

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.

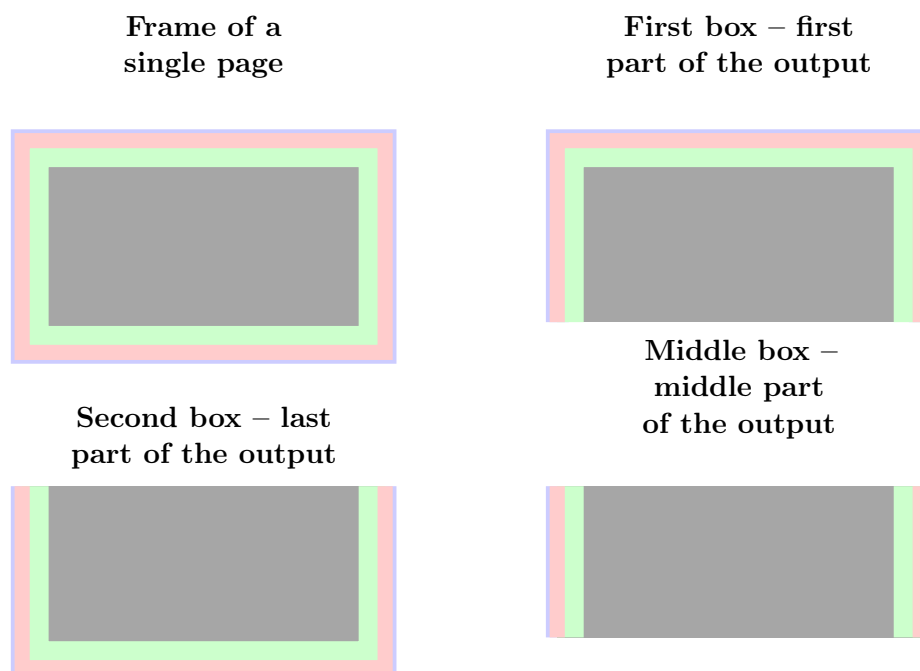


Figure 1: The basic frames

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.

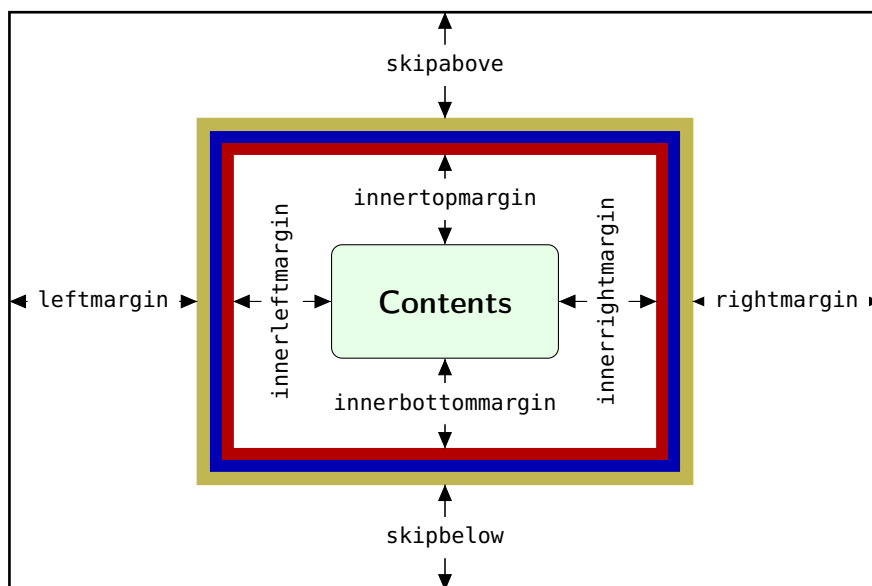


Figure 2: adjustable lengths of `mdframed`

`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.

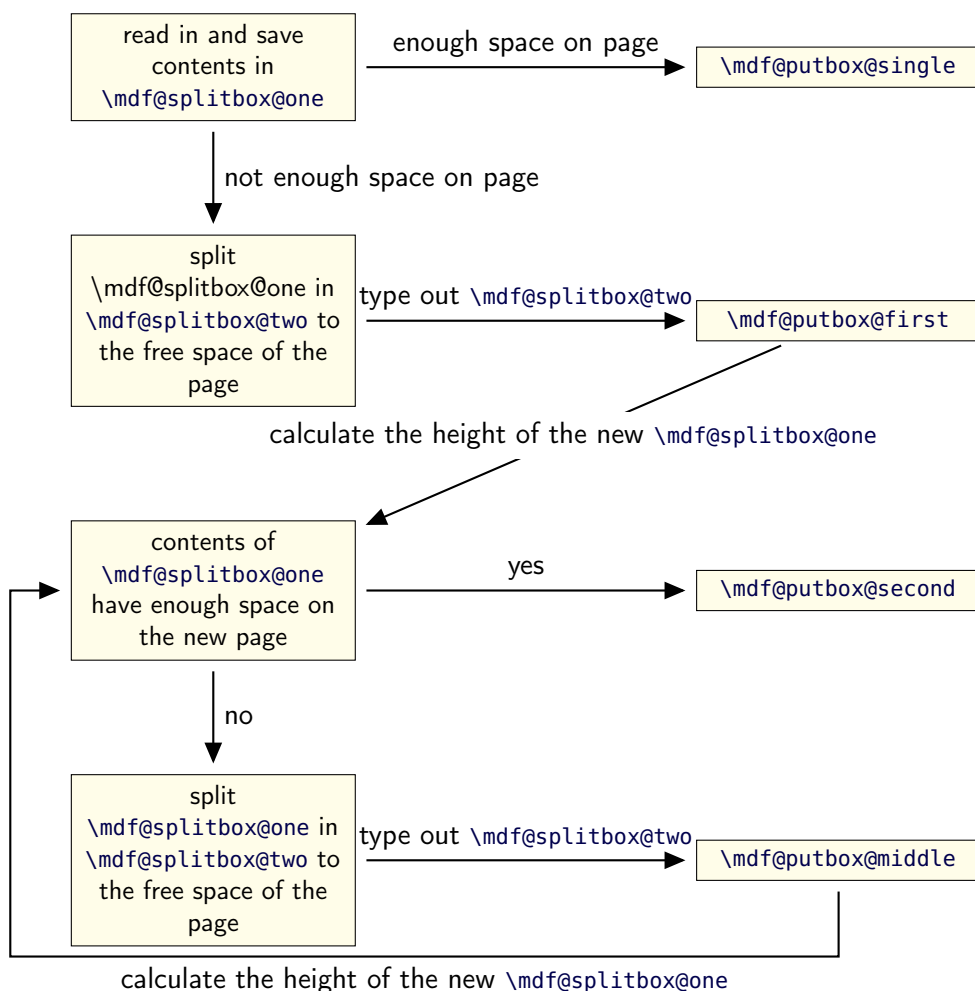


Figure 3: Setting the contents of `mdframed`

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.dtx3922012-04-2723:10:44Zmarco Rev : 392 Author : marco

Date : 2012-04-2801:10:44+0200(Sa, 28Apr2012)

```
\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 392 2012-04-27 23:10:44Z 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 mdf@Package\mdf@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\mdf@splitboxwidth
317 \newlength\mdf@splitboxtotalwidth
318 \newlength\mdf@splitboxheight
319 \newlength\mdf@splitboxdepth
320 \newlength\mdf@splitboxtotalheight
321 \newlength\mdf@frametitleboxwidth
322 \newlength\mdf@frametitleboxtotalwidth
323 \newlength\mdf@frametitleboxheight
324 \newlength\mdf@frametitleboxdepth
325 \newlength\mdf@frametitleboxtotalheight
326 \newlength\mdf@footnoteboxwidth
327 \newlength\mdf@footnoteboxtotalwidth
328 \newlength\mdf@footnoteboxheight
329 \newlength\mdf@footnoteboxdepth
330 \newlength\mdf@footnoteboxtotalheight
331
332 \newlength\mdf@totallinewidth
333
334 \newlength\mdf@boundingboxwidth
335 \newlength\mdf@boundingboxtotalwidth
336
337 \newlength\mdf@boundingboxheight
338 \newlength\mdf@boundingboxdepth
339 \newlength\mdf@boundingboxtotalheight
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\mdf@createextratikz{}
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@patchamsth{%
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@patchamsth\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 }

```

<pre> \newmdenv \renewmdenv \newmdtheoremenv \mdtheorem </pre>
--

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         \ifstrempy{##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     \ifstrempy{##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     \ifstrempy{##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     \ifstrempy{##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,innerrightmargin,%
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@advancelength@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 %% \dimen@i corresponds to the size of a box with 1 line. If we don't have at least that:
952 \ifdimless{\dimen@}{\dimen@i}%
953   {% then we go to next page
954     \hrule \@height\z@ \@width\hsize%
955     \vfill\eject%
956     \def\mdf@reserved@a{\mdf@put@frame}%
957   }{% if we have some room for a non-empty box:
958     \mdf@dolist{\mdf@advance\length@freevspace@sub}{%calculate with \dimen@
959       outerlinewidth,middlelinewidth,innerlinewidth,%
960       innertopmargin,splitbottomskip}%
961     \ifbool{mdf@everyline}{%
962       \ifbool{mdf@bottomline}{%
963         \advance\dimen@ by -\mdf@innerlinewidth@length%
964         \advance\dimen@ by -\mdf@middlelinewidth@length%
965         \advance\dimen@ by -\mdf@outerlinewidth@length%
966       }{%
967       }%
968     \ifbool{mdf@topline}{%
969       \advance\dimen@ by -\mdf@innerlinewidth@length%
970       \advance\dimen@ by -\mdf@middlelinewidth@length%
971       \advance\dimen@ by -\mdf@outerlinewidth@length%
972     }{%
973     \advance\dimen@.8\pageshrink
974     %% if box fits: this is a problem, because \mdf@put@frame should have seen it...
975     \ifdimless{\ht\mdf@splitbox@one+\dp\mdf@splitbox@one}{\dimen@}%
976       {%
977         \mdf@PackageWarning{You got a bad break\MessageBreak
978           you have to change it manually\MessageBreak
979           by changing the text, the space\MessageBreak
980           or something else}%
981         \advance\dimen@ by -1.8\baselineskip\relax%
982       }{%
983       \splitmaxdepth\z@ \splittopskip\mdf@splittopskip@length%
984       \setbox\mdf@splitbox@save\vbox{\unvcopy\mdf@splitbox@one}%save the orignal box
985       \mdf@ignorevbadness%
986       \setbox\mdf@splitbox@two\vsplit\mdf@splitbox@one to \dimen@
987       \setbox\mdf@splitbox@two\vbox{\unvbox\mdf@splitbox@two}%
988       \setbox\mdf@splitbox@one\vbox{\unvbox\mdf@splitbox@one}%
989       %% Now we try to see if the recently split box fits on page.
990       %% If not, we iteratively reduce the target size, until the box fits.
991       \dimen@i=\dimen@\relax%
992       \@tempcnta=\z@\relax%
993       \mdf@loop
994       \ifdimgreater{\ht\mdf@splitbox@two+\dp\mdf@splitbox@two}{\dimen@}%

```

```

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

```

```

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

```

`\mdf@put@frame@ii`

Output of the middle and last box.

```

1092 \def\mdf@put@frame@ii{%Ausgabe der mittleren Box(en) wenn vorhanden
1093 %% Here the aim is to fill the whole page
1094 \setlength{\mdf@freevspace@length}{\vsize}%
1095 \setlength{\mdf@dimen@}{\dimexpr\ht\mdf@splitbox@one+\dp\mdf@splitbox@one\relax}%
1096 \mdf@dolist{\mdf@advance@length@freevspace@add}{%used \mdf@dimen@
1097   outerlinewidth,middlelinewidth,innerlinewidth,%
1098   innerbottommargin}%%Addition der Linien unten
1099 \ifbool{mdf@everyline}{%
1100   \ifbool{mdf@topline}{%
1101     \advance\mdf@dimen@ by \mdf@innerlinewidth@length%

```

```

1102     \advance\dimen@ by \mdf@middlelinewidth@length%
1103     \advance\dimen@ by \mdf@outerlinewidth@length%
1104   }{}%
1105 }{}%
1106 \ifbool{mdf@bottomline}{%
1107   \advance\dimen@ by \mdf@innerlinewidth@length%
1108   \advance\dimen@ by \mdf@middlelinewidth@length%
1109   \advance\dimen@ by \mdf@outerlinewidth@length%
1110 }{}%
1111 %% if box larger than available space
1112 \ifdimgreater{\dimen@}{\mdf@freevspace@length}%
1113   {%
1114     \advance\mdf@freevspace@length by -\mdf@splitbottomskip@length\relax%
1115     %\advance\mdf@freevspace@length by .5\ht\strutbox\relax%
1116     \ifbool{mdf@everyline}{%
1117       \ifbool{mdf@topline}{%
1118         \advance\mdf@freevspace@length by -\mdf@innerlinewidth@length%
1119         \advance\mdf@freevspace@length by -\mdf@middlelinewidth@length%
1120         \advance\mdf@freevspace@length by -\mdf@outerlinewidth@length%
1121       }{}%
1122       \ifbool{mdf@bottomline}{%
1123         \advance\mdf@freevspace@length by -\mdf@innerlinewidth@length%
1124         \advance\mdf@freevspace@length by -\mdf@middlelinewidth@length%
1125         \advance\mdf@freevspace@length by -\mdf@outerlinewidth@length%
1126       }{}%
1127     }{}%
1128     \splitmaxdepth\z@ \splittopskip\mdf@splittopskip@length%
1129     \mdf@ignorevbadness%
1130     \setbox\mdf@splitbox@save\vbox{\unvcopy\mdf@splitbox@one}%
1131     \setbox\mdf@splitbox@two\vsplit\mdf@splitbox@one to \mdf@freevspace@length%
1132     \setbox\mdf@splitbox@two\vbox{\unvbox\mdf@splitbox@two}%PRUEFEN!!!
1133     \setbox\mdf@splitbox@one\vbox{\unvbox\mdf@splitbox@one}%PRUEFEN!!!!
1134     %% TODO: check if at the right place
1135     \ifbool{mdf@repeatframetitle}{%
1136       \setbox\mdf@splitbox@one\vbox{%
1137         \vbox to \mdf@splittopskip@length{\hsize\z@}
1138         %\par\unskip\nointerlineskip
1139         \unvcopy\mdf@frametitlebox%
1140         \mdf@@frametitlerule%
1141         \vbox to\dimexpr
1142         -\mdf@splittopskip@length+\ht\strutbox+\dp\strutbox
1143         +\mdf@innertopmargin@length\relax{\hsize\z@}%
1144         \unvbox\mdf@splitbox@one}%
1145     }{}%
1146     %% If second box is empty
1147     \ifvoid\mdf@splitbox@one\relax%
1148       %\immediate\message{^^Jmdframed[1125] Box two empty^^J}
1149       %% We don't warn, as we try to solve the problem ourselves
1150       %\mdf@PackageWarning{You got a bad break\MessageBreak
1151       % because the split box is empty\MessageBreak
1152       % You have to change the settings}%
1153       \setbox\mdf@splitbox@one\vbox{\unvbox\mdf@splitbox@two}%
1154       \advance\vsizeroot\mdf@splitbox@one by 2pt
1155       \def\mdf@reserved@a{\mdf@put@frame@ii}%
1156     \else
1157       %% second box non empty, but almost...

```

```

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

```

```

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

```

```
\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.

```

1231 %%%%      -----t-----
1232 %%%%      |                   |
1233 %%%%      |                   |
1234 %%%%      |                   |
1235 %%%%      |l|                   |r
1236 %%%%      |                   |
1237 %%%%      |                   |
1238 %%%%      |-----b-----|
1239 %%%%      b
1240 %%Zusammenhaenge abfragen:
1241 \newrobustcmd*\mdf@test@ltr{%
1242     \ifboolexpr{ (bool {mdf@topline}) and (bool {mdf@bottomline})
1243                 and (bool {mdf@leftline}) and (bool {mdf@rightline})}}
1244 %3-set
1245 \newrobustcmd*\mdf@test@lrb{%
1246     \ifboolexpr{ (bool {mdf@topline}) and not (bool {mdf@bottomline})
1247                 and (bool {mdf@leftline}) and (bool {mdf@rightline})}}
1248 \newrobustcmd*\mdf@test@ltb{%
1249     \ifboolexpr{ (bool {mdf@topline}) and (bool {mdf@bottomline})
1250                 and (bool {mdf@leftline}) and not (bool {mdf@rightline})}}

```



```

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

1300 \DisableKeyvalOption[action=warning,package=mdframed]{mdf}{framemethod}%
1301 \DisableKeyvalOption[action=warning,package=mdframed]{mdf}{xcolor}%
1302
1303 \endinput

```

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

```

1304 %% Style file for mdframed for package option 'framemethod=default'
1305 %%
1306 %% This package may be distributed under the terms of the LaTeX Project
1307 %% Public License, as described in lppl.txt in the base LaTeX distribution.
1308 %% Either version 1.0 or, at your option, any later version.
1309 %%
1310 %%
1311 %%$Id: mdframed.dtx 392 2012-04-27 23:10:44Z marco $
1312 %

```

```

\mdframedOpackagename
\mdf@frameOdate@svn

```

local settings

```

1313 \def\mdframedOpackagename{md-frame-0}
1314 \def\mdf@frameOdate@svn$1: #2 #3 #4-#5-#6 #7 #8${#4/#5/#6\space }
1315 \ProvidesFile{md-frame-0.mdf}%
1316     [\mdf@frameOdate@svn$Id: mdframed.dtx 392 2012-04-27 23:10:44Z marco $]
1317     \mdversion: \mdframedOpackagename]

```

```

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

```

short command

```

1318 \def\mdf@background@default{\color{\mdf@backgroundcolor}}
1319 \def\mdf@frametitlebackground@default{\color{\mdf@frametitlebackgroundcolor}}
1320 \def\mdf@shadow@default{\color{\mdf@shadowcolor}}
1321 \def\mdf@innerlinecolor@default{\color{\mdf@innerlinecolor}}
1322 \def\mdf@middlelinecolor@default{\color{\mdf@middlelinecolor}}
1323 \def\mdf@outerlinecolor@default{\color{\mdf@outerlinecolor}}
1324 \def\mdf@frametitlerulecolor@default{\color{\mdf@frametitlerulecolor}}
1325 \let\mdf@linecolor@default\mdf@middlelinecolor@default
1326 \def\mdf@@frametitlerule{%
1327   \ifbool{mdf@frametitlerule}{%
1328     \vbox to \mdf@frametitlerulewidth@length {\hsize\mdfframetitleboxwidth%
1329       \par\unskip\vskip\mdf@frametitlebelowskip@length%
1330       \rlap{\noindent\hspace*{-\mdf@innerleftmargin@length}%
1331         \mdf@frametitlerulecolor@default%
1332         \rule{\dimexpr\mdfframetitleboxwidth%
1333           +\mdf@innerleftmargin@length
1334           +\mdf@innerrightmargin@length\relax
1335         }{\mdf@frametitlerulewidth@length}%
1336       }}%
1337   }{}
1338   \par\unskip\vskip\mdf@innertopmargin@length%
1339 }%
1340

```

```

\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

```

1341 \def\mdf@frame@background@single{%
1342   \ifbool{mdf@shadow}{%
1343     \rlap{\smash{\mdf@shadow@default%
1344       \rule[\dimexpr-\mdfboundingboxdepth
1345         -\mdf@shadowsize@length
1346         \ifbool{mdf@bottomline}{-\mdf@middlelinewidth@length}{}\relax}%
1347       {\dimexpr\mdfboundingboxtotalwidth
1348         +\mdf@shadowsize@length
1349         \ifbool{mdf@rightline}{+\mdf@middlelinewidth@length}{}\relax}%
1350       {\dimexpr\mdfboundingboxtotalheight
1351         +\mdf@shadowsize@length
1352         \ifbool{mdf@bottomline}{+\mdf@middlelinewidth@length}{}\relax}%
1353     }%
1354   }{}%
1355   \rlap{\mdf@background@default%
1356     \rule[-\mdfboundingboxdepth]%
1357       {\mdfboundingboxtotalwidth}%
1358       {\mdfboundingboxtotalheight}%
1359   }%
1360 }%
1361 \def\mdf@frame@frametitlebackground@single{%
1362   \rlap{\mdf@frametitlebackground@default%
1363     \rule[\dimexpr-\mdfboundingboxdepth+\mdfboundingboxtotalheight-\mdfframetitleboxtotalheight\relax]%
1364       {\mdfboundingboxtotalwidth}%
1365       {\mdfframetitleboxtotalheight}%
1366   }%
1367 }%
1368
1369 \def\mdf@frame@topline@single{%
1370   \rlap{\mdf@linecolor@default%
1371     \ifbool{mdf@topline}{%
1372       \rule[\dimexpr\mdfboundingboxheight-\mdfboundingboxdepth%
1373         +\mdf@innerbottommargin@length+\mdf@innertopmargin@length\relax]%
1374       {\mdfboundingboxtotalwidth}%
1375       {\mdf@middlelinewidth@length}}%
1376     {}%
1377   }%
1378 }%
1379 \def\mdf@frame@bottomline@single{%
1380   \rlap{\ifbool{mdf@leftline}{\hspace*{-\mdf@middlelinewidth@length}}{\mdf@linecolor@default%
1381     \ifbool{mdf@bottomline}{%
1382       \rule[\dimexpr-\mdfboundingboxdepth-\mdf@middlelinewidth@length\relax]%
1383       {\dimexpr\mdfboundingboxtotalwidth
1384         \ifbool{mdf@rightline}{+\mdf@middlelinewidth@length}{}%
1385         \ifbool{mdf@leftline}{+\mdf@middlelinewidth@length}{}\relax}%
1386       {\mdf@middlelinewidth@length}}%
1387     {}%
1388   }%

```

```

1389 }%
1390 \def\mdf@frame@leftline@single{%
1391   \llap{\mdf@linecolor@default%
1392     \rule[-\mdfboundingboxdepth]{\mdf@middlelinewidth@length}%
1393     {\dimexpr\mdfboundingboxtotalheight%
1394       \ifbool{mdf@topline}{+\mdf@middlelinewidth@length}{}}\relax}%
1395   }%
1396 }%
1397 }%
1398 \def\mdf@frame@rightline@single{%
1399   \rlap{\mdf@linecolor@default%
1400     \hspace*{\mdfboundingboxwidth}%
1401     \hspace*{\mdf@innerrightmargin@length}%
1402     \rule[\dimexpr-\mdfboundingboxdepth%
1403       \relax]{\mdf@middlelinewidth@length}%
1404     {\dimexpr\mdfboundingboxtotalheight%
1405       +\ifbool{mdf@topline}{\mdf@middlelinewidth@length}{0pt}}\relax}%
1406   }%
1407 }%
1408 }%
1409 \def\mdf@putbox@single{%%%% Ausgabe der ungesplitteten Gesamtbox
1410   \ifvoid\mdf@splitbox@one
1411   \else%
1412     \mdf@makebox@out{%
1413       \mdf@makeboxalign@left%
1414       \setlength{\mdfboundingboxwidth}%
1415         {\wd\mdf@splitbox@one}%
1416       \setlength{\mdfboundingboxtotalwidth}%
1417         {\dimexpr\mdfboundingboxwidth+\mdf@innerleftmargin@length%
1418           +\mdf@innerrightmargin@length\relax}%
1419       \setlength{\mdfboundingboxheight}%
1420         {\dimexpr\ht\mdf@splitbox@one+\dp\mdf@splitbox@one\relax}%
1421       \setlength{\mdfboundingboxdepth}%
1422         {\dimexpr\dp\mdf@splitbox@one+\mdf@innerbottommargin@length\relax}%
1423       \setlength{\mdfboundingboxtotalheight}%
1424         {\dimexpr\mdfboundingboxheight+\mdf@innertopmargin@length%
1425           +\mdf@innerbottommargin@length\relax}%
1426       \setlength{\mdftotallinewidth}{%
1427         \dimexpr\mdf@innerlinewidth@length+\mdf@middlelinewidth@length%
1428         +\mdf@outerlinewidth@length}%
1429       \noindent%
1430       \setlength{\@tempdima}{\dimexpr\mdfboundingboxtotalwidth%
1431         +\ifbool{mdf@leftline}%
1432           {\mdf@middlelinewidth@length}{\z@}%
1433         +\ifbool{mdf@rightline}%
1434           {\mdf@middlelinewidth@length}{\z@}\relax}%
1435       \mdf@makebox@in[\@tempdima]{%
1436         \null%
1437         \ifbool{mdf@leftline}{%
1438           \hspace*{\mdftotallinewidth}%
1439           \mdf@frame@leftline@single%
1440         }{}%
1441         \mdf@frame@topline@single%
1442         \mdf@frame@background@single%
1443         \mdf@frame@bottomline@single%
1444         \ifdefempty{\mdf@frametitle}{\mdf@frame@frametitlebackground@single}%

```

```

1445      \hspace*{\mdf@innerleftmargin@length}%
1446      \ifbool{mdf@rightline}{%
1447        \mdf@frame@rightline@single%
1448      }{}%
1449      {\box\mdf@splitbox@one}%
1450    }%
1451    \mdf@makeboxalign@right%
1452  }%
1453  \fi%
1454 }

```

```

\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

```

1455 \def\mdf@frame@background@first{%
1456   \ifbool{mdf@shadow}{%
1457     \rlap{\smash{\mdf@shadow@default%
1458       \rule[\dimexpr-\mdf@boundingboxdepth
1459         -\mdf@shadowsize@length\relax}%
1460       {\dimexpr\mdf@boundingboxtotalwidth
1461         +\mdf@shadowsize@length
1462         \ifbool{mdf@rightline}{+\mdf@middlelinewidth@length}}{\relax}%
1463       {\dimexpr\mdf@boundingboxtotalheight
1464         +\mdf@shadowsize@length\relax}%
1465     }%
1466   }}{}%
1467   \rlap{\mdf@background@default%
1468     \rule[-\mdf@boundingboxdepth]%
1469     {\mdf@boundingboxtotalwidth}%
1470     {\mdf@boundingboxtotalheight}%
1471   }%
1472 }%
1473 \def\mdf@frame@frametitlebackground@first{%
1474   \ifdimless{\mdfframetitleboxtotalheight}{\mdf@boundingboxtotalheight}%
1475   {%
1476     \rlap{\mdf@frametitlebackground@default%
1477       \rule[\dimexpr-\mdf@boundingboxdepth+\mdf@boundingboxtotalheight-\mdfframetitleboxtotalheight\relax]
1478       {\mdf@boundingboxtotalwidth}%
1479       {\mdfframetitleboxtotalheight}%
1480     }%
1481     \global\mdfframetitleboxtotalheight=-\p@ \relax%
1482   }{\mdf@PackageWarning{You got a page break inside the frame title\MessageBreak
1483     Current this isn't well supported}%
1484     \rlap{\mdf@frametitlebackground@default%
1485       \rule[-\mdf@boundingboxdepth]%
1486       {\mdf@boundingboxtotalwidth}%
1487       {\mdf@boundingboxtotalheight}%
1488     }%
1489     \global\mdfframetitleboxtotalheight=\dimexpr\mdfframetitleboxtotalheight
1490       -\mdf@boundingboxheight
1491       +\mdf@frametitlebelowskip@length

```

```

1492          +.5\baselineskip-1pt
1493 %          +\dp\strutbox
1494          \relax%
1495 }%
1496 }%
1497 \def\mdf@frame@leftline@first{%
1498   \llap{\mdf@linecolor@default%
1499     \rule[-\mdfboundingboxdepth]%
1500       {\mdf@middlelinewidth@length}%
1501       {\dimexpr\mdfboundingboxtotalheight%
1502         +\ifbool{mdf@topline}{\mdf@middlelinewidth@length}{0pt}\relax}%
1503   }%
1504 }%
1505 \def\mdf@frame@topline@first{%
1506   \rlap{\mdf@linecolor@default%
1507     \rule[\dimexpr\mdfboundingboxheight-\mdfboundingboxdepth+%
1508       \mdf@splitbottomskip@length+\mdf@innertopmargin@length\relax]%
1509     {\mdfboundingboxtotalwidth}%
1510     {\mdf@middlelinewidth@length}%
1511   }%
1512 }
1513 \def\mdf@frame@rightline@first{%
1514   \rlap{\mdf@linecolor@default\hspace*{\mdfboundingboxwidth}%
1515     \hspace*{\mdf@innerrightmargin@length}%
1516     \rule[-\mdfboundingboxdepth]%
1517       {\mdf@middlelinewidth@length}%
1518       {\dimexpr\mdfboundingboxtotalheight%
1519         +\ifbool{mdf@topline}{\mdf@middlelinewidth@length}{0pt}\relax}%
1520   }%
1521 }%
1522 \def\mdf@frame@bottomline@first{%
1523   \rlap{\ifbool{mdf@leftline}{\hspace*{-\mdf@middlelinewidth@length}}{\mdf@linecolor@default%
1524     \ifbool{mdf@bottomline}{%
1525       \rule[\dimexpr-\mdfboundingboxdepth-\mdf@middlelinewidth@length\relax]%
1526         {\dimexpr\mdfboundingboxtotalwidth
1527           \ifbool{mdf@rightline}{+\mdf@middlelinewidth@length}{}%
1528           \ifbool{mdf@leftline}{+\mdf@middlelinewidth@length}{}\relax}%
1529         {\mdf@middlelinewidth@length}}%
1530     }%
1531   }%
1532 }%
1533 \def\mdf@putbox@first{%%%% Ausgabe der Teilbox 1
1534   \ifvoid\mdf@splitbox@two
1535   \else%
1536     \mdf@makebox@out[\linewidth]{%
1537       \mdf@makeboxalign@left%
1538       \setlength{\mdfboundingboxwidth}{\wd\mdf@splitbox@two}%
1539       \setlength{\mdfboundingboxtotalwidth}%
1540         {\dimexpr\mdfboundingboxwidth+\mdf@innerleftmargin@length%
1541           +\mdf@innerrightmargin@length\relax}%
1542       \setlength{\mdfboundingboxheight}{\dimexpr\ht\mdf@splitbox@two+\dp\mdf@splitbox@two\relax}%
1543       \setlength{\mdfboundingboxdepth}%
1544         {\dimexpr\dp\mdf@splitbox@two+\mdf@splitbottomskip@length\relax}%
1545       \setlength{\mdfboundingboxtotalheight}%
1546         {\dimexpr\mdfboundingboxheight+\mdf@innertopmargin@length%
1547           +\mdf@splitbottomskip@length\relax}%

```

```

1548 \setlength{\@tempdima}%
1549         {\dimexpr\mdfboundingboxtotalwidth%
1550             +\ifbool{mdf@leftline}{\mdf@middlelinewidth@length}{\z@}%
1551             +\ifbool{mdf@rightline}{\mdf@middlelinewidth@length}{\z@}%
1552             \relax}%
1553 \mdf@makebox@in[\@tempdima]{%
1554     \null%
1555     \ifbool{mdf@leftline}{%
1556         \hspace*{\mdf@middlelinewidth@length}%
1557         \mdf@frame@leftline@first}{}%
1558     \ifbool{mdf@everyline}%
1559         {\mdf@frame@bottomline@first}{}%
1560     \ifbool{mdf@topline}{%
1561         \mdf@frame@topline@first}{}%
1562     \mdf@frame@background@first%
1563     \ifdefempty{\mdf@frametitle}{\mdf@frame@frametitlebackground@first}%
1564     \hspace*{\mdf@innerleftmargin@length}%
1565     \ifbool{mdf@rightline}{%
1566         \mdf@frame@rightline@first}{}%
1567     {\box\mdf@splitbox@two}%
1568 }%
1569 \mdf@makeboxalign@right%
1570 }%
1571 \fi%
1572 }

```

```

\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

```

1573 \def\mdf@frame@background@second{%
1574     \ifbool{mdf@shadow}{%
1575         \rlap{\smash{\mdf@shadow@default%
1576             \rule[\dimexpr-\mdfboundingboxdepth
1577                 -\mdf@shadowsize@length
1578                 \ifbool{mdf@bottomline}{-\mdf@middlelinewidth@length}{\relax}%
1579                 {\dimexpr\mdfboundingboxtotalwidth
1580                     +\mdf@shadowsize@length
1581                     \ifbool{mdf@rightline}{+\mdf@middlelinewidth@length}{\relax}%
1582                     {\dimexpr\mdfboundingboxtotalheight
1583                         +\mdf@shadowsize@length\relax}%
1584                     }%
1585                 }}}%
1586         \rlap{\mdf@background@default%
1587             \rule[-\mdfboundingboxdepth]%
1588                 {\mdfboundingboxtotalwidth}%
1589                 {\mdfboundingboxtotalheight}%
1590             }%
1591     }%
1592 \def\mdf@frame@frametitlebackground@second{%
1593     \ifdimless{\mdfframetitleboxtotalheight}{\z@}%
1594     {}%

```

```

1595 {\rlap{\mdf@frametitlebackground@default%
1596 \rule[\dimexpr-\mdfboundingboxdepth+\mdfboundingboxtotalheight-\mdfframetitleboxtotalheight\relax]
1597 {\mdfboundingboxtotalwidth}%
1598 {\mdfframetitleboxtotalheight}%
1599 }%
1600 }%
1601 }%
1602 \def\mdf@frame@leftline@second{%
1603 \llap{\mdf@linecolor@default%
1604 \rule[-\mdfboundingboxdepth]%
1605 {\mdf@middlelinewidth@length}%
1606 {\dimexpr\mdfboundingboxtotalheight}%
1607 }%
1608 }%
1609 \def\mdf@frame@bottomline@second{%
1610 \rlap{\ifbool{mdf@leftline}{\hspace*{-\mdf@middlelinewidth@length}}{\mdf@linecolor@default%
1611 \rule[\dimexpr-\mdfboundingboxdepth-\mdf@middlelinewidth@length\relax]%
1612 {\dimexpr\mdfboundingboxtotalwidth
1613 \ifbool{mdf@rightline}{+\mdf@middlelinewidth@length}{%
1614 \ifbool{mdf@leftline}{+\mdf@middlelinewidth@length}{\relax}%
1615 {\mdf@middlelinewidth@length}%
1616 }%
1617 }%
1618 \def\mdf@frame@rightline@second{%
1619 \rlap{\mdf@linecolor@default\hspace*{\mdfboundingboxwidth}%
1620 \hspace*{\mdf@innerrightmargin@length}%
1621 \rule[-\mdfboundingboxdepth]%
1622 {\mdf@middlelinewidth@length}%
1623 {\mdfboundingboxtotalheight}%
1624 }%
1625 }%
1626 \def\mdf@frame@topline@second{%
1627 \rlap{\ifbool{mdf@leftline}{\hspace*{-\mdf@middlelinewidth@length}}{\mdf@linecolor@default%
1628 \ifbool{mdf@topline}{%
1629 \rule[\dimexpr\mdfboundingboxheight-\mdfboundingboxdepth%
1630 +\mdf@innerbottommargin@length\relax]%
1631 {\dimexpr\mdfboundingboxtotalwidth
1632 \ifbool{mdf@rightline}{+\mdf@middlelinewidth@length}{%
1633 \ifbool{mdf@leftline}{+\mdf@middlelinewidth@length}{\relax
1634 }%
1635 {\mdf@middlelinewidth@length}}%
1636 {}%
1637 }%
1638 }%
1639 }%
1640 \def\mdf@putbox@second{%
1641 \ifvoid\mdf@splitbox@one%
1642 \else
1643 \mdf@makebox@out{%
1644 \mdf@makeboxalign@left%
1645 \setlength{\mdfboundingboxwidth}{\wd\mdf@splitbox@one}%
1646 \setlength{\mdfboundingboxtotalwidth}%
1647 {\dimexpr\mdfboundingboxwidth+\mdf@innerleftmargin@length%
1648 +\mdf@innerrightmargin@length\relax}%
1649 \setlength{\mdfboundingboxheight}{\dimexpr\ht\mdf@splitbox@one+\dp\mdf@splitbox@one\relax}%
1650 \setlength{\mdfboundingboxdepth}%

```



```

1651          {\dimexpr\dp\mdf@splitbox@one+\mdf@innerbottommargin@length\relax}%
1652 \setlength{\mdfboundingboxtotalheight}%
1653          {\dimexpr\mdfboundingboxheight+\mdf@innerbottommargin@length\relax}%
1654 \setlength{\@tempdima}{\dimexpr\mdfboundingboxtotalwidth%
1655          +\ifbool{mdf@leftline}{\mdf@middlelinewidth@length}{\z@}%
1656          +\ifbool{mdf@rightline}{\mdf@middlelinewidth@length}{\z@}%
1657          \relax}%
1658 \mdf@makebox@in[\@tempdima]{%
1659 \null%
1660   \ifbool{mdf@leftline}{%
1661     \hspace*{\mdf@middlelinewidth@length}%
1662     \mdf@frame@leftline@second}{}%
1663   \ifbool{mdf@everyline}{%
1664     {\mdf@frame@topline@second}{}%
1665   \mdf@frame@background@second%
1666   \ifbool{mdf@bottomline}{%
1667     \mdf@frame@bottomline@second}{}%
1668   \ifdefempty{\mdf@frametitle}{\mdf@frame@frametitlebackground@second}%
1669   \hspace*{\mdf@innerleftmargin@length}%
1670   \ifbool{mdf@rightline}{%
1671     \mdf@frame@rightline@second}{}%
1672   {\box\mdf@splitbox@one}%
1673 }%
1674 \mdf@makeboxalign@right%
1675 }%
1676 \fi
1677 }%

```

```

\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

```

1678 \def\mdf@frame@leftline@middle{%
1679   \llap{\mdf@linecolor@default%
1680     \rule[-\mdfboundingboxdepth]%
1681       {\mdf@middlelinewidth@length}%
1682       {\mdfboundingboxtotalheight}%
1683   }%
1684 }%
1685 \def\mdf@frame@background@middle{%
1686   \ifbool{mdf@shadow}{%
1687     \rlap{\smash{\mdf@shadow@default%
1688       \rule[\dimexpr-\mdfboundingboxdepth
1689         -\mdf@shadowsize@length\relax]%
1690         {\dimexpr\mdfboundingboxtotalwidth
1691           +\mdf@shadowsize@length
1692           \ifbool{mdf@rightline}{+\mdf@middlelinewidth@length}{\relax}%
1693           {\dimexpr\mdfboundingboxtotalheight\relax}%
1694         }%
1695     }}{%
1696     \rlap{\mdf@background@default%
1697       \rule[-\mdfboundingboxdepth]%
1698         {\mdfboundingboxtotalwidth}%

```

```

1699         {\mdfboundingboxtotalheight}%
1700     }%
1701 }%
1702 \def\mdf@frame@frametitlebackground@middle{%
1703 \ifdimless{\mdfframetitleboxtotalheight}{\z@}%
1704 {}%
1705 {\rlap{\mdf@frametitlebackground@default%
1706     \rule[\dimexpr-\mdfboundingboxdepth+\mdfboundingboxtotalheight-\mdfframetitleboxtotalheight\relax]
1707         {\mdfboundingboxtotalwidth}%
1708         {\mdfframetitleboxtotalheight}%
1709     }%
1710     \global\mdfframetitleboxtotalheight=-\p@\relax%
1711 }%
1712 }%
1713 \def\mdf@frame@rightline@middle{%
1714 \rlap{\mdf@linecolor@default\hspace*{\mdfboundingboxwidth}%
1715     \hspace*{\mdf@innerrightmargin@length}%
1716     \rule[-\mdfboundingboxdepth]%
1717         {\mdf@middlelinewidth@length}%
1718         {\mdfboundingboxtotalheight}%
1719     }%
1720 }%
1721 \def\mdf@frame@topline@middle{%
1722 \rlap{\ifbool{mdf@leftline}{\hspace*{-\mdf@middlelinewidth@length}}{\mdf@linecolor@default%
1723     \ifbool{mdf@topline}{%
1724         \rule[\dimexpr\mdfboundingboxtotalheight-\mdfboundingboxdepth\relax]%
1725             {\dimexpr\mdfboundingboxtotalwidth
1726                 \ifbool{mdf@rightline}{+\mdf@middlelinewidth@length}{}}%
1727                 \ifbool{mdf@leftline}{+\mdf@middlelinewidth@length}{}}\relax
1728             }%
1729             {\mdf@middlelinewidth@length}}}%
1730     {}%
1731 }%
1732 }%
1733 \def\mdf@frame@bottomline@middle{%
1734 \rlap{\ifbool{mdf@leftline}{\hspace*{-\mdf@middlelinewidth@length}}{\mdf@linecolor@default%
1735     \ifbool{mdf@bottomline}{%
1736         \rule[\dimexpr-\mdfboundingboxdepth-\mdf@middlelinewidth@length\relax]%
1737             {\dimexpr\mdfboundingboxtotalwidth
1738                 \ifbool{mdf@rightline}{+\mdf@middlelinewidth@length}{}}%
1739                 \ifbool{mdf@leftline}{+\mdf@middlelinewidth@length}{}}\relax}%
1740             {\mdf@middlelinewidth@length}}}%
1741     {}%
1742 }%
1743 }%
1744
1745 \def\mdf@putbox@middle{%
1746 \ifvoid\mdf@splitbox@two%
1747 \else
1748 \mdf@makebox@out{%
1749 \mdf@makeboxalign@left%
1750 \setlength{\mdfboundingboxwidth}{\wd\mdf@splitbox@two}%
1751 \setlength{\mdfboundingboxtotalwidth}%
1752     {\dimexpr\mdfboundingboxwidth+\mdf@innerleftmargin@length%
1753         +\mdf@innerrightmargin@length\relax}%
1754 \setlength{\mdfboundingboxheight}{\dimexpr\ht\mdf@splitbox@two+\dp\mdf@splitbox@two\relax}%

```

```

1755 \setlength{\mdfboundingboxdepth}%
1756         {\dimexpr\dp\mdf@splitbox@two+\mdf@splitbottomskip@length\relax}%
1757 \setlength{\mdfboundingboxtotalheight}%
1758         {\dimexpr\mdfboundingboxheight+\mdf@splitbottomskip@length\relax}%
1759 \setlength{\@tempdima}{\dimexpr\mdfboundingboxtotalwidth%
1760         +\ifbool{mdf@leftline}{\mdf@middlelinewidth@length}{\z@}%
1761         +\ifbool{mdf@rightline}{\mdf@middlelinewidth@length}{\z@}%
1762         \relax}%
1763 \mdf@makebox@in[\@tempdima]{%
1764     \null%
1765     \ifbool{mdf@leftline}{%
1766         \hspace*{\mdf@middlelinewidth@length}%
1767         \mdf@frame@leftline@middle}{}%
1768     \mdf@frame@background@middle%
1769     \ifbool{mdf@everyline}%
1770         {\mdf@frame@topline@middle}{}%
1771     \ifdefempty{\mdf@frametitle}{\mdf@frame@frametitlebackground@middle}%
1772     \ifbool{mdf@everyline}%
1773         {\mdf@frame@bottomline@middle}{}%
1774     \hspace*{\mdf@innerleftmargin@length}%
1775     \ifbool{mdf@rightline}{%
1776         \mdf@frame@rightline@middle}{}%
1777     {\box\mdf@splitbox@two}%
1778 }%
1779 \mdf@makeboxalign@right%
1780 }
1781 \fi%
1782 }

1783 \endinput

```

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

```

1784 %% Style file for mdframed for package option 'framemethod=default'
1785 %%
1786 %% This package may be distributed under the terms of the LaTeX Project
1787 %% Public License, as described in lppl.txt in the base LaTeX distribution.
1788 %% Either version 1.0 or, at your option, any later version.
1789 %%
1790 %%
1791 %%$Id: mdframed.dtx 392 2012-04-27 23:10:44Z marco $
1792 %

```

```

\mdframedIpackagename
\mdf@frameIdate@svn

```

local settings

```

1793 \def\mdframedIpackagename{md-frame-1}
1794 \def\mdf@frameIdate@svn$#1: #2 #3 #4-#5-#6 #7 #8${#4/#5/#6\space }
1795 \ProvidesFile{md-frame-1.mdf}%
1796     [\mdf@frameIdate@svn$Id: mdframed.dtx 392 2012-04-27 23:10:44Z marco $ %
1797     \mdversion: \mdframedIpackagename]
1798 %

```

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

Define settings for tikz

```

1799 %Allgemeine Einstellungen fuer tikz
1800 \def\mdf@tikz@settings{%
1801 %
1802 \tikzset{mdfbox/.style={anchor=south west,%
1803                         inner sep=0pt,%
1804                         outer sep=0pt,%
1805                         \mdf@fontcolor,}}% anchor der Ausgabebox ist unten links
1806 \tikzset{mdfcorners/.style={rounded corners=\mdf@roundcorner@length}}%
1807 \tikzset{mdfbackground/.style={fill=\mdf@backgroundcolor,%
1808                                draw=\mdf@backgroundcolor}}%
1809 \tikzset{mdfframetitlebackground/.style={fill=\mdf@frametitlebackgroundcolor,%
1810                                             draw=none,%
1811                                             rounded corners={max(\mdf@roundcorner@length%
1812                                                                -\mdf@innerlinewidth@length%
1813                                                                -.5\mdf@middlelinewidth@length,0)}}}%
1814 %
1815 \tikzset{mdfouterline/.style={}}%
1816 % nur wenn outerlinewidth>0 wird aussere Linie gezeichnet
1817 \ifdimgreater{\mdf@outerlinewidth@length}{\z@}
1818   {\tikzset{mdfouterline/.append style={%
1819           draw=\mdf@outerlinecolor,%
1820           line width=2\mdf@outerlinewidth@length+\mdf@middlelinewidth@length}}}%
1821 %
1822 \tikzset{mdfinnerline/.style={}}%
1823 % nur wenn innerlinewidth>0 wird innere Linie gezeichnet
1824 \ifdimgreater{\mdf@innerlinewidth@length}{\z@}
1825   {\tikzset{mdfinnerline/.append style={%
1826           draw=\mdf@innerlinecolor,%
1827           line width=2\mdf@innerlinewidth@length+\mdf@middlelinewidth@length}}}%
1828 %
1829 \tikzset{mdfshadow/.style={drop shadow={%
1830                               shadow xshift=\mdf@shadowsize@length-2pt,
1831                               shadow yshift=-\mdf@shadowsize@length+2pt,
1832                               fill=\mdf@shadowcolor,
1833                               every shadow }}}%
1834 %
1835 \mdf@tikzset@local
1836 \tikzset{mdfmiddleline/.style={}}%
1837 % nur wenn middlelinewidth>0 wird mittlere Linie gezeichnet
1838 \ifdimgreater{\mdf@middlelinewidth@length}{\z@}
1839   {\tikzset{mdfmiddleline/.append style={%
1840           preaction={draw=\mdf@middlelinecolor,%
1841                     line width=\mdf@middlelinewidth@length},%
1842                     line width=\mdf@middlelinewidth@length,%
1843                     tikzsetting}}}%
1844   }{}%
1845 }%

```

```

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

```

Befehle fuer Ausgabe von Rahmen und Hintergrund

```

1846 \newrobustcmd*\mdf@tikzbox@tfl[1]{%three or four borders
1847   \clip(0,0)rectangle(\mdfboundingboxwidth,\mdfboundingboxheight);%

```

```

1848 \begin{scope}[mdfcorners]%
1849 \clip[preaction=mdfouterline]%
1850 [postaction=mdfbackground]%
1851 [postaction=mdfinnerline]#1;%
1852 \end{scope}%
1853 \path[mdfmiddleline,mdfcorners]#1;
1854 }%
1855
1856
1857
1858 \newrobustcmd*{\mdf@tikzbox@otl[2]}{%one or two borders
1859 \clip(0,0)rectangle(\mdfboundingboxwidth,\mdfboundingboxheight);%
1860 \begin{scope}
1861 \path[mdfouterline,mdfcorners]#1;%
1862 \clip[postaction=mdfbackground]#2;%
1863 \path[mdfinnerline,mdfcorners]#1;%
1864 \end{scope}%
1865 \path[mdfmiddleline,mdfcorners]#1;}%

```

\mdf@put@frametitlerule

frametitlerule with tikz

```

1866 \tikzset{mdfframetitlerule/.style={%
1867 draw=none,
1868 fill=\mdf@frametitlerulecolor,
1869 }%
1870 }
1871 \def\mdf@@@frametitlerule{%
1872 \ifbool{mdf@frametitlerule}{%
1873 \vbox{\hsize0pt
1874 \par\unskip\vskip\mdf@frametitlebelowskip@length
1875 \noindent\rlap{\hspace*{-\mdf@innerleftmargin@length}}%
1876 \begingroup%
1877 \pgfmathsetlength{\dimen@}{\mdfframetitleboxwidth+\mdf@innerleftmargin@length+\mdf@innerrightmargin@length}%
1878 \tikz\draw[mdfframetitlerule] (0,0)%
1879 rectangle (\dimen@,\mdf@frametitlerulewidth@length);
1880 \endgroup}
1881 }%
1882 }{}
1883 \par\unskip\vskip\mdf@innertopmargin@length%
1884 }%
1885

```

\mdf@putbox@single

Output of the non breakable contents.

```

1886 % Info zu den verwendeten Punkten:
1887 % O ist die untere linke Ecke der Mitte der middleline
1888 % P ist die obere rechte Ecke der Mitte der middleline
1889 % A ist der Punkt fuer den anchor (d.h. die untere linke Ecke) der Ausgabebox
1890 %
1891 \def\mdf@putbox@single{%
1892 \ifvoid\mdf@splitbox@one
1893 \else%
1894 \mdf@makebox@out{%

```

```

1895 \mdf@makeboxalign@left%
1896 \mdf@tikz@settings%
1897 %
1898 \setlength\mdfboundingboxwidth{\wd\mdf@splitbox@one}%
1899 \advance\mdfboundingboxwidth by \mdf@innerleftmargin@length\relax%
1900 \advance\mdfboundingboxwidth by \mdf@innerrightmargin@length\relax%
1901 \ifbool{mdf@leftline}{%
1902   \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
1903   \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
1904   \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}}{%
1905 \ifbool{mdf@rightline}{%
1906   \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
1907   \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
1908   \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}}}%
1909 %
1910 \setlength\mdfboundingboxheight{\dimexpr\ht\mdf@splitbox@one+\dp\mdf@splitbox@one\relax}%
1911 \advance\mdfboundingboxheight by \mdf@innertopmargin@length\relax%
1912 \advance\mdfboundingboxheight by \mdf@innerbottommargin@length\relax%
1913 \ifbool{mdf@topline}{%
1914   \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
1915   \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
1916   \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}}{%
1917 \ifbool{mdf@bottomline}{%
1918   \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
1919   \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
1920   \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}}}%
1921 \mdf@makebox@in[\mdfboundingboxwidth]{%
1922 \null%
1923 \begin{tikzpicture}[remember picture]%
1924   \pgfmathsetlengthmacro\mdf@Ax{+\mdf@innerleftmargin@length}%
1925   \pgfmathsetlengthmacro\mdf@Ay{+\mdf@innerbottommargin@length}%
1926   \pgfmathsetlengthmacro\mdf@Ox{+0pt}%
1927   \pgfmathsetlengthmacro\mdf@Oy{+0pt}%
1928   \pgfmathsetlengthmacro\mdf@Px{+\mdfboundingboxwidth}%
1929   \pgfmathsetlengthmacro\mdf@Py{+\mdfboundingboxheight}%
1930   \ifbool{mdf@leftline}%
1931     {%
1932       \pgfmathsetlengthmacro\mdf@Ax%
1933         {\mdf@Ax+\mdf@outerlinewidth@length+
1934          \mdf@middlelinewidth@length+\mdf@innerlinewidth@length}%
1935       \pgfmathsetlengthmacro\mdf@Ox%
1936         {\mdf@Ox+\mdf@outerlinewidth@length+0.5\mdf@middlelinewidth@length}%
1937     }%
1938   \ifbool{mdf@rightline}%
1939     {%
1940       \pgfmathsetlengthmacro\mdf@Px%
1941         {\mdf@Px-\mdf@outerlinewidth@length-0.5\mdf@middlelinewidth@length}%
1942     }%
1943   \ifbool{mdf@bottomline}%
1944     {%
1945       \pgfmathsetlengthmacro\mdf@Ay%
1946         {\mdf@Ay+\mdf@outerlinewidth@length+\mdf@middlelinewidth@length
1947          +\mdf@innerlinewidth@length}%
1948       \pgfmathsetlengthmacro\mdf@Oy%
1949         {\mdf@Oy+\mdf@outerlinewidth@length+0.5\mdf@middlelinewidth@length}%
1950     }%

```

```

1951 \ifbool{mdf@topline}%
1952 {%
1953 \pgfmathsetlengthmacro\mdf@Py%
1954 {\mdf@Py-\mdf@outerlinewidth@length-0.5\mdf@middlelinewidth@length}%
1955 }{}%
1956 %
1957 \coordinate(0)at(\mdf@0x,\mdf@0y);%
1958 \coordinate(P)at(\mdf@Px,\mdf@Py);%
1959 %
1960 \ifbool{mdf@shadow}
1961 {\path[mdfshadow,mdfcorners](0) rectangle (P);}%
1962 %
1963 \begin{scope}[use as bounding box]
1964 \mdf@test@lrb{\mdf@tikzbox@tfl{(0)--(0|-P)--(P)--(P|-0)--cycle)}}{}%
1965 %
1966 \mdf@test@ltb{\mdf@tikzbox@tfl{(P|-0)--(0)--(0|-P)--(P)}}{}%
1967 \mdf@test@trb{\mdf@tikzbox@tfl{(0|-P)--(P)--(P|-0)--(0)}}{}%
1968 \mdf@test@ltr{\mdf@tikzbox@tfl{(0)--(0|-P)--(P)--(P|-0)}}{}%
1969 \mdf@test@lrb{\mdf@tikzbox@tfl{(P|-0)--(0)--(0|-P)--(P)}}{}%
1970 %
1971 \mdf@test@lb{\mdf@tikzbox@otl{(P|-0)--(0)--(0|-P)}}%
1972 {(P)--(P|-0)[mdfcorners]--(0)--(0|-P)}%
1973 }{}%
1974 \mdf@test@rb{\mdf@tikzbox@otl{(P)--(P|-0)--(0)}}%
1975 {(0|-P)--(P)[mdfcorners]--(P|-0)--(0)}%
1976 }{}%
1977 \mdf@test@tr{\mdf@tikzbox@otl{(0|-P)--(P)--(P|-0)}}%
1978 {(0)--(0|-P)[mdfcorners]--(P)--(P|-0)}%
1979 }{}%
1980 \mdf@test@lt{\mdf@tikzbox@otl{(0)--(0|-P)--(P)}}%
1981 {(P|-0)--(0)[mdfcorners]--(0|-P)--(P)}%
1982 }{}%
1983 \mdf@test@lr{\mdf@tikzbox@otl{(0)--(0|-P)(P)--(P|-0)}}%
1984 {(0)rectangle(P)}%
1985 }{}%
1986 \mdf@test@tb{\mdf@tikzbox@otl{(0)--(0|-P)(0|-P)--(P)}}%
1987 {(0)rectangle(P)}%
1988 }{}%
1989 %
1990 \mdf@test@l{\mdf@tikzbox@otl{(0)--(0|-P)}}%
1991 {(0)rectangle(P)}%
1992 }{}%
1993 \mdf@test@r{\mdf@tikzbox@otl{(0|-P)--(P)}}%
1994 {(0)rectangle(P)}%
1995 }{}%
1996 \mdf@test@t{\mdf@tikzbox@otl{(0|-P)--(P)}}%
1997 {(0)rectangle(P)}%
1998 }{}%
1999 \mdf@test@b{\mdf@tikzbox@otl{(0)--(0|-P)}}%
2000 {(0)rectangle(P)}%
2001 }{}%
2002 %
2003 \mdf@test@noline{\path[mdfbackground,mdfcorners](0) rectangle(P);}%
2004 %
2005 %Frametitlebackground
2006 \drawbackgroundframetitle@single

```

```

2007 %
2008     \node[mdfbox]at(\mdf@Ax,\mdf@Ay){\box\mdf@splitbox@one};% Ausgabebox einfuegen
2009     \end{scope}
2010     %HIER KOMMT EIN WEITERES MAKRO
2011     \mdf@singleextra
2012     \mdfcreateextratikz
2013     \end{tikzpicture}%
2014     }%
2015     \mdf@makeboxalign@right%
2016     }%
2017 \fi
2018 }%
2019 \def\drawbackgroundframetitle@single{%
2020 \ifdefempty{\mdf@frametitle}{}{}%
2021     \drawbackgroundframetitle@@single%
2022 }%
2023 }%
2024 \def\drawbackgroundframetitle@@single{%
2025     \begin{scope}%background frame title
2026     \ifbool{mdf@leftline}{
2027         \pgfmathsetlengthmacro\mdf@0x%
2028             {\mdf@0x+\mdf@innerlinewidth@length+0.5\mdf@middlelinewidth@length}
2029         }{}%
2030     \ifbool{mdf@rightline}{%
2031         \pgfmathsetlengthmacro\mdf@Px%
2032             {\mdf@Px-\mdf@innerlinewidth@length-0.5\mdf@middlelinewidth@length}
2033         }{}%
2034     \ifbool{mdf@topline}{%
2035         \pgfmathsetlengthmacro\mdf@Py%
2036             {\mdf@Py-\mdf@innerlinewidth@length-0.5\mdf@middlelinewidth@length}
2037         }{}%
2038         \pgfmathsetlengthmacro\mdf@Fy
2039             {\mdf@Py-\mdfframetitleboxtotalheight}
2040         \path[mdfframetitlebackground]
2041             (\mdf@0x,\mdf@Fy) -- (\mdf@0x,\mdf@Py)%
2042             --(\mdf@Px,\mdf@Py) --(\mdf@Px,\mdf@Fy);
2043     \end{scope}
2044 }

```

`\mdf@putbox@first`

Output of the first breakable contents.

```

2045 \def\drawbackgroundframetitle@first{%
2046 \ifdefempty{\mdf@frametitle}{}{}%
2047 \ifdimgreater{\mdf@boundingboxheight}{\mdfframetitleboxtotalheight}%
2048 {%
2049     \drawbackgroundframetitle@@first
2050     \pgfmathsetlength{\global\mdfframetitleboxtotalheight}{-\p@}%
2051 }{\mdf@PackageWarning{You got a page break inside the frame title\MessageBreak
2052     Currently this isn't well supported}%
2053     \drawbackgroundframetitle@@first
2054     \pgfmathsetlength{\global\mdfframetitleboxtotalheight}%
2055         {\mdfframetitleboxtotalheight-\mdf@boundingboxheight-
2056             \mdf@innerlinewidth@length-0.5\mdf@middlelinewidth@length%
2057             +\mdf@frametitlebelowskip@length+\mdf@splitbottomskip@length+\mdf@splittopskip@length}

```



```

2058             +\dp\strutbox%
2059         }%
2060     }%
2061 }%
2062 }%
2063 %
2064 \def\drawbackgroundframetitle@@first{%
2065 \begin{scope}%background frame title
2066     \ifbool{mdf@leftline}{%
2067         \pgfmathsetlengthmacro\mdf@0x%
2068             {\mdf@0x+\mdf@innerlinewidth@length+0.5\mdf@middlelinewidth@length}
2069     }{}%
2070     \ifbool{mdf@rightline}{%
2071         \pgfmathsetlengthmacro\mdf@Px%
2072             {\mdf@Px-\mdf@innerlinewidth@length-0.5\mdf@middlelinewidth@length}
2073     }{}%
2074     \ifbool{mdf@topline}{%
2075         \pgfmathsetlengthmacro\mdf@Py%
2076             {\mdf@Py-\mdf@innerlinewidth@length-0.5\mdf@middlelinewidth@length}
2077     }{}%
2078     \pgfmathsetlengthmacro\mdf@Fy
2079         {max(0,\mdf@Py-\mdfframetitleboxtotalheight)}
2080     \path[mdfframetitlebackground]
2081         (\mdf@0x,\mdf@Fy) -- (\mdf@0x,\mdf@Py)%
2082         --(\mdf@Px,\mdf@Py) --(\mdf@Px,\mdf@Fy);
2083 \end{scope}%
2084 }%
2085 %
2086 \def\mdf@putbox@first{%
2087     \ifvoid\mdf@splitbox@two
2088     \else%
2089         \mdf@makebox@out{%
2090             \mdf@makeboxalign@left%
2091             \mdf@tikz@settings%
2092             \setlength\mdfboundingboxwidth{\wd\mdf@splitbox@two}%
2093             \advance\mdfboundingboxwidth by \mdf@innerleftmargin@length\relax%
2094             \advance\mdfboundingboxwidth by \mdf@innerrightmargin@length\relax%
2095             \ifbool{mdf@leftline}{%
2096                 \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
2097                 \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
2098                 \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}%{}%
2099             \ifbool{mdf@rightline}{%
2100                 \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
2101                 \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
2102                 \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}%{}%
2103             \setlength\mdfboundingboxheight{\dimexpr\ht\mdf@splitbox@two+\dp\mdf@splitbox@two\relax}%
2104             \advance\mdfboundingboxheight by \mdf@innertopmargin@length\relax%
2105             \advance\mdfboundingboxheight by \mdf@splitbottomskip@length\relax%
2106             \ifbool{mdf@topline}{%
2107                 \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
2108                 \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
2109                 \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}%{}%
2110             %%%%%%%%%
2111             \ifbool{mdf@everyline}{%
2112                 \ifbool{mdf@bottomline}{%
2113                     \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%

```

```

2114      \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
2115      \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}}}%
2116    }{}%
2117 %%%%%%%%%%
2118    %\ifdimequal{\pagegoal}{\maxdimen}{\enlargethispage{\baselineskip}}{}% ???
2119    \ifdimgreater{\pagegoal-\maxdimen}{0pt}}{\enlargethispage{\baselineskip}}%
2120    \mdf@makebox@in[\mdfboundingboxwidth]{%
2121    \null%
2122    \begin{tikzpicture}[remember picture]
2123      \pgfmathsetlengthmacro\mdf@Ax{+\mdf@innerleftmargin@length}%
2124      \pgfmathsetlengthmacro\mdf@Ay{+\mdf@splitbottomskip@length}%
2125      \pgfmathsetlengthmacro\mdf@Ox{+0pt}%
2126      \pgfmathsetlengthmacro\mdf@Oy{+0pt}%
2127      \pgfmathsetlengthmacro\mdf@Px{+\mdfboundingboxwidth}%
2128      \pgfmathsetlengthmacro\mdf@Py{+\mdfboundingboxheight}%
2129      \ifbool{mdf@leftline}
2130      {%
2131        \pgfmathsetlengthmacro\mdf@Ax%
2132          {\mdf@Ax+\mdf@outerlinewidth@length+
2133           \mdf@middlelinewidth@length+\mdf@innerlinewidth@length}%
2134        \pgfmathsetlengthmacro\mdf@Ox%
2135          {\mdf@Ox+\mdf@outerlinewidth@length+0.5\mdf@middlelinewidth@length}%
2136      }{}%
2137      \ifbool{mdf@rightline}{%
2138        \pgfmathsetlengthmacro\mdf@Px%
2139          {\mdf@Px-\mdf@outerlinewidth@length-0.5\mdf@middlelinewidth@length}%
2140      }{}%
2141      \ifbool{mdf@topline}{%
2142        \pgfmathsetlengthmacro\mdf@Py%
2143          {\mdf@Py-\mdf@outerlinewidth@length-0.5\mdf@middlelinewidth@length}%
2144      }{}%
2145 %%
2146      \ifbool{mdf@everyline}{%
2147        \ifbool{mdf@bottomline}%
2148        {%
2149          \pgfmathsetlengthmacro\mdf@Ay%
2150            {\mdf@Ay+\mdf@outerlinewidth@length+\mdf@middlelinewidth@length
2151             +\mdf@innerlinewidth@length}%
2152          \pgfmathsetlengthmacro\mdf@Oy%
2153            {\mdf@Oy+\mdf@outerlinewidth@length+0.5\mdf@middlelinewidth@length}%
2154        }{}%
2155        \ifbool{mdf@topline}%
2156        {%
2157          \pgfmathsetlengthmacro\mdf@Py%
2158            {\mdf@Py-\mdf@outerlinewidth@length-0.5\mdf@middlelinewidth@length}%
2159        }{}%
2160      }{}%
2161 %%
2162      \coordinate(0)at(\mdf@Ox,\mdf@Oy);%
2163      \coordinate(P)at(\mdf@Px,\mdf@Py);%
2164      \ifbool{mdf@shadow}
2165      {\path[mdfshadow] (0) -- (0|-P) to[mdfcorners] (P) -- (P|-0) -- (0);}%
2166      \begin{scope}[use as bounding box]
2167 %%%%%%%%%%
2168      \ifbool{mdf@everyline}{%
2169        \mdf@test@l@trb{\mdf@tikzbox@tfl{(0) -- (0|-P) -- (P) -- (P|-0) -- cycle}}}%

```

```

2170 \mdf@test@ltb{\mdf@tikzbox@tfl{(P|-O)--(O|-P)--(P)}}{}%
2171 \mdf@test@trb{\mdf@tikzbox@tfl{(O|-P)--(P)--(P|-O)--(O)}}{}%
2172 \mdf@test@ltr{\mdf@tikzbox@tfl{(O)--(O|-P)--(P)--(P|-O)}}{}%
2173 \mdf@test@lrb{\mdf@tikzbox@tfl{(P|-O)--(O)--(O|-P)--(P)}}{}%
2174 \mdf@test@lb{\mdf@tikzbox@otl{(P|-O)--(O)--(O|-P)}}%
2175 { (P)--(P|-O)[mdfcorners]--(O)--(O|-P)}%
2176 }{}%
2177 \mdf@test@rb{\mdf@tikzbox@otl{(P)--(P|-O)--(O)}}%
2178 { (O|-P)--(P)[mdfcorners]--(P|-O)--(O)}%
2179 }{}%
2180 \mdf@test@tr{\mdf@tikzbox@otl{(O|-P)--(P)--(P|-O)}}%
2181 { (O)--(O|-P)[mdfcorners]--(P)--(P|-O)}%
2182 }{}%
2183 \mdf@test@lt{\mdf@tikzbox@otl{(O)--(O|-P)--(P)}}%
2184 { (P|-O)--(O)[mdfcorners]--(O|-P)--(P)}%
2185 }{}%
2186 \mdf@test@lr{\mdf@tikzbox@otl{(O)--(O|-P)(P)--(P|-O)}}%
2187 { (O)rectangle(P)}%
2188 }{}%
2189 \mdf@test@tb{\mdf@tikzbox@otl{(O)--(O|-P)(O|-P)--(P)}}%
2190 { (O)rectangle(P)}%
2191 }{}%
2192 \mdf@test@l{\mdf@tikzbox@otl{(O)--(O|-P)}}%
2193 { (O)rectangle(P)}%
2194 }{}%
2195 \mdf@test@r{\mdf@tikzbox@otl{(O|-P)--(P)}}%
2196 { (O)rectangle(P)}%
2197 }{}%
2198 \mdf@test@t{\mdf@tikzbox@otl{(O|-P)--(P)}}%
2199 { (O)rectangle(P)}%
2200 }{}%
2201 \mdf@test@b{\mdf@tikzbox@otl{(O)--(O|-P)}}%
2202 { (O)rectangle(P)}%
2203 }{}%
2204 \mdf@test@noline{\path[mdfbackground,mdfcorners](O)rectangle(P);}{}%
2205 }{
2206 \ifboolexpr{test {\mdf@test@ltrb} or test {\mdf@test@ltr}}%
2207 {\mdf@tikzbox@tfl{(O)--(O|-P)--(P)--(P|-O)}}%
2208 {}%
2209 \ifboolexpr{test {\mdf@test@ltb} or test {\mdf@test@lt}}%
2210 {\mdf@tikzbox@otl{(O)--(O|-P)--(P)}}{(P|-O)--(O)[mdfcorners]--(O|-P)--(P)}}%
2211 {}%
2212 \ifboolexpr{test {\mdf@test@trb} or test {\mdf@test@tr}}%
2213 {\mdf@tikzbox@otl{(O|-P)--(P)--(P|-O)}}{(O)--(O|-P)[mdfcorners]--(P)--(P|-O)}}%
2214 {}%
2215 \ifboolexpr{test {\mdf@test@lrb} or test {\mdf@test@lr}}%
2216 {\mdf@tikzbox@otl{(O)--(O|-P)(P)--(P|-O)}}{(O)rectangle(P)}}%
2217 {}%
2218 \ifboolexpr{test {\mdf@test@tb} or test {\mdf@test@t}}%
2219 {\mdf@tikzbox@otl{(O|-P)--(P)}}{(O)rectangle(P)}}%
2220 {}%
2221 \ifboolexpr{test {\mdf@test@lb} or test {\mdf@test@l}}%
2222 {\mdf@tikzbox@otl{(O)--(O|-P)}}{(O)rectangle(P)}}%
2223 {}%
2224 \ifboolexpr{test {\mdf@test@rb} or test {\mdf@test@r}}%
2225 {\mdf@tikzbox@otl{(O|-P)--(P)}}{(O)rectangle(P)}}%

```

```

2226      {}%
2227      \mdf@test@b{\path[mdfbackground](0)rectangle(P);}%
2228      \mdf@test@noline{\path[mdfbackground,mdfcorners](0)--(0|-P)--(P)--(P|-0);}%
2229    }
2230    %%%%%%%%%%
2231    \drawbrackgroundframetitle@first
2232    \node[mdfbox]at(\mdf@Ax,\mdf@Ay){\box\mdf@splitbox@two};% Ausgabebox einfuegen
2233    \end{scope}
2234    %HIER KOMMT EIN WEITERES MAKRO
2235    \mdf@firstextra
2236    \mdfcreateextratikz%
2237    \end{tikzpicture}%
2238    }%
2239    \mdf@makeboxalign@right%
2240  }%
2241  \fi
2242 }%

```

\mdf@putbox@middle

Output of the middle breakable contents.

```

2243 \def\drawbrackgroundframetitle@middle{%
2244   \ifdefempty{\mdf@frametitle}{}{}%
2245   \ifdimless{\mdfframetitleboxtotalheight}{\z@}
2246   {}{}%
2247   \drawbrackgroundframetitle@@middle%
2248   \pgfmathsetlength{\global\mdfframetitleboxtotalheight}{-\p@}%
2249 }%
2250 }%
2251 }%
2252 %
2253 \def\drawbrackgroundframetitle@@middle{%
2254   \begin{scope}%background frame title
2255     \ifbool{mdf@leftline}{
2256       \pgfmathsetlengthmacro\mdf@0x%
2257         {\mdf@0x+\mdf@innerlinewidth@length+0.5\mdf@middlelinewidth@length}
2258     }{}%
2259     \ifbool{mdf@rightline}{%
2260       \pgfmathsetlengthmacro\mdf@Px%
2261         {\mdf@Px-\mdf@innerlinewidth@length-0.5\mdf@middlelinewidth@length}
2262     }{}%
2263     \pgfmathsetlengthmacro\mdf@Fy
2264       {\mdf@Py-\mdfframetitleboxtotalheight}
2265     \path[mdfframetitlebackground,rounded corners=\z@]
2266       (\mdf@0x,\mdf@Fy) -- (\mdf@0x,\mdf@Py)%
2267       -- (\mdf@Px,\mdf@Py) -- (\mdf@Px,\mdf@Fy);
2268   \end{scope}
2269 }%
2270 %
2271 \def\drawbrackgroundframetitle@@middle{%
2272   \begin{scope}%background frame title
2273     \ifbool{mdf@leftline}{
2274       \pgfmathsetlengthmacro\mdf@0x%
2275         {\mdf@0x+\mdf@innerlinewidth@length+0.5\mdf@middlelinewidth@length}
2276     }{}%

```

```

2277 \ifbool{mdf@rightline}{%
2278 \pgfmathsetlengthmacro\mdf@Px%
2279 {\mdf@Px-\mdf@innerlinewidth@length-0.5\mdf@middlelinewidth@length}
2280 }{}%
2281 \pgfmathsetlengthmacro\mdf@Fy
2282 {\mdf@Py-\mdfframetitleboxtotalheight}
2283 \path[mdfframetitlebackground,rounded corners=\z@]
2284 (\mdf@Ox,\mdf@Fy) -- (\mdf@Ox,\mdf@Py)%
2285 -- (\mdf@Px,\mdf@Py) -- (\mdf@Px,\mdf@Fy);
2286 \end{scope}
2287 }%
2288 \def\mdf@putbox@middle{%
2289 \ifvoid\mdf@splitbox@two
2290 \else%
2291 \mdf@makebox@out{%
2292 \mdf@makeboxalign@left%
2293 \mdf@tikz@settings%
2294 \setlength\mdfboundingboxwidth{\wd\mdf@splitbox@two}%
2295 \advance\mdfboundingboxwidth by \mdf@innerleftmargin@length\relax%
2296 \advance\mdfboundingboxwidth by \mdf@innerrightmargin@length\relax%
2297 \ifbool{mdf@leftline}{%
2298 \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
2299 \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
2300 \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}}{}%
2301 \ifbool{mdf@rightline}{%
2302 \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
2303 \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
2304 \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}}{}%
2305 \setlength\mdfboundingboxheight{\dimexpr\ht\mdf@splitbox@two+\dp\mdf@splitbox@two\relax}%
2306 \advance\mdfboundingboxheight by \mdf@splitbottomskip@length\relax%
2307 %%%%%%%%%%
2308 \ifbool{mdf@everyline}{%
2309 \ifbool{mdf@topline}{%
2310 \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
2311 \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
2312 \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}}{}%
2313 \ifbool{mdf@bottomline}{%
2314 \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
2315 \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
2316 \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}}{}%
2317 }{}%
2318 %%%%%%%%%%
2319 \mdf@makebox@in[\mdfboundingboxwidth]{%
2320 \null%
2321 \begin{tikzpicture}[remember picture]
2322 \pgfmathsetlengthmacro\mdf@Ax{+\mdf@innerleftmargin@length}%
2323 \pgfmathsetlengthmacro\mdf@Ay{+\mdf@splitbottomskip@length}%
2324 \pgfmathsetlengthmacro\mdf@Ox{+0pt}%
2325 \pgfmathsetlengthmacro\mdf@Oy{+0pt}%
2326 \pgfmathsetlengthmacro\mdf@Px{+\mdfboundingboxwidth}%
2327 \pgfmathsetlengthmacro\mdf@Py{+\mdfboundingboxheight}%
2328 \ifbool{mdf@leftline}%
2329 {%
2330 \pgfmathsetlengthmacro\mdf@Ax%
2331 {\mdf@Ax+\mdf@outerlinewidth@length+%
2332 \mdf@middlelinewidth@length+\mdf@innerlinewidth@length}%

```

```

2333     \pgfmathsetlengthmacro\mdf@0x%
2334         {\mdf@0x+\mdf@outerlinewidth@length+0.5\mdf@middlelinewidth@length}%
2335     }{}%
2336     \ifbool{mdf@rightline}%
2337     {%
2338         \pgfmathsetlengthmacro\mdf@Px%
2339             {\mdf@Px-\mdf@outerlinewidth@length-0.5\mdf@middlelinewidth@length}%
2340     }{}%
2341 %%
2342     \ifbool{mdf@everyline}{%
2343         \ifbool{mdf@bottomline}%
2344         {%
2345             \pgfmathsetlengthmacro\mdf@Ay%
2346                 {\mdf@Ay+\mdf@outerlinewidth@length+\mdf@middlelinewidth@length
2347                     +\mdf@innerlinewidth@length}%
2348             \pgfmathsetlengthmacro\mdf@0y%
2349                 {\mdf@0y+\mdf@outerlinewidth@length+0.5\mdf@middlelinewidth@length}%
2350         }{}%
2351         \ifbool{mdf@topline}%
2352         {%
2353             \pgfmathsetlengthmacro\mdf@Py%
2354                 {\mdf@Py-\mdf@outerlinewidth@length-0.5\mdf@middlelinewidth@length}%
2355         }{}%
2356     }{}%
2357 %%
2358     \coordinate(0)at(\mdf@0x,\mdf@0y);%
2359     \coordinate(P)at(\mdf@Px,\mdf@Py);%
2360     \ifbool{mdf@shadow}
2361     {\path[mdfshadow](0) rectangle (P);}%
2362     \begin{scope}[use as bounding box]
2363 %%%%%%%%%%%
2364     \ifbool{mdf@everyline}{%
2365         \mdf@test@lrb{\mdf@tikzbox@tfl{(0)--(0|-P)--(P)--(P|-0)--cycle)}}{}%
2366         \mdf@test@ltb{\mdf@tikzbox@tfl{(P|-0)--(0)--(0|-P)--(P))}}{}%
2367         \mdf@test@trb{\mdf@tikzbox@tfl{(0|-P)--(P)--(P|-0)--(0))}}{}%
2368         \mdf@test@ltr{\mdf@tikzbox@tfl{(0)--(0|-P)--(P)--(P|-0))}}{}%
2369         \mdf@test@lrb{\mdf@tikzbox@tfl{(P|-0)--(0)--(0|-P)--(P))}}{}%
2370         \mdf@test@lb{\mdf@tikzbox@otl{(P|-0)--(0)--(0|-P))}%
2371             {(P)--(P|-0)[mdfcorners]--(0)--(0|-P)}}%
2372     }{}%
2373     \mdf@test@rb{\mdf@tikzbox@otl{(P)--(P|-0)--(0))}%
2374         {(0|-P)--(P)[mdfcorners]--(P|-0)--(0)}}%
2375     }{}%
2376     \mdf@test@tr{\mdf@tikzbox@otl{(0|-P)--(P)--(P|-0))}%
2377         {(0)--(0|-P)[mdfcorners]--(P)--(P|-0)}}%
2378     }{}%
2379     \mdf@test@lt{\mdf@tikzbox@otl{(0)--(0|-P)--(P))}%
2380         {(P|-0)--(0)[mdfcorners]--(0|-P)--(P)}}%
2381     }{}%
2382     \mdf@test@lr{\mdf@tikzbox@otl{(0)--(0|-P)(P)--(P|-0))}%
2383         {(0)rectangle(P)}}%
2384     }{}%
2385     \mdf@test@tb{\mdf@tikzbox@otl{(0)--(0|-P)(0|-P)--(P))}%
2386         {(0)rectangle(P)}}%
2387     }{}%
2388     \mdf@test@l{\mdf@tikzbox@otl{(0)--(0|-P))}%

```

```

2389             {(0)rectangle(P)}%
2390         }{}%
2391     \mdf@test@r{\mdf@tikzbox@otl{(0|P)--(P)}%
2392             {(0)rectangle(P)}%
2393         }{}%
2394     \mdf@test@t{\mdf@tikzbox@otl{(0|P)--(P)}%
2395             {(0)rectangle(P)}%
2396         }{}%
2397     \mdf@test@b{\mdf@tikzbox@otl{(0)--(0|P)}%
2398             {(0)rectangle(P)}%
2399         }{}%
2400     \mdf@test@noline{\path[mdfbackground,mdfcorners](0)rectangle(P);}{}%
2401 }{
2402     \ifboolexpr{bool {mdf@leftline} and bool {mdf@rightline}}%
2403         {\mdf@tikzbox@otl{(0)--(0|P)(P)--(P|0)}{(0)rectangle(P)}}{}%
2404     \ifboolexpr{bool {mdf@leftline} and not (bool {mdf@rightline})}%
2405         {\mdf@tikzbox@otl{(0)--(0|P)}{(0)rectangle(P)}}{}%
2406     \ifboolexpr{not (bool {mdf@leftline}) and bool {mdf@rightline}}%
2407         {\mdf@tikzbox@otl{(P)--(P|0)}{(0)rectangle(P)}}{}%
2408     \ifboolexpr{not (bool {mdf@leftline}) and not (bool {mdf@rightline})}%
2409         {\path[mdfbackground](0)rectangle(P);}{}%
2410 }
2411 %%%%%%%%%%
2412     \drawbackgroundframetitle@middle
2413     \node[mdfbox]at(\mdf@Ax,\mdf@Ay){\box\mdf@splitbox@two};% Ausgabebox einfuegen
2414     \end{scope}
2415     \mdf@middleextra
2416     %HIER KOMMT EIN WEITERES MAKRO
2417     \mdfcreateextratikz
2418     \end{tikzpicture}%
2419 }%
2420     \mdf@makeboxalign@right%
2421 }%
2422 \fi
2423 }%

```

\mdf@putbox@second

Output of the last breakable contents.

```

2424 \def\drawbackgroundframetitle@second{%
2425     \ifdefempty{\mdf@frametitle}{}{}%
2426     \ifdimless{\mdfframetitleboxtotalheight}{\z@}
2427     {}{}%
2428     \drawbackgroundframetitle@@second%
2429     }%
2430 }%
2431 }%
2432 %
2433 \def\drawbackgroundframetitle@@second{%
2434     \begin{scope}%background frame title
2435         \ifbool{mdf@leftline}{
2436             \pgfmathsetlengthmacro\mdf@0x%
2437                 {\mdf@0x+\mdf@innerlinewidth@length+0.5\mdf@middlelinewidth@length}
2438             {}{}%
2439             \ifbool{mdf@rightline}{%

```



```

2440 \pgfmathsetlengthmacro\mdf@Px%
2441 {\mdf@Px-\mdf@innerlinewidth@length-0.5\mdf@middlelinewidth@length}
2442 }{}%
2443 \pgfmathsetlengthmacro\mdf@Fy
2444 {\mdf@Py-\mdfframetitleboxtotalheight}
2445 \path[mdfframetitlebackground,rounded corners=\z@]
2446 (\mdf@0x,\mdf@Fy) -- (\mdf@0x,\mdf@Py)%
2447 -- (\mdf@Px,\mdf@Py) -- (\mdf@Px,\mdf@Fy);
2448 \end{scope}
2449 }%
2450 \def\mdf@putbox@second{%
2451 \ifvoid\mdf@splitbox@one
2452 \else%
2453 \mdf@makebox@out{%
2454 \mdf@makeboxalign@left%
2455 \mdf@tikz@settings%
2456 \setlength\mdfboundingboxwidth{\wd\mdf@splitbox@one}%
2457 \advance\mdfboundingboxwidth by \mdf@innerleftmargin@length\relax%
2458 \advance\mdfboundingboxwidth by \mdf@innerrightmargin@length\relax%
2459 \ifbool{mdf@leftline}{%
2460 \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
2461 \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
2462 \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}}{}%
2463 \ifbool{mdf@rightline}{%
2464 \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
2465 \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
2466 \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}}{}%
2467 \setlength\mdfboundingboxheight{\dimexpr\ht\mdf@splitbox@one+\dp\mdf@splitbox@one\relax}%
2468 \advance\mdfboundingboxheight by \mdf@innerbottommargin@length\relax%
2469 \ifbool{mdf@bottomline}{%
2470 \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
2471 \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
2472 \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}}{}%
2473 %%%%%%%%%%
2474 \ifbool{mdf@everyline}{%
2475 \ifbool{mdf@topline}{%
2476 \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
2477 \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
2478 \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}}{}%
2479 }{}%
2480 %%%%%%%%%%
2481 \mdf@makebox@in[\mdfboundingboxwidth]{%
2482 \null%
2483 \begin{tikzpicture}[remember picture]
2484 \pgfmathsetlengthmacro\mdf@Ax{+\mdf@innerleftmargin@length}%
2485 \pgfmathsetlengthmacro\mdf@Ay{+\mdf@innerbottommargin@length}%
2486 \pgfmathsetlengthmacro\mdf@0x{+0pt}%
2487 \pgfmathsetlengthmacro\mdf@0y{+0pt}%
2488 \pgfmathsetlengthmacro\mdf@Px{+\mdfboundingboxwidth}%
2489 \pgfmathsetlengthmacro\mdf@Py{+\mdfboundingboxheight}%
2490 \ifbool{mdf@leftline}%
2491 {%
2492 \pgfmathsetlengthmacro\mdf@Ax%
2493 {\mdf@Ax+\mdf@outerlinewidth@length+%
2494 \mdf@middlelinewidth@length+\mdf@innerlinewidth@length}%
2495 \pgfmathsetlengthmacro\mdf@0x%

```



```

2496         {\mdf@0x+\mdf@outerlinewidth@length+0.5\mdf@middlelinewidth@length}%
2497     }{}%
2498     \ifbool{mdf@rightline}%
2499     {%
2500         \pgfmathsetlengthmacro\mdf@Px%
2501             {\mdf@Px-\mdf@outerlinewidth@length-0.5\mdf@middlelinewidth@length}%
2502     }{}%
2503     \ifbool{mdf@bottomline}%
2504     {%
2505         \pgfmathsetlengthmacro\mdf@Ay%
2506             {\mdf@Ay+\mdf@outerlinewidth@length+
2507             \mdf@middlelinewidth@length+\mdf@innerlinewidth@length}%
2508         \pgfmathsetlengthmacro\mdf@Oy%
2509             {\mdf@Oy+\mdf@outerlinewidth@length+0.5\mdf@middlelinewidth@length}%
2510     }{}%
2511 %%
2512     \ifbool{mdf@everyline}{%
2513         \ifbool{mdf@topline}%
2514         {%
2515             \pgfmathsetlengthmacro\mdf@Py%
2516                 {\mdf@Py-\mdf@outerlinewidth@length-0.5\mdf@middlelinewidth@length}%
2517         }{}%
2518     }{}%
2519 %%
2520     \coordinate(0)at(\mdf@0x,\mdf@0y);%
2521     \coordinate(P)at(\mdf@Px,\mdf@Py);%
2522     \ifbool{mdf@shadow}
2523     {\path[mdfshadow] (0|-P) to[mdfcorners] (0) to[mdfcorners] (P|-0) -- (P) -- (0|-P);}%
2524     \begin{scope}[use as bounding box]
2525 %%%%%%%%%%%
2526     \ifbool{mdf@everyline}{%
2527         \mdf@test@lrb{\mdf@tikzbox@tfl{(0)--(0|-P)--(P)--(P|-0)--cycle)}}{}%
2528         \mdf@test@ltb{\mdf@tikzbox@tfl{(P|-0)--(0)--(0|-P)--(P))}}{}%
2529         \mdf@test@trb{\mdf@tikzbox@tfl{(0|-P)--(P)--(P|-0)--(0))}}{}%
2530         \mdf@test@ltr{\mdf@tikzbox@tfl{(0)--(0|-P)--(P)--(P|-0))}}{}%
2531         \mdf@test@lrb{\mdf@tikzbox@tfl{(P|-0)--(0)--(0|-P)--(P))}}{}%
2532         \mdf@test@lb{\mdf@tikzbox@otl{(P|-0)--(0)--(0|-P))}%
2533             {(P)--(P|-0)[mdfcorners]--(0)--(0|-P)}}%
2534         }{}%
2535         \mdf@test@rb{\mdf@tikzbox@otl{(P)--(P|-0)--(0))}%
2536             {(0|-P)--(P)[mdfcorners]--(P|-0)--(0)}}%
2537         }{}%
2538         \mdf@test@tr{\mdf@tikzbox@otl{(0|-P)--(P)--(P|-0))}%
2539             {(0)--(0|-P)[mdfcorners]--(P)--(P|-0)}}%
2540         }{}%
2541         \mdf@test@lt{\mdf@tikzbox@otl{(0)--(0|-P)--(P))}%
2542             {(P|-0)--(0)[mdfcorners]--(0|-P)--(P)}}%
2543         }{}%
2544         \mdf@test@lr{\mdf@tikzbox@otl{(0)--(0|-P)(P)--(P|-0))}%
2545             {(0)rectangle(P)}}%
2546         }{}%
2547         \mdf@test@tb{\mdf@tikzbox@otl{(0)--(0|-P)(0|-P)--(P))}%
2548             {(0)rectangle(P)}}%
2549         }{}%
2550         \mdf@test@l{\mdf@tikzbox@otl{(0)--(0|-P))}%
2551             {(0)rectangle(P)}}%

```

```

2552         }{}%
2553     \mdf@test@r{\mdf@tikzbox@otl{(0|P)--(P)}}%
2554             {(0)rectangle(P)}%
2555         }{}%
2556     \mdf@test@t{\mdf@tikzbox@otl{(0|P)--(P)}}%
2557             {(0)rectangle(P)}%
2558         }{}%
2559     \mdf@test@b{\mdf@tikzbox@otl{(0)--(0|P)}}%
2560             {(0)rectangle(P)}%
2561         }{}%
2562     \mdf@test@noline{\path[mdfbackground,mdfcorners](0)rectangle(P);}{}%
2563 }{%
2564     \ifboolexpr{test {\mdf@test@ltrb} or test {\mdf@test@lr}}%
2565         {\mdf@tikzbox@otl{(P|0)--(0)--(0|P)--(P)}}%
2566         {}%
2567     \ifboolexpr{test {\mdf@test@ltb} or test {\mdf@test@lb}}%
2568         {\mdf@tikzbox@otl{(P|0)--(0)--(0|P)}{(P)--(P|0)[mdfcorners]--(0)--(0|P)}}%
2569         {}%
2570     \ifboolexpr{test {\mdf@test@trb} or test {\mdf@test@rb}}%
2571         {\mdf@tikzbox@otl{(P)--(P|0)--(0)}{(0|P)--(P)[mdfcorners]--(P|0)--(0)}}%
2572         {}%
2573     \ifboolexpr{test {\mdf@test@ltr} or test {\mdf@test@lr}}%
2574         {\mdf@tikzbox@otl{(0)--(0|P)(P)--(P|0)}{(0)rectangle(P)}}%
2575         {}%
2576     \ifboolexpr{test {\mdf@test@tb} or test {\mdf@test@b}}%
2577         {\mdf@tikzbox@otl{(0)--(0|P)}{(0)rectangle(P)}}%
2578         {}%
2579     \ifboolexpr{test {\mdf@test@lt} or test {\mdf@test@l}}%
2580         {\mdf@tikzbox@otl{(0)--(0|P)}{(0)rectangle(P)}}%
2581         {}%
2582     \ifboolexpr{test {\mdf@test@tr} or test {\mdf@test@r}}%
2583         {\mdf@tikzbox@otl{(0|P)--(P)}{(0)rectangle(P)}}%
2584         {}%
2585     \mdf@test@t{\path[mdfbackground,mdfcorners](0|P)--(0)--(0|P)--(P);}{}%
2586     \mdf@test@noline{\path[mdfbackground,mdfcorners](0|P)--(0)--(0|P)--(P);}{}%
2587 }%
2588     \drawbackgroundframetitle@second
2589     \node[mdfbox] at (\mdf@Ax,\mdf@Ay){\box\mdf@splitbox@one};% Ausgabebox einfuegen
2590 \end{scope}
2591     \mdf@secondextra
2592     %HIER KOMMT EIN WEITERES MAKRO
2593     \mdfcreateextratikz
2594 \end{tikzpicture}%
2595 }%
2596 \mdf@makeboxalign@right%
2597 }%
2598 \fi
2599 }%

2600 \endinput

```

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

```

2601 %% Style file for mdframed for package option 'framemethod=default'
2602 %%
2603 %% This package may be distributed under the terms of the LaTeX Project

```

```

2604 %% Public License, as described in lppl.txt in the base LaTeX distribution.
2605 %% Either version 1.0 or, at your option, any later version.
2606 %%
2607 %%
2608 %%$Id: mdframed.dtx 392 2012-04-27 23:10:44Z marco $
2609 %

```

```

\mdframedIIPackagename
\mdf@frameIIDate@svn

```

local settings

```

2610 \def\mdframedIIPackagename{md-frame-2}
2611 \def\mdf@frameIIDate@svn$#1: #2 #3 #4-#5-#6 #7 #8${#4/#5/#6\space }
2612 \ProvidesFile{md-frame-2.mdf}%
2613 [\mdf@frameIIDate@svn$Id: mdframed.dtx 392 2012-04-27 23:10:44Z marco $ %
2614 \mdversion: \mdframedIIPackagename]

```

```

\mdf@ptlength@to@pscode
\ptTps

```

Command to calculate a latex length to postscript

```

2615 \def\mdf@ptlength@to@pscode#1{\pst@number{#1} \pst@number\psxunit div }
2616 \def\mdf@ptlength@to@pscode@length#1{\pst@number{\csname mdf@#1@length\endcsname} \pst@number\psxunit o
2617 \let\ptTps\mdf@ptlength@to@pscode\relax
2618 \let\ptTpsL\mdf@ptlength@to@pscode@length\relax

```

```

\mdfbackgroundstyle
\mdflinestyle
\mdfframetitlestyle
\mdfframetitlebackground

```

background and line settings for pstricks

```

2619 \def\mdfpstricks@settings{%expand by \addtopsstyle
2620 \newpsstyle{mdfbackgroundstyle}%
2621 {linecolor=\mdf@backgroundcolor,fillstyle=solid,%
2622 fillcolor=\mdf@backgroundcolor,linestyle=none,%
2623 ,dimen=middle,%
2624 }%
2625 %
2626 \newpsstyle{mdfframetitlebackgroundstyle}{%
2627 linecolor=\mdf@frametitlebackgroundcolor,
2628 fillcolor=\mdf@frametitlebackgroundcolor,
2629 fillstyle=solid,linestyle=none,
2630 linearc=\ifdimgreater{\mdf@roundcorner@length%
2631 -\mdf@innerlinewidth@length%
2632 -.5\mdf@middlelinewidth@length}
2633 {\z@}{\dimexpr\mdf@roundcorner@length%
2634 -\mdf@innerlinewidth@length%
2635 -.5\mdf@middlelinewidth@length}{\z@},
2636 }
2637 %
2638 \newpsstyle{mdfouterlinestyle}{linestyle=none}%
2639 \ifdimgreater{\mdf@outerlinewidth@length}{\z@}
2640 {\newpsstyle{mdfouterlinestyle}{%
2641 linecolor=\mdf@outerlinecolor,%

```

```

2642 linewidth=\dimexpr2\mdf@outerlinewidth@length+\mdf@middlelinewidth@length\relax,
2643 dimen=middle,
2644 }}{}%
2645 %
2646 \newsstyle{mdfinnerlinestyle}{linestyle=none}%
2647 \ifdimgreater{\mdf@innerlinewidth@length}{\z@}%
2648 {\newsstyle{mdfinnerlinestyle}{%
2649 linewidth=\dimexpr2\mdf@innerlinewidth@length+\mdf@middlelinewidth@length\relax,
2650 dimen=middle,
2651 }}{}%
2652 }}{}%
2653 %
2654 \newsstyle{mdfmiddlelinestyle}{linestyle=none}%
2655 \newsstyle{mdfshadow}{shadow=true,shadowcolor=\mdf@shadowcolor,shadowsize=\mdf@shadowsize@length}%
2656 \ifdimgreater{\mdf@middlelinewidth@length}{\z@}%
2657 {\newsstyle{mdfmiddlelinestyle}{%
2658 linewidth=\mdf@middlelinewidth@length,%
2659 linecolor=\mdf@middlelinecolor,dimen=middle
2660 }}{}%
2661 \mdfpstricks@appendsettings
2662 }%
2663 %
2664 \newrobustcmd*\mdf@pstricksbox@fl[2]{%four lines
2665 \psframe[style=mdfouterlinestyle](#1)(#2)%ausen=3mm
2666 \psframe[style=mdfbackgroundstyle](#1)(#2)%Hintergrund
2667 \psclip{\psframe[style=mdfmiddlelinestyle](#1)(#2)}
2668 \psframe[style=mdfinnerlinestyle](#1)(#2)%innere=3mm
2669 \endpsclip
2670 \psframe[style=mdfmiddlelinestyle](#1)(#2)%mittlere=2mm
2671 }%
2672 \newrobustcmd*\mdf@pstricksbox@tl[1]{%three lines
2673 \psline[style=mdfouterlinestyle]#1%ausen=3mm
2674 \psline[style=mdfbackgroundstyle]#1%Hintergrund
2675 \psclip{\psline[style=mdfmiddlelinestyle]#1}
2676 \psline[style=mdfinnerlinestyle]#1%innere=3mm
2677 \endpsclip
2678 \psline[style=mdfmiddlelinestyle]#1%mittlere=2mm
2679 }%
2680 \newrobustcmd*\mdf@pstricksbox@tcl[2]{%two combined lines
2681 %%#1 background comple
2682 %%#2 line path
2683 \psline[style=mdfouterlinestyle]#2%ausen=3mm
2684 \psline[style=mdfbackgroundstyle]#2%Hintergrund
2685 \psclip{\pscustom[linestyle=none]{
2686 \psline[style=mdfmiddlelinestyle]#2
2687 \psline[linestyle=none,lineararc=0pt]#1}
2688 }
2689 \psframe[style=mdfbackgroundstyle,lineararc=0pt](mdf@0)(mdf@P)%Hintergrund
2690 \psline[style=mdfinnerlinestyle]#2%innere=3mm
2691 \endpsclip
2692 \psline[style=mdfmiddlelinestyle]#2%mittlere=2mm
2693 }%
2694 \newrobustcmd*\mdf@pstricksbox@tncl[2]{%two not combined lines
2695 \begingroup
2696 \psset{lineararc=0pt}
2697 \psline[style=mdfouterlinestyle](mdf@0)#1%ausen=3mm

```

```

2698 \psline[style=mdfouterlinestyle](mdf@P)#2%ausser=3mm
2699 \psclip{
2700   \pscustom[linestyle=none]{%
2701     \psline[style=mdfmiddlelinestyle](mdf@0)#1%mittlere=2mm
2702     \psline[linestyle=none](mdf@0)#2
2703     \psline[style=mdfmiddlelinestyle](mdf@P)#2%mittlere=2mm
2704     \psline[linestyle=none](mdf@P)#1
2705   }%
2706 }%
2707 \psframe[style=mdfbackgroundstyle,lineararc=0pt](mdf@0)(mdf@P)%Hintergrund
2708 \psline[style=mdfinnerlinestyle](mdf@0)#1%innere=3mm
2709 \psline[style=mdfinnerlinestyle](mdf@P)#2%innere=3mm
2710 \endpsclip
2711 \psline[style=mdfmiddlelinestyle](mdf@0)#1%mittlere=2mm
2712 \psline[style=mdfmiddlelinestyle](mdf@P)#2%mittlere=2mm
2713 \endgroup
2714 }%
2715 \newrobustcmd*\mdf@pstricksbox@ol[1]{%one line
2716 \begingroup
2717 \psset{lineararc=0pt}
2718 \psline[style=mdfouterlinestyle]#1%ausser=3mm
2719 \psline[style=mdfbackgroundstyle]#1%Hintergrund
2720 \psclip{\pscustom[linestyle=none]{
2721   \psline[style=mdfmiddlelinestyle]#1
2722   \psframe[linestyle=none,fillstyle=none,dimen=inner](mdf@0)(mdf@P)
2723 }}
2724 \psframe[style=mdfbackgroundstyle](mdf@0)(mdf@P)
2725 \psline[style=mdfinnerlinestyle]#1%innere=3mm
2726 \endpsclip
2727 \psline[style=mdfmiddlelinestyle]#1%mittlere=2mm
2728 \endgroup%
2729 }%
2730
2731 %
2732 \newpsstyle{mdfframetitlerule}{%
2733   linecolor=\mdf@frametitlerulecolor,%
2734   fillcolor=\mdf@frametitlerulecolor,%
2735   fillstyle=solid,dimen=outer,%
2736 }
2737 %

```

\mdf@put@frametitlerule

frametitlerule with pstricks

```

2738 \def\mdf@@frametitlerule{%
2739   \ifbool{mdf@frametitlerule}{%
2740     \vbox{\hsize0pt
2741       \par\unskip\vskip\mdf@frametitlebelowskip@length
2742       \noindent\rlap{%
2743         \begingroup%
2744           \begin{pspicture}(0,0)(0,\mdf@frametitlerulewidth@length)
2745             \psframe[style=mdfframetitlerule](!\ptTpsL{innerleftmargin} neg 0)%
2746                                     (! \ptTpsL{innerrightmargin}
2747                                     \ptTpsL{\mdfframetitleboxwidth} add \ptTpsL{frametitlerulewidth})
2748           \end{pspicture}

```

```

2749     \endgroup}
2750   }%
2751 }{}
2752 \par\unskip\vskip\mdf@innertopmargin@length%
2753 }%
2754 %
2755 % \begin{macro}{mdf@putbox@single}
2756 % Single output
2757 %   \begin{macrocode}
2758 % Info zu den verwendeten Punkten:
2759 % O ist die untere linke Ecke der Mitte der middleline
2760 % P ist die obere rechte Ecke der Mitte der middleline
2761 % A ist der Punkt fuer den anchor (d.h. die untere linke Ecke) der Ausgabebox
2762 \def\mdf@putbox@single{%
2763   \ifvoid\mdf@splitbox@one
2764   \else%
2765     \mdf@makebox@out{%
2766       \mdf@makeboxalign@left%
2767       \setlength\mdfboundingboxwidth{\wd\mdf@splitbox@one}%
2768       \advance\mdfboundingboxwidth by \mdf@innerleftmargin@length\relax%
2769       \advance\mdfboundingboxwidth by \mdf@innerrightmargin@length\relax%
2770       \ifbool{mdf@leftline}{%
2771         \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
2772         \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
2773         \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}%{}%
2774       \ifbool{mdf@rightline}{%
2775         \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
2776         \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
2777         \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}%{}%
2778     }%
2779     \setlength\mdfboundingboxheight{\dimexpr\ht\mdf@splitbox@one+\dp\mdf@splitbox@one\relax}%
2780     \advance\mdfboundingboxheight by \mdf@innerbottommargin@length\relax%
2781     \advance\mdfboundingboxheight by \mdf@innertopmargin@length\relax%
2782     \ifbool{mdf@topline}{%
2783       \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
2784       \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
2785       \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}%{}%
2786     \ifbool{mdf@bottomline}{%
2787       \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
2788       \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
2789       \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}%{}%
2790   }%
2791   \setlength\mdftotallinewidth{\dimexpr\mdf@innerlinewidth@length%
2792     +\mdf@middlelinewidth@length
2793     +\mdf@outerlinewidth@length\relax}%
2794   \psset{unit=1truecm}%
2795   \mdf@makebox@in[\mdfboundingboxwidth]{%
2796     \null%
2797     \begin{pspicture}(0,0)(\mdfboundingboxwidth,\mdfboundingboxheight)
2798       \mdfpstricks@settings%
2799       \psset{lineararc=\mdf@roundcorner@length, cornersize=absolut,}%
2800       \expandafter\psset\expandafter{\mdf@psset@local}%
2801       \pnode(\mdf@innerleftmargin@length,\mdf@innerbottommargin@length){mdf@A}
2802       \pnode(0,0){mdf@O}
2803       \pnode(\mdfboundingboxwidth,\mdfboundingboxheight){mdf@P}
2804       \ifbool{mdf@leftline}%

```

```

2805      {%
2806      \nodexn{(mdf@A)+(\mdf@outerlinewidth@length,0)
2807              +(\mdf@middlelinewidth@length,0)
2808              +(\mdf@innerlinewidth@length,0)}{mdf@A}%
2809      \nodexn{(mdf@0)+(\mdf@outerlinewidth@length,0)
2810              +0.5(\mdf@middlelinewidth@length,0)}{mdf@0}%
2811      }{}%
2812      \ifbool{mdf@rightline}%
2813      {%
2814      \nodexn{(mdf@P) - (\mdf@outerlinewidth@length,0)
2815              -0.5(\mdf@middlelinewidth@length,0)}{mdf@P}%
2816      }{}%
2817      \ifbool{mdf@bottomline}%
2818      {%
2819      \nodexn{(mdf@A)+(0,\mdf@outerlinewidth@length)
2820              +(0,\mdf@middlelinewidth@length)
2821              +(0,\mdf@innerlinewidth@length)}{mdf@A}%
2822      \nodexn{(mdf@0)+(0,\mdf@outerlinewidth@length)
2823              +0.5(0,\mdf@middlelinewidth@length)}{mdf@0}%
2824      }{}%
2825      \ifbool{mdf@topline}%
2826      {%
2827      \nodexn{(mdf@P) - (0,\mdf@outerlinewidth@length)
2828              -0.5(0,\mdf@middlelinewidth@length)}{mdf@P}
2829      }{}%
2830      \ifbool{mdf@shadow}
2831      {\psframe[style=mdfshadow](mdf@0)(mdf@P)}{}
2832      %
2833      \psclip{%
2834      %Four lines
2835      \mdf@test@lrb{\mdf@pstricksbox@fl{mdf@0}{mdf@P}}{}
2836      %three lines
2837      \mdf@test@ltb{\mdf@pstricksbox@tl{(mdf@P|mdf@0)(mdf@0)(mdf@0|mdf@P)(mdf@P)}}{}
2838      \mdf@test@trb{\mdf@pstricksbox@tl{(mdf@0)(mdf@P|mdf@0)(mdf@P)(mdf@0|mdf@P)}}{}
2839      \mdf@test@ltr{\mdf@pstricksbox@tl{(mdf@0)(mdf@0|mdf@P)(mdf@P)(mdf@P|mdf@0)}}{}
2840      \mdf@test@lrb{\mdf@pstricksbox@tl{(mdf@0|mdf@P)(mdf@0)(mdf@P|mdf@0)(mdf@P)}}{}
2841      %two lines combined
2842      \mdf@test@lb{\mdf@pstricksbox@tcl{(mdf@P|mdf@0)(mdf@P)(mdf@0|mdf@P)}%
2843              {(mdf@0|mdf@P)(mdf@0)(mdf@P|mdf@0)}}{}
2844      \mdf@test@rb{\mdf@pstricksbox@tcl{(mdf@P)(mdf@0|mdf@P)(mdf@0)}%
2845              {(mdf@0)(mdf@P|mdf@0)(mdf@P)}}{}
2846      \mdf@test@tr{\mdf@pstricksbox@tcl{(mdf@P|mdf@0)(mdf@0)(mdf@0|mdf@P)}%
2847              {(mdf@0|mdf@P)(mdf@P)(mdf@P|mdf@0)}}{}
2848      \mdf@test@lt{\mdf@pstricksbox@tcl{(mdf@0)(mdf@P|mdf@0)(mdf@P)}%
2849              {(mdf@0)(mdf@0|mdf@P)(mdf@P)}}{}
2850      %two lines not combined
2851      \mdf@test@lr{\mdf@pstricksbox@tncl{(mdf@0|mdf@P)}{(mdf@P|mdf@0)}}
2852      {}
2853      \mdf@test@tb{\mdf@pstricksbox@tncl{(mdf@P|mdf@0)}{(mdf@0|mdf@P)}}
2854      {}
2855      %single line
2856      \mdf@test@l{\mdf@pstricksbox@ol{(mdf@0)(mdf@0|mdf@P)}}{}
2857      \mdf@test@r{\mdf@pstricksbox@ol{(mdf@P)(mdf@P|mdf@0)}}{}
2858      \mdf@test@t{\mdf@pstricksbox@ol{(mdf@P)(mdf@0|mdf@P)}}{}
2859      \mdf@test@b{\mdf@pstricksbox@ol{(mdf@0)(mdf@P|mdf@0)}}{}
2860      %no line
2861      \mdf@test@noline{\psframe[style=mdfbackgroundstyle](mdf@0)(mdf@P)}{}

```



```

2861 %      }
2862      %Frametitlebackground
2863      \drawbackgroundframetitle@single
2864      %output%
2865      \rput[bl](mdf@A){\box\mdf@splitbox@one}
2866 %      \psdot(mdf@A)\uput[90](mdf@A){mdf at A}
2867 %      \psdot(mdf@P)\uput[90](mdf@P){mdf at P}
2868 %      \psdot(mdf@O)\uput[90](mdf@O){mdf at O}
2869 %
2870 %      \endpsclip
2871      \mdf@singleextra
2872      \end{pspicture}%
2873  }%
2874  \mdf@makeboxalign@right%
2875  }%
2876  \fi
2877 }%
2878 \def\drawbackgroundframetitle@single{%
2879 \ifdefempty{\mdf@frametitle}}{%
2880   \drawbackgroundframetitle@@single%
2881 }%
2882 }%
2883 \def\drawbackgroundframetitle@@single{%
2884 \begingroup%
2885 \ifbool{mdf@leftline}{%
2886   \nodexn{(mdf@O)+(\mdf@innerlinewidth@length,0)
2887     +0.5(\mdf@middlelinewidth@length,0)}{mdf@O}%
2888   }{%
2889 \ifbool{mdf@rightline}{%
2890   \nodexn{(mdf@P)-(\mdf@innerlinewidth@length,0)
2891     -0.5(\mdf@middlelinewidth@length,0)}{mdf@P}%
2892   }{%
2893 \ifbool{mdf@topline}{%
2894   \nodexn{(mdf@P)-(0,\mdf@innerlinewidth@length)
2895     -0.5(0,\mdf@middlelinewidth@length)}{mdf@P}%
2896   }{%
2897 \nodexn{(mdf@P)-(0,\mdfframetitleboxtotalheight)}{mdf@F}%
2898 \psline[style=mdfframetitlebackgroundstyle](mdf@O|mdf@F)(mdf@O|mdf@P)
2899   (mdf@P)(mdf@P|mdf@F)%
2900 \endgroup
2901 }

```

\mdf@putbox@first

First output

```

2902 \def\mdf@putbox@first{%
2903 \ifvoid\mdf@splitbox@two
2904 \else%
2905 \mdf@makebox@out{%
2906   \mdf@makeboxalign@left%
2907   %\ifbool{mdf@leftline}{\hspace*{\mdf@middlelinewidth@length}}{%
2908   \setlength\mdf@boundingboxwidth{\wd\mdf@splitbox@two}%
2909   \advance\mdf@boundingboxwidth by \mdf@innerleftmargin@length\relax%
2910   \advance\mdf@boundingboxwidth by \mdf@innerrightmargin@length\relax%
2911   \ifbool{mdf@leftline}{%

```



```

2912 \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
2913 \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
2914 \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}}}%
2915 \ifbool{mdf@rightline}{%
2916 \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
2917 \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
2918 \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}}}%
2919 \setlength\mdfboundingboxheight{\dimexpr\ht\mdf@splitbox@two+\dp\mdf@splitbox@two\relax}%
2920 \advance\mdfboundingboxheight by \mdf@innertopmargin@length\relax%
2921 \advance\mdfboundingboxheight by \mdf@splitbottomskip@length\relax%
2922 \ifbool{mdf@topline}{%
2923 \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
2924 \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
2925 \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}}}%
2926 %%%%%%%%%
2927 \ifbool{mdf@everyline}{%
2928 \ifbool{mdf@bottomline}{%
2929 \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
2930 \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
2931 \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}}}%
2932 }{}%
2933 %%%%%%%%%
2934 \psset{linear=\mdf@roundcorner@length, cornersize=absolute}%
2935 \expandafter\psset\expandafter{\mdf@psset@local}%
2936 \mdf@makebox@in[\mdfboundingboxwidth]{%
2937 \null%
2938 \psset{unit=1truecm}%
2939 \ifdimgreater{\mdfboundingboxheight}{\vsize}
2940 {\begin{pspicture}(0,0)(\mdfboundingboxwidth,\vsize)}
2941 {\begin{pspicture}(0,0)(\mdfboundingboxwidth,\mdfboundingboxheight)}
2942 \mdfpstricks@settings%
2943 \psset{linear=\mdf@roundcorner@length, cornersize=absolut,}%
2944 \expandafter\psset\expandafter{\mdf@psset@local}%
2945 \pnode(\mdf@innerleftmargin@length,\mdf@splitbottomskip@length){mdf@A}
2946 \pnode(0,0){mdf@0}
2947 \pnode(\mdfboundingboxwidth,\mdfboundingboxheight){mdf@P}
2948 \ifbool{mdf@leftline}%
2949 {%
2950 \nodexn{(\mdf@A)+(\mdf@outerlinewidth@length,0)
2951 +(\mdf@middlelinewidth@length,0)
2952 +(\mdf@innerlinewidth@length,0)}}{mdf@A}
2953 \nodexn{(\mdf@0)+(\mdf@outerlinewidth@length,0)
2954 +0.5(\mdf@middlelinewidth@length,0)}}{mdf@0}
2955 }{}%
2956 \ifbool{mdf@rightline}%
2957 {%
2958 \nodexn{(\mdf@P)-(\mdf@outerlinewidth@length,0)
2959 -0.5(\mdf@middlelinewidth@length,0)}}{mdf@P}
2960 }{}%
2961 \ifbool{mdf@topline}%
2962 {%
2963 \nodexn{(\mdf@P)-(0,\mdf@outerlinewidth@length)
2964 -0.5(0,\mdf@middlelinewidth@length)}}{mdf@P}
2965 }{}%
2966 %%%%%%%%%
2967 \ifbool{mdf@everyline}{%

```

```

2968 \ifbool{mdf@bottomline}%
2969 {%
2970 \nodexn{(mdf@A)+(0,\mdf@outerlinewidth@length)
2971 +(0,\mdf@middlelinewidth@length)
2972 +(0,\mdf@innerlinewidth@length)}}{mdf@A}%
2973 \nodexn{(mdf@0)+(0,\mdf@outerlinewidth@length)
2974 +0.5(0,\mdf@middlelinewidth@length)}}{mdf@0}%
2975 }{}%
2976 }{}%
2977 %%%%%%%%%%
2978 \ifbool{mdf@shadow}
2979 {\pscustom[style=mdfshadow,linestyle=none]{%
2980 \psline[linejoin=2,linecap=1,](mdf@P|mdf@0)(mdf@P)(mdf@0|mdf@P)%
2981 \psline[linejoin=2,linecap=1,lineararc=\z@](mdf@0|mdf@P)(mdf@0)(mdf@P|mdf@0)
2982 \closedshadow
2983 }
2984 }{}
2985 % \psclip{
2986 %%%%%%%%%%
2987 \ifbool{mdf@everyline}{%
2988 %Four lines
2989 \mdf@test@lrb{\mdf@pstricksbox@fl{mdf@0}{mdf@P}}{}
2990 %three lines
2991 \mdf@test@ltb{\mdf@pstricksbox@tl{(mdf@P|mdf@0)(mdf@0)(mdf@0|mdf@P)(mdf@P)}}{}
2992 \mdf@test@trb{\mdf@pstricksbox@tl{(mdf@0)(mdf@P|mdf@0)(mdf@P)(mdf@0|mdf@P)}}{}
2993 \mdf@test@ltr{\mdf@pstricksbox@tl{(mdf@0)(mdf@0|mdf@P)(mdf@P)(mdf@P|mdf@0)}}{}%
2994 \mdf@test@lrb{\mdf@pstricksbox@tl{(mdf@0|mdf@P)(mdf@0)(mdf@P|mdf@0)(mdf@P)}}{}%
2995 %two lines combined
2996 \mdf@test@lb{\mdf@pstricksbox@tcl{(mdf@P|mdf@0)(mdf@P)(mdf@0|mdf@P)}%
2997 {(mdf@0|mdf@P)(mdf@0)(mdf@P|mdf@0)}}{}
2998 \mdf@test@rb{\mdf@pstricksbox@tcl{(mdf@P)(mdf@0|mdf@P)(mdf@0)}%
2999 {(mdf@0)(mdf@P|mdf@0)(mdf@P)}}{}
3000 \mdf@test@tr{\mdf@pstricksbox@tcl{(mdf@P|mdf@0)(mdf@0)(mdf@0|mdf@P)}%
3001 {(mdf@0|mdf@P)(mdf@P)(mdf@P|mdf@0)}}{}
3002 \mdf@test@lt{\mdf@pstricksbox@tcl{(mdf@0)(mdf@P|mdf@0)(mdf@P)}%
3003 {(mdf@0)(mdf@0|mdf@P)(mdf@P)}}{}
3004 %two lines not combined combined
3005 \mdf@test@lr{\mdf@pstricksbox@tncl{(mdf@0|mdf@P)}{(mdf@P|mdf@0)}
3006 {}
3007 \mdf@test@tb{\mdf@pstricksbox@tncl{(mdf@P|mdf@0)}{(mdf@0|mdf@P)}
3008 {}
3009 %single line
3010 \mdf@test@l{\mdf@pstricksbox@ol{(mdf@0)(mdf@0|mdf@P)}}{}
3011 \mdf@test@r{\mdf@pstricksbox@ol{(mdf@P)(mdf@P|mdf@0)}}{}
3012 \mdf@test@t{\mdf@pstricksbox@ol{(mdf@P)(mdf@0|mdf@P)}}{}
3013 \mdf@test@b{\mdf@pstricksbox@ol{(mdf@0)(mdf@P|mdf@0)}}{}
3014 %no line
3015 \mdf@test@noline{\psframe[style=mdfbackgroundstyle](mdf@0)(mdf@P)}}{}%
3016 }{}
3017 %Four or Three lines
3018 \ifboolexpr{test {\mdf@test@lrb} or test {\mdf@test@ltr}}%
3019 {\mdf@pstricksbox@tl{(mdf@0)(mdf@0|mdf@P)(mdf@P)(mdf@P|mdf@0)}}{}%
3020 }{}
3021 %two combined lines
3022 \ifboolexpr{test {\mdf@test@ltb} or test {\mdf@test@lt}}
3023 {\mdf@pstricksbox@tcl{(mdf@0)(mdf@P|mdf@0)(mdf@P)}%

```

```

3024                                     {(mdf@0)(mdf@0|mdf@P)(mdf@P)}}{}
3025 \ifboolexpr{test {\mdf@test@trb} or test {\mdf@test@tr}}%
3026         {\mdf@pstricksbox@tcl{(mdf@P|mdf@0)(mdf@0)(mdf@0|mdf@P)}}%
3027         {(mdf@0|mdf@P)(mdf@P)(mdf@P|mdf@0)}}{}
3028 %two not combined lines
3029 \ifboolexpr{test {\mdf@test@lrb} or test {\mdf@test@lr}}%
3030         {\mdf@pstricksbox@tncl{(mdf@0|mdf@P)}}{(mdf@P|mdf@0)}}{}
3031 %single line
3032 \ifboolexpr{test {\mdf@test@tb} or test {\mdf@test@t}}%
3033         {\mdf@pstricksbox@ol{(mdf@P)(mdf@0|mdf@P)}}{}
3034 \ifboolexpr{test {\mdf@test@lb} or test {\mdf@test@l}}%
3035         {\mdf@pstricksbox@ol{(mdf@0)(mdf@0|mdf@P)}}{}
3036 \ifboolexpr{test {\mdf@test@rb} or test {\mdf@test@r}}%
3037         {\mdf@pstricksbox@ol{(mdf@P)(mdf@P|mdf@0)}}{}
3038 %no line
3039 \mdf@test@b{\psframe[style=mdfbackgroundstyle](mdf@0)(mdf@P)}}{}%
3040 \mdf@test@noline{\psframe[style=mdfbackgroundstyle](mdf@0)(mdf@P)}}{}%
3041 }%
3042 %
3043 %Frametitlebackground
3044 \drawbackgroundframetitle@first
3045 %output%
3046 \rput[bl](mdf@A){\box\mdf@splitbox@two}
3047 % \psdot(mdf@A)\uput[90](mdf@A){mdf at A}
3048 % \psdot(mdf@P)\uput[90](mdf@P){mdf at P}
3049 % \psdot(mdf@0)\uput[90](mdf@0){mdf at 0}
3050 % \endpsclip
3051 \mdf@firstextra
3052 \end{pspicture}
3053 }%
3054 \mdf@makeboxalign@right%
3055 }%
3056 \fi
3057 }%
3058 \def\drawbackgroundframetitle@first{%
3059 \ifdefempty{\mdf@frametitle}}{}%
3060 \ifdimgreater{\mdfboundingboxheight}{\mdfframetitleboxtotalheight}%
3061 {%
3062 \drawbackgroundframetitle@@first
3063 \global\mdfframetitleboxtotalheight=-\p@%
3064 }{\mdf@PackageWarning{You got a page break inside the frame title\MessageBreak
3065     Currently this isn't well supported}%
3066 \drawbackgroundframetitle@@first
3067 \global\mdfframetitleboxtotalheight=\dimexpr\mdfframetitleboxtotalheight
3068     -\mdfboundingboxheight
3069     -\mdf@innerlinewidth@length-0.5\mdf@middlelinewidth@length%
3070     +\mdf@frametitlebelowskip@length+\mdf@splitbottomskip@length
3071     +\mdf@splittopskip@length
3072     +\dp\strutbox\relax%
3073 }%
3074 }%
3075 }%
3076 \def\drawbackgroundframetitle@@first{%
3077 \begingroup%
3078 \ifbool{mdf@leftline}%
3079     \nodexn{(mdf@0)+(\mdf@innerlinewidth@length,0)}

```

```

3080             +0.5(\mdf@middlelinewidth@length,0)){mdf@0}%
3081         }{}%
3082     \ifbool{mdf@rightline}{%
3083         \nodexn{(\mdf@P) - (\mdf@innerlinewidth@length,0)
3084             -0.5(\mdf@middlelinewidth@length,0)){mdf@P}%
3085         }{}%
3086     \ifbool{mdf@topline}{%
3087         \nodexn{(\mdf@P) - (0,\mdf@innerlinewidth@length)
3088             -0.5(0,\mdf@middlelinewidth@length)){mdf@P}%
3089         }{}%
3090     \ifdimgreater{\mdfboundingboxheight}{\mdfframetitleboxtotalheight}
3091         {\nodexn{(\mdf@P) - (0,\mdfframetitleboxtotalheight)}{mdf@F}}%
3092         {\nodexn{(\mdf@0)}{mdf@F}}%
3093     \psline[style=mdfframetitlebackgroundstyle](mdf@0|mdf@F)(mdf@0|mdf@P)
3094         (mdf@P)(mdf@P|mdf@F)%
3095 \endgroup
3096 }

```

\mdf@putbox@middle

Middle output

```

3097 \def\mdf@putbox@middle{%
3098     \ifvoid\mdf@splitbox@two
3099     \else%
3100         \mdf@makebox@out{%
3101             \mdf@makeboxalign@left%
3102 %             \ifbool{mdf@leftline}{\hspace*{\mdf@middlelinewidth@length}}{}%
3103             \setlength\mdfboundingboxwidth{\wd\mdf@splitbox@two}%
3104             \advance\mdfboundingboxwidth by \mdf@innerleftmargin@length\relax%
3105             \advance\mdfboundingboxwidth by \mdf@innerrightmargin@length\relax%
3106             \ifbool{mdf@leftline}{%
3107                 \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
3108                 \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
3109                 \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}{}%
3110             \ifbool{mdf@rightline}{%
3111                 \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
3112                 \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
3113                 \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}{}%
3114             \setlength\mdfboundingboxheight{\dimexpr\ht\mdf@splitbox@two+\dp\mdf@splitbox@two\relax}%
3115             \advance\mdfboundingboxheight by \mdf@splitbottomskip@length\relax%
3116 %%%%%%%%%%
3117             \ifbool{mdf@everyline}{%
3118                 \ifbool{mdf@topline}{%
3119                     \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
3120                     \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
3121                     \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}{}%
3122                 \ifbool{mdf@bottomline}{%
3123                     \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
3124                     \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
3125                     \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}{}%
3126                 }{}%
3127 %%%%%%%%%%
3128             \psset{unit=1truecm}%
3129             \mdf@makebox@in[\mdfboundingboxwidth]{%
3130                 \null%

```

```

3131 \ifdimgreater{\mdfboundingboxheight}{\vsize}
3132 {\begin{pspicture}(0,0)(\mdfboundingboxwidth,\vsize)}
3133 {\begin{pspicture}(0,0)(\mdfboundingboxwidth,\mdfboundingboxheight)}
3134 \mdfpstricks@settings%
3135 \psset{lineararc=0pt, cornersize=absolut,}%
3136 \expandafter\psset\expandafter{\mdf@psset@local}%
3137 %%%
3138 \nnode(\mdf@innerleftmargin@length,\mdf@splitbottomskip@length){mdf@A}
3139 \nnode(0,0){mdf@0}
3140 \nnode(\mdfboundingboxwidth,\mdfboundingboxheight){mdf@P}
3141 \ifbool{mdf@leftline}%
3142 {%
3143 \nodexn{(\mdf@A)+(\mdf@outerlinewidth@length,0)
3144 +(\mdf@middlelinewidth@length,0)
3145 +(\mdf@innerlinewidth@length,0)}{mdf@A}
3146 \nodexn{(\mdf@0)+(\mdf@outerlinewidth@length,0)
3147 +0.5(\mdf@middlelinewidth@length,0)}{mdf@0}
3148 }{}%
3149 \ifbool{mdf@rightline}%
3150 {%
3151 \nodexn{(\mdf@P)-(\mdf@outerlinewidth@length,0)
3152 -0.5(\mdf@middlelinewidth@length,0)}{mdf@P}
3153 }{}%
3154 %%
3155 %%%%%%%%%
3156 \ifbool{mdf@everyline}{%
3157 \ifbool{mdf@bottomline}%
3158 {%
3159 \nodexn{(\mdf@A)+(0,\mdf@outerlinewidth@length)
3160 +(0,\mdf@middlelinewidth@length)
3161 +(0,\mdf@innerlinewidth@length)}{mdf@A}%
3162 \nodexn{(\mdf@0)+(0,\mdf@outerlinewidth@length)
3163 +0.5(0,\mdf@middlelinewidth@length)}{mdf@0}%
3164 }{}%
3165 \ifbool{mdf@topline}%
3166 {%
3167 \nodexn{(\mdf@P)-(0,\mdf@outerlinewidth@length)
3168 -0.5(0,\mdf@middlelinewidth@length)}{mdf@P}
3169 }{}%
3170 }{}%
3171 %%%%%%%%%
3172 %%
3173 \ifbool{mdf@shadow}
3174 {\psframe[style=mdfshadow](mdf@0)(mdf@P)}{}
3175 %%%%%%%%%
3176 \ifbool{mdf@everyline}{%
3177 %Four lines
3178 \mdf@test@lrb{\mdf@pstricksbox@fl{mdf@0}{mdf@P}}{}
3179 %three lines
3180 \mdf@test@ltb{\mdf@pstricksbox@tl{(mdf@P|mdf@0)(mdf@0)(mdf@0|mdf@P)(mdf@P)}}{}
3181 \mdf@test@trb{\mdf@pstricksbox@tl{(mdf@0)(mdf@P|mdf@0)(mdf@P)(mdf@0|mdf@P)}}{}
3182 \mdf@test@ltr{\mdf@pstricksbox@tl{(mdf@0)(mdf@0|mdf@P)(mdf@P)(mdf@P|mdf@0)}}{}
3183 \mdf@test@lrb{\mdf@pstricksbox@tl{(mdf@0|mdf@P)(mdf@0)(mdf@P|mdf@0)(mdf@P)}}{}
3184 %two lines combined
3185 \mdf@test@lb{\mdf@pstricksbox@tcl{(mdf@P|mdf@0)(mdf@P)(mdf@0|mdf@P)}%
3186 {(mdf@0|mdf@P)(mdf@0)(mdf@P|mdf@0)}}{}

```

```

3187 \mdf@test@rb{\mdf@pstricksbox@tcl{(mdf@P)(mdf@O|mdf@P)(mdf@O)}}%
3188 { (mdf@O)(mdf@P|mdf@O)(mdf@P)}}{}
3189 \mdf@test@tr{\mdf@pstricksbox@tcl{(mdf@P|mdf@O)(mdf@O)(mdf@O|mdf@P)}}%
3190 { (mdf@O|mdf@P)(mdf@P)(mdf@P|mdf@O)}}{}
3191 \mdf@test@lt{\mdf@pstricksbox@tcl{(mdf@O)(mdf@P|mdf@O)(mdf@P)}}%
3192 { (mdf@O)(mdf@O|mdf@P)(mdf@P)}}{}
3193 %two lines not combined combined
3194 \mdf@test@lr{\mdf@pstricksbox@tnc{(mdf@O|mdf@P)}}{(mdf@P|mdf@O)}
3195 {}
3196 \mdf@test@tb{\mdf@pstricksbox@tnc{(mdf@P|mdf@O)}}{(mdf@O|mdf@P)}
3197 {}
3198 %single line
3199 \mdf@test@l{\mdf@pstricksbox@ol{(mdf@O)(mdf@O|mdf@P)}}{}
3200 \mdf@test@r{\mdf@pstricksbox@ol{(mdf@P)(mdf@P|mdf@O)}}{}
3201 \mdf@test@t{\mdf@pstricksbox@ol{(mdf@P)(mdf@O|mdf@P)}}{}
3202 \mdf@test@b{\mdf@pstricksbox@ol{(mdf@O)(mdf@P|mdf@O)}}{}
3203 %no line
3204 \mdf@test@noline{\psframe[style=mdfbackgroundstyle](mdf@O)(mdf@P)}}{}%
3205 }%
3206 \ifboolexpr{bool {mdf@leftline} and bool {mdf@rightline}}%
3207 {\mdf@pstricksbox@tnc{(mdf@O|mdf@P)}}{(mdf@P|mdf@O)}}{}%
3208 \ifboolexpr{bool {mdf@leftline} and not (bool {mdf@rightline}}%
3209 {\mdf@pstricksbox@ol{(mdf@O)(mdf@O|mdf@P)}}{}%
3210 \ifboolexpr{not (bool {mdf@leftline}) and bool {mdf@rightline}}%
3211 {\mdf@pstricksbox@ol{(mdf@P)(mdf@P|mdf@O)}}{}%
3212 \ifboolexpr{not (bool {mdf@leftline}) and not (bool {mdf@rightline}}%
3213 {\psframe[style=mdfbackgroundstyle](mdf@O)(mdf@P)}}{}%
3214 }%
3215 %Frametitlebackground
3216 \drawbackgroundframetitle@middle
3217 %output%
3218 \rput[bl](mdf@A){\box\mdf@splitbox@two}
3219 % \psdot(mdf@A)\uput[90](mdf@A){mdf at A}
3220 % \psdot(mdf@P)\uput[90](mdf@P){mdf at P}
3221 % \psdot(mdf@O)\uput[90](mdf@O){mdf at O}
3222 \mdf@middleextra
3223 \end{pspicture}%
3224 }%
3225 \mdf@makeboxalign@right%
3226 }%
3227 \fi
3228 }%
3229 \def\drawbackgroundframetitle@middle{%
3230 \ifdefempty{\mdf@frametitle}}{}%
3231 \ifdimless{\mdfframetitleboxtotalheight}{\z@}
3232 {}{}%
3233 \drawbackgroundframetitle@@middle
3234 \global\mdfframetitleboxtotalheight=-\p@\relax%
3235 }%
3236 }%
3237 }%
3238 \def\drawbackgroundframetitle@@middle{%
3239 \begingroup%
3240 \ifbool{mdf@leftline}%
3241 \nodexn{(mdf@O)+(\mdf@innerlinewidth@length,0)
3242 +0.5(\mdf@middlelinewidth@length,0)}}{mdf@O}%

```

```

3243     }{}%
3244     \ifbool{mdf@rightline}{%
3245         \nodexn{(mdf@P) - (\mdf@innerlinewidth@length,0)
3246             -0.5(\mdf@middlelinewidth@length,0)}{mdf@P}%
3247     }{}%
3248     \nodexn{(mdf@P) - (0,\mdfframetitleboxtotalheight)}{mdf@F}%
3249     \psline[style=mdfframetitlebackgroundstyle,linear=\z@](mdf@0|mdf@F)(mdf@0|mdf@P)
3250         (mdf@P)(mdf@P|mdf@F)%
3251 \endgroup
3252 }

```

\mdf@putbox@second

Last output

```

3253 \def\mdf@putbox@second{
3254     \ifvoid\mdf@splitbox@one
3255     \else%
3256         \mdf@makebox@out{%
3257             \mdf@makeboxalign@left%
3258 %         \ifbool{mdf@leftline}{\hspace*{\mdf@middlelinewidth@length}}{}%
3259         \setlength\mdfboundingboxwidth{\wd\mdf@splitbox@one}%
3260         \advance\mdfboundingboxwidth by \mdf@innerleftmargin@length\relax%
3261         \advance\mdfboundingboxwidth by \mdf@innerrightmargin@length\relax%
3262         \ifbool{mdf@leftline}{%
3263             \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
3264             \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
3265             \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}%{}%
3266         \ifbool{mdf@rightline}{%
3267             \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
3268             \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
3269             \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}%{}%
3270         \setlength\mdfboundingboxheight{\dimexpr\ht\mdf@splitbox@one+\dp\mdf@splitbox@one\relax}%
3271         \advance\mdfboundingboxheight by \mdf@innerbottommargin@length\relax%
3272         \ifbool{mdf@bottomline}{%
3273             \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
3274             \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
3275             \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}%{}%
3276 %%%%%%%%%%
3277         \ifbool{mdf@everyline}{%
3278             \ifbool{mdf@topline}{%
3279                 \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
3280                 \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
3281                 \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}%{}%
3282             }{}%
3283 %%%%%%%%%%
3284         \psset{unit=1truecm}%
3285         \mdf@makebox@in[\mdfboundingboxwidth]{%
3286             \null%
3287             \begin{pspicture}(0,0)(\mdfboundingboxwidth,\mdfboundingboxheight)
3288                 \mdfpstricks@settings%
3289                 \psset{linear=\mdf@roundcorner@length,corner=absolut,%
3290                     \expandafter\psset\expandafter{\mdf@psset@local}%
3291                     \pnode(\mdf@innerleftmargin@length,\mdf@innerbottommargin@length){mdf@A}
3292                     \pnode(0,0){mdf@0}
3293                     \pnode(\mdfboundingboxwidth,\mdfboundingboxheight){mdf@P}

```



```

3294 \ifbool{mdf@leftline}%
3295 {%
3296 \nodexn{(mdf@A)+(\mdf@outerlinewidth@length,0)
3297 +(\mdf@middlelinewidth@length,0)
3298 +(\mdf@innerlinewidth@length,0)}{mdf@A}
3299 \nodexn{(mdf@0)+(\mdf@outerlinewidth@length,0)
3300 +0.5(\mdf@middlelinewidth@length,0)}{mdf@0}
3301 }{}%
3302 \ifbool{mdf@rightline}%
3303 {%
3304 \nodexn{(mdf@P)-(\mdf@outerlinewidth@length,0)
3305 -0.5(\mdf@middlelinewidth@length,0)}{mdf@P}
3306 }{}%
3307 \ifbool{mdf@bottomline}%
3308 {%
3309 \nodexn{(mdf@A)+(0,\mdf@outerlinewidth@length)
3310 +(0,\mdf@middlelinewidth@length)
3311 +(0,\mdf@innerlinewidth@length)}{mdf@A}
3312 \nodexn{(mdf@0)+(0,\mdf@outerlinewidth@length)
3313 +0.5(0,\mdf@middlelinewidth@length)}{mdf@0}
3314 }{}%
3315 %%%%%%%%%%
3316 \ifbool{mdf@everyline}{%
3317 \ifbool{mdf@topline}%
3318 {%
3319 \nodexn{(mdf@P)-(0,\mdf@outerlinewidth@length)
3320 -0.5(0,\mdf@middlelinewidth@length)}{mdf@P}
3321 }{}%
3322 }{}%
3323 %%%%%%%%%%
3324 %%
3325 \ifbool{mdf@shadow}
3326 {\pscustom[style=mdfshadow,linestyle=none]{%
3327 \psline[linejoin=2,linecap=1,](mdf@0)(mdf@P)(mdf@0)(mdf@P)(mdf@0)%
3328 \psline[linejoin=2,linecap=1,linearc=\z](mdf@0)(mdf@P)(mdf@P)
3329 \closedshadow
3330 }
3331 }{}
3332 %%%%%%%%%%
3333 \ifbool{mdf@everyline}{%
3334 %Four lines
3335 \mdf@test@lrb{\mdf@pstricksbox@fl{mdf@0}{mdf@P}}{}
3336 %three lines
3337 \mdf@test@ltb{\mdf@pstricksbox@tl{(mdf@P)(mdf@0)(mdf@0)(mdf@P)(mdf@P)}}{}
3338 \mdf@test@trb{\mdf@pstricksbox@tl{(mdf@0)(mdf@P)(mdf@0)(mdf@P)(mdf@0)(mdf@P)}}{}
3339 \mdf@test@ltr{\mdf@pstricksbox@tl{(mdf@0)(mdf@0)(mdf@P)(mdf@P)(mdf@P)(mdf@0)}}{}%
3340 \mdf@test@lrb{\mdf@pstricksbox@tl{(mdf@0)(mdf@P)(mdf@0)(mdf@P)(mdf@0)(mdf@P)}}{}%
3341 %two lines combined
3342 \mdf@test@lb{\mdf@pstricksbox@tcl{(mdf@P)(mdf@0)(mdf@P)(mdf@0)(mdf@P)}%
3343 {(mdf@0)(mdf@P)(mdf@0)(mdf@P)(mdf@0)}}{}
3344 \mdf@test@rb{\mdf@pstricksbox@tcl{(mdf@P)(mdf@0)(mdf@P)(mdf@0)}%
3345 {(mdf@0)(mdf@P)(mdf@0)(mdf@P)}}{}
3346 \mdf@test@tr{\mdf@pstricksbox@tcl{(mdf@P)(mdf@0)(mdf@0)(mdf@P)(mdf@P)}%
3347 {(mdf@0)(mdf@P)(mdf@P)(mdf@P)(mdf@0)}}{}
3348 \mdf@test@lt{\mdf@pstricksbox@tcl{(mdf@0)(mdf@P)(mdf@0)(mdf@P)}%
3349 {(mdf@0)(mdf@0)(mdf@P)(mdf@P)}}{}

```



```

3350      %two lines not combinded combinded
3351      \mdf@test@lr{\mdf@pstricksbox@tnc{\mdf@0\mdf@P}}{\mdf@P\mdf@0}}
3352      {}
3353      \mdf@test@tb{\mdf@pstricksbox@tnc{\mdf@P\mdf@0}}{\mdf@0\mdf@P}}
3354      {}
3355      %single line
3356      \mdf@test@l{\mdf@pstricksbox@ol{\mdf@0\mdf@P}}{}
3357      \mdf@test@r{\mdf@pstricksbox@ol{\mdf@P\mdf@P\mdf@0}}{}
3358      \mdf@test@t{\mdf@pstricksbox@ol{\mdf@P\mdf@0\mdf@P}}{}
3359      \mdf@test@b{\mdf@pstricksbox@ol{\mdf@0\mdf@P\mdf@0}}{}
3360      %no line
3361      \mdf@test@noline{\psframe[style=mdfbackgroundstyle](mdf@0)(mdf@P)}{}%
3362  }%
3363      %Four + Three
3364      \ifboolexpr{test {\mdf@test@lrb} or test {\mdf@test@lrb}}%
3365      {\mdf@pstricksbox@tl{\mdf@0\mdf@P\mdf@0\mdf@P\mdf@P}}{}%
3366      %Two combinded
3367      \ifboolexpr{test {\mdf@test@ltb} or test {\mdf@test@lb}}%
3368      {\mdf@pstricksbox@tcl{\mdf@P\mdf@0\mdf@P\mdf@0\mdf@P}}%
3369      {\mdf@0\mdf@P\mdf@0\mdf@P\mdf@0}}{}
3370      \ifboolexpr{test {\mdf@test@trb} or test {\mdf@test@rb}}%
3371      {\mdf@pstricksbox@tcl{\mdf@P\mdf@0\mdf@P\mdf@0}}%
3372      {\mdf@0\mdf@P\mdf@0\mdf@P}}{}
3373      %Two not combinded
3374      \ifboolexpr{test {\mdf@test@ltr} or test {\mdf@test@lr}}%
3375      {\mdf@pstricksbox@tnc{\mdf@0\mdf@P}}{\mdf@P\mdf@0}}{}%
3376      %one line
3377      \ifboolexpr{test {\mdf@test@tb} or test {\mdf@test@b}}%
3378      {\mdf@pstricksbox@ol{\mdf@0\mdf@P\mdf@0}}{}
3379      \ifboolexpr{test {\mdf@test@lt} or test {\mdf@test@l}}%
3380      {\mdf@pstricksbox@ol{\mdf@0\mdf@0\mdf@P}}{}
3381      \ifboolexpr{test {\mdf@test@tr} or test {\mdf@test@r}}%
3382      {\mdf@pstricksbox@ol{\mdf@P\mdf@P\mdf@0}}{}
3383      %no line
3384      \mdf@test@t{\psframe[style=mdfbackgroundstyle](mdf@0)(mdf@P)}{}%
3385      \mdf@test@noline{\psframe[style=mdfbackgroundstyle](mdf@0)(mdf@P)}{}%
3386  }%
3387      %Frametitlebackground
3388      \drawbackgroundframetitle@second
3389      %output%
3390      \rput[bl](mdf@A){\box\mdf@splitbox@one}
3391      \mdf@secondextra
3392      % \psdot(mdf@A)\uput[90](mdf@A){mdf at A}
3393      % \psdot(mdf@P)\uput[90](mdf@P){mdf at P}
3394      % \psdot(mdf@0)\uput[90](mdf@0){mdf at 0}
3395      \end{pspicture}%
3396  }%
3397      \mdf@makeboxalign@right%
3398  }%
3399  \fi
3400}%
3401\def\drawbackgroundframetitle@second{%
3402  \ifdefempty{\mdf@frametitle}}{}%
3403  \ifdimless{\mdf@frametitleboxtotalheight}{\z@}
3404  {}{}%
3405  \drawbackgroundframetitle@@second

```

```

3406 }%
3407 }%
3408 }%
3409 \def\drawbackgroundframetitle@@second{%
3410 \begingroup%
3411 \ifbool{mdf@leftline}{%
3412     \nodexn{(mdf@0)+(\mdf@innerlinewidth@length,0)
3413         +0.5(\mdf@middlelinewidth@length,0)}{mdf@0}%
3414     }{}%
3415 \ifbool{mdf@rightline}{%
3416     \nodexn{(mdf@P)-(\mdf@innerlinewidth@length,0)
3417         -0.5(\mdf@middlelinewidth@length,0)}{mdf@P}%
3418     }{}%
3419 \nodexn{(mdf@P)-(0,\mdfframetitleboxtotalheight)}{mdf@F}%
3420 \psline[style=mdfframetitlebackgroundstyle,lineararc=\z@](mdf@0|mdf@F)(mdf@0|mdf@P)
3421     (mdf@P)(mdf@P|mdf@F)%
3422 \endgroup
3423 }

3424 \endinput
3425 %eof

```

C. The file *mdframed-example-default*

```

3426 %Documentation of the package mdframed
3427 %$Id: mdframed.dtx 392 2012-04-27 23:10:44Z marco $
3428 \setcounter{errorcontextlines}{999}
3429 \documentclass[parskip=false,english,11pt]{ltxmdf}
3430 \ltxmdfsetifoot $Id: mdframed.dtx 392 2012-04-27 23:10:44Z marco $
3431
3432 \usepackage{showexpl}
3433 \lstset{style=lstltxmdf,explpreset={pos=b,rframe={}},}
3434
3435 \newcommand\Loadedframemethod{default}
3436 \usepackage[framemethod=\Loadedframemethod]{mdframed}
3437
3438 \title{The \Pack{mdframed} package}
3439 \subtitle{Examples for \Opt{framemethod=\Loadedframemethod}}
3440 \author{\href{mailto:marco.daniel@mada-nada.de}{Marco Daniel}}
3441 \date{\mdfdateID$Id: mdframed.dtx 392 2012-04-27 23:10:44Z marco $}
3442 \version{\mdversion}
3443 \introduction{In this document I collect various examples for \Opt{framemethod=\Loadedframemethod}.
3444 Some presented examples are more or less exorbitant.}
3445
3446 \mdfsetup{skipabove=\topskip,skipbelow=\topskip}
3447 \newrobustcmd\ExampleText{%
3448     An \textit{inhomogeneous linear} differential equation has the form
3449     \begin{align}
3450         L[v] &= f,
3451     \end{align}
3452     where  $L$  is a linear differential operator,  $v$  is
3453     the dependent variable, and  $f$  is a given non-zero
3454     function of the independent variables alone.
3455 }
3456

```

```

3457 \newcounter{examplecount}
3458 \setcounter{examplecount}{0}
3459 \renewcommand\thesubsection{}
3460 \newcommand\Examplesec[1]{%
3461 \stepcounter{examplecount}%
3462 \subsection{Example~\arabic{examplecount}~---~#1\relax}%
3463 }
3464
3465 \begin{document}
3466 \maketitle
3467 \section{Loading}
3468 In the preamble only the package \Pack{mdframed} with the option \Opt{framemethod=\Loadedframemethod}
3469
3470 {\large\color{red!50!black}
3471 \NOTE Every \Cmd{global} inside the examples is necessary to work with the package \Pack{showexpl}.}
3472
3473 \section{Examples}
3474 All examples have the following settings:
3475
3476 \begin{tltxmdfexample}
3477 \mdfsetup{skipabove=\topskip,skipbelow=\topskip}
3478 \newrobustcmd\ExampleText{%
3479 An \textit{inhomogeneous linear} differential equation
3480 has the form
3481 \begin{align}
3482 L[v] = f,
3483 \end{align}
3484 where  $L$  is a linear differential operator,  $v$  is
3485 the dependent variable, and  $f$  is a given non-zero
3486 function of the independent variables alone.
3487 }
3488 \end{tltxmdfexample}
3489 \clearpage
3490 \Examplesec{very simple}
3491 \begin{LTExample}
3492 \global\mdfdefinestyle{exampledefault}{%
3493     linecolor=red,linewidth=3pt,%
3494     leftmargin=1cm,rightmargin=1cm
3495 }
3496 \begin{mdframed}[style=exampledefault]
3497 \ExampleText
3498 \end{mdframed}
3499 \end{LTExample}
3500
3501 \Examplesec{hidden line + frame title}
3502 \begin{LTExample}
3503 \global\mdfapptodefinestyle{exampledefault}{%
3504     topline=false,rightline=true,bottomline=false}
3505 \begin{mdframed}[style=exampledefault,frametitle={Inhomogeneous linear}]
3506 \ExampleText
3507 \end{mdframed}
3508 \end{LTExample}
3509 \clearpage
3510
3511 \Examplesec{colored frame title}
3512 \begin{LTExample}

```

```

3513
3514 \global\mdfapptodefinestyle{exampledefault}{%
3515     rightline=true,innerleftmargin=10,innerrightmargin=10,
3516     frametitle=rule=true,frametitlecolor=green,
3517     frametitlebackgroundcolor=yellow,
3518     frametitlewidth=2pt}
3519 \begin{mdframed}[style=exampledefault,frametitle={Inhomogeneous linear}]
3520 \ExampleText
3521 \end{mdframed}
3522 \end{LTXexample}
3523
3524 \Examplesec{framed picture which is centered}
3525 \begin{LTXexample}
3526 \begin{mdframed}[userdefinedwidth=6cm,align=center,
3527                 linecolor=blue,linewidth=4pt]
3528 \includegraphics[width=\linewidth]{donald-duck}
3529 \end{mdframed}
3530 \end{LTXexample}
3531
3532 \clearpage
3533 \Examplesec{Theorem environments}
3534 \begin{LTXexample}
3535 \mdfdefinestyle{theoremstyle}{%
3536     linecolor=red,linewidth=2pt,%
3537     frametitle=rule=true,%
3538     frametitlebackgroundcolor=gray!20,
3539     innertopmargin=\topskip,
3540 }
3541 \mdtheorem[style=theoremstyle]{definition}{Definition}
3542 \begin{definition}
3543 \ExampleText
3544 \end{definition}
3545 \begin{definition}[Inhomogeneous linear]
3546 \ExampleText
3547 \end{definition}
3548 \begin{definition*}[Inhomogeneous linear]
3549 \ExampleText
3550 \end{definition*}
3551 \end{LTXexample}
3552
3553
3554 \clearpage
3555 \Examplesec{theorem with separate header and the help of TikZ (complex)}
3556 \begin{LTXexample}
3557 \newcounter{theo}[section]
3558 \newenvironment{theo}[1][1]{%
3559     \stepcounter{theo}%
3560     \ifstrempy{#1}%
3561     {\mdfsetup{%
3562         frametitle={%
3563             \tikz[baseline=(current bounding box.east),outer sep=0pt]
3564             \node[anchor=east,rectangle,fill=blue!20]
3565             {\strut Theorem~\thetheo};}}
3566     }%
3567     {\mdfsetup{%
3568         frametitle={%

```

```

3569      \tikz[baseline=(current bounding box.east),outer sep=0pt]
3570      \node[anchor=east,rectangle,fill=blue!20]
3571      {\strut Theorem~\thetheo:~\#1};}%
3572  }%
3573  \mdfsetup{innertopmargin=10pt,linecolor=blue!20,%
3574            linewidth=2pt,topline=true,
3575            frametitleaboveskip=\dimexpr-\ht\strutbox\relax,}
3576  \begin{mdframed}[]\relax%
3577  }\end{mdframed}}
3578 \begin{theo}[Inhomogeneous Linear]
3579 \ExampleText
3580 \end{theo}
3581
3582 \begin{theo}
3583 \ExampleText
3584 \end{theo}
3585 \end{LTXexample}
3586
3587 \clearpage
3588 \Examplesec{hide only a part of a line}
3589 The example below is inspired by the following post on StackExchange \href{http://tex.stackexchange.com}
3590 \begin{LTXexample}
3591 \makeatletter
3592 \newlength{\interruptlength}
3593 \setlength{\interruptlength}{2.5ex}
3594 \newrobustcmd\overlaplines{%
3595   \appto\mdf@frame@leftline@single{%
3596     \llap{\color{white}%
3597       \rule[\dimexpr-\mdfboundingboxdepth+\interruptlength\relax]{%
3598         {\mdf@middlelinewidth@length}%
3599         {\dimexpr\mdfboundingboxtotalheight%
3600           \ifbool{mdf@topline}{+\mdf@middlelinewidth@length}{}}
3601         -2\interruptlength\relax}%
3602     }%
3603   }%
3604   \appto\mdf@frame@rightline@single{%
3605     \rlap{\color{white}%
3606       \hspace*{\mdfboundingboxwidth}%
3607       \hspace*{\mdf@innerrightmargin@length}%
3608       \rule[\dimexpr-\mdfboundingboxdepth%
3609         +\interruptlength\relax]{%
3610         {\mdf@middlelinewidth@length}%
3611         {\dimexpr\mdfboundingboxtotalheight%
3612           +\ifbool{mdf@topline}{\mdf@middlelinewidth@length}{0pt}}
3613         -2\interruptlength\relax}%
3614     }%
3615   }%
3616 }
3617 \makeatother
3618 \overlaplines
3619
3620 \begin{mdframed}[linecolor=blue,linewidth=8pt]
3621 \ExampleText
3622 \end{mdframed}
3623 \end{LTXexample}
3624 \end{document}

```

```
3625 \endinput
```

D. The file mdframed-example-tikz

```
3626 %Documenation of the package mdframed
3627 %$Id: mdframed.dtx 392 2012-04-27 23:10:44Z marco $
3628 \setcounter{errorcontextlines}{999}
3629 \documentclass[parskip=false,english,11pt]{ltxmdf}
3630 \ltxmdfsetifoot $Id: mdframed.dtx 392 2012-04-27 23:10:44Z marco $
3631
3632
3633 \usepackage{showexpl}
3634 \lstset{style=lstltxmdf,explpreset={pos=b,rframe={}},}
3635
3636 \newcommand\Loadedframemethod{TikZ}
3637 \usepackage[framemethod=\Loadedframemethod]{mdframed}
3638
3639 \title{The \Pack{mdframed} package}
3640 \subtitle{Examples for \Opt{framemethod=\Loadedframemethod}}
3641 \author{\href{mailto:marco.daniel@mada-nada.de}{Marco Daniel}}
3642 \date{\mdfdateID$Id: mdframed.dtx 392 2012-04-27 23:10:44Z marco $}
3643 \version{\mdversion}
3644 \introduction{In this document I collect various examples for \Opt{framemethod=\Loadedframemethod}.
3645 Some presented examples are more or less exorbitant.}
3646
3647 \mdfsetup{skipabove=\topskip,skipbelow=\topskip}
3648 \newrobustcmd\ExampleText{%
3649     An \textit{inhomogeneous linear} differential equation has the form
3650     \begin{align}
3651         L[v] &= f,
3652     \end{align}
3653     where  $L$  is a linear differential operator,  $v$  is
3654     the dependent variable, and  $f$  is a given non-zero
3655     function of the independent variables alone.
3656 }
3657
3658 \newcounter{examplecount}
3659 \setcounter{examplecount}{0}
3660 \renewcommand\thesubsection{}
3661 \newcommand\Examplesec[1]{%
3662 \stepcounter{examplecount}%
3663 \subsection{Example~\arabic{examplecount}~---~#1\relax}%
3664 }
3665
3666 \begin{document}
3667 \maketitle
3668 \section{Loading}
3669 In the preamble only the package \Pack{mdframed} with the option \Opt{framemethod=\Loadedframemethod}
3670
3671 {\large\color{red!50!black}
3672 \NOTE Every \Cmd{global} inside the examples is necessary to work with the package \Pack{showexpl}.}
3673
3674 \section{Examples}
3675 All examples have the following settings:
3676
3677 \begin{tltxmdfexample}
```

```

3678 \mdfsetup{skipabove=\topskip,skipbelow=\topskip}
3679 \newrobustcmd\ExampleText{%
3680 An \textit{inhomogeneous linear} differential equation
3681 has the form
3682 \begin{align}
3683 L[v] = f,
3684 \end{align}
3685 where  $L$  is a linear differential operator,  $v$  is
3686 the dependent variable, and  $f$  is a given non-zero
3687 function of the independent variables alone.
3688 }
3689 \end{tltxmdfexample}
3690 \clearpage
3691 \ExampleText{round corner}
3692 \begin{LTXexample}
3693 \global\mdfdefinestyle{exampledefault}{%
3694     outerlinewidth=5pt,innerlinewidth=0pt,
3695     outerlinecolor=red,roundcorner=5pt
3696 }
3697 \begin{mdframed}[style=exampledefault]
3698 \ExampleText
3699 \end{mdframed}
3700 \end{LTXexample}
3701
3702 \Examplesec{hidden line + frame title}
3703 \begin{LTXexample}
3704 \global\mdfapptodefinestyle{exampledefault}{%
3705     topline=false,leftline=false,}
3706 \begin{mdframed}[style=exampledefault,frametitle={Inhomogeneous linear}]
3707 \ExampleText
3708 \end{mdframed}
3709 \end{LTXexample}
3710 \clearpage
3711 \Examplesec{framed picture which is centered}
3712 \begin{LTXexample}
3713 \begin{mdframed}[userdefinedwidth=6cm,align=center,
3714     linecolor=blue,middlelinewidth=4pt,roundcorner=5pt]
3715 \includegraphics[width=\linewidth]{donald-duck}
3716 \end{mdframed}
3717 \end{LTXexample}
3718
3719 \Examplesec{Gimmick}
3720 \begin{LTXexample}
3721 \mdfsetup{splitbottomskip=0.8cm,splittopskip=0cm,
3722     innerrightmargin=2cm,innertopmargin=1cm,%
3723     innerlinewidth=2pt,outerlinewidth=2pt,
3724     middlelinewidth=10pt,backgroundcolor=red,
3725     linecolor=blue,middlelinecolor=gray,
3726     tikzsetting={draw=yellow,line width=3pt,%
3727         dashed,%
3728         dash pattern= on 10pt off 3pt},
3729     rightline=false,bottomline=false}
3730 \begin{mdframed}
3731 \ExampleText
3732 \end{mdframed}
3733 \end{LTXexample}

```

```

3734
3735 \Examplesec{complex example with TikZ}
3736
3737 \begin{tltxmdfexample}
3738 \tikzstyle{titregris} =
3739     [draw=gray, thick, fill=white, shading = exersicetitle, %
3740     text=gray, rectangle, rounded corners, right,minimum height=.7cm]
3741
3742 \pgfdeclarehorizontalshading{exersicebackground}{100bp}
3743     {color(0bp)=(green!40); color(100bp)=(black!5)}
3744
3745 \pgfdeclarehorizontalshading{exersicetitle}{100bp}
3746     {color(0bp)=(red!40);color(100bp)=(black!5)}
3747
3748 \newcounter{exercise}
3749 \renewcommand*{\theexercise}{Exercise~\n\arabic{exercise}}
3750 \makeatletter
3751 \def\mdf@@exercisepoints{}%new mdframed key:
3752 \define@key{mdf}{exercisepoints}{%
3753     \def\mdf@@exercisepoints{#1}
3754 }
3755 \makeatother
3756
3757 \mdfdefinestyle{exercisestyle}{%
3758     outerlinewidth=1pt,innerlinewidth=0pt,
3759     roundcorner=2pt,linecolor=gray,
3760     tikzsetting={shading = exersicebackground},
3761     innertopmargin=1.2\baselineskip,
3762     skipabove={\dimexpr0.5\baselineskip+\topskip\relax},
3763     needspace=3\baselineskip,
3764     frametitlefont=\sffamily\bfseries,
3765     settings={\global\stepcounter{exercise}},
3766     singleextra={%
3767         \node[titregris,xshift=1cm] at (P-|0) %
3768             {\mdf@frametitlefont{\theexercise}~};
3769         \ifdefempty{\mdf@@exercisepoints}%
3770             {}%
3771         {\node[titregris,left,xshift=-1cm] at (P)%
3772             {\mdf@frametitlefont{\mdf@@exercisepoints points}~};}%
3773     },
3774     firstextra={%
3775         \node[titregris,xshift=1cm] at (P-|0) %
3776             {\mdf@frametitlefont{\theexercise}~};
3777         \ifdefempty{\mdf@@exercisepoints}%
3778             {}%
3779         {\node[titregris,left,xshift=-1cm] at (P)%
3780             {\mdf@frametitlefont{\mdf@@exercisepoints points}~};}%
3781     },
3782 }
3783 \begin{mdframed}[style=exercisestyle,]
3784 \ExampleText
3785 \end{mdframed}
3786
3787 \begin{mdframed}[style=exercisestyle,exercisepoints=10]
3788 \ExampleText
3789 \end{mdframed}

```



```

3790 \end{tltxmdfexample}
3791 \clearpage
3792 \Examplesec{Theorem environments}
3793 \begin{LTXexample}
3794 \mdfdefinestyle{theoremstyle}{%
3795     linecolor=red,linewidth=2pt,%
3796     frametitlerule=true,%
3797     apptotikzsetting={\tikzset{mdfframetitlebackground/.append style={%
3798         shade,left color=white, right color=blue!20}}},
3799     frametitlerulecolor=green!60,
3800     frametitlerulewidth=1pt,
3801     innertopmargin=\topskip,
3802 }
3803 \mdtheorem[style=theoremstyle]{definition}{Definition}
3804 \begin{definition}[Inhomogeneous linear]
3805 \ExampleText
3806 \end{definition}
3807 \begin{definition*}[Inhomogeneous linear]
3808 \ExampleText
3809 \end{definition*}
3810 \end{LTXexample}
3811
3812 \end{document}
3813 \endinput

```

E. The file *mdframed-example-pstricks*

```

3814 %Documenation of the package mdframed
3815 %$Id: mdframed.dtx 392 2012-04-27 23:10:44Z marco $
3816 \setcounter{errorcontextlines}{999}
3817 \documentclass[parskip=false,english,11pt]{ltxmdf}
3818 \ltxmdfsetifoot$Id: mdframed.dtx 392 2012-04-27 23:10:44Z marco $
3819
3820 \lstDeleteShortInline{[]}
3821 \newcommand\Loadedframemethod{PSTricks}
3822 \usepackage[framemethod=\Loadedframemethod]{mdframed}
3823
3824 \usepackage{showexpl}
3825 \lstset{style=lstltxmdf,explpreset={pos=b,rframe={}}},
3826
3827 \title{The \Pack{mdframed} package}
3828 \subtitle{Examples for \Opt{framemethod=\Loadedframemethod}}
3829 \author{\href{mailto:marco.daniel@mada-nada.de}{Marco Daniel}}
3830 \date{\mdfdateID$Id: mdframed.dtx 392 2012-04-27 23:10:44Z marco $}
3831 \version{\mdversion}
3832 \introduction{In this document I collect various examples for \Opt{framemethod=\Loadedframemethod}.
3833 Some presented examples are more or less exorbitant.}
3834
3835 \mdfsetup{skipabove=\topskip,skipbelow=\topskip}
3836 \newrobustcmd\ExampleText{%
3837     An \textit{inhomogeneous linear} differential equation has the form
3838     \begin{align}
3839         L[v] &= f,
3840     \end{align}
3841     where  $L$  is a linear differential operator,  $v$  is
3842     the dependent variable, and  $f$  is a given non-zero

```

```

3843         function of the independent variables alone.
3844 }
3845
3846 \newcounter{examplecount}
3847 \setcounter{examplecount}{0}
3848 \renewcommand\thesubsection{}
3849 \newcommand\Examplesec[1]{%
3850 \stepcounter{examplecount}%
3851 \subsection{Example~\arabic{examplecount}~---\#1\relax}%
3852 }
3853
3854 \begin{document}
3855 \maketitle
3856 \section{Loading}
3857 In the preamble only the package \Pack{mdframed} with the option \Opt{framemethod=\Loadedframemethod}
3858
3859 {\large\color{red!50!black}
3860 \NOTE Every \Cmd{global} inside the examples is necessary to work with the package \Pack{showexpl}.}
3861 X
3862 \section{Examples}
3863 All examples have the following settings:
3864
3865 \begin{tltxmdfexample}
3866 \mdfsetup{skipabove=\topskip,skipbelow=\topskip}
3867 \newrobustcmd\ExampleText{%
3868 An \textit{inhomogeneous linear} differential equation
3869 has the form
3870 \begin{align}
3871 L[v] = f,
3872 \end{align}
3873 where  $L$  is a linear differential operator,  $v$  is
3874 the dependent variable, and  $f$  is a given non-zero
3875 function of the independent variables alone.
3876 }
3877 \end{tltxmdfexample}
3878 \clearpage
3879
3880 \Examplesec{very simple}
3881 \begin{LTExample}
3882 \global\mdfdefinestyle{exampledefault}{%
3883     linecolor=red,middlelinewidth=3pt,%
3884     leftmargin=1cm,rightmargin=1cm
3885 }
3886 \begin{mdframed}[style=exampledefault,roundcorner=5]
3887 \ExampleText
3888 \end{mdframed}
3889 \end{LTExample}
3890
3891 \Examplesec{hidden line + frame title}
3892 \begin{LTExample}
3893 \global\mdfapptodefinestyle{exampledefault}{%
3894     topline=false,rightline=false,bottomline=false,
3895     frametitlerule=true,innertopmargin=6pt,
3896     outerlinewidth=6pt,outerlinecolor=blue,
3897     pstricksappsetting={\addtopsstyle{mdfouterlinestyle}{linestyle=dashed}},
3898     innerlinecolor=yellow,innerlinewidth=5pt}%

```

```

3899 \begin{mdframed}[style=exampledefault,frametitle={Inhomogeneous linear}]
3900 \ExampleText
3901 \end{mdframed}
3902 \end{LTXexample}
3903
3904 \clearpage
3905
3906 \Examplesec{Dash Lines}
3907 \begin{LTXexample}
3908 \global\mdfdefinestyle{exampledefault}{%
3909     pstrickssetting={linestyle=dashed,,linecolor=red,linewidth=5pt}
3910 \begin{mdframed}[style=exampledefault,]
3911 \ExampleText
3912 \end{mdframed}
3913 \end{LTXexample}
3914
3915 \Examplesec{Double Lines}
3916 \begin{LTXexample}
3917 \global\mdfdefinestyle{exampledefault}{%
3918     pstrickssetting={doubleline=true,doublesep=6pt},
3919     linecolor=red,linewidth=5pt,middlelinewidth=4pt}
3920 \begin{mdframed}[style=exampledefault,]
3921 \ExampleText
3922 \end{mdframed}
3923 \end{LTXexample}
3924
3925 \Examplesec{Shadow frame}
3926 \begin{LTXexample}
3927 \newmdenv[shadow=true,
3928     shadowsize=11pt,
3929     linewidth=8pt,
3930     frametitlerule=true,
3931     roundcorner=10pt,
3932     ]{myshadowbox}
3933 \begin{myshadowbox}[frametitle={Inhomogeneous linear}]
3934 \ExampleText
3935 \end{myshadowbox}
3936 \end{LTXexample}
3937 \end{document}
3938 \endinput

```

F. The file *mdframed-example-texsx*

```

3939 %Documenation of the package mdframed
3940 %%$Id: mdframed.dtx 392 2012-04-27 23:10:44Z marco $
3941 \setcounter{errorcontextlines}{999}
3942 \documentclass[parskip=false,english,11pt,ltxlipsum]{ltxmdf}
3943 \ltxmdfsetifoot $Id: mdframed.dtx 392 2012-04-27 23:10:44Z marco $
3944
3945
3946 \usepackage{showexpl}
3947 \lstset{style=lstltxmdf,explpreset={pos=b,rframe={}},}
3948 \usepackage{tikz}
3949 \usetikzlibrary{calc,arrows,shadings,shadows}
3950 \newcommand\Loadedframemethod{tikz}
3951 \usepackage[framemethod=\Loadedframemethod]{mdframed}

```

```

3952
3953 \title{The \Pack{mdfamed} package}
3954 \subtitle{Examples for \Opt{framemethod=\Loadedframemethod}}
3955 \author{\href{mailto:marco.daniel@mada-nada.de}{Marco Daniel}}
3956 \date{\mdfdateID$Id: mdfamed.dtx 392 2012-04-27 23:10:44Z marco $}
3957 \version{\mdversion}
3958 \introduction{In this document I collect various examples for \Opt{framemethod=\Loadedframemethod}.
3959 Some presented examples are more or less exorbitant.}
3960
3961 \mdfsetup{skipabove=\topskip,skipbelow=\topskip}
3962 \newrobustcmd\ExampleText{%
3963     An \textit{inhomogeneous linear} differential equation has the form
3964     \begin{align}
3965         L[v] = f,
3966     \end{align}
3967     where  $L$  is a linear differential operator,  $v$  is
3968     the dependent variable, and  $f$  is a given non-zero
3969     function of the independent variables alone.
3970 }
3971
3972 \newcounter{examplecount}
3973 \setcounter{examplecount}{0}
3974 \renewcommand\thesubsection{}
3975 \newcommand\Examplesec[1]{%
3976 \stepcounter{examplecount}%
3977 \subsection{Example~\arabic{examplecount}~---~#1\relax}%
3978 }
3979
3980 \begin{document}
3981 \maketitle
3982 \section{Loading}
3983 In the preamble only the package \Pack{mdfamed} with the option \Opt{framemethod=\Loadedframemethod}
3984
3985 {\large\color{red!50!black}
3986 \NOTE Every \Cmd{global} inside the examples is necessary to work with the package \Pack{showexpl}.}
3987
3988 \section{Examples}
3989 All examples have the following settings:
3990
3991 \begin{tltxmdfexample}
3992 \mdfsetup{skipabove=\topskip,skipbelow=\topskip}
3993 \newrobustcmd\ExampleText{%
3994 An \textit{inhomogeneous linear} differential equation
3995 has the form
3996 \begin{align}
3997 L[v] = f,
3998 \end{align}
3999 where  $L$  is a linear differential operator,  $v$  is
4000 the dependent variable, and  $f$  is a given non-zero
4001 function of the independent variables alone.
4002 }
4003 \end{tltxmdfexample}
4004 \clearpage
4005 \Examplesec{Package listings}
4006 The example below is inspired by the following post on StackExchange \href{http://tex.stackexchange.com}
4007

```

```

4008 Here the solution which can be decorate as usual.
4009
4010 \begin{tltxmdfexample}[moretexcs={BeforeBeginEnvironment,AfterEndEnvironment},morekeywords={lstlisting}]
4011 \BeforeBeginEnvironment{lstlisting}{%
4012     \begin{mdframed}[<modification>]%
4013     \vspace{-0.7em}}
4014 \AfterEndEnvironment{lstlisting}{%
4015     \vspace{-0.5em}%
4016     \end{mdframed}}
4017 \end{tltxmdfexample}
4018
4019 With the new command \Cmd{surroundwithmdframed} you can use
4020 \begin{tltxmdfexample}[moretexcs={BeforeBeginEnvironment,AfterEndEnvironment},morekeywords={lstlisting}]
4021 \surroundwithmdframed{listings}
4022 \end{tltxmdfexample}
4023
4024 \Examplesec{Package multicol}
4025 How I wrote in \enquote{Known Problems} you can't combine \Pack{multicol} with \Pack{mdframed}. In a s
4026 \begin{LTXexample}
4027 \begin{multicols}{2}
4028 \lipsum[1]
4029 \begin{mdframed}
4030 \ExampleText
4031 \end{mdframed}
4032 \lipsum[2]
4033 \end{multicols}
4034 \end{LTXexample}
4035 \clearpage
4036 \twocolumn[\Examplesec{Working in twocolumn mode}]
4037 \begin{tltxmdfexample}
4038 \twocolumn[%
4039     \Examplesec{Working in
4040         twocolumn mode}]
4041 \lipsum[1]\lipsum[2]
4042 \begin{mdframed}[%
4043     leftmargin=10pt,%
4044     rightmargin=10pt,%
4045     linecolor=red,
4046     backgroundcolor=yellow]
4047 \ExampleText
4048 \end{mdframed}
4049 \lipsum[2]
4050 \end{tltxmdfexample}
4051 \lipsum[1]\lipsum[2]
4052 \begin{mdframed}[leftmargin=10pt,%
4053     rightmargin=10pt,%
4054     linecolor=red,
4055     backgroundcolor=yellow]
4056 \ExampleText
4057 \end{mdframed}
4058 \lipsum[2]
4059 \clearpage
4060 \onecolumn
4061 \Examplesec{Working inside enumerate}
4062 \begin{LTXexample}
4063 Text Text Text Text Text Text Text Text

```

```

4064 \begin{enumerate}
4065 \item in the following \ldots
4066     \begin{mdframed}[linecolor=blue,linewidth=2]
4067         \ExampleText
4068     \end{mdframed}
4069 \item \lipsum[2]
4070 \end{enumerate}
4071 Text Text Text Text Text Text
4072 \end{LTXexample}
4073 \clearpage
4074 \Examplesec{Position a specific symbol at a line}
4075 \begin{LTXexample}
4076 \tikzset{
4077     warningsymbol/.style={
4078         rectangle,draw=red,
4079         fill=white,scale=1,
4080         overlay}}
4081 \mdfdefinestyle{warning}{%
4082     hidealllines=true,leftline=true,
4083     skipabove=12,skipbelow=12pt,
4084     innertopmargin=0.4em,%
4085     innerbottommargin=0.4em,%
4086     innerrightmargin=0.7em,%
4087     rightmargin=0.7em,%
4088     innerleftmargin=1.7em,%
4089     leftmargin=0.7em,%
4090     middlelinewidth=.2em,%
4091     linecolor=red,%
4092     fontcolor=red,%
4093     firstextra={\path let \p1=(P), \p2=(0) in ($(\x2,0)+0.5*(0,\y1)$)
4094                 node[warningsymbol] {\$}};,%
4095     secondextra={\path let \p1=(P), \p2=(0) in ($(\x2,0)+0.5*(0,\y1)$)
4096                 node[warningsymbol] {\$}};,%
4097     middleextra={\path let \p1=(P), \p2=(0) in ($(\x2,0)+0.5*(0,\y1)$)
4098                 node[warningsymbol] {\$}};,%
4099     singleextra={\path let \p1=(P), \p2=(0) in ($(\x2,0)+0.5*(0,\y1)$)
4100                 node[warningsymbol] {\$}};,%
4101 }
4102 \begin{mdframed}[style=warning]
4103 \ExampleText
4104 \end{mdframed}
4105 \end{LTXexample}
4106
4107 \clearpage
4108 \Examplesec{digression-environement inspired by Tobias Weh}
4109 \begin{lstlisting}
4110 \usetikzlibrary{calc,arrows}
4111 \tikzset{
4112     excursus arrow/.style={%
4113         line width=2pt,
4114         draw=gray!40,
4115         rounded corners=2ex,
4116     },
4117     excursus head/.style={
4118         fill=white,
4119         font=\bfseries\sffamily,

```

```

4120     text=gray!80,
4121     anchor=base west,
4122   },
4123 }
4124 \mdfdefinestyle{digressionarrows}{%
4125   singleextra={%
4126     \path let \p1=(P), \p2=(0) in (\x2,\y1) coordinate (Q);
4127     \path let \p1=(Q), \p2=(0) in (\x1,{(\y1-\y2)/2}) coordinate (M);
4128     \path [excursus arrow, round cap-to]
4129       ($ (0)+(5em,0ex)$) -| (M) |- %
4130       ($ (Q)+(12em,0ex)$) .. controls +(0:16em) and +(185:6em) .. %
4131       ++(23em,2ex);
4132     \node [excursus head] at ($ (Q)+(2.5em,-0.75pt)$) {Digression};},
4133   firstextra={%
4134     \path let \p1=(P), \p2=(0) in (\x2,\y1) coordinate (Q);
4135     \path [excursus arrow,-to]
4136       (0) |- %
4137       ($ (Q)+(12em,0ex)$) .. controls +(0:16em) and +(185:6em) .. %
4138       ++(23em,2ex);
4139     \node [excursus head] at ($ (Q)+(2.5em,-2pt)$) {Digression};},
4140   secondextra={%
4141     \path let \p1=(P), \p2=(0) in (\x2,\y1) coordinate (Q);
4142     \path [excursus arrow,round cap-]
4143       ($ (0)+(5em,0ex)$) -| (Q);},
4144   middleextra={%
4145     \path let \p1=(P), \p2=(0) in (\x2,\y1) coordinate (Q);
4146     \path [excursus arrow]
4147       (0) -- (Q);},
4148   middlelinewidth=2.5em,middlelinecolor=white,
4149   hidealllines=true,topline=true,
4150   innertopmargin=0.5ex,
4151   innerbottommargin=2.5ex,
4152   innerrightmargin=2pt,
4153   innerleftmargin=2ex,
4154   skipabove=0.87\baselineskip,
4155   skipbelow=0.62\baselineskip,
4156 }
4157
4158 \begin{mdframed}[style=digressionarrows]
4159   \ExampleText
4160 \end{mdframed}
4161 \end{lstlisting}
4162
4163 \tikzset{
4164   excursus arrow/.style={%
4165     line width=2pt,
4166     draw=gray!40,
4167     rounded corners=2ex,
4168   },
4169   excursus head/.style={
4170     fill=white,
4171     font=\bfseries\sffamily,
4172     text=gray!80,
4173     anchor=base west,
4174   },
4175 }

```

```

4176 \mdfdefinestyle{digressionarrows}{%
4177   singleextra={%
4178     \path let \p1=(P), \p2=(O) in (\x2,\y1) coordinate (Q);
4179     \path let \p1=(Q), \p2=(O) in (\x1,{(\y1-\y2)/2}) coordinate (M);
4180     \path [excursus arrow, round cap-to]
4181       ($ (O)+(5em,0ex)$) -| (M) |- %
4182       ($ (Q)+(12em,0ex)$) .. controls +(0:16em) and +(185:6em) .. %
4183       ++(23em,2ex);
4184     \node [excursus head] at ($ (Q)+(2.5em,-0.75pt)$) {Digression}};
4185   firstextra={%
4186     \path let \p1=(P), \p2=(O) in (\x2,\y1) coordinate (Q);
4187     \path [excursus arrow,-to]
4188       (O) |- %
4189       ($ (Q)+(12em,0ex)$) .. controls +(0:16em) and +(185:6em) .. %
4190       ++(23em,2ex);
4191     \node [excursus head] at ($ (Q)+(2.5em,-2pt)$) {Digression}};
4192   secondextra={%
4193     \path let \p1=(P), \p2=(O) in (\x2,\y1) coordinate (Q);
4194     \path [excursus arrow,round cap-]
4195       ($ (O)+(5em,0ex)$) -| (Q)};
4196   middleextra={%
4197     \path let \p1=(P), \p2=(O) in (\x2,\y1) coordinate (Q);
4198     \path [excursus arrow]
4199       (O) -- (Q)};
4200   middlelinewidth=2.5em,middlelinecolor=white,
4201   hidealllines=true,topline=true,
4202   innertopmargin=0.5ex,
4203   innerbottommargin=2.5ex,
4204   innerrightmargin=2pt,
4205   innerleftmargin=2ex,
4206   skipabove=0.87\baselineskip,
4207   skipbelow=0.62\baselineskip,
4208 }
4209
4210 \begin{mdframed}[style=digressionarrows]
4211   \ExampleText
4212 \end{mdframed}
4213
4214 \Examplesec{Theorem style shading background}
4215 \begin{LTXexample}
4216 %\usetikzlibrary{shadings,shadows}% loaded in the header
4217 \mdtheorem[%
4218   apptotikzsetting={\tikzset{mdfbackground/.append style =%
4219     {top color=yellow!40!white,
4220     bottom color=yellow!80!black},
4221   mdfframetitlebackground/.append style =%
4222     {top color=purple!40!white,
4223     bottom color=purple!80!black}
4224   }
4225   },
4226   ,roundcorner=10pt,middlelinewidth=2pt,
4227   shadow=true,frametitlerule=true,frametitlerulewidth=4pt,
4228   innertopmargin=10pt,%
4229   ]{alternativtheorem}{Theorem}
4230 \begin{alternativtheorem}[Inhomogeneous linear]
4231 \ExampleText

```



```
4232 \end{alternativtheorem}  
4233 \end{LTXexample}  
4234 \end{document}  
4235 \endinput
```

G. Change History

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

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The index only collect package relevant words.

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