro\mdf@Ox{+0pt}%
2327 \pgfmathsetlengthmacro\mdf@Oy{+0pt}%
2328 \pgfmathsetlengthmacro\mdf@Px{+\mdfboundingboxwidth}%
2329 \pgfmathsetlengthmacro\mdf@Py{+\mdfboundingboxheight}%
2330 \ifbool{mdf@leftline}%
2331 {%
2332 \pgfmathsetlengthmacro\mdf@Ax%
2333 {\mdf@Ax+\mdf@outerlinewidth@length+%
2334 \mdf@middlelinewidth@length+\mdf@innerlinewidth@length}%

```

```

2335     \pgfmathsetlengthmacro\mdf@0x%
2336         {\mdf@0x+\mdf@outerlinewidth@length+0.5\mdf@middlelinewidth@length}%
2337     }{}%
2338     \ifbool{mdf@rightline}%
2339     {%
2340         \pgfmathsetlengthmacro\mdf@Px%
2341             {\mdf@Px-\mdf@outerlinewidth@length-0.5\mdf@middlelinewidth@length}%
2342         }{}%
2343 %%
2344     \ifbool{mdf@everyline}{%
2345         \ifbool{mdf@bottomline}%
2346         {%
2347             \pgfmathsetlengthmacro\mdf@Ay%
2348                 {\mdf@Ay+\mdf@outerlinewidth@length+\mdf@middlelinewidth@length%
2349                     +\mdf@innerlinewidth@length}%
2349             \pgfmathsetlengthmacro\mdf@0y%
2350                 {\mdf@0y+\mdf@outerlinewidth@length+0.5\mdf@middlelinewidth@length}%
2351             }{}%
2352             \ifbool{mdf@topline}%
2353             {%
2354                 \pgfmathsetlengthmacro\mdf@Py%
2355                     {\mdf@Py-\mdf@outerlinewidth@length-0.5\mdf@middlelinewidth@length}%
2356                 }{}%
2357             }{}%
2358         }{}%
2359 %%
2360         \coordinate(0)at(\mdf@0x,\mdf@0y);%
2361         \coordinate(P)at(\mdf@Px,\mdf@Py);%
2362         \ifbool{mdf@shadow}
2363             {\path[mdfshadow](0) rectangle (P);}%
2364         \begin{scope}[use as bounding box]
2365 %%%%%%%%%%%
2366         \ifbool{mdf@everyline}{%
2367             \mdf@test@lrb{\mdf@tikzbox@tfl{(0)--(0|-P)--(P)--(P|-0)--cycle)}}{}%
2368             \mdf@test@ltb{\mdf@tikzbox@tfl{(P|-0)--(0)--(0|-P)--(P))}}{}%
2369             \mdf@test@trb{\mdf@tikzbox@tfl{(0|-P)--(P)--(P|-0)--(0))}}{}%
2370             \mdf@test@ltr{\mdf@tikzbox@tfl{(0)--(0|-P)--(P)--(P|-0))}}{}%
2371             \mdf@test@lrb{\mdf@tikzbox@tfl{(P|-0)--(0)--(0|-P)--(P))}}{}%
2372             \mdf@test@lb{\mdf@tikzbox@otl{(P|-0)--(0)--(0|-P))}%
2373                 {(P)--(P|-0)[mdfcorners]--(0)--(0|-P)}}%
2374             }{}%
2375             \mdf@test@rb{\mdf@tikzbox@otl{(P)--(P|-0)--(0))}%
2376                 {(0|-P)--(P)[mdfcorners]--(P|-0)--(0)}}%
2377             }{}%
2378             \mdf@test@tr{\mdf@tikzbox@otl{(0|-P)--(P)--(P|-0))}%
2379                 {(0)--(0|-P)[mdfcorners]--(P)--(P|-0)}}%
2380             }{}%
2381             \mdf@test@lt{\mdf@tikzbox@otl{(0)--(0|-P)--(P))}%
2382                 {(P|-0)--(0)[mdfcorners]--(0|-P)--(P)}}%
2383             }{}%
2384             \mdf@test@lr{\mdf@tikzbox@otl{(0)--(0|-P)(P)--(P|-0))}%
2385                 {(0)rectangle(P)}}%
2386             }{}%
2387             \mdf@test@tb{\mdf@tikzbox@otl{(0)--(0|-P)(0|-P)--(P))}%
2388                 {(0)rectangle(P)}}%
2389             }{}%
2390             \mdf@test@l{\mdf@tikzbox@otl{(0)--(0|-P))}%

```

```

2391                {(0)rectangle(P)}%
2392            }{}%
2393        \mdf@test@r{\mdf@tikzbox@otl{(0|P)--(P)}%
2394                {(0)rectangle(P)}%
2395            }{}%
2396        \mdf@test@t{\mdf@tikzbox@otl{(0|P)--(P)}%
2397                {(0)rectangle(P)}%
2398            }{}%
2399        \mdf@test@b{\mdf@tikzbox@otl{(0)--(0|P)}%
2400                {(0)rectangle(P)}%
2401            }{}%
2402        \mdf@test@noline{\path[mdfbackground,mdfcorners](0)rectangle(P);}{}%
2403    }{
2404        \ifboolexpr{bool {mdf@leftline} and bool {mdf@rightline}}%
2405            {\mdf@tikzbox@otl{(0)--(0|P)(P)--(P|0)}{(0)rectangle(P)}}{}%
2406        \ifboolexpr{bool {mdf@leftline} and not (bool {mdf@rightline})}%
2407            {\mdf@tikzbox@otl{(0)--(0|P)}{(0)rectangle(P)}}{}%
2408        \ifboolexpr{not (bool {mdf@leftline}) and bool {mdf@rightline}}%
2409            {\mdf@tikzbox@otl{(P)--(P|0)}{(0)rectangle(P)}}{}%
2410        \ifboolexpr{not (bool {mdf@leftline}) and not (bool {mdf@rightline})}%
2411            {\path[mdfbackground](0)rectangle(P);}{}%
2412    }
2413 %%%%%%%%%%
2414     \drawbrackgroundframetitle@middle
2415     \node[mdfbox]at(\mdf@Ax,\mdf@Ay){\box\mdf@splitbox@two};% Ausgabebox einfuegen
2416     \end{scope}
2417     \mdf@middleextra
2418     %HIER KOMMT EIN WEITERES MAKRO
2419     \mdfcreateextratikz
2420     \end{tikzpicture}%
2421 }%
2422 \mdf@makeboxalign@right%
2423 }%
2424 \fi
2425 }%

```

\mdf@putbox@second

Output of the last breakable contents.

```

2426 \def\drawbrackgroundframetitle@second{%
2427     \ifdefempty{\mdf@frametitle}{}{}%
2428     \ifdimless{\mdfframetitleboxtotalheight}{\z@}
2429     {}{}%
2430     \drawbrackgroundframetitle@@second%
2431 }%
2432 }%
2433 }%
2434 %
2435 \def\drawbrackgroundframetitle@@second{%
2436     \begin{scope}%background frame title
2437         \ifbool{mdf@leftline}{
2438             \pgfmathsetlengthmacro\mdf@0x%
2439                 {\mdf@0x+\mdf@innerlinewidth@length+0.5\mdf@middlelinewidth@length}
2440             {}{}%
2441             \ifbool{mdf@rightline}{%

```



```

2442 \pgfmathsetlengthmacro\mdf@Px%
2443 {\mdf@Px-\mdf@innerlinewidth@length-0.5\mdf@middlelinewidth@length}
2444 }{}%
2445 \pgfmathsetlengthmacro\mdf@Fy
2446 {\mdf@Py-\mdfframetitleboxtotalheight}
2447 \path[mdfframetitlebackground,rounded corners=\z@]
2448 (\mdf@Ox,\mdf@Fy) -- (\mdf@Ox,\mdf@Py)%
2449 -- (\mdf@Px,\mdf@Py) -- (\mdf@Px,\mdf@Fy);
2450 \end{scope}
2451 }%
2452 \def\mdf@putbox@second{%
2453 \ifvoid\mdf@splitbox@one
2454 \else%
2455 \mdf@makebox@out{%
2456 \mdf@makeboxalign@left%
2457 \mdf@tikz@settings%
2458 \setlength\mdfboundingboxwidth{\wd\mdf@splitbox@one}%
2459 \advance\mdfboundingboxwidth by \mdf@innerleftmargin@length\relax%
2460 \advance\mdfboundingboxwidth by \mdf@innerrightmargin@length\relax%
2461 \ifbool{mdf@leftline}{%
2462 \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
2463 \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
2464 \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}}{}%
2465 \ifbool{mdf@rightline}{%
2466 \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
2467 \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
2468 \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}}{}%
2469 \setlength\mdfboundingboxheight{\dimexpr\ht\mdf@splitbox@one+\dp\mdf@splitbox@one\relax}%
2470 \advance\mdfboundingboxheight by \mdf@innerbottommargin@length\relax%
2471 \ifbool{mdf@bottomline}{%
2472 \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
2473 \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
2474 \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}}{}%
2475 %%%%%%%%%%
2476 \ifbool{mdf@everyline}{%
2477 \ifbool{mdf@topline}{%
2478 \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
2479 \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
2480 \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}}{}%
2481 }{}%
2482 %%%%%%%%%%
2483 \mdf@makebox@in[\mdfboundingboxwidth]{%
2484 \null%
2485 \begin{tikzpicture}[remember picture]
2486 \pgfmathsetlengthmacro\mdf@Ax{+\mdf@innerleftmargin@length}%
2487 \pgfmathsetlengthmacro\mdf@Ay{+\mdf@innerbottommargin@length}%
2488 \pgfmathsetlengthmacro\mdf@Ox{+0pt}%
2489 \pgfmathsetlengthmacro\mdf@Oy{+0pt}%
2490 \pgfmathsetlengthmacro\mdf@Px{+\mdfboundingboxwidth}%
2491 \pgfmathsetlengthmacro\mdf@Py{+\mdfboundingboxheight}%
2492 \ifbool{mdf@leftline}%
2493 {%
2494 \pgfmathsetlengthmacro\mdf@Ax%
2495 {\mdf@Ax+\mdf@outerlinewidth@length+%
2496 \mdf@middlelinewidth@length+\mdf@innerlinewidth@length}%
2497 \pgfmathsetlengthmacro\mdf@Ox%

```



```

2498         {\mdf@0x+\mdf@outerlinewidth@length+0.5\mdf@middlelinewidth@length}%
2499     }{}%
2500     \ifbool{mdf@rightline}%
2501     {%
2502         \pgfmathsetlengthmacro\mdf@Px%
2503             {\mdf@Px-\mdf@outerlinewidth@length-0.5\mdf@middlelinewidth@length}%
2504     }{}%
2505     \ifbool{mdf@bottomline}%
2506     {%
2507         \pgfmathsetlengthmacro\mdf@Ay%
2508             {\mdf@Ay+\mdf@outerlinewidth@length+
2509             \mdf@middlelinewidth@length+\mdf@innerlinewidth@length}%
2510         \pgfmathsetlengthmacro\mdf@Oy%
2511             {\mdf@Oy+\mdf@outerlinewidth@length+0.5\mdf@middlelinewidth@length}%
2512     }{}%
2513 %%
2514     \ifbool{mdf@everyline}{%
2515         \ifbool{mdf@topline}%
2516         {%
2517             \pgfmathsetlengthmacro\mdf@Py%
2518                 {\mdf@Py-\mdf@outerlinewidth@length-0.5\mdf@middlelinewidth@length}%
2519         }{}%
2520     }{}%
2521 %%
2522     \coordinate(0)at(\mdf@0x,\mdf@0y);%
2523     \coordinate(P)at(\mdf@Px,\mdf@Py);%
2524     \ifbool{mdf@shadow}
2525         {\path[mdfshadow] (0|-P) to[mdfcorners] (0) to[mdfcorners] (P|-0) -- (P) -- (0|-P);}%
2526     \begin{scope}[use as bounding box]
2527 %%%%%%%%%%%
2528     \ifbool{mdf@everyline}{%
2529         \mdf@test@lrb{\mdf@tikzbox@tfl{(0)--(0|-P)--(P)--(P|-0)--cycle)}}{}%
2530         \mdf@test@ltb{\mdf@tikzbox@tfl{(P|-0)--(0)--(0|-P)--(P)}}{}%
2531         \mdf@test@trb{\mdf@tikzbox@tfl{(0|-P)--(P)--(P|-0)--(0)}}{}%
2532         \mdf@test@ltr{\mdf@tikzbox@tfl{(0)--(0|-P)--(P)--(P|-0)}}{}%
2533         \mdf@test@lrb{\mdf@tikzbox@tfl{(P|-0)--(0)--(0|-P)--(P)}}{}%
2534         \mdf@test@lb{\mdf@tikzbox@otl{(P|-0)--(0)--(0|-P)}}%
2535             {(P)--(P|-0)[mdfcorners]--(0)--(0|-P)}%
2536         }{}%
2537         \mdf@test@rb{\mdf@tikzbox@otl{(P)--(P|-0)--(0)}}%
2538             {(0|-P)--(P)[mdfcorners]--(P|-0)--(0)}%
2539         }{}%
2540         \mdf@test@tr{\mdf@tikzbox@otl{(0|-P)--(P)--(P|-0)}}%
2541             {(0)--(0|-P)[mdfcorners]--(P)--(P|-0)}%
2542         }{}%
2543         \mdf@test@lt{\mdf@tikzbox@otl{(0)--(0|-P)--(P)}}%
2544             {(P|-0)--(0)[mdfcorners]--(0|-P)--(P)}%
2545         }{}%
2546         \mdf@test@lr{\mdf@tikzbox@otl{(0)--(0|-P)(P)--(P|-0)}}%
2547             {(0)rectangle(P)}%
2548         }{}%
2549         \mdf@test@tb{\mdf@tikzbox@otl{(0)--(0|-P)(0|-P)--(P)}}%
2550             {(0)rectangle(P)}%
2551         }{}%
2552         \mdf@test@l{\mdf@tikzbox@otl{(0)--(0|-P)}}%
2553             {(0)rectangle(P)}%

```

```

2554         }{}%
2555     \mdf@test@r{\mdf@tikzbox@otl{(0|P)--(P)}}%
2556             {(0)rectangle(P)}%
2557         }{}%
2558     \mdf@test@t{\mdf@tikzbox@otl{(0|P)--(P)}}%
2559             {(0)rectangle(P)}%
2560         }{}%
2561     \mdf@test@b{\mdf@tikzbox@otl{(0)--(0|P)}}%
2562             {(0)rectangle(P)}%
2563         }{}%
2564     \mdf@test@noline{\path[mdfbackground,mdfcorners](0)rectangle(P);}{}%
2565 }{%
2566     \ifboolexpr{test {\mdf@test@ltrb} or test {\mdf@test@lrb}}%
2567         {\mdf@tikzbox@otl{(P|0)--(0)--(0|P)--(P)}}%
2568         {}%
2569     \ifboolexpr{test {\mdf@test@ltb} or test {\mdf@test@lb}}%
2570         {\mdf@tikzbox@otl{(P|0)--(0)--(0|P)}{(P)--(P|0)[mdfcorners]--(0)--(0|P)}}%
2571         {}%
2572     \ifboolexpr{test {\mdf@test@trb} or test {\mdf@test@rb}}%
2573         {\mdf@tikzbox@otl{(P)--(P|0)--(0)}{(0|P)--(P)[mdfcorners]--(P|0)--(0)}}%
2574         {}%
2575     \ifboolexpr{test {\mdf@test@ltr} or test {\mdf@test@lr}}%
2576         {\mdf@tikzbox@otl{(0)--(0|P)(P)--(P|0)}{(0)rectangle(P)}}%
2577         {}%
2578     \ifboolexpr{test {\mdf@test@tb} or test {\mdf@test@b}}%
2579         {\mdf@tikzbox@otl{(0)--(0|P)}{(0)rectangle(P)}}%
2580         {}%
2581     \ifboolexpr{test {\mdf@test@lt} or test {\mdf@test@l}}%
2582         {\mdf@tikzbox@otl{(0)--(0|P)}{(0)rectangle(P)}}%
2583         {}%
2584     \ifboolexpr{test {\mdf@test@tr} or test {\mdf@test@r}}%
2585         {\mdf@tikzbox@otl{(0|P)--(P)}{(0)rectangle(P)}}%
2586         {}%
2587     \mdf@test@t{\path[mdfbackground,mdfcorners](0|P)--(0)--(0|P)--(P);}{}%
2588     \mdf@test@noline{\path[mdfbackground,mdfcorners](0|P)--(0)--(0|P)--(P);}{}%
2589 }%
2590     \drawbackgroundframetitle@second
2591     \node[mdfbox] at (\mdf@Ax,\mdf@Ay){\box\mdf@splitbox@one};% Ausgabebox einfuegen
2592 \end{scope}
2593     \mdf@secondextra
2594     %HIER KOMMT EIN WEITERES MAKRO
2595     \mdfcreateextratikz
2596 \end{tikzpicture}%
2597 }%
2598 \mdf@makeboxalign@right%
2599 }%
2600 \fi
2601 }%

2602 \endinput

```

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

```

2603 %% Style file for mdframed for package option 'framemethod=default'
2604 %%
2605 %% This package may be distributed under the terms of the LaTeX Project

```

```

2606 %% Public License, as described in lppl.txt in the base LaTeX distribution.
2607 %% Either version 1.0 or, at your option, any later version.
2608 %%
2609 %%
2610 %%$Id: mdframed.dtx 394 2012-04-29 21:29:59Z marco $
2611 %

```

```

\mdframedIIPackagename
\mdf@frameIIdate@svn

```

local settings

```

2612 \def\mdframedIIPackagename{md-frame-2}
2613 \def\mdf@frameIIdate@svn$#1: #2 #3 #4-#5-#6 #7 #8${#4/#5/#6\space }
2614 \ProvidesFile{md-frame-2.mdf}%
2615 [\mdf@frameIIdate@svn$Id: mdframed.dtx 394 2012-04-29 21:29:59Z marco $ %
2616 \mdversion: \mdframedIIPackagename]

```

```

\mdf@ptlength@to@pscode
\ptTps

```

Command to calculate a latex length to postscript

```

2617 \def\mdf@ptlength@to@pscode#1{\pst@number{#1} \pst@number\psxunit div }
2618 \def\mdf@ptlength@to@pscode@length#1{\pst@number{\csname mdf@#1@length\endcsname} \pst@number\psxunit }
2619 \let\ptTps\mdf@ptlength@to@pscode\relax
2620 \let\ptTpsL\mdf@ptlength@to@pscode@length\relax

```

```

\mdfbackgroundstyle
\mdflinestyle
\mdfframetitlestyle
\mdfframetitlebackground

```

background and line settings for pstricks

```

2621 \def\mdfpstricks@settings{%expand by \addtopsstyle
2622 \newpsstyle{mdfbackgroundstyle}%
2623 {linecolor=\mdf@backgroundcolor,fillstyle=solid,%
2624 fillcolor=\mdf@backgroundcolor,linestyle=none,%
2625 ,dimen=middle,%
2626 }%
2627 %
2628 \newpsstyle{mdfframetitlebackgroundstyle}{%
2629 linecolor=\mdf@frametitlebackgroundcolor,
2630 fillcolor=\mdf@frametitlebackgroundcolor,
2631 fillstyle=solid,linestyle=none,
2632 linearc=\ifdimgreater{\mdf@roundcorner@length%
2633 -\mdf@innerlinewidth@length%
2634 -.5\mdf@middlelinewidth@length}
2635 {\z@}{\dimexpr\mdf@roundcorner@length%
2636 -\mdf@innerlinewidth@length%
2637 -.5\mdf@middlelinewidth@length}{\z@},
2638 }
2639 %
2640 \newpsstyle{mdfouterlinestyle}{linestyle=none}%
2641 \ifdimgreater{\mdf@outerlinewidth@length}{\z@}
2642 {\newpsstyle{mdfouterlinestyle}{%
2643 linecolor=\mdf@outerlinecolor,%

```

```

2644     linewidth=\dimexpr2\mdf@outerlinewidth@length+\mdf@middlelinewidth@length\relax,
2645     dimen=middle,
2646     }}{}%
2647 %
2648 \newsstyle{mdfinnerlinestyle}{linestyle=none}%
2649 \ifdimgreater{\mdf@innerlinewidth@length}{\z@}%
2650     {\newsstyle{mdfinnerlinestyle}{%
2651         linecolor=\mdf@innerlinecolor,%
2652         linewidth=\dimexpr2\mdf@innerlinewidth@length+\mdf@middlelinewidth@length\relax,
2653         dimen=middle,
2654         }}{}%
2655 %
2656 \newsstyle{mdfmiddlelinestyle}{linestyle=none}%
2657 \newsstyle{mdfshadow}{shadow=true,shadowcolor=\mdf@shadowcolor,shadowsize=\mdf@shadowsize@length}%
2658 \ifdimgreater{\mdf@middlelinewidth@length}{\z@}%
2659     {\newsstyle{mdfmiddlelinestyle}{%
2660         linewidth=\mdf@middlelinewidth@length,%
2661         linecolor=\mdf@middlelinecolor,dimen=middle
2662         }}{}%
2663 \mdfpstricks@appendsettings
2664 }%
2665 %
2666 \newrobustcmd*\mdf@pstricksbox@fl[2]{%four lines
2667 \psframe[style=mdfouterlinestyle](#1)(#2)%ausen=3mm
2668 \psframe[style=mdfbackgroundstyle](#1)(#2)%Hintergrund
2669 \psclip{\psframe[style=mdfmiddlelinestyle](#1)(#2)}
2670 \psframe[style=mdfinnerlinestyle](#1)(#2)%innere=3mm
2671 \endpsclip
2672 \psframe[style=mdfmiddlelinestyle](#1)(#2)%mittlere=2mm
2673 }%
2674 \newrobustcmd*\mdf@pstricksbox@tl[1]{%three lines
2675 \psline[style=mdfouterlinestyle]#1%ausen=3mm
2676 \psline[style=mdfbackgroundstyle]#1%Hintergrund
2677 \psclip{\psline[style=mdfmiddlelinestyle]#1}
2678 \psline[style=mdfinnerlinestyle]#1%innere=3mm
2679 \endpsclip
2680 \psline[style=mdfmiddlelinestyle]#1%mittlere=2mm
2681 }%
2682 \newrobustcmd*\mdf@pstricksbox@tcl[2]{%two combined lines
2683 %%#1 background comple
2684 %%#2 line path
2685 \psline[style=mdfouterlinestyle]#2%ausen=3mm
2686 \psline[style=mdfbackgroundstyle]#2%Hintergrund
2687 \psclip{\pscustom{linestyle=none}{
2688     \psline[style=mdfmiddlelinestyle]#2
2689     \psline[linestyle=none,lineararc=0pt]#1}
2690     }
2691 \psframe[style=mdfbackgroundstyle,lineararc=0pt](mdf@0)(mdf@P)%Hintergrund
2692 \psline[style=mdfinnerlinestyle]#2%innere=3mm
2693 \endpsclip
2694 \psline[style=mdfmiddlelinestyle]#2%mittlere=2mm
2695 }%
2696 \newrobustcmd*\mdf@pstricksbox@tncl[2]{%two not combined lines
2697 \begingroup
2698 \psset{lineararc=0pt}
2699 \psline[style=mdfouterlinestyle](mdf@0)#1%ausen=3mm

```

```

2700 \psline[style=mdfouterlinestyle](mdf@P)#2%ausser=3mm
2701 \psclip{
2702   \pscustom[linestyle=none]{%
2703     \psline[style=mdfmiddlelinestyle](mdf@0)#1%mittlere=2mm
2704     \psline[linestyle=none](mdf@0)#2
2705     \psline[style=mdfmiddlelinestyle](mdf@P)#2%mittlere=2mm
2706     \psline[linestyle=none](mdf@P)#1
2707   }%
2708 }%
2709 \psframe[style=mdfbackgroundstyle,lineararc=0pt](mdf@0)(mdf@P)%Hintergrund
2710 \psline[style=mdfinnerlinestyle](mdf@0)#1%innere=3mm
2711 \psline[style=mdfinnerlinestyle](mdf@P)#2%innere=3mm
2712 \endpsclip
2713 \psline[style=mdfmiddlelinestyle](mdf@0)#1%mittlere=2mm
2714 \psline[style=mdfmiddlelinestyle](mdf@P)#2%mittlere=2mm
2715 \endgroup
2716 }%
2717 \newrobustcmd*\mdf@pstricksbox@ol[1]{%one line
2718 \begingroup
2719 \psset{lineararc=0pt}
2720 \psline[style=mdfouterlinestyle]#1%ausser=3mm
2721 \psline[style=mdfbackgroundstyle]#1%Hintergrund
2722 \psclip{\pscustom[linestyle=none]{
2723   \psline[style=mdfmiddlelinestyle]#1
2724   \psframe[linestyle=none,fillstyle=none,dimen=inner](mdf@0)(mdf@P)
2725 }}
2726 \psframe[style=mdfbackgroundstyle](mdf@0)(mdf@P)
2727 \psline[style=mdfinnerlinestyle]#1%innere=3mm
2728 \endpsclip
2729 \psline[style=mdfmiddlelinestyle]#1%mittlere=2mm
2730 \endgroup%
2731 }%
2732
2733 %
2734 \newpsstyle{mdfframetitlerule}{%
2735   linecolor=\mdf@frametitlerulecolor,%
2736   fillcolor=\mdf@frametitlerulecolor,%
2737   fillstyle=solid,dimen=outer,%
2738 }
2739 %

```

`\mdf@put@frametitlerule`

frametitlerule with pstricks

```

2740 \def\mdf@@frametitlerule{%
2741   \ifbool{mdf@frametitlerule}{%
2742     \vbox{\hsize0pt
2743       \par\unskip\vskip\mdf@frametitlebelowskip@length
2744       \noindent\rlap{%
2745         \begingroup%
2746         \begin{pspicture}(0,0)(0,\mdf@frametitlerulewidth@length)
2747           \psframe[style=mdfframetitlerule](!\ptTpsL{innerleftmargin} neg 0)%
2748                               (! \ptTpsL{innerrightmargin}
2749                               \ptTpsL{\mdfframetitleboxwidth} add \ptTpsL{frametitlerulewidth})
2750         \end{pspicture}

```

```

2751     \endgroup}
2752   }%
2753 }{}
2754 \par\unskip\vskip\mdf@innertopmargin@length%
2755 }%
2756 %
2757 % \begin{macro}{mdf@putbox@single}
2758 % Single output
2759 %   \begin{macrocode}
2760 % Info zu den verwendeten Punkten:
2761 % O ist die untere linke Ecke der Mitte der middleline
2762 % P ist die obere rechte Ecke der Mitte der middleline
2763 % A ist der Punkt fuer den anchor (d.h. die untere linke Ecke) der Ausgabebox
2764 \def\mdf@putbox@single{%
2765   \ifvoid\mdf@splitbox@one
2766   \else%
2767     \mdf@makebox@out{%
2768       \mdf@makeboxalign@left%
2769       \setlength\mdfboundingboxwidth{\wd\mdf@splitbox@one}%
2770       \advance\mdfboundingboxwidth by \mdf@innerleftmargin@length\relax%
2771       \advance\mdfboundingboxwidth by \mdf@innerrightmargin@length\relax%
2772       \ifbool{mdf@leftline}{%
2773         \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
2774         \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
2775         \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}}{%
2776       \ifbool{mdf@rightline}{%
2777         \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
2778         \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
2779         \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}}}%
2780 %
2781     \setlength\mdfboundingboxheight{\dimexpr\ht\mdf@splitbox@one+\dp\mdf@splitbox@one\relax}%
2782     \advance\mdfboundingboxheight by \mdf@innerbottommargin@length\relax%
2783     \advance\mdfboundingboxheight by \mdf@innertopmargin@length\relax%
2784     \ifbool{mdf@topline}{%
2785       \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
2786       \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
2787       \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}}{%
2788     \ifbool{mdf@bottomline}{%
2789       \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
2790       \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
2791       \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}}}%
2792 %
2793     \setlength\mdftotalllinewidth{\dimexpr\mdf@innerlinewidth@length%
2794                                     +\mdf@middlelinewidth@length
2795                                     +\mdf@outerlinewidth@length\relax}%
2796     \psset{unit=1truecm}%
2797     \mdf@makebox@in[\mdfboundingboxwidth]{%
2798       \null%
2799       \begin{pspicture}(0,0)(\mdfboundingboxwidth,\mdfboundingboxheight)
2800         \mdfpstricks@settings%
2801         \psset{lineararc=\mdf@roundcorner@length, cornersize=absolut,}%
2802         \expandafter\psset\expandafter{\mdf@psset@local}%
2803         \pnode(\mdf@innerleftmargin@length,\mdf@innerbottommargin@length){mdf@A}
2804         \pnode(0,0){mdf@O}
2805         \pnode(\mdfboundingboxwidth,\mdfboundingboxheight){mdf@P}
2806         \ifbool{mdf@leftline}%

```

```

2807      {%
2808      \nodexn{(mdf@A)+(\mdf@outerlinewidth@length,0)
2809              +(\mdf@middlelinewidth@length,0)
2810              +(\mdf@innerlinewidth@length,0)}{mdf@A}%
2811      \nodexn{(mdf@0)+(\mdf@outerlinewidth@length,0)
2812              +0.5(\mdf@middlelinewidth@length,0)}{mdf@0}%
2813      }{}%
2814      \ifbool{mdf@rightline}%
2815      {%
2816      \nodexn{(mdf@P) - (\mdf@outerlinewidth@length,0)
2817              -0.5(\mdf@middlelinewidth@length,0)}{mdf@P}%
2818      }{}%
2819      \ifbool{mdf@bottomline}%
2820      {%
2821      \nodexn{(mdf@A)+(0,\mdf@outerlinewidth@length)
2822              +(0,\mdf@middlelinewidth@length)
2823              +(0,\mdf@innerlinewidth@length)}{mdf@A}%
2824      \nodexn{(mdf@0)+(0,\mdf@outerlinewidth@length)
2825              +0.5(0,\mdf@middlelinewidth@length)}{mdf@0}%
2826      }{}%
2827      \ifbool{mdf@topline}%
2828      {%
2829      \nodexn{(mdf@P) - (0,\mdf@outerlinewidth@length)
2830              -0.5(0,\mdf@middlelinewidth@length)}{mdf@P}
2831      }{}%
2832      \ifbool{mdf@shadow}
2833      {\psframe[style=mdfshadow](mdf@0)(mdf@P)}{}
2834      %
2835      \psclip{%
2836      %Four lines
2837      \mdf@test@lrb{\mdf@pstricksbox@fl{mdf@0}{mdf@P}}{}
2838      %three lines
2839      \mdf@test@ltb{\mdf@pstricksbox@tl{(mdf@P|mdf@0)(mdf@0)(mdf@0|mdf@P)(mdf@P)}}{}
2840      \mdf@test@trb{\mdf@pstricksbox@tl{(mdf@0)(mdf@P|mdf@0)(mdf@P)(mdf@0|mdf@P)}}{}
2841      \mdf@test@ltr{\mdf@pstricksbox@tl{(mdf@0)(mdf@0|mdf@P)(mdf@P)(mdf@P|mdf@0)}}{}
2842      \mdf@test@lrb{\mdf@pstricksbox@tl{(mdf@0|mdf@P)(mdf@0)(mdf@P|mdf@0)(mdf@P)}}{}
2843      %two lines combined
2844      \mdf@test@lb{\mdf@pstricksbox@tcl{(mdf@P|mdf@0)(mdf@P)(mdf@0|mdf@P)}%
2845              {(mdf@0|mdf@P)(mdf@0)(mdf@P|mdf@0)}}{}
2846      \mdf@test@rb{\mdf@pstricksbox@tcl{(mdf@P)(mdf@0|mdf@P)(mdf@0)}%
2847              {(mdf@0)(mdf@P|mdf@0)(mdf@P)}}{}
2848      \mdf@test@tr{\mdf@pstricksbox@tcl{(mdf@P|mdf@0)(mdf@0)(mdf@0|mdf@P)}%
2849              {(mdf@0|mdf@P)(mdf@P)(mdf@P|mdf@0)}}{}
2850      \mdf@test@lt{\mdf@pstricksbox@tcl{(mdf@0)(mdf@P|mdf@0)(mdf@P)}%
2851              {(mdf@0)(mdf@0|mdf@P)(mdf@P)}}{}
2852      %two lines not combined
2853      \mdf@test@lr{\mdf@pstricksbox@tncl{(mdf@0|mdf@P)}{(mdf@P|mdf@0)}}
2854      {}
2855      \mdf@test@tb{\mdf@pstricksbox@tncl{(mdf@P|mdf@0)}{(mdf@0|mdf@P)}}
2856      {}
2857      %single line
2858      \mdf@test@l{\mdf@pstricksbox@ol{(mdf@0)(mdf@0|mdf@P)}}{}
2859      \mdf@test@r{\mdf@pstricksbox@ol{(mdf@P)(mdf@P|mdf@0)}}{}
2860      \mdf@test@t{\mdf@pstricksbox@ol{(mdf@P)(mdf@0|mdf@P)}}{}
2861      \mdf@test@b{\mdf@pstricksbox@ol{(mdf@0)(mdf@P|mdf@0)}}{}
2862      %no line
2863      \mdf@test@noline{\psframe[style=mdfbackgroundstyle](mdf@0)(mdf@P)}{}

```



```

2863 %      }
2864      %Frametitlebackground
2865      \drawbackgroundframetitle@single
2866      %output%
2867      \rput[bl](mdf@A){\box\mdf@splitbox@one}
2868 %      \psdot(mdf@A)\uput[90](mdf@A){mdf at A}
2869 %      \psdot(mdf@P)\uput[90](mdf@P){mdf at P}
2870 %      \psdot(mdf@O)\uput[90](mdf@O){mdf at O}
2871 %
2872 %      \endpsclip
2873      \mdf@singleextra
2874      \end{pspicture}%
2875  }%
2876  \mdf@makeboxalign@right%
2877  }%
2878  \fi
2879 }%
2880 \def\drawbackgroundframetitle@single{%
2881  \ifdefempty{\mdf@frametitle}{}%
2882    \drawbackgroundframetitle@@single%
2883  }%
2884 }%
2885 \def\drawbackgroundframetitle@@single{%
2886  \begingroup%
2887    \ifbool{mdf@leftline}{%
2888      \nodexn{(\mdf@O)+(\mdf@innerlinewidth@length,0)
2889        +0.5(\mdf@middlelinewidth@length,0)}{\mdf@O}%
2890    }{}%
2891    \ifbool{mdf@rightline}{%
2892      \nodexn{(\mdf@P)-(\mdf@innerlinewidth@length,0)
2893        -0.5(\mdf@middlelinewidth@length,0)}{\mdf@P}%
2894    }{}%
2895    \ifbool{mdf@topline}{%
2896      \nodexn{(\mdf@P)-(0,\mdf@innerlinewidth@length)
2897        -0.5(0,\mdf@middlelinewidth@length)}{\mdf@P}%
2898    }{}%
2899    \nodexn{(\mdf@P)-(0,\mdfframetitleboxtotalheight)}{\mdf@F}%
2900    \psline[style=mdfframetitlebackgroundstyle](mdf@O|mdf@F)(mdf@O|mdf@P)
2901      (mdf@P)(mdf@P|mdf@F)%
2902  \endgroup
2903 }

```

\mdf@putbox@first

First output

```

2904 \def\mdf@putbox@first{%
2905  \ifvoid\mdf@splitbox@two
2906  \else%
2907    \mdf@makebox@out{%
2908      \mdf@makeboxalign@left%
2909      %\ifbool{mdf@leftline}{\hspace*{\mdf@middlelinewidth@length}}{}%
2910      \setlength\mdf@boundingboxwidth{\wd\mdf@splitbox@two}%
2911      \advance\mdf@boundingboxwidth by \mdf@innerleftmargin@length\relax%
2912      \advance\mdf@boundingboxwidth by \mdf@innerrightmargin@length\relax%
2913      \ifbool{mdf@leftline}{%

```



```

2914 \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
2915 \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
2916 \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}}}%
2917 \ifbool{mdf@rightline}{%
2918 \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
2919 \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
2920 \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}}}%
2921 \setlength\mdfboundingboxheight{\dimexpr\ht\mdf@splitbox@two+\dp\mdf@splitbox@two\relax}%
2922 \advance\mdfboundingboxheight by \mdf@innertopmargin@length\relax%
2923 \advance\mdfboundingboxheight by \mdf@splitbottomskip@length\relax%
2924 \ifbool{mdf@topline}{%
2925 \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
2926 \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
2927 \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}}}%
2928 %%%%%%%%%
2929 \ifbool{mdf@everyline}{%
2930 \ifbool{mdf@bottomline}{%
2931 \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
2932 \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
2933 \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}}}%
2934 }{}%
2935 %%%%%%%%%
2936 \psset{linear=\mdf@roundcorner@length, cornersize=absolute}%
2937 \expandafter\psset\expandafter{\mdf@psset@local}%
2938 \mdf@makebox@in[\mdfboundingboxwidth]{%
2939 \null%
2940 \psset{unit=1truecm}%
2941 \ifdimgreater{\mdfboundingboxheight}{\vsize}
2942 {\begin{pspicture}(0,0)(\mdfboundingboxwidth,\vsize)}
2943 {\begin{pspicture}(0,0)(\mdfboundingboxwidth,\mdfboundingboxheight)}
2944 \mdfpstricks@settings%
2945 \psset{linear=\mdf@roundcorner@length, cornersize=absolut,}%
2946 \expandafter\psset\expandafter{\mdf@psset@local}%
2947 \pnode(\mdf@innerleftmargin@length,\mdf@splitbottomskip@length){mdf@A}
2948 \pnode(0,0){mdf@0}
2949 \pnode(\mdfboundingboxwidth,\mdfboundingboxheight){mdf@P}
2950 \ifbool{mdf@leftline}%
2951 {%
2952 \nodexn{(\mdf@A)+(\mdf@outerlinewidth@length,0)
2953 +(\mdf@middlelinewidth@length,0)
2954 +(\mdf@innerlinewidth@length,0)}}{mdf@A}
2955 \nodexn{(\mdf@0)+(\mdf@outerlinewidth@length,0)
2956 +0.5(\mdf@middlelinewidth@length,0)}}{mdf@0}
2957 }{}%
2958 \ifbool{mdf@rightline}%
2959 {%
2960 \nodexn{(\mdf@P)-(\mdf@outerlinewidth@length,0)
2961 -0.5(\mdf@middlelinewidth@length,0)}}{mdf@P}
2962 }{}%
2963 \ifbool{mdf@topline}%
2964 {%
2965 \nodexn{(\mdf@P)-(0,\mdf@outerlinewidth@length)
2966 -0.5(0,\mdf@middlelinewidth@length)}}{mdf@P}
2967 }{}%
2968 %%%%%%%%%
2969 \ifbool{mdf@everyline}{%

```

```

2970 \ifbool{mdf@bottomline}%
2971 {%
2972 \nodexn{(mdf@A)+(0,\mdf@outerlinewidth@length)
2973 +(0,\mdf@middlelinewidth@length)
2974 +(0,\mdf@innerlinewidth@length)}}{mdf@A}%
2975 \nodexn{(mdf@0)+(0,\mdf@outerlinewidth@length)
2976 +0.5(0,\mdf@middlelinewidth@length)}}{mdf@0}%
2977 }{}%
2978 }{}%
2979 %%%%%%%%%%
2980 \ifbool{mdf@shadow}
2981 {\pscustom[style=mdfshadow,linestyle=none]{%
2982 \psline[linejoin=2,linecap=1,](mdf@P|mdf@0)(mdf@P)(mdf@0|mdf@P)%
2983 \psline[linejoin=2,linecap=1,lineararc=\z@](mdf@0|mdf@P)(mdf@0)(mdf@P|mdf@0)
2984 \closedshadow
2985 }
2986 }{}
2987 % \psclip{
2988 %%%%%%%%%%
2989 \ifbool{mdf@everyline}{%
2990 %Four lines
2991 \mdf@test@lrb{\mdf@pstricksbox@fl{mdf@0}{mdf@P}}{}
2992 %three lines
2993 \mdf@test@ltb{\mdf@pstricksbox@tl{(mdf@P|mdf@0)(mdf@0)(mdf@0|mdf@P)(mdf@P)}}{}
2994 \mdf@test@trb{\mdf@pstricksbox@tl{(mdf@0)(mdf@P|mdf@0)(mdf@P)(mdf@0|mdf@P)}}{}
2995 \mdf@test@ltr{\mdf@pstricksbox@tl{(mdf@0)(mdf@0|mdf@P)(mdf@P)(mdf@P|mdf@0)}}{}%
2996 \mdf@test@lrb{\mdf@pstricksbox@tl{(mdf@0|mdf@P)(mdf@0)(mdf@P|mdf@0)(mdf@P)}}{}%
2997 %two lines combined
2998 \mdf@test@lb{\mdf@pstricksbox@tcl{(mdf@P|mdf@0)(mdf@P)(mdf@0|mdf@P)}%
2999 {(mdf@0|mdf@P)(mdf@0)(mdf@P|mdf@0)}}{}
3000 \mdf@test@rb{\mdf@pstricksbox@tcl{(mdf@P)(mdf@0|mdf@P)(mdf@0)}%
3001 {(mdf@0)(mdf@P|mdf@0)(mdf@P)}}{}
3002 \mdf@test@tr{\mdf@pstricksbox@tcl{(mdf@P|mdf@0)(mdf@0)(mdf@0|mdf@P)}%
3003 {(mdf@0|mdf@P)(mdf@P)(mdf@P|mdf@0)}}{}
3004 \mdf@test@lt{\mdf@pstricksbox@tcl{(mdf@0)(mdf@P|mdf@0)(mdf@P)}%
3005 {(mdf@0)(mdf@0|mdf@P)(mdf@P)}}{}
3006 %two lines not combined combined
3007 \mdf@test@lr{\mdf@pstricksbox@tncl{(mdf@0|mdf@P)}{(mdf@P|mdf@0)}
3008 {}{}
3009 \mdf@test@tb{\mdf@pstricksbox@tncl{(mdf@P|mdf@0)}{(mdf@0|mdf@P)}
3010 {}{}
3011 %single line
3012 \mdf@test@l{\mdf@pstricksbox@ol{(mdf@0)(mdf@0|mdf@P)}}{}
3013 \mdf@test@r{\mdf@pstricksbox@ol{(mdf@P)(mdf@P|mdf@0)}}{}
3014 \mdf@test@t{\mdf@pstricksbox@ol{(mdf@P)(mdf@0|mdf@P)}}{}
3015 \mdf@test@b{\mdf@pstricksbox@ol{(mdf@0)(mdf@P|mdf@0)}}{}
3016 %no line
3017 \mdf@test@noline{\psframe[style=mdfbackgroundstyle](mdf@0)(mdf@P)}}{}%
3018 }{}
3019 %Four or Three lines
3020 \ifboolexpr{test {\mdf@test@lrb} or test {\mdf@test@ltr}}%
3021 {\mdf@pstricksbox@tl{(mdf@0)(mdf@0|mdf@P)(mdf@P)(mdf@P|mdf@0)}}{}%
3022 }{}%
3023 %two combined lines
3024 \ifboolexpr{test {\mdf@test@ltb} or test {\mdf@test@lt}}
3025 {\mdf@pstricksbox@tcl{(mdf@0)(mdf@P|mdf@0)(mdf@P)}%

```

```

3026                                     {(mdf@0)(mdf@0|mdf@P)(mdf@P)}}{}
3027 \ifboolexpr{test {\mdf@test@trb} or test {\mdf@test@tr}}%
3028     {\mdf@pstricksbox@tcl{(mdf@P|mdf@0)(mdf@0)(mdf@0|mdf@P)}}%
3029     {(mdf@0|mdf@P)(mdf@P)(mdf@P|mdf@0)}}{}
3030 %two not combined lines
3031 \ifboolexpr{test {\mdf@test@lrb} or test {\mdf@test@lr}}%
3032     {\mdf@pstricksbox@tncl{(mdf@0|mdf@P)}}{(mdf@P|mdf@0)}}{}
3033 %single line
3034 \ifboolexpr{test {\mdf@test@tb} or test {\mdf@test@t}}%
3035     {\mdf@pstricksbox@ol{(mdf@P)(mdf@0|mdf@P)}}{}
3036 \ifboolexpr{test {\mdf@test@lb} or test {\mdf@test@l}}%
3037     {\mdf@pstricksbox@ol{(mdf@0)(mdf@0|mdf@P)}}{}
3038 \ifboolexpr{test {\mdf@test@rb} or test {\mdf@test@r}}%
3039     {\mdf@pstricksbox@ol{(mdf@P)(mdf@P|mdf@0)}}{}
3040 %no line
3041 \mdf@test@b{\psframe[style=mdfbackgroundstyle](mdf@0)(mdf@P)}}{}%
3042 \mdf@test@noline{\psframe[style=mdfbackgroundstyle](mdf@0)(mdf@P)}}{}%
3043 }%
3044 %
3045 %Frametitlebackground
3046 \drawbackgroundframetitle@first
3047 %output%
3048 \rput[bl](mdf@A){\box\mdf@splitbox@two}
3049 % \psdot(mdf@A)\uput[90](mdf@A){mdf at A}
3050 % \psdot(mdf@P)\uput[90](mdf@P){mdf at P}
3051 % \psdot(mdf@0)\uput[90](mdf@0){mdf at 0}
3052 % \endpsclip
3053 \mdf@firstextra
3054 \end{pspicture}
3055 }%
3056 \mdf@makeboxalign@right%
3057 }%
3058 \fi
3059 }%
3060 \def\drawbackgroundframetitle@first{%
3061 \ifdefempty{\mdf@frametitle}}{}%
3062 \ifdimgreater{\mdfboundingboxheight}{\mdfframetitleboxtotalheight}%
3063 {%
3064 \drawbackgroundframetitle@@first
3065 \global\mdfframetitleboxtotalheight=-\p@%
3066 }\mdf@PackageWarning{You got a page break inside the frame title\MessageBreak
3067     Currently this isn't well supported}%
3068 \drawbackgroundframetitle@@first
3069 \global\mdfframetitleboxtotalheight=\dimexpr\mdfframetitleboxtotalheight
3070     -\mdfboundingboxheight
3071     -\mdf@innerlinewidth@length-0.5\mdf@middlelinewidth@length%
3072     +\mdf@frametitlebelowskip@length+\mdf@splitbottomskip@length
3073     +\mdf@splittopskip@length
3074     +\dp\strutbox\relax%
3075 }%
3076 }%
3077 }%
3078 \def\drawbackgroundframetitle@@first{%
3079 \begingroup%
3080 \ifbool{mdf@leftline}%
3081     \nodexn{(mdf@0)+(\mdf@innerlinewidth@length,0)}

```

```

3082             +0.5(\mdf@middlelinewidth@length,0)){mdf@0}%
3083         }{}%
3084     \ifbool{mdf@rightline}{%
3085         \nodexn{(mdf@P) - (\mdf@innerlinewidth@length,0)
3086             -0.5(\mdf@middlelinewidth@length,0)){mdf@P}%
3087         }{}%
3088     \ifbool{mdf@topline}{%
3089         \nodexn{(mdf@P) - (0,\mdf@innerlinewidth@length)
3090             -0.5(0,\mdf@middlelinewidth@length)){mdf@P}%
3091         }{}%
3092     \ifdimgreater{\mdfboundingboxheight}{\mdfframetitleboxtotalheight}
3093         {\nodexn{(mdf@P) - (0,\mdfframetitleboxtotalheight)){mdf@F}}%
3094         {\nodexn{(mdf@0)}{mdf@F}}%
3095     \psline[style=mdfframetitlebackgroundstyle](mdf@0|mdf@F)(mdf@0|mdf@P)
3096         (mdf@P)(mdf@P|mdf@F)%
3097 \endgroup
3098 }

```

`\mdf@putbox@middle`

Middle output

```

3099 \def\mdf@putbox@middle{%
3100     \ifvoid\mdf@splitbox@two
3101     \else%
3102         \mdf@makebox@out{%
3103             \mdf@makeboxalign@left%
3104 %             \ifbool{mdf@leftline}{\hspace*{\mdf@middlelinewidth@length}}{}%
3105             \setlength\mdfboundingboxwidth{\wd\mdf@splitbox@two}%
3106             \advance\mdfboundingboxwidth by \mdf@innerleftmargin@length\relax%
3107             \advance\mdfboundingboxwidth by \mdf@innerrightmargin@length\relax%
3108             \ifbool{mdf@leftline}{%
3109                 \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
3110                 \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
3111                 \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}{}%
3112             \ifbool{mdf@rightline}{%
3113                 \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
3114                 \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
3115                 \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}{}%
3116             \setlength\mdfboundingboxheight{\dimexpr\ht\mdf@splitbox@two+\dp\mdf@splitbox@two\relax}%
3117             \advance\mdfboundingboxheight by \mdf@splitbottomskip@length\relax%
3118 %%%%%%%%%%
3119             \ifbool{mdf@everyline}{%
3120                 \ifbool{mdf@topline}{%
3121                     \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
3122                     \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
3123                     \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}{}%
3124                 \ifbool{mdf@bottomline}{%
3125                     \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
3126                     \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
3127                     \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}{}%
3128                 }{}%
3129 %%%%%%%%%%
3130             \psset{unit=1truecm}%
3131             \mdf@makebox@in[\mdfboundingboxwidth]{%
3132                 \null%

```

```

3133 \ifdimgreater{\mdfboundingboxheight}{\vsize}
3134 {\begin{pspicture}(0,0)(\mdfboundingboxwidth,\vsize)}
3135 {\begin{pspicture}(0,0)(\mdfboundingboxwidth,\mdfboundingboxheight)}
3136 \mdfpstricks@settings%
3137 \psset{lineararc=0pt, cornersize=absolut,}%
3138 \expandafter\psset\expandafter{\mdf@psset@local}%
3139 %%%
3140 \pnode(\mdf@innerleftmargin@length,\mdf@splitbottomskip@length){mdf@A}
3141 \pnode(0,0){mdf@0}
3142 \pnode(\mdfboundingboxwidth,\mdfboundingboxheight){mdf@P}
3143 \ifbool{mdf@leftline}%
3144 {%
3145 \nodexn{(mdf@A)+(\mdf@outerlinewidth@length,0)
3146 +(\mdf@middlelinewidth@length,0)
3147 +(\mdf@innerlinewidth@length,0)}{mdf@A}
3148 \nodexn{(mdf@0)+(\mdf@outerlinewidth@length,0)
3149 +0.5(\mdf@middlelinewidth@length,0)}{mdf@0}
3150 }{}%
3151 \ifbool{mdf@rightline}%
3152 {%
3153 \nodexn{(mdf@P)-(\mdf@outerlinewidth@length,0)
3154 -0.5(\mdf@middlelinewidth@length,0)}{mdf@P}
3155 }{}%
3156 %%
3157 %%%%%%%%%
3158 \ifbool{mdf@everyline}{%
3159 \ifbool{mdf@bottomline}%
3160 {%
3161 \nodexn{(mdf@A)+(0,\mdf@outerlinewidth@length)
3162 +(0,\mdf@middlelinewidth@length)
3163 +(0,\mdf@innerlinewidth@length)}{mdf@A}%
3164 \nodexn{(mdf@0)+(0,\mdf@outerlinewidth@length)
3165 +0.5(0,\mdf@middlelinewidth@length)}{mdf@0}%
3166 }{}%
3167 \ifbool{mdf@topline}%
3168 {%
3169 \nodexn{(mdf@P)-(0,\mdf@outerlinewidth@length)
3170 -0.5(0,\mdf@middlelinewidth@length)}{mdf@P}
3171 }{}%
3172 }{}%
3173 %%%%%%%%%
3174 %%
3175 \ifbool{mdf@shadow}
3176 {\psframe[style=mdfshadow](mdf@0)(mdf@P)}{}
3177 %%%%%%%%%
3178 \ifbool{mdf@everyline}{%
3179 %Four lines
3180 \mdf@test@lrb{\mdf@pstricksbox@fl{mdf@0}{mdf@P}}{}
3181 %three lines
3182 \mdf@test@ltb{\mdf@pstricksbox@tl{(mdf@P|mdf@0)(mdf@0)(mdf@0|mdf@P)(mdf@P)}}{}
3183 \mdf@test@trb{\mdf@pstricksbox@tl{(mdf@0)(mdf@P|mdf@0)(mdf@P)(mdf@0|mdf@P)}}{}
3184 \mdf@test@ltr{\mdf@pstricksbox@tl{(mdf@0)(mdf@0|mdf@P)(mdf@P)(mdf@P|mdf@0)}}{}
3185 \mdf@test@lrb{\mdf@pstricksbox@tl{(mdf@0|mdf@P)(mdf@0)(mdf@P|mdf@0)(mdf@P)}}{}
3186 %two lines combined
3187 \mdf@test@lb{\mdf@pstricksbox@tcl{(mdf@P|mdf@0)(mdf@P)(mdf@0|mdf@P)}%
3188 {(mdf@0|mdf@P)(mdf@0)(mdf@P|mdf@0)}}{}

```

```

3189 \mdf@test@rb{\mdf@pstricksbox@tcl{(mdf@P)(mdf@O|mdf@P)(mdf@O)}%
3190 { (mdf@O)(mdf@P|mdf@O)(mdf@P)} }%
3191 \mdf@test@tr{\mdf@pstricksbox@tcl{(mdf@P|mdf@O)(mdf@O)(mdf@O|mdf@P)}%
3192 { (mdf@O|mdf@P)(mdf@P)(mdf@P|mdf@O)} }%
3193 \mdf@test@lt{\mdf@pstricksbox@tcl{(mdf@O)(mdf@P|mdf@O)(mdf@P)}%
3194 { (mdf@O)(mdf@O|mdf@P)(mdf@P)} }%
3195 %two lines not combined combined
3196 \mdf@test@lr{\mdf@pstricksbox@tnc{(mdf@O|mdf@P)}{(mdf@P|mdf@O)}
3197 }%
3198 \mdf@test@tb{\mdf@pstricksbox@tnc{(mdf@P|mdf@O)}{(mdf@O|mdf@P)}
3199 }%
3200 %single line
3201 \mdf@test@l{\mdf@pstricksbox@ol{(mdf@O)(mdf@O|mdf@P)} }%
3202 \mdf@test@r{\mdf@pstricksbox@ol{(mdf@P)(mdf@P|mdf@O)} }%
3203 \mdf@test@t{\mdf@pstricksbox@ol{(mdf@P)(mdf@O|mdf@P)} }%
3204 \mdf@test@b{\mdf@pstricksbox@ol{(mdf@O)(mdf@P|mdf@O)} }%
3205 %no line
3206 \mdf@test@noline{\psframe[style=mdfbackgroundstyle](mdf@O)(mdf@P)}%
3207 }%
3208 \ifboolexpr{bool {mdf@leftline} and bool {mdf@rightline}}%
3209 {\mdf@pstricksbox@tnc{(mdf@O|mdf@P)}{(mdf@P|mdf@O)} }%
3210 \ifboolexpr{bool {mdf@leftline} and not (bool {mdf@rightline})}%
3211 {\mdf@pstricksbox@ol{(mdf@O)(mdf@O|mdf@P)} }%
3212 \ifboolexpr{not (bool {mdf@leftline}) and bool {mdf@rightline}}%
3213 {\mdf@pstricksbox@ol{(mdf@P)(mdf@P|mdf@O)} }%
3214 \ifboolexpr{not (bool {mdf@leftline}) and not (bool {mdf@rightline})}%
3215 {\psframe[style=mdfbackgroundstyle](mdf@O)(mdf@P)}%
3216 }%
3217 %Frametitlebackground
3218 \drawbackgroundframetitle@middle
3219 %output%
3220 \rput[bl](mdf@A){\box\mdf@splitbox@two}
3221 % \psdot(mdf@A)\uput[90](mdf@A){mdf at A}
3222 % \psdot(mdf@P)\uput[90](mdf@P){mdf at P}
3223 % \psdot(mdf@O)\uput[90](mdf@O){mdf at O}
3224 \mdf@middleextra
3225 \end{pspicture}%
3226 }%
3227 \mdf@makeboxalign@right%
3228 }%
3229 \fi
3230 }%
3231 \def\drawbackgroundframetitle@middle{%
3232 \ifdefempty{\mdf@frametitle}}{%
3233 \ifdimless{\mdfframetitleboxtotalheight}{\z@}
3234 }{%
3235 \drawbackgroundframetitle@@middle
3236 \global\mdfframetitleboxtotalheight=-\p@relax%
3237 }%
3238 }%
3239 }%
3240 \def\drawbackgroundframetitle@@middle{%
3241 \begingroup%
3242 \ifbool{mdf@leftline}%
3243 \nodexn{(mdf@O)+(\mdf@innerlinewidth@length,0)
3244 +0.5(\mdf@middlelinewidth@length,0)}{mdf@O}%

```

```

3245     }{}%
3246     \ifbool{mdf@rightline}{%
3247         \nodexn{(mdf@P) - (\mdf@innerlinewidth@length,0)
3248             -0.5(\mdf@middlelinewidth@length,0)}{mdf@P}%
3249     }{}%
3250     \nodexn{(mdf@P) - (0,\mdfframetitleboxtotalheight)}{mdf@F}%
3251     \psline[style=mdfframetitlebackgroundstyle,lineararc=\z@](mdf@0|mdf@F)(mdf@0|mdf@P)
3252         (mdf@P)(mdf@P|mdf@F)%
3253 \endgroup
3254 }

```

\mdf@putbox@second

Last output

```

3255 \def\mdf@putbox@second{
3256     \ifvoid\mdf@splitbox@one
3257     \else%
3258         \mdf@makebox@out{%
3259             \mdf@makeboxalign@left%
3260 %         \ifbool{mdf@leftline}{\hspace*{\mdf@middlelinewidth@length}}{}%
3261         \setlength\mdfboundingboxwidth{\wd\mdf@splitbox@one}%
3262         \advance\mdfboundingboxwidth by \mdf@innerleftmargin@length\relax%
3263         \advance\mdfboundingboxwidth by \mdf@innerrightmargin@length\relax%
3264         \ifbool{mdf@leftline}{%
3265             \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
3266             \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
3267             \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}%{}%
3268         \ifbool{mdf@rightline}{%
3269             \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
3270             \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
3271             \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}%{}%
3272         \setlength\mdfboundingboxheight{\dimexpr\ht\mdf@splitbox@one+\dp\mdf@splitbox@one\relax}%
3273         \advance\mdfboundingboxheight by \mdf@innerbottommargin@length\relax%
3274         \ifbool{mdf@bottomline}{%
3275             \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
3276             \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
3277             \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}%{}%
3278 %%%%%%%%%%
3279         \ifbool{mdf@everyline}{%
3280             \ifbool{mdf@topline}{%
3281                 \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
3282                 \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
3283                 \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}%{}%
3284             }{}%
3285 %%%%%%%%%%
3286         \psset{unit=1truecm}%
3287         \mdf@makebox@in[\mdfboundingboxwidth]{%
3288             \null%
3289             \begin{pspicture}(0,0)(\mdfboundingboxwidth,\mdfboundingboxheight)
3290                 \mdfpstricks@settings%
3291                 \psset{lineararc=\mdf@roundcorner@length,corner size=absolut,}%
3292                 \expandafter\psset\expandafter{\mdf@psset@local}%
3293                 \pnode(\mdf@innerleftmargin@length,\mdf@innerbottommargin@length){mdf@A}
3294                 \pnode(0,0){mdf@0}
3295                 \pnode(\mdfboundingboxwidth,\mdfboundingboxheight){mdf@P}

```



```

3296 \ifbool{mdf@leftline}%
3297 {%
3298 \nodexn{(mdf@A)+(\mdf@outerlinewidth@length,0)
3299 +(\mdf@middlelinewidth@length,0)
3300 +(\mdf@innerlinewidth@length,0)}{mdf@A}
3301 \nodexn{(mdf@0)+(\mdf@outerlinewidth@length,0)
3302 +0.5(\mdf@middlelinewidth@length,0)}{mdf@0}
3303 }{}%
3304 \ifbool{mdf@rightline}%
3305 {%
3306 \nodexn{(mdf@P)-(\mdf@outerlinewidth@length,0)
3307 -0.5(\mdf@middlelinewidth@length,0)}{mdf@P}
3308 }{}%
3309 \ifbool{mdf@bottomline}%
3310 {%
3311 \nodexn{(mdf@A)+(0,\mdf@outerlinewidth@length)
3312 +(0,\mdf@middlelinewidth@length)
3313 +(0,\mdf@innerlinewidth@length)}{mdf@A}
3314 \nodexn{(mdf@0)+(0,\mdf@outerlinewidth@length)
3315 +0.5(0,\mdf@middlelinewidth@length)}{mdf@0}
3316 }{}%
3317 %%%%%%%%%%
3318 \ifbool{mdf@everyline}{%
3319 \ifbool{mdf@topline}%
3320 {%
3321 \nodexn{(mdf@P)-(0,\mdf@outerlinewidth@length)
3322 -0.5(0,\mdf@middlelinewidth@length)}{mdf@P}
3323 }{}%
3324 }{}%
3325 %%%%%%%%%%
3326 %%
3327 \ifbool{mdf@shadow}
3328 {\pscustom[style=mdfshadow,linestyle=none]{%
3329 \psline[linejoin=2,linecap=1,](mdf@0)(mdf@P)(mdf@0)(mdf@P)(mdf@0)%
3330 \psline[linejoin=2,linecap=1,lineararc=\z@](mdf@0)(mdf@P)(mdf@P)
3331 \closedshadow
3332 }
3333 }{}
3334 %%%%%%%%%%
3335 \ifbool{mdf@everyline}{%
3336 %Four lines
3337 \mdf@test@lrb{\mdf@pstricksbox@fl{mdf@0}{mdf@P}}{}
3338 %three lines
3339 \mdf@test@ltb{\mdf@pstricksbox@tl{(mdf@P)(mdf@0)(mdf@0)(mdf@P)(mdf@P)}}{}
3340 \mdf@test@trb{\mdf@pstricksbox@tl{(mdf@0)(mdf@P)(mdf@0)(mdf@P)(mdf@0)(mdf@P)}}{}
3341 \mdf@test@ltr{\mdf@pstricksbox@tl{(mdf@0)(mdf@0)(mdf@P)(mdf@P)(mdf@P)(mdf@0)}}{}%
3342 \mdf@test@lrb{\mdf@pstricksbox@tl{(mdf@0)(mdf@P)(mdf@0)(mdf@P)(mdf@0)(mdf@P)}}{}%
3343 %two lines combined
3344 \mdf@test@lb{\mdf@pstricksbox@tcl{(mdf@P)(mdf@0)(mdf@P)(mdf@0)(mdf@P)}%
3345 {(mdf@0)(mdf@P)(mdf@0)(mdf@P)(mdf@0)}}{}
3346 \mdf@test@rb{\mdf@pstricksbox@tcl{(mdf@P)(mdf@0)(mdf@P)(mdf@0)}%
3347 {(mdf@0)(mdf@P)(mdf@0)(mdf@P)}}{}
3348 \mdf@test@tr{\mdf@pstricksbox@tcl{(mdf@P)(mdf@0)(mdf@0)(mdf@0)(mdf@P)}%
3349 {(mdf@0)(mdf@P)(mdf@P)(mdf@P)(mdf@0)}}{}
3350 \mdf@test@lt{\mdf@pstricksbox@tcl{(mdf@0)(mdf@P)(mdf@0)(mdf@P)}%
3351 {(mdf@0)(mdf@0)(mdf@P)(mdf@P)}}{}

```



```

3352      %two lines not combinded combinded
3353      \mdf@test@lr{\mdf@pstricksbox@tnc{\mdf@0\mdf@P}}{\mdf@P\mdf@0}}
3354      {}
3355      \mdf@test@tb{\mdf@pstricksbox@tnc{\mdf@P\mdf@0}}{\mdf@0\mdf@P}}
3356      {}
3357      %single line
3358      \mdf@test@l{\mdf@pstricksbox@ol{\mdf@0\mdf@P}}{}
3359      \mdf@test@r{\mdf@pstricksbox@ol{\mdf@P\mdf@0}}{}
3360      \mdf@test@t{\mdf@pstricksbox@ol{\mdf@P\mdf@0\mdf@P}}{}
3361      \mdf@test@b{\mdf@pstricksbox@ol{\mdf@0\mdf@P\mdf@0}}{}
3362      %no line
3363      \mdf@test@noline{\psframe[style=mdfbackgroundstyle](mdf@0)(mdf@P)}{}%
3364  }%
3365      %Four + Three
3366      \ifboolexpr{test {\mdf@test@lrb} or test {\mdf@test@lrb}}%
3367      {\mdf@pstricksbox@tl{\mdf@0\mdf@P\mdf@0\mdf@P\mdf@P}}{}%
3368  %Two combinded
3369      \ifboolexpr{test {\mdf@test@ltb} or test {\mdf@test@lb}}%
3370      {\mdf@pstricksbox@tcl{\mdf@P\mdf@0\mdf@P\mdf@0\mdf@P}}%
3371      {\mdf@0\mdf@P\mdf@0\mdf@P\mdf@0}}{}
3372      \ifboolexpr{test {\mdf@test@trb} or test {\mdf@test@rb}}%
3373      {\mdf@pstricksbox@tcl{\mdf@P\mdf@0\mdf@P\mdf@0}}%
3374      {\mdf@0\mdf@P\mdf@0\mdf@P}}{}
3375  %Two not combinded
3376      \ifboolexpr{test {\mdf@test@ltr} or test {\mdf@test@lr}}%
3377      {\mdf@pstricksbox@tnc{\mdf@0\mdf@P}}{\mdf@P\mdf@0}}{}%
3378  %one line
3379      \ifboolexpr{test {\mdf@test@tb} or test {\mdf@test@b}}%
3380      {\mdf@pstricksbox@ol{\mdf@0\mdf@P\mdf@0}}{}
3381      \ifboolexpr{test {\mdf@test@lt} or test {\mdf@test@l}}%
3382      {\mdf@pstricksbox@ol{\mdf@0\mdf@0\mdf@P}}{}
3383      \ifboolexpr{test {\mdf@test@tr} or test {\mdf@test@r}}%
3384      {\mdf@pstricksbox@ol{\mdf@P\mdf@P\mdf@0}}{}
3385  %no line
3386      \mdf@test@t{\psframe[style=mdfbackgroundstyle](mdf@0)(mdf@P)}{}%
3387      \mdf@test@noline{\psframe[style=mdfbackgroundstyle](mdf@0)(mdf@P)}{}%
3388  }%
3389  %Frametitlebackground
3390      \drawbackgroundframetitle@second
3391  %output%
3392      \rput[bl](mdf@A){\box\mdf@splitbox@one}
3393      \mdf@secondextra
3394  %      \psdot(mdf@A)\uput[90](mdf@A){mdf at A}
3395  %      \psdot(mdf@P)\uput[90](mdf@P){mdf at P}
3396  %      \psdot(mdf@0)\uput[90](mdf@0){mdf at 0}
3397      \end{pspicture}%
3398  }%
3399      \mdf@makeboxalign@right%
3400  }%
3401  \fi
3402  }%
3403  \def\drawbackgroundframetitle@second{%
3404      \ifdefempty{\mdf@frametitle}}{}%
3405      \ifdimless{\mdfframetitleboxtotalheight}{\z@}
3406      {}{}%
3407      \drawbackgroundframetitle@@second

```

```

3408 }%
3409 }%
3410 }%
3411 \def\drawbackgroundframetitle@@second{%
3412 \begingroup%
3413 \ifbool{mdf@leftline}{%
3414 \nodexn{(mdf@0)+(\mdf@innerlinewidth@length,0)
3415 +0.5(\mdf@middlelinewidth@length,0)}{mdf@0}%
3416 }{}%
3417 \ifbool{mdf@rightline}{%
3418 \nodexn{(mdf@P)-(\mdf@innerlinewidth@length,0)
3419 -0.5(\mdf@middlelinewidth@length,0)}{mdf@P}%
3420 }{}%
3421 \nodexn{(mdf@P)-(0,\mdfframetitleboxtotalheight)}{mdf@F}%
3422 \psline[style=mdfframetitlebackgroundstyle,lineararc=\z@](mdf@0|mdf@F)(mdf@0|mdf@P)
3423 (mdf@P)(mdf@P|mdf@F)%
3424 \endgroup
3425 }

3426 \endinput
3427 %eof

```

C. The file *mdframed-example-default*

```

3428 %Documentation of the package mdframed
3429 %$Id: mdframed.dtx 394 2012-04-29 21:29:59Z marco $
3430 \setcounter{errorcontextlines}{999}
3431 \documentclass[parskip=false,english,11pt]{ltxmdf}
3432 \ltxmdfsetifoot $Id: mdframed.dtx 394 2012-04-29 21:29:59Z marco $
3433
3434 \usepackage{showexpl}
3435 \lstset{style=lstltxmdf,explpreset={pos=b,rframe={}},}
3436
3437 \newcommand\Loadedframemethod{default}
3438 \usepackage[framemethod=\Loadedframemethod]{mdframed}
3439
3440 \title{The \Pack{mdframed} package}
3441 \subtitle{Examples for \Opt{framemethod=\Loadedframemethod}}
3442 \author{\href{mailto:marco.daniel@mada-nada.de}{Marco Daniel}}
3443 \date{\mdfdateID$Id: mdframed.dtx 394 2012-04-29 21:29:59Z marco $}
3444 \version{\mdversion}
3445 \introduction{In this document I collect various examples for \Opt{framemethod=\Loadedframemethod}.
3446 Some presented examples are more or less exorbitant.}
3447
3448 \mdfsetup{skipabove=\topskip,skipbelow=\topskip}
3449 \newrobustcmd\ExampleText{%
3450 An \textit{inhomogeneous linear} differential equation has the form
3451 \begin{align}
3452 L[v] &= f,
3453 \end{align}
3454 where  $L$  is a linear differential operator,  $v$  is
3455 the dependent variable, and  $f$  is a given non-zero
3456 function of the independent variables alone.
3457 }
3458

```

```

3459 \newcounter{examplecount}
3460 \setcounter{examplecount}{0}
3461 \renewcommand\thesubsection{}
3462 \newcommand\Examplesec[1]{%
3463 \stepcounter{examplecount}%
3464 \subsection{Example~\arabic{examplecount}~---~#1\relax}%
3465 }
3466
3467 \begin{document}
3468 \maketitle
3469 \section{Loading}
3470 In the preamble only the package \Pack{mdframed} with the option \Opt{framemethod=\Loadedframemethod}
3471
3472 {\large\color{red!50!black}
3473 \NOTE Every \Cmd{global} inside the examples is necessary to work with the package \Pack{showexpl}.}
3474
3475 \section{Examples}
3476 All examples have the following settings:
3477
3478 \begin{tltxmdfexample}
3479 \mdfsetup{skipabove=\topskip,skipbelow=\topskip}
3480 \newrobustcmd\ExampleText{%
3481 An \textit{inhomogeneous linear} differential equation
3482 has the form
3483 \begin{align}
3484 L[v] = f,
3485 \end{align}
3486 where  $L$  is a linear differential operator,  $v$  is
3487 the dependent variable, and  $f$  is a given non-zero
3488 function of the independent variables alone.
3489 }
3490 \end{tltxmdfexample}
3491 \clearpage
3492 \Examplesec{very simple}
3493 \begin{LTExample}
3494 \global\mdfdefinestyle{exampledefault}{%
3495     linecolor=red,linewidth=3pt,%
3496     leftmargin=1cm,rightmargin=1cm
3497 }
3498 \begin{mdframed}[style=exampledefault]
3499 \ExampleText
3500 \end{mdframed}
3501 \end{LTExample}
3502
3503 \Examplesec{hidden line + frame title}
3504 \begin{LTExample}
3505 \global\mdfapptodefinestyle{exampledefault}{%
3506     topline=false,rightline=true,bottomline=false}
3507 \begin{mdframed}[style=exampledefault,frametitle={Inhomogeneous linear}]
3508 \ExampleText
3509 \end{mdframed}
3510 \end{LTExample}
3511 \clearpage
3512
3513 \Examplesec{colored frame title}
3514 \begin{LTExample}

```

```

3515
3516 \global\mdfapptodefinestyle{exampledefault}{%
3517   rightline=true,innerleftmargin=10,innerrightmargin=10,
3518   frametitle=rule=true,frametitlecolor=green,
3519   frametitlebackgroundcolor=yellow,
3520   frametitlewidth=2pt}
3521 \begin{mdframed}[style=exampledefault,frametitle={Inhomogeneous linear}]
3522 \ExampleText
3523 \end{mdframed}
3524 \end{LTXexample}
3525
3526 \Examplesec{framed picture which is centered}
3527 \begin{LTXexample}
3528 \begin{mdframed}[userdefinedwidth=6cm,align=center,
3529   linecolor=blue,linewidth=4pt]
3530 \includegraphics[width=\linewidth]{donald-duck}
3531 \end{mdframed}
3532 \end{LTXexample}
3533
3534 \clearpage
3535 \Examplesec{Theorem environments}
3536 \begin{LTXexample}
3537 \mdfdefinestyle{theoremstyle}{%
3538   linecolor=red,linewidth=2pt,%
3539   frametitle=rule=true,%
3540   frametitlebackgroundcolor=gray!20,
3541   innertopmargin=\topskip,
3542 }
3543 \mdtheorem[style=theoremstyle]{definition}{Definition}
3544 \begin{definition}
3545 \ExampleText
3546 \end{definition}
3547 \begin{definition}[Inhomogeneous linear]
3548 \ExampleText
3549 \end{definition}
3550 \begin{definition*}[Inhomogeneous linear]
3551 \ExampleText
3552 \end{definition*}
3553 \end{LTXexample}
3554
3555
3556 \clearpage
3557 \Examplesec{theorem with separate header and the help of TikZ (complex)}
3558 \begin{LTXexample}
3559 \newcounter{theo}[section]
3560 \newenvironment{theo}[1][1]{%
3561   \stepcounter{theo}%
3562   \ifstrepty{#1}%
3563   {\mdfsetup{%
3564     frametitle={%
3565       \tikz[baseline=(current bounding box.east),outer sep=0pt]
3566       \node[anchor=east,rectangle,fill=blue!20]
3567       {\strut Theorem~\thetheo};}}
3568   }%
3569   {\mdfsetup{%
3570     frametitle={%

```

```

3571      \tikz[baseline=(current bounding box.east),outer sep=0pt]
3572      \node[anchor=east,rectangle,fill=blue!20]
3573      {\strut Theorem~\thetheo:~\#1;}}%
3574  }%
3575  \mdfsetup{innertopmargin=10pt,linecolor=blue!20,%
3576            linewidth=2pt,topline=true,
3577            frametitleaboveskip=\dimexpr-\ht\strutbox\relax,}
3578  \begin{mdframed}[]\relax%
3579  }\end{mdframed}}
3580 \begin{theo}[Inhomogeneous Linear]
3581 \ExampleText
3582 \end{theo}
3583
3584 \begin{theo}
3585 \ExampleText
3586 \end{theo}
3587 \end{LTXexample}
3588
3589 \clearpage
3590 \Examplesec{hide only a part of a line}
3591 The example below is inspired by the following post on StackExchange \href{http://tex.stackexchange.com}
3592 \begin{LTXexample}
3593 \makeatletter
3594 \newlength{\interruptlength}
3595 \setlength{\interruptlength}{2.5ex}
3596 \newrobustcmd\overlaplines{%
3597   \appto\mdf@frame@leftline@single{%
3598     \llap{\color{white}%
3599       \rule[\dimexpr-\mdfboundingboxdepth+\interruptlength\relax]{%
3600         {\mdf@middlelinewidth@length}%
3601         {\dimexpr\mdfboundingboxtotalheight%
3602           \ifbool{mdf@topline}{+\mdf@middlelinewidth@length}{}}
3603         -2\interruptlength\relax}%
3604     }%
3605   }%
3606   \appto\mdf@frame@rightline@single{%
3607     \rlap{\color{white}%
3608       \hspace*{\mdfboundingboxwidth}%
3609       \hspace*{\mdf@innerrightmargin@length}%
3610       \rule[\dimexpr-\mdfboundingboxdepth%
3611         +\interruptlength\relax]{%
3612         {\mdf@middlelinewidth@length}%
3613         {\dimexpr\mdfboundingboxtotalheight%
3614           +\ifbool{mdf@topline}{\mdf@middlelinewidth@length}{0pt}}
3615         -2\interruptlength\relax}%
3616     }%
3617   }%
3618 }
3619 \makeatother
3620 \overlaplines
3621
3622 \begin{mdframed}[linecolor=blue,linewidth=8pt]
3623 \ExampleText
3624 \end{mdframed}
3625 \end{LTXexample}
3626 \end{document}

```

```
3627 \endinput
```

D. The file mdframed-example-tikz

```
3628 %Documenation of the package mdframed
3629 %%$Id: mdframed.dtx 394 2012-04-29 21:29:59Z marco $
3630 \setcounter{errorcontextlines}{999}
3631 \documentclass[parskip=false,english,11pt]{ltxmdf}
3632 \ltxmdfsetifoot $Id: mdframed.dtx 394 2012-04-29 21:29:59Z marco $
3633
3634
3635 \usepackage{showexpl}
3636 \lstset{style=lstltxmdf,explpreset={pos=b,rframe={}},}
3637
3638 \newcommand\Loadedframemethod{TikZ}
3639 \usepackage[framemethod=\Loadedframemethod]{mdframed}
3640
3641 \title{The \Pack{mdframed} package}
3642 \subtitle{Examples for \Opt{framemethod=\Loadedframemethod}}
3643 \author{\href{mailto:marco.daniel@mada-nada.de}{Marco Daniel}}
3644 \date{\mdfdateID$Id: mdframed.dtx 394 2012-04-29 21:29:59Z marco $}
3645 \version{\mdversion}
3646 \introduction{In this document I collect various examples for \Opt{framemethod=\Loadedframemethod}.
3647 Some presented examples are more or less exorbitant.}
3648
3649 \mdfsetup{skipabove=\topskip,skipbelow=\topskip}
3650 \newrobustcmd\ExampleText{%
3651     An \textit{inhomogeneous linear} differential equation has the form
3652     \begin{align}
3653         L[v] &= f,
3654     \end{align}
3655     where  $L$  is a linear differential operator,  $v$  is
3656     the dependent variable, and  $f$  is a given non-zero
3657     function of the independent variables alone.
3658 }
3659
3660 \newcounter{examplecount}
3661 \setcounter{examplecount}{0}
3662 \renewcommand\thesubsection{}
3663 \newcommand\Examplesec[1]{%
3664 \stepcounter{examplecount}%
3665 \subsection{Example~\arabic{examplecount}~---~#1\relax}%
3666 }
3667
3668 \begin{document}
3669 \maketitle
3670 \section{Loading}
3671 In the preamble only the package \Pack{mdframed} with the option \Opt{framemethod=\Loadedframemethod}
3672
3673 {\large\color{red!50!black}
3674 \NOTE Every \Cmd{global} inside the examples is necessary to work with the package \Pack{showexpl}.}
3675
3676 \section{Examples}
3677 All examples have the following settings:
3678
3679 \begin{tltxmdfexample}
```

```

3680 \mdfsetup{skipabove=\topskip,skipbelow=\topskip}
3681 \newrobustcmd\ExampleText{%
3682 An \textit{inhomogeneous linear} differential equation
3683 has the form
3684 \begin{align}
3685 L[v] = f,
3686 \end{align}
3687 where  $L$  is a linear differential operator,  $v$  is
3688 the dependent variable, and  $f$  is a given non-zero
3689 function of the independent variables alone.
3690 }
3691 \end{tltxmdfexample}
3692 \clearpage
3693 \ExampleText{round corner}
3694 \begin{LTExample}
3695 \global\mdfdefinestyle{exampledefault}{%
3696     outerlinewidth=5pt,innerlinewidth=0pt,
3697     outerlinecolor=red,roundcorner=5pt
3698 }
3699 \begin{mdframed}[style=exampledefault]
3700 \ExampleText
3701 \end{mdframed}
3702 \end{LTExample}
3703
3704 \Examplesec{hidden line + frame title}
3705 \begin{LTExample}
3706 \global\mdfapptodefinestyle{exampledefault}{%
3707     topline=false,leftline=false,}
3708 \begin{mdframed}[style=exampledefault,frametitle={Inhomogeneous linear}]
3709 \ExampleText
3710 \end{mdframed}
3711 \end{LTExample}
3712 \clearpage
3713 \Examplesec{framed picture which is centered}
3714 \begin{LTExample}
3715 \begin{mdframed}[userdefinedwidth=6cm,align=center,
3716     linecolor=blue,middlelinewidth=4pt,roundcorner=5pt]
3717 \includegraphics[width=\linewidth]{donald-duck}
3718 \end{mdframed}
3719 \end{LTExample}
3720
3721 \Examplesec{Gimmick}
3722 \begin{LTExample}
3723 \mdfsetup{splitbottomskip=0.8cm,splittopskip=0cm,
3724     innerrightmargin=2cm,innertopmargin=1cm,%
3725     innerlinewidth=2pt,outerlinewidth=2pt,
3726     middlelinewidth=10pt,backgroundcolor=red,
3727     linecolor=blue,middlelinecolor=gray,
3728     tikzsetting={draw=yellow,line width=3pt,%
3729         dashed,%
3730         dash pattern= on 10pt off 3pt},
3731     rightline=false,bottomline=false}
3732 \begin{mdframed}
3733 \ExampleText
3734 \end{mdframed}
3735 \end{LTExample}

```

```

3736
3737 \Examplesec{complex example with TikZ}
3738
3739 \begin{tltxmdfexample}
3740 \tikzstyle{titregris} =
3741     [draw=gray, thick, fill=white, shading = exersicetitle, %
3742     text=gray, rectangle, rounded corners, right,minimum height=.7cm]
3743
3744 \pgfdeclarehorizontalshading{exersicebackground}{100bp}
3745     {color(0bp)=(green!40); color(100bp)=(black!5)}
3746
3747 \pgfdeclarehorizontalshading{exersicetitle}{100bp}
3748     {color(0bp)=(red!40);color(100bp)=(black!5)}
3749
3750 \newcounter{exercise}
3751 \renewcommand*{\theexercise}{Exercise~\n\arabic{exercise}}
3752 \makeatletter
3753 \def\mdf@@exercisepoints{}%new mdframed key:
3754 \define@key{mdf}{exercisepoints}{%
3755     \def\mdf@@exercisepoints{#1}
3756 }
3757 \makeatother
3758
3759 \mdfdefinestyle{exercisestyle}{%
3760     outerlinewidth=1pt,innerlinewidth=0pt,
3761     roundcorner=2pt,linecolor=gray,
3762     tikzsetting={shading = exersicebackground},
3763     innertopmargin=1.2\baselineskip,
3764     skipabove={\dimexpr0.5\baselineskip+\topskip\relax},
3765     needspace=3\baselineskip,
3766     frametitlefont=\sffamily\bfseries,
3767     settings={\global\stepcounter{exercise}},
3768     singleextra={%
3769         \node[titregris,xshift=1cm] at (P-|0) %
3770             {\mdf@frametitlefont{\theexercise}~};
3771         \ifdefempty{\mdf@@exercisepoints}%
3772             {}%
3773         {\node[titregris,left,xshift=-1cm] at (P)%
3774             {\mdf@frametitlefont{\mdf@@exercisepoints points}~};}%
3775     },
3776     firstextra={%
3777         \node[titregris,xshift=1cm] at (P-|0) %
3778             {\mdf@frametitlefont{\theexercise}~};
3779         \ifdefempty{\mdf@@exercisepoints}%
3780             {}%
3781         {\node[titregris,left,xshift=-1cm] at (P)%
3782             {\mdf@frametitlefont{\mdf@@exercisepoints points}~};}%
3783     },
3784 }
3785 \begin{mdframed}[style=exercisestyle,]
3786 \ExampleText
3787 \end{mdframed}
3788
3789 \begin{mdframed}[style=exercisestyle,exercisepoints=10]
3790 \ExampleText
3791 \end{mdframed}

```



```

3792 \end{tltxmdfexample}
3793 \clearpage
3794 \Examplesec{Theorem environments}
3795 \begin{LTXexample}
3796 \mdfdefinestyle{theoremstyle}{%
3797     linecolor=red,linewidth=2pt,%
3798     frametitlerule=true,%
3799     apptotikzsetting={\tikzset{mdfframetitlebackground/.append style={%
3800         shade,left color=white, right color=blue!20}}},
3801     frametitlerulecolor=green!60,
3802     frametitlerulewidth=1pt,
3803     innertopmargin=\topskip,
3804 }
3805 \mdtheorem[style=theoremstyle]{definition}{Definition}
3806 \begin{definition}[Inhomogeneous linear]
3807 \ExampleText
3808 \end{definition}
3809 \begin{definition*}[Inhomogeneous linear]
3810 \ExampleText
3811 \end{definition*}
3812 \end{LTXexample}
3813
3814 \end{document}
3815 \endinput

```

E. The file *mdframed-example-pstricks*

```

3816 %Documenation of the package mdframed
3817 %$Id: mdframed.dtx 394 2012-04-29 21:29:59Z marco $
3818 \setcounter{errorcontextlines}{999}
3819 \documentclass[parskip=false,english,11pt]{ltxmdf}
3820 \ltxmdfsetifoot$Id: mdframed.dtx 394 2012-04-29 21:29:59Z marco $
3821
3822 \lstDeleteShortInline{[]}
3823 \newcommand\Loadedframemethod{PSTricks}
3824 \usepackage[framemethod=\Loadedframemethod]{mdframed}
3825
3826 \usepackage{showexpl}
3827 \lstset{style=lstltxmdf,explpreset={pos=b,rframe={}}},
3828
3829 \title{The \Pack{mdframed} package}
3830 \subtitle{Examples for \Opt{framemethod=\Loadedframemethod}}
3831 \author{\href{mailto:marco.daniel@mada-nada.de}{Marco Daniel}}
3832 \date{\mdfdateID$Id: mdframed.dtx 394 2012-04-29 21:29:59Z marco $}
3833 \version{\mdversion}
3834 \introduction{In this document I collect various examples for \Opt{framemethod=\Loadedframemethod}.
3835 Some presented examples are more or less exorbitant.}
3836
3837 \mdfsetup{skipabove=\topskip,skipbelow=\topskip}
3838 \newrobustcmd\ExampleText{%
3839     An \textit{inhomogeneous linear} differential equation has the form
3840     \begin{align}
3841         L[v] &= f,
3842     \end{align}
3843     where $L$ is a linear differential operator, $v$ is
3844     the dependent variable, and $f$ is a given non-zero

```

```

3845         function of the independent variables alone.
3846 }
3847
3848 \newcounter{examplecount}
3849 \setcounter{examplecount}{0}
3850 \renewcommand\thesubsection{}
3851 \newcommand\Examplesec[1]{%
3852 \stepcounter{examplecount}%
3853 \subsection{Example~\arabic{examplecount}~---\#1\relax}%
3854 }
3855
3856 \begin{document}
3857 \maketitle
3858 \section{Loading}
3859 In the preamble only the package \Pack{mdframed} with the option \Opt{framemethod=\Loadedframemethod}
3860
3861 {\large\color{red!50!black}
3862 \NOTE Every \Cmd{global} inside the examples is necessary to work with the package \Pack{showexpl}.}
3863 X
3864 \section{Examples}
3865 All examples have the following settings:
3866
3867 \begin{tltxmdfexample}
3868 \mdfsetup{skipabove=\topskip,skipbelow=\topskip}
3869 \newrobustcmd\ExampleText{%
3870 An \textit{inhomogeneous linear} differential equation
3871 has the form
3872 \begin{align}
3873 L[v] = f,
3874 \end{align}
3875 where  $L$  is a linear differential operator,  $v$  is
3876 the dependent variable, and  $f$  is a given non-zero
3877 function of the independent variables alone.
3878 }
3879 \end{tltxmdfexample}
3880 \clearpage
3881
3882 \Examplesec{very simple}
3883 \begin{LTExample}
3884 \global\mdfdefinestyle{exampledefault}{%
3885     linecolor=red,middlelinewidth=3pt,%
3886     leftmargin=1cm,rightmargin=1cm
3887 }
3888 \begin{mdframed}[style=exampledefault,roundcorner=5]
3889 \ExampleText
3890 \end{mdframed}
3891 \end{LTExample}
3892
3893 \Examplesec{hidden line + frame title}
3894 \begin{LTExample}
3895 \global\mdfapptodefinestyle{exampledefault}{%
3896     topline=false,rightline=false,bottomline=false,
3897     frametitlerule=true,innertopmargin=6pt,
3898     outerlinewidth=6pt,outerlinecolor=blue,
3899     pstricksappsetting={\addtopsstyle{mdfouterlinestyle}{linestyle=dashed}},
3900     innerlinecolor=yellow,innerlinewidth=5pt}%

```

```

3901 \begin{mdframed}[style=exampledefault,frametitle={Inhomogeneous linear}]
3902 \ExampleText
3903 \end{mdframed}
3904 \end{LTXexample}
3905
3906 \clearpage
3907
3908 \Examplesec{Dash Lines}
3909 \begin{LTXexample}
3910 \global\mdfdefinestyle{exampledefault}{%
3911     pstrickssetting={linestyle=dashed,,linecolor=red,linewidth=5pt}
3912 \begin{mdframed}[style=exampledefault,]
3913 \ExampleText
3914 \end{mdframed}
3915 \end{LTXexample}
3916
3917 \Examplesec{Double Lines}
3918 \begin{LTXexample}
3919 \global\mdfdefinestyle{exampledefault}{%
3920     pstrickssetting={doubleline=true,doublesep=6pt},
3921     linecolor=red,linewidth=5pt,middlelinewidth=4pt}
3922 \begin{mdframed}[style=exampledefault,]
3923 \ExampleText
3924 \end{mdframed}
3925 \end{LTXexample}
3926
3927 \Examplesec{Shadow frame}
3928 \begin{LTXexample}
3929 \newmdenv[shadow=true,
3930     shadowsize=11pt,
3931     linewidth=8pt,
3932     frametitlerule=true,
3933     roundcorner=10pt,
3934     ]{myshadowbox}
3935 \begin{myshadowbox}[frametitle={Inhomogeneous linear}]
3936 \ExampleText
3937 \end{myshadowbox}
3938 \end{LTXexample}
3939 \end{document}
3940 \endinput

```

F. The file *mdframed-example-texsx*

```

3941 %Documenation of the package mdframed
3942 %%$Id: mdframed.dtx 394 2012-04-29 21:29:59Z marco $
3943 \setcounter{errorcontextlines}{999}
3944 \documentclass[parskip=false,english,11pt,ltxlipsum]{ltxmdf}
3945 \ltxmdfsetifoot $Id: mdframed.dtx 394 2012-04-29 21:29:59Z marco $
3946
3947
3948 \usepackage{showexpl}
3949 \lstset{style=lstltxmdf,explpreset={pos=b,rframe={}},}
3950 \usepackage{tikz}
3951 \usetikzlibrary{calc,arrows,shadings,shadows}
3952 \newcommand\Loadedframemethod{tikz}
3953 \usepackage[framemethod=\Loadedframemethod]{mdframed}

```

```

3954
3955 \title{The \Pack{mdframed} package}
3956 \subtitle{Examples for \Opt{framemethod=\Loadedframemethod}}
3957 \author{\href{mailto:marco.daniel@mada-nada.de}{Marco Daniel}}
3958 \date{\mdfdateID$Id: mdframed.dtx 394 2012-04-29 21:29:59Z marco $}
3959 \version{\mdversion}
3960 \introduction{In this document I collect various examples for \Opt{framemethod=\Loadedframemethod}.
3961 Some presented examples are more or less exorbitant.}
3962
3963 \mdfsetup{skipabove=\topskip,skipbelow=\topskip}
3964 \newrobustcmd\ExampleText{%
3965     An \textit{inhomogeneous linear} differential equation has the form
3966     \begin{align}
3967         L[v] = f,
3968     \end{align}
3969     where  $L$  is a linear differential operator,  $v$  is
3970     the dependent variable, and  $f$  is a given non-zero
3971     function of the independent variables alone.
3972 }
3973
3974 \newcounter{examplecount}
3975 \setcounter{examplecount}{0}
3976 \renewcommand\thesubsection{}
3977 \newcommand\Examplesec[1]{%
3978 \stepcounter{examplecount}%
3979 \subsection{Example~\arabic{examplecount}---\#1\relax}%
3980 }
3981
3982 \begin{document}
3983 \maketitle
3984 \section{Loading}
3985 In the preamble only the package \Pack{mdframed} with the option \Opt{framemethod=\Loadedframemethod}
3986
3987 {\large\color{red!50!black}
3988 \NOTE Every \Cmd{global} inside the examples is necessary to work with the package \Pack{showexpl}.}
3989
3990 \section{Examples}
3991 All examples have the following settings:
3992
3993 \begin{tltxmdfexample}
3994 \mdfsetup{skipabove=\topskip,skipbelow=\topskip}
3995 \newrobustcmd\ExampleText{%
3996 An \textit{inhomogeneous linear} differential equation
3997 has the form
3998 \begin{align}
3999 L[v] = f,
4000 \end{align}
4001 where  $L$  is a linear differential operator,  $v$  is
4002 the dependent variable, and  $f$  is a given non-zero
4003 function of the independent variables alone.
4004 }
4005 \end{tltxmdfexample}
4006 \clearpage
4007 \Examplesec{Package listings}
4008 The example below is inspired by the following post on StackExchange \href{http://tex.stackexchange.com}
4009

```

```

4010 Here the solution which can be decorate as usual.
4011
4012 \begin{tltxmdfexample}[moretexcs={BeforeBeginEnvironment,AfterEndEnvironment},morekeywords={lstlisting}]
4013 \BeforeBeginEnvironment{lstlisting}{%
4014     \begin{mdframed}[<modification>]%
4015     \vspace{-0.7em}}
4016 \AfterEndEnvironment{lstlisting}{%
4017     \vspace{-0.5em}%
4018     \end{mdframed}}
4019 \end{tltxmdfexample}
4020
4021 With the new command \Cmd{surroundwithmdframed} you can use
4022 \begin{tltxmdfexample}[moretexcs={BeforeBeginEnvironment,AfterEndEnvironment},morekeywords={lstlisting}]
4023 \surroundwithmdframed{listings}
4024 \end{tltxmdfexample}
4025
4026 \Examplesec{Package multicol}
4027 How I wrote in \enquote{Known Problems} you can't combine \Pack{multicol} with \Pack{mdframed}. In a s
4028 \begin{LTXexample}
4029 \begin{multicols}{2}
4030 \lipsum[1]
4031 \begin{mdframed}
4032 \ExampleText
4033 \end{mdframed}
4034 \lipsum[2]
4035 \end{multicols}
4036 \end{LTXexample}
4037 \clearpage
4038 \twocolumn[\Examplesec{Working in twocolumn mode}]
4039 \begin{tltxmdfexample}
4040 \twocolumn[%
4041     \Examplesec{Working in
4042         twocolumn mode}]
4043 \lipsum[1]\lipsum[2]
4044 \begin{mdframed}[%
4045     leftmargin=10pt,%
4046     rightmargin=10pt,%
4047     linecolor=red,
4048     backgroundcolor=yellow]
4049 \ExampleText
4050 \end{mdframed}
4051 \lipsum[2]
4052 \end{tltxmdfexample}
4053 \lipsum[1]\lipsum[2]
4054 \begin{mdframed}[leftmargin=10pt,%
4055     rightmargin=10pt,%
4056     linecolor=red,
4057     backgroundcolor=yellow]
4058 \ExampleText
4059 \end{mdframed}
4060 \lipsum[2]
4061 \clearpage
4062 \onecolumn
4063 \Examplesec{Working inside enumerate}
4064 \begin{LTXexample}
4065 Text Text Text Text Text Text Text Text

```

```

4066 \begin{enumerate}
4067 \item in the following \ldots
4068     \begin{mdframed}[linecolor=blue,linewidth=2]
4069         \ExampleText
4070     \end{mdframed}
4071 \item \lipsum[2]
4072 \end{enumerate}
4073 Text Text Text Text Text Text
4074 \end{LTXexample}
4075 \clearpage
4076 \Examplesec{Position a specific symbol at a line}
4077 \begin{LTXexample}
4078 \tikzset{
4079     warningsymbol/.style={
4080         rectangle,draw=red,
4081         fill=white,scale=1,
4082         overlay}}
4083 \mdfdefinestyle{warning}{%
4084     hidealllines=true,leftline=true,
4085     skipabove=12,skipbelow=12pt,
4086     innertopmargin=0.4em,%
4087     innerbottommargin=0.4em,%
4088     innerrightmargin=0.7em,%
4089     rightmargin=0.7em,%
4090     innerleftmargin=1.7em,%
4091     leftmargin=0.7em,%
4092     middlelinewidth=.2em,%
4093     linecolor=red,%
4094     fontcolor=red,%
4095     firstextra={\path let \p1=(P), \p2=(0) in ($(\x2,0)+0.5*(0,\y1)$)
4096                 node[warningsymbol] {\$}};,%
4097     secondextra={\path let \p1=(P), \p2=(0) in ($(\x2,0)+0.5*(0,\y1)$)
4098                 node[warningsymbol] {\$}};,%
4099     middleextra={\path let \p1=(P), \p2=(0) in ($(\x2,0)+0.5*(0,\y1)$)
4100                 node[warningsymbol] {\$}};,%
4101     singleextra={\path let \p1=(P), \p2=(0) in ($(\x2,0)+0.5*(0,\y1)$)
4102                 node[warningsymbol] {\$}};,%
4103 }
4104 \begin{mdframed}[style=warning]
4105 \ExampleText
4106 \end{mdframed}
4107 \end{LTXexample}
4108
4109 \clearpage
4110 \Examplesec{digression-environement inspired by Tobias Weh}
4111 \begin{lstlisting}
4112 \usetikzlibrary{calc,arrows}
4113 \tikzset{
4114     excursus arrow/.style={%
4115         line width=2pt,
4116         draw=gray!40,
4117         rounded corners=2ex,
4118     },
4119     excursus head/.style={
4120         fill=white,
4121         font=\bfseries\sffamily,

```

```

4122     text=gray!80,
4123     anchor=base west,
4124   },
4125 }
4126 \mdfdefinestyle{digressionarrows}{%
4127   singleextra={%
4128     \path let \p1=(P), \p2=(O) in (\x2,\y1) coordinate (Q);
4129     \path let \p1=(Q), \p2=(O) in (\x1,{(\y1-\y2)/2}) coordinate (M);
4130     \path [excursus arrow, round cap-to]
4131       ($ (O)+(5em,0ex)$) -| (M) |- %
4132       ($ (Q)+(12em,0ex)$) .. controls +(0:16em) and +(185:6em) .. %
4133       ++(23em,2ex);
4134     \node [excursus head] at ($ (Q)+(2.5em,-0.75pt)$) {Digression};},
4135   firstextra={%
4136     \path let \p1=(P), \p2=(O) in (\x2,\y1) coordinate (Q);
4137     \path [excursus arrow,-to]
4138       (O) |- %
4139       ($ (Q)+(12em,0ex)$) .. controls +(0:16em) and +(185:6em) .. %
4140       ++(23em,2ex);
4141     \node [excursus head] at ($ (Q)+(2.5em,-2pt)$) {Digression};},
4142   secondextra={%
4143     \path let \p1=(P), \p2=(O) in (\x2,\y1) coordinate (Q);
4144     \path [excursus arrow,round cap-]
4145       ($ (O)+(5em,0ex)$) -| (Q);},
4146   middleextra={%
4147     \path let \p1=(P), \p2=(O) in (\x2,\y1) coordinate (Q);
4148     \path [excursus arrow]
4149       (O) -- (Q);},
4150   middlelinewidth=2.5em,middlelinecolor=white,
4151   hidealllines=true,topline=true,
4152   innertopmargin=0.5ex,
4153   innerbottommargin=2.5ex,
4154   innerrightmargin=2pt,
4155   innerleftmargin=2ex,
4156   skipabove=0.87\baselineskip,
4157   skipbelow=0.62\baselineskip,
4158 }
4159
4160 \begin{mdframed}[style=digressionarrows]
4161   \ExampleText
4162 \end{mdframed}
4163 \end{lstlisting}
4164
4165 \tikzset{
4166   excursus arrow/.style={%
4167     line width=2pt,
4168     draw=gray!40,
4169     rounded corners=2ex,
4170   },
4171   excursus head/.style={
4172     fill=white,
4173     font=\bfseries\sffamily,
4174     text=gray!80,
4175     anchor=base west,
4176   },
4177 }

```

```

4178 \mdfdefinestyle{digressionarrows}{%
4179   singleextra={%
4180     \path let \p1=(P), \p2=(O) in (\x2,\y1) coordinate (Q);
4181     \path let \p1=(Q), \p2=(O) in (\x1,{(\y1-\y2)/2}) coordinate (M);
4182     \path [excursus arrow, round cap-to]
4183       ($ (O)+(5em,0ex)$) -| (M) |- %
4184       ($ (Q)+(12em,0ex)$) .. controls +(0:16em) and +(185:6em) .. %
4185       ++(23em,2ex);
4186     \node [excursus head] at ($ (Q)+(2.5em,-0.75pt)$) {Digression}};
4187   firstextra={%
4188     \path let \p1=(P), \p2=(O) in (\x2,\y1) coordinate (Q);
4189     \path [excursus arrow,-to]
4190       (O) |- %
4191       ($ (Q)+(12em,0ex)$) .. controls +(0:16em) and +(185:6em) .. %
4192       ++(23em,2ex);
4193     \node [excursus head] at ($ (Q)+(2.5em,-2pt)$) {Digression}};
4194   secondextra={%
4195     \path let \p1=(P), \p2=(O) in (\x2,\y1) coordinate (Q);
4196     \path [excursus arrow,round cap-]
4197       ($ (O)+(5em,0ex)$) -| (Q)};
4198   middleextra={%
4199     \path let \p1=(P), \p2=(O) in (\x2,\y1) coordinate (Q);
4200     \path [excursus arrow]
4201       (O) -- (Q)};
4202   middlelinewidth=2.5em,middlelinecolor=white,
4203   hidealllines=true,topline=true,
4204   innertopmargin=0.5ex,
4205   innerbottommargin=2.5ex,
4206   innerrightmargin=2pt,
4207   innerleftmargin=2ex,
4208   skipabove=0.87\baselineskip,
4209   skipbelow=0.62\baselineskip,
4210 }
4211
4212 \begin{mdframed}[style=digressionarrows]
4213   \ExampleText
4214 \end{mdframed}
4215
4216 \Examplesec{Theorem style shading background}
4217 \begin{LTXexample}
4218 %\usetikzlibrary{shadings,shadows}% loaded in the header
4219 \mdtheorem[%
4220   apptotikzsetting={\tikzset{mdfbackground/.append style =%
4221     {top color=yellow!40!white,
4222     bottom color=yellow!80!black},
4223   mdfframetitlebackground/.append style =%
4224     {top color=purple!40!white,
4225     bottom color=purple!80!black}
4226   },
4227   },
4228   ,roundcorner=10pt,middlelinewidth=2pt,
4229   shadow=true,frametitlerule=true,frametitlerulewidth=4pt,
4230   innertopmargin=10pt,%
4231   ]{alternativtheorem}{Theorem}
4232 \begin{alternativtheorem}[Inhomogeneous linear]
4233 \ExampleText

```



```
4234 \end{alternativtheorem}  
4235 \end{LTXexample}  
4236 \end{document}  
4237 \endinput
```

G. Change History

v1.0a		<code>\item\mbox\relax</code> – Need for amsthm	30
General: Created dtx and fixes bugs	1	changed definition of <code>\mdf@lrbox</code> (Thanks Lars Madsen)	29
v1.0b		Changed the enddefinition of <code>mdframed</code> . Uses now <code>\@doendpe</code> instead of <code>\endparenv</code>	37
General: added command <code>\@parboxrestore</code> to <code>\mdf@lrbox</code>	29	Edit algorithm to combine the saveboxes <code>\mdf@frametitlebox</code> and <code>\mdf@splitboxone</code> by the predefined settings: <code>\parskip\z@</code> , <code>\parindent\z@</code> and <code>\offinterlineskip</code>	33
removed <code>\setbox\mdf@splitbox@two</code> <code>\vbox\unvbox\mdf@splitbox@two</code>	41	v1.2a	
v1.1beta		General: take account of <code>\parskip</code> for the vertical calculation	39
General: added command to avoid overfull box warning by <code>vsplit</code>	29	v1.3	
Added frametitle detection to <code>\detected@mdf@put@frame</code>	36	General: Added option <code>shadow</code>	25
added lost semicolons	58	Use now <code>\item\mbox\relax</code>	30
Added method frame title via <code>\savebox</code>	33	v1.3a	
Added option <code>frametitlerulecolor</code> , <code>frametitlebackgroundcolor</code> , <code>font</code>	24	General: fixes bug with <code>\@doendpe</code> (Thanks Dietrich Grau)	29
Added option <code>titleaboveskip</code> , <code>titlebelowskip</code> , <code>frametitlerulewidth</code>	23	v1.4	
Added option <code>usetwoside</code>	25	General: Changed the detecting of float environments. Now <code>mdframed</code> uses only <code>\@capytype</code> instead of <code>\@floatpenalty</code>	36
Changed the definition of <code>\mdf@trivlist</code>	37	Changed the enddefinition of <code>mdframed</code> . Uses now a line to provide the defined width	37
Create new <code>\savebox</code> and renamed <code>\@tempboxa</code>	28	v1.4a	
Defining <code>mdframed</code> with <code>\newenvironment</code>	37	General: added extra test for a wrong splitted box	41
Joining all new definitions	28		
Redefinition of <code>\newmdtheoremenv</code> . – Now check of theorem definition.	31		
Removing <code>\@arrayparboxrestore</code>	39		
Renamed some commands so that every command have the same prefix <code>\mdf@</code>	1		
v1.1release			
General: Added <code>\mbox</code> to the definition.			

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The index only collect package relevant words.

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