The `mdframed` package [1]

auto-split frame environment

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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.

Contents

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.*

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[1] Extending the package `framed.sty`

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

The frame was defined with the following settings.

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

2. Syntax

Loadings `mdframed`
The package itself loads the packages

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

Depending on the options `mdframed` will load

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

Load the package as usual:

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

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

Provided environment
The package defines only one environment with the following syntax:

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

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

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

Twoside-mode

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

3. The frames

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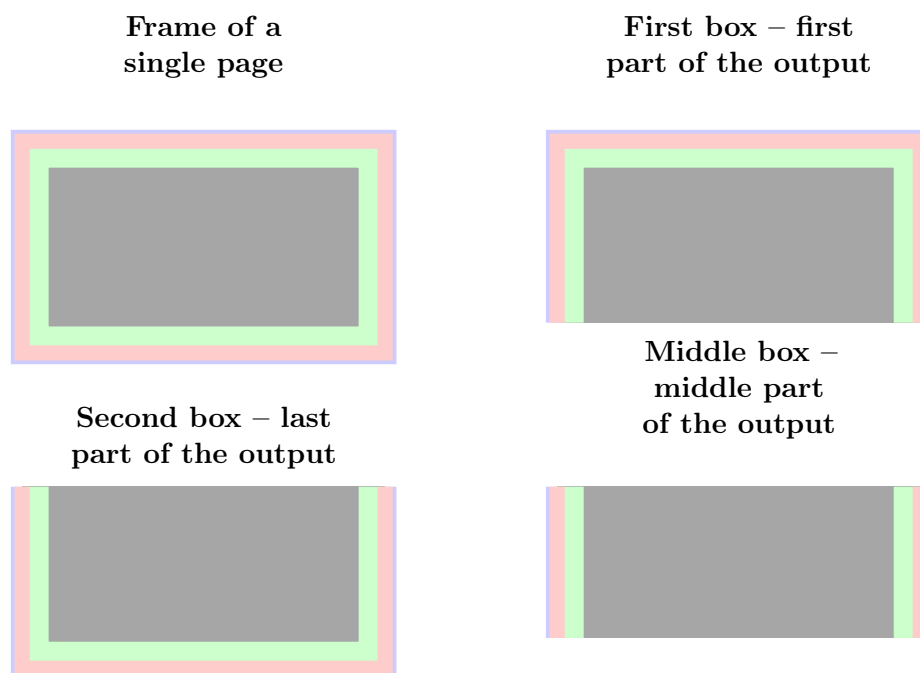
**Frame of a
single page**

**First box – first
part of the output**

**Second box – last
part of the output**

**Middle box –
middle part
of the output**

Figure 1: The basic frames

4. Commands

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

`\newmdenv`

The command has the following syntax:

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

In this way you can simply use:

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

`\renewmdenv`

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

`\surroundwithmdframed`

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

> **\surroundwithmdframed**[**linewidth**=2pt]{verbatim}

`\mdflength`

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

> Some Text **\hspace**{**\mdflength**{innerleftmargin}} Some Text
>
> **\the****mdflength**{innerleftmargin}

`\mdfsetup`

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

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

`\mdfdefinestyle`

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

Here a small example:

> **\mdfdefinestyle**{**mystyle**}{**leftmargin**=0pt,*%*
>   **linecolor**=blue}
> ....
> **\begin**{**mdframed**}[**style**=**mystyle**]
> foo
> **\end**{**mdframed**}

`\mdfapptodefinestyle`

This commands allows to expand a defined style.[3]

5. Options

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

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[2]Thanks to Heiko Oberdiek and Philipp Stephani kvoptions-Declaration von Optionen schlägt fehl
[3]Thanks to Martin Scharrer and Enrico Gregorio:
   http://tex.stackexchange.com/questions/34684/argument-of-setkeys

5.1. Global Options

The following options are only global options.

`xcolor` default=`none`

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

`framemethod` default=`default`

> With this key you can change the way frames are drawn. You can decide whether the frame is drawn with
>
> 1. LaTeX-commands `\hrule`, `\vrule`, `\rule`,
>
> 2. TikZ (the package `TikZ` will be loaded) or
>
> 3. PSTricks (the package `pstricks` will be loaded).

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

Table 1: Allowed keys for `framemethod`

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

> **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.

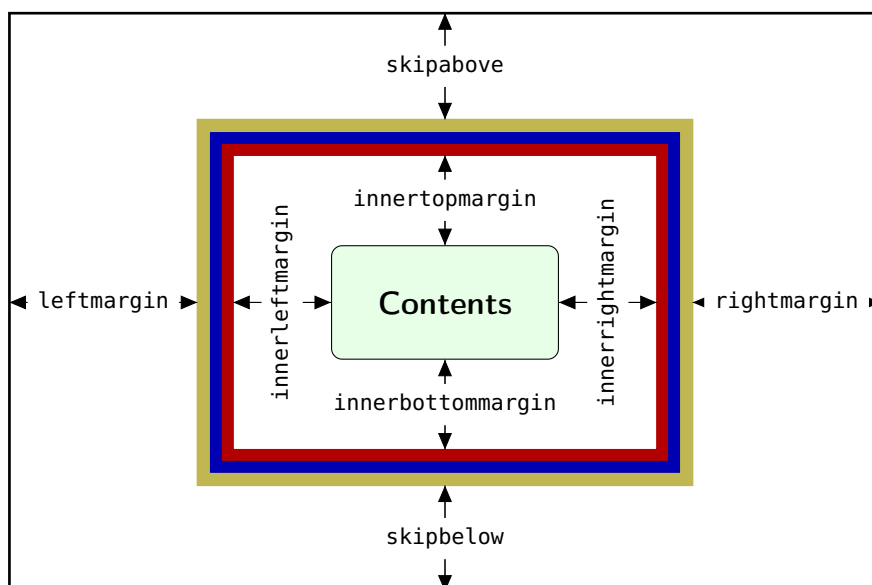`defaultunit` default=`pt`

> 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 $0\,\mathrm{pt}$.

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=`8 pt`

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 `\addtopsstyle` 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 command[4] 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 formating but isn't numbered.

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

> **\begin**{environment}[optional title]
>   ...
> **\end**{environment}

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

theoremseparator   default=`{:}`

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

---

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

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 TEXGroup 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 LaTeX-editors like TeXMaker or TeXStudio 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 unkown. 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 3 cm 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.

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 `\@captype` global. To work with the package picins you can use the following hack.

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

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 sequently (done by `md-frame-X.mdf`). The following figure demonstrates this.
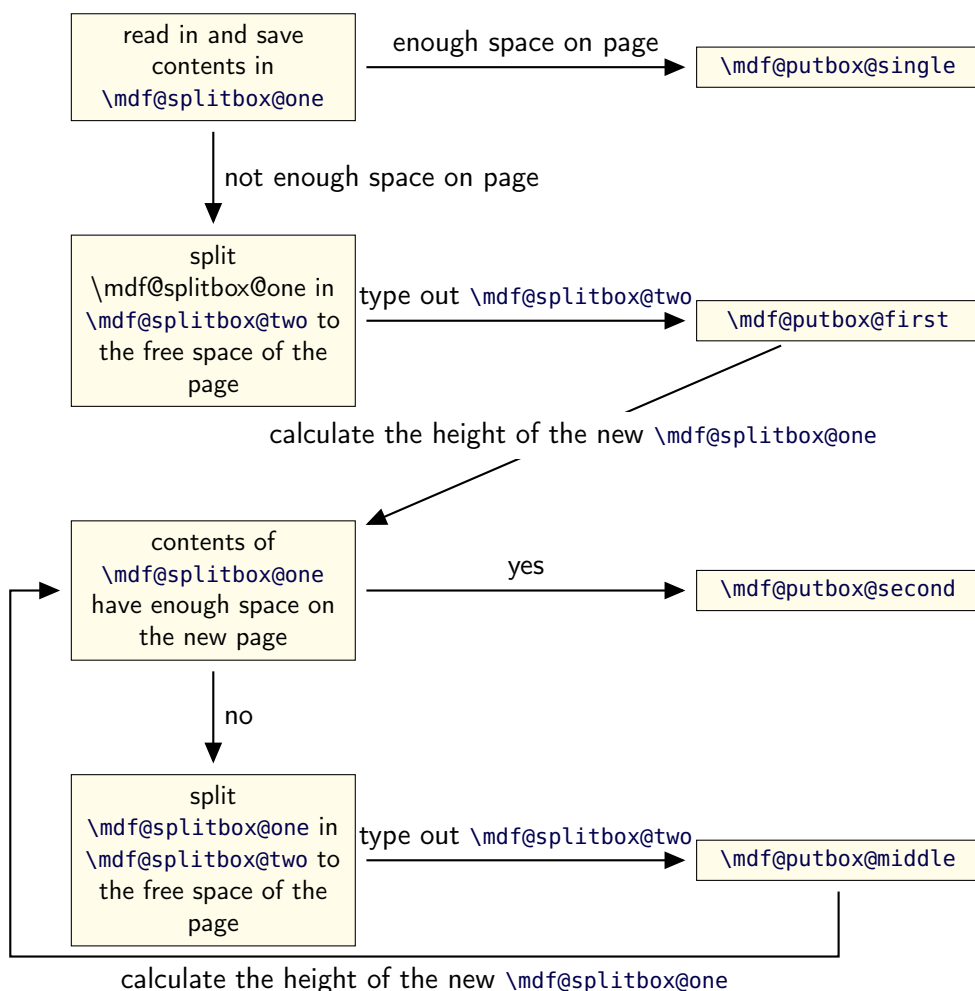
Figure 3: Setting the contents of `mdframed`

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 1.5a submitted DD MMM 2012

• 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 twolumn-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.dtx3782012 − 04 − 1307 : 55 : 45Zmarco Rev : 378 Author : marco
Date : 2012 − 04 − 1309 : 55 : 45 + 0200(Fr, 13.Apr2012)

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

Set package information

```
1 \def\mdversion{v1.5a}
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 378 2012-04-13 07:55:45Z 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 width a default value.
`\mdf@option@length{<Laengenbezeichnung>}{<Defaultwert>}`

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

Command to create a new length option.`\mdf@define@key@length{<Bezeichnungder 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@templength}}%
53       \expandafter\setlength\csname mdf@#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 to 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@tripledo

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

```
81 \def\mdf@do@alignoption#1{%
82     \mdf@alignoption@tripledo#1\@nil%
83 }
84 \def\mdf@alignoption@tripledo#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 }
```

<div style="border:1px solid">\mdf@do@lengthoption</div>

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

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

\mdf@do@booloption

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

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

\mdf@do@alignoption

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

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

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

Set the alignment.

```
224 \newcommand*\mdf@align{}%
225 \newcommand*\mdf@makeboxalign@left{\null\hspace*{\mdf@leftmargin@length}}%
226 \newcommand*\mdf@makeboxalign@right{}%
227 \define@key{mdf}{align}[left]{%
228    \ifcsundef{mdf@align@#1@left}{%
229        \mdf@PackageWarning{Unknown alignment #1\MessageBreak}%
```

```
230        \letcs\mdf@makeboxalign@left{mdf@align@left@left}%
231        \letcs\mdf@makeboxalign@right{mdf@align@left@right}%
232    }{%
233        \def\mdf@makeboxalign@left{\csuse{mdf@align@#1@left}}%
234        \def\mdf@makeboxalign@right{\csuse{mdf@align@#1@right}}%
235    }%
236 }
```

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

Option to pass options to tikz or pstricks

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

```
\mdf@xcolor
```

Problem width xcolor. This part must be reworked!

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

```
\mdf@needspace
```

Defining the option needspace

```
265 \define@key{mdf}{needspace}[\z@]{%
266     \begingroup%
267       \setlength{\dimen@}{#1}%
268       \vskip\z@\@plus\dimen@%
269       \penalty -100\vskip\z@\@plus -\dimen@%
270       \vskip\dimen@%
```

```
271        \penalty 9999%
272        \vskip -\dimen@%
273        \vskip\z@skip % hide the previous |\vskip| from |\addvspace|
274      \endgroup%
275 }
```

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

`\mdfsetup`

Short form of `\setkeys{mdf}`

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

`\mdf@style`

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

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

`\mdf@print@space`

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

```
290 \let\mdf@PackageNoInfo\@gobble
291 \newrobustcmd*\mdf@ifstrequal@expand{%
292 \expandafter\ifstrequal\expandafter{\mdf@printheight}%
293 }
294 \newrobustcmd*\mdf@print@space{%
295   %case "none"
296   \mdf@ifstrequal@expand{none}{\def\mdf@tempa{NoInfo}}{%
297       %case "info"
298       \mdf@ifstrequal@expand{info}{\def\mdf@tempa{Info}}{%
299         %case "warning"
300         \mdf@ifstrequal@expand{warning}{\def\mdf@tempa{Warning}}{%
301           %case "unknown"
302           \mdf@PackageWarning{Unknown key for printheight=\mdf@printheight^^J
303                             use none, info or warning}%
304           \def\mdf@tempa{none}%
305         }%
306       }%
307   }%
308 \def\mdf@PackageInfoSpace{\csname mdf@Package\mdf@tempa\endcsname}%
309 }
```

```
\new...
```

Initialize all commands and length which will we used later

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

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

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

```
346
347 \def\mdf@lrbox#1{%
348 %%patch to work with amsthm
349   \mdf@patchamsthm
350 %%end patch
351   \edef\mdf@restoreparams{%
352   \parindent=\the\parindent \parskip=\the\parskip}
353   \setbox#1\vbox\bgroup
354    \color@begingroup%
355     \mdf@horizontalmargin@equation%
```

```
356     \columnwidth=\hsize%
357     \textwidth=\hsize%
358     \@parboxrestore%
359     \mdf@restoreparams%
360     %SETZE
361     \@afterindentfalse%
362     \@afterheading%
363     %STREICHE
364     %\@doendpe
365 }
366
367 \def\endmdf@lrbox{\color@endgroup\egroup}
368
```

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

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

```
369 \newrobustcmd*\mdf@ignorevbadness{%
370     \edef\mdf@currentvbadness{\the\vbadness}%
371     \vbadness=\@M%
372     \afterassignment\mdf@restorevbadness}
373 \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.

```
374 \@ifpackageloaded{amsthm}{%
375 \newrobustcmd\mdf@patchamsthm{%
376     \let\mdf@deferred@thm@head\deferred@thm@head
377     \patchcmd{\deferred@thm@head}{\indent}{}%
378       {\mdf@PackageInfo{mdframed detected package amsthm ^^J
379                 changed the theoerem header of amsthm\MessageBreak}%
380       }{%
381        \mdf@PackageInfo{mdframed detected package amsthm ^^J
382                 changed the theoerem header of amsthm failed\MessageBreak}%
383       }%
384     }%
385 }{\let\mdf@patchamsthm\relax}%
```

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

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

```
386 \def\mdf@trivlist#1{%
387   \setlength{\topsep}{#1}%
388   \partopsep\z@%
389   \parsep\z@%
390   \@nmbrlistfalse%
391   \@trivlist%
392   \labelwidth\z@%
```

```
393    \leftmargin\z@%
394    \itemindent\z@%
395    \let\@itemlabel\@empty%
396    \def\makelabel##1{##1}%
397 %%  \item\leavevmode\hrule \@height\z@ \@width\linewidth\relax%
398 %%  \item\mbox{}\relax% second version
399    \item\relax% first Version
400 }
401 \let\endmdf@trivlist\endtrivlist
402 \patchcmd\endmdf@trivlist\@endparenv\mdf@endparenv{}{}
403 \def\mdf@endparenv{%
404    \addpenalty\@endparpenalty\addvspace\mdf@skipbelow@length\@endpetrue}
405
```

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

```
406 \newrobustcmd*\mdf@makebox@out[2][\linewidth]{%
407  \noindent\hb@xt@\z@{%
408     \noindent\makebox[\dimexpr #1\relax][l]{#2}%
409  \hss}%
410 }%
411 \newrobustcmd*\mdf@makebox@in[2][\mdf@userdefinedwidth@length]{%
412  \noindent\makebox[\dimexpr #1\relax][l]{#2}%
413 }
```

\mdfdefinestyle
\mdfapptodefinestyle

See explanation of this commands above.

```
414 \newrobustcmd*\mdfdefinestyle[2]{%
415   \csdef{mdf@definestyle@#1}{#2}%
416 }
417 \newrobustcmd*\mdfapptodefinestyle[2]{%
418  \ifcsundef{mdf@definestyle@#1}%
419    {\mdf@PackageWarning{Unknown style #1}}%
420    {\csappto{mdf@definestyle@#1}{,#2}}%
421 }
```

\mdflength
\surroundwithmdframed

Helper macros to work with mdframed

```
422 \newrobustcmd*{\mdflength}[1]{\csuse{mdf@#1@length}}
423
424 \newrobustcmd*{\surroundwithmdframed}[2][]{%
425   \BeforeBeginEnvironment{#2}{\begin{mdframed}[#1]}%
426   \AfterEndEnvironment{#2}{\end{mdframed}}%
427 }
```

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

Defining of the new environment defintions.

```
428 \newrobustcmd*\newmdenv[2][]{%
429   \newenvironment{#2}{%
430     \mdfsetup{#1}%
431     \begin{mdframed}%
432   }{%
433     \end{mdframed}%
434   }%
435 }
436 \newrobustcmd*\renewmdenv[2][]{%
437   \expandafter\let\csname #2\endcsname\relax%
438   \expandafter\let\csname end#2\endcsname\relax%
439   \newmdenv[#1]{#2}%
440   }%
441
442
443 \DeclareDocumentCommand\newmdtheoremenv{O{} m o m o }{%
444 \ifboolexpr{ test {\IfNoValueTF {#3}} and test {\IfNoValueTF {#5}} }%
445     {\newtheorem{#2}{#4}}{%
446     \IfValueTF{#3}{\newtheorem{#2}[#3]{#4}}{}%
447     \IfValueTF{#5}{\newtheorem{#2}{#4}[#5]}{}%
448     }%
449   \BeforeBeginEnvironment{#2}{%
450     \begin{mdframed}[#1]}%
451   \AfterEndEnvironment{#2}{%
452     \end{mdframed}}%
453 }
454
455
456 \newrobustcmd*\mdf@thm@caption[2]{}
457 \AtBeginDocument{%
458  \@ifpackageloaded{ntheorem}%
459    {\renewrobustcmd*\mdf@thm@caption{\thm@thmcaption}}{}%
460  }
461
462 \DeclareDocumentCommand{\mdtheorem}{ O{} m o m o }%
463 {\ifcsdef{#2}%
464    {\mdf@PackageWarning{Environment #2 already exits\MessageBreak}}%
465    {%
466     \IfNoValueTF {#3}%
467       {%#3 not given -- number relationship
468        \IfNoValueTF {#5}
469          {%#3+#5 not given
470           \@definecounter{#2}%
471           \expandafter\xdef\csname the#2\endcsname{\@thmcounter{#2}}
472           \newenvironment{#2}[1][]{%
473             \refstepcounter{#2}%
474             \ifstrempty{##1}%
475                {\let\@temptitle\relax}%
476                {%
477                 \def\@temptitle{\mdf@theoremseparator%
```

```
478                            \mdf@theoremspace%
479                            \mdf@theoremtitlefont%
480                            ##1}%
481                \mdf@thm@caption{#2}{{#4}{\csname the#2\endcsname}{##1}}%
482                }
483            \begin{mdframed}[#1,frametitle={\strut#4\ \csname the#2\endcsname\@temptitle}]}%
484            {\end{mdframed}}%
485        \newenvironment{#2*}[1][]{%
486            \ifstrempty{##1}{\let\@temptitle\relax}{\def\@temptitle{:\ ##1}}
487            \begin{mdframed}[#1,frametitle={\strut#4\@temptitle}]}%
488            {\end{mdframed}}%
489        }%
490        {%#5 given -- reset counter
491        \@definecounter{#2}\@newctr{#2}[#5]%
492        \expandafter\xdef\csname the#2\endcsname{\@thmcounter{#2}}
493        \expandafter\xdef\csname the#2\endcsname{%
494                \expandafter\noexpand\csname the#5\endcsname \@thmcountersep
495                \@thmcounter{#2}}%
496        \newenvironment{#2}[1][]{%
497            \refstepcounter{#2}
498            \ifstrempty{##1}%
499                {\let\@temptitle\relax}%
500                {%
501                \def\@temptitle{\mdf@theoremseparator%
502                                \mdf@theoremspace%
503                                \mdf@theoremtitlefont%
504                                ##1}%
505                \mdf@thm@caption{#2}{{#4}{\csname the#2\endcsname}{##1}}%
506                }
507            \begin{mdframed}[#1,frametitle={\strut#4\ \csname the#2\endcsname\@temptitle}]}%
508            {\end{mdframed}}%
509        \newenvironment{#2*}[1][]{%
510            \ifstrempty{##1}%
511                {\let\@temptitle\relax}%
512                {%
513                \def\@temptitle{\mdf@theoremseparator%
514                                \mdf@theoremspace%
515                                \mdf@theoremtitlefont%
516                                ##1}%
517                \mdf@thm@caption{#2}{{#4}{\csname the#2\endcsname}{##1}}%
518                }
519            \begin{mdframed}[#1,frametitle={\strut#4\@temptitle}]}%
520            {\end{mdframed}}%
521        }%
522    }%
523    {%#3 given -- number relationship
524        \global\@namedef{the#2}{\@nameuse{the#3}}%
525        \newenvironment{#2}[1][]{%
526            \refstepcounter{#3}
527            \ifstrempty{##1}%
528                {\let\@temptitle\relax}%
529                {%
530                \def\@temptitle{\mdf@theoremseparator%
531                                \mdf@theoremspace%
532                                \mdf@theoremtitlefont%
533                                ##1}%
```

```
534            \mdf@thm@caption{#2}{{#4}{\csname the#2\endcsname}{##1}}%
535              }
536          \begin{mdframed}[#1,frametitle={\strut#4\ \csname the#2\endcsname\@temptitle}]}%
537          {\end{mdframed}}%
538        \newenvironment{#2*}[1][]{%
539          \ifstrempty{##1}{\let\@temptitle\relax}{\def\@temptitle{:\ ##1}}
540          \begin{mdframed}[#1,frametitle={\strut#4\@temptitle}]}%
541          {\end{mdframed}}%
542      }%
543    }%
544  }
545
```

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

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

```
546 %TESTVERSION
547 % \newrobustcmd*\mdf@setopt@title{%
548 %   \ifbool{mdf@frametitlerule}{\booltrue{mdf@bottomline}}{\boolfalse{mdf@bottomline}}%
549 % \let\ifmdf@leftline\ifmdf@frametitleleftline%
550 % \let\ifmdf@topline\ifmdf@frametitletopline%
551 % \let\ifmdf@rightline\ifmdf@frametitlerightline%
552 % \let\ifmdf@bottomline\ifmdf@frametitlebottomline%
553 %   \mdfsetup{innerbottommargin=\mdf@titlebelowskip@length,%
554 %           innertopmargin=\mdf@titleaboveskip@length,%
555 %           middlelinecolor=\mdf@frametitlerulecolor,%
556 %           backgroundcolor=\mdf@frametitlebackgroundcolor,%
557 %           middlelinewidth=\mdf@frametitlerulewidth@length,%
558 %           innerleftmargin=\mdf@frametitleleftmargin@length,%
559 %           innerrightmargin=\mdf@frametitlerightmargin@length,%
560 %           alignment=\mdf@frametitlealignment,%
561 %           skipbelow=\z@}%
562 % \def\mdf@linecolor@bottom{\color{\mdf@frametitlebottomrulecolor}}%
563 % \mdf@frametitlesettings%
564 % }
565 %
566 % \newrobustcmd*\mdf@setopt@body{%
567 %   \mdfsetup{topline=false,skipabove=\z@}%
568 %   \unskip\nointerlineskip%
569 % }
570 %
571 % \newrobustcmd\mdfframedtitleenv[1]{%
572 %   \begingroup
573 %     \mdf@setopt@title
574 %     \color@setgroup
575 %       \mdf@frametitlefont
576 %       \mdf@lrbox{\mdf@splitbox@one}%
577 %         \mdf@frametitlealignment
578 %           #1\par\unskip
579 %       \endmdf@lrbox
580 %     \mdf@ignorevbadness
```

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

`\mdf@checkntheorem`

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

```
626
627 \newrobustcmd*\mdf@checkntheorem{%
628   \ifbool{mdf@ntheorem}%
629     {\ifundef{\theorempreskipamount}%
630         {\mdf@PackageWarning{You have not loaded ntheorem yet}}%
631         {\setlength{\theorempreskipamount}{\z@}%
```

```
632              \setlength{\theorempostskipamount}{\z@}%
633        }%
634    }{}%
635 }
```

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

Support for footnotes.

```
636 \newrobustcmd*\mdf@footnoterule{%
637      \kern0\p@%
638      \hrule \@width 1in \kern 2.6\p@}
639 \newrobustcmd*\mdf@footnoteoutput{%
640      \ifvoid\@mpfootins\else
641            \nobreak%
642            \vskip\mdf@footenotedistance@length%
643            \normalcolor%
644            \mdf@footnoterule
645            \unvbox\@mpfootins
646      \fi%
647 }
648 \newrobustcmd*\mdf@footnoteinput{%
649    \def\@mpfn{mpfootnote}%
650    \def\thempfn{\thempfootnote}%
651    \c@mpfootnote\z@%
652    \let\@footnotetext\@mpfootnotetext%
653 }
```

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

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

```
654 \newrobustcmd*\mdf@load@style{%
655 \ifcase\value{mdf@globalstyle@cnt}\relax%
656      \input{md-frame-0.mdf}%
657 \or\input{md-frame-1.mdf}%
658 \or\input{md-frame-2.mdf}%
659 \or\input{md-frame-3.mdf}%
660 \else%
661      \IfFileExists{md-frame-\value{mdf@globalstyle@cnt}.mdf}%
662      {\input{md-frame-\value{mdf@globalstyle@cnt}.mdf}}%
663      {%
664        \input{md-frame-0.mdf}%
665        \mdf@PackageWarning{The style number \value{mdf@globalstyle@cnt} does not exist^^J
666                          mdframed ues instead style=0 \mdframedpackagename}%
667      }%
668 \fi%
669 }%
670 \mdf@load@style
671
672 \newrobustcmd*\mdf@styledefinition{%AVOID!!!
673      \ifnumequal{\value{mdf@globalstyle@cnt}}{0}%
674      {\deflength{\mdf@innerlinewidth@length}{\z@}%
675        \deflength{\mdf@middlelinewidth@length}{\mdf@linewidth@length}%
```

```
676        \deflength{\mdf@outerlinewidth@length}{\z@}%
677        \let\mdf@innerlinecolor\mdf@linecolor%
678        \let\mdf@middlelinecolor\mdf@linecolor%
679        \let\mdf@outerlinecolor\mdf@linecolor%
680      }{}%
681 %    \ifnumequal{\value{mdf@globalstyle@cnt}}{2}%
682 %    {\deflength{\mdf@innerlinewidth@length}{\z@}%
683 %     \deflength{\mdf@middlelinewidth@length}{\mdf@linewidth@length}%
684 %     \deflength{\mdf@outerlinewidth@length}{\z@}%
685 %     \let\mdf@innerlinecolor\mdf@linecolor%
686 %    }{}%
687 %    \ifnumequal{\value{mdf@globalstyle@cnt}}{3}%
688 %    {\deflength{\mdf@innerlinewidth@length}{\z@}%
689 %     \deflength{\mdf@middlelinewidth@length}{\mdf@linewidth@length}%
690 %     \deflength{\mdf@outerlinewidth@length}{\z@}%
691 %     \let\mdf@innerlinecolor\mdf@linecolor%
692 %    }{}%
693 }
```

<pre>┌─────────────────────────────┐
│ \detected@mdf@put@frame   │
└─────────────────────────────┘</pre>

Detect whether inside a non breakable environment.

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

```
726        \fi%
727        \ifinner%
728            \mdf@PackageInfo{mdframed inside a box ^^J
729                            mdframed uses option nobreak \mdframedpackagename}%
730            \def\mdf@reserved@a{\mdf@put@frame@standalone}%
731        \fi%
732    \fi%
733 \mdf@reserved@a%
734 }
```

\mdf@hidealllines@check

```
735 \newrobustcmd*\mdf@hidealllines@check{%
736 \ifbool{mdf@hidealllines}{%
737     \boolfalse{mdf@leftline}\boolfalse{mdf@rightline}%
738     \boolfalse{mdf@topline}\boolfalse{mdf@bottomline}%
739     \boolfalse{mdf@frametitleleftline}\boolfalse{mdf@frametitlerightline}%
740     \boolfalse{mdf@frametitletopline}\boolfalse{mdf@frametitlebottomline}%
741   }{}%
742 }
```

\mdframed
\mdframed@ii
\mdframed@i

That the user environement.

```
743 \newenvironment{mdframed}[1][]{%
744 \color@begingroup%
745     \mdfsetup{userdefinedwidth=\linewidth,#1}%
746 %%%   \mdf@hidealllines@check%
747     \mdf@twoside@checklength%
748     \let\width\z@%
749     \let\height\z@%
750     \mdf@checkntheorem%
751     \mdf@styledefinition%
752     \mdf@footnoteinput%
753     \color{\mdf@fontcolor}%
754     \mdf@font%
755     \ifvmode\nointerlineskip\fi%
756     \mdf@trivlist{\mdf@skipabove@length}%%
757     \ifdefempty{\mdf@frametitle}{}{\mdf@@frametitle}%
758     \mdf@settings%
759     \mdf@lrbox{\mdf@splitbox@one}%
760   }%
761 {\par\unskip\ifvmode\nointerlineskip\hrule \@height\z@ \@width\hsize\fi%%
762     \ifmdf@footnoteinside%
763       \def\mdf@reserveda{%
764         \mdf@footnoteoutput%
765         \endmdf@lrbox%
766         \ifdefempty{\mdf@frametitle}{}{\mdf@@frametitle@use}
767         \detected@mdf@put@frame}%
768     \else%
769       \def\mdf@reserveda{%
```

```
770            \endmdf@lrbox%
771            \ifdefempty{\mdf@frametitle}{}{\mdf@@frametitle@use}
772            \detected@mdf@put@frame%
773            \mdf@footnoteoutput%
774            }%
775        \fi%
776        \mdf@reserveda%
777        \endmdf@trivlist%
778 \color@endgroup\@doendpe%
779 }
780
781
```

```
\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.

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

```
817  \iftoggle{md:checktwoside}{\mdf@zref@label\if@mdf@pageodd}{}%
818  }
```

\mdf@freepagevspace

```
819 \newrobustcmd*\mdf@freepagevspace{%
820     \penalty\@M \vskip 2\baselineskip
821     \penalty9999 \vskip -2\baselineskip
822     \penalty9999
823     \ifdimequal{\pagegoal}{\maxdimen}%
824         {\mdf@freevspace@length\vsize}%
825         {\mdf@freevspace@length=\pagegoal\relax%
826          \advance\mdf@freevspace@length by -\pagetotal\relax%
827          \addtolength\mdf@freevspace@length{\dimexpr-\parskip\relax}\relax%
828         }%
829 }
```

\mdf@advancelength@horizontalmargin@add
\mdf@horizontalspaceofbox
\mdf@horizontalmargin@equation

Width of the box

```
830 \newrobustcmd*\mdf@advancelength@horizontalmargin@sub[1]{%
831   \advance\mdf@horizontalspaceofbox by -\csname mdf@#1@length\endcsname\relax%
832 }
833 \newlength\mdf@horizontalspaceofbox
834 \newrobustcmd*\mdf@horizontalmargin@equation{%
835     \setlength{\mdf@horizontalspaceofbox}{\mdf@userdefinedwidth@length}%
836     \mdf@dolist{\mdf@advancelength@horizontalmargin@sub}{%
837             leftmargin,outerlinewidth,middlelinewidth,%
838             innerlinewidth,innerleftmargin,innerrightmargin,%
839             innerlinewidth,middlelinewidth,outerlinewidth,%
840             rightmargin}%
841     \notbool{mdf@leftline}{%
842             \advance\mdf@horizontalspaceofbox by \mdf@innerlinewidth@length\relax%
843             \advance\mdf@horizontalspaceofbox by \mdf@middlelinewidth@length\relax%
844             \advance\mdf@horizontalspaceofbox by \mdf@outerlinewidth@length\relax%
845         }{}%
846     \notbool{mdf@rightline}{%
847             \advance\mdf@horizontalspaceofbox by \mdf@innerlinewidth@length\relax%
848             \advance\mdf@horizontalspaceofbox by \mdf@middlelinewidth@length\relax%
849             \advance\mdf@horizontalspaceofbox by \mdf@outerlinewidth@length\relax%
850         }{}%
851     \ifdimless{\mdf@horizontalspaceofbox}{3cm}%
852             {\mdf@PackageWarning{You have only a width of 3cm}}{}
853     \hsize=\mdf@horizontalspaceofbox%
854 }
```

\mdf@keeplines@single

---

horizontal space in relation of the lines.

```
855 \newrobustcmd*\mdf@keeplines@single{%
856   \notbool{mdf@topline}{%
857       \advance\mdf@verticalmarginwhole@length by -\mdf@innerlinewidth@length%
858       \advance\mdf@verticalmarginwhole@length by -\mdf@middlelinewidth@length%
859       \advance\mdf@verticalmarginwhole@length by -\mdf@outerlinewidth@length%
860     }{}%
861   \notbool{mdf@bottomline}{%
862       \advance\mdf@verticalmarginwhole@length by -\mdf@innerlinewidth@length%
863       \advance\mdf@verticalmarginwhole@length by -\mdf@middlelinewidth@length%
864       \advance\mdf@verticalmarginwhole@length by -\mdf@outerlinewidth@length%
865     }{}%
866 }
```

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

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

```
867 \newrobustcmd*\mdf@advancelength@verticalmarginwhole[1]{%
868   \advance\mdf@verticalmarginwhole@length by \csname mdf@#1@length\endcsname\relax%
869 }
870 \newrobustcmd*\mdf@advancelength@freevspace@sub[1]{%
871   \advance\dimen@ by -\csname mdf@#1@length\endcsname\relax%
872 }
873 \newrobustcmd*\mdf@advancelength@freevspace@add[1]{%
874   \advance\dimen@ by \csname mdf@#1@length\endcsname\relax%
875 }
```

```
\mdf@reset
```

Reset changes

```
876 \protected@edef\mdf@reset{\boxmaxdepth\the\boxmaxdepth
877                          \splittopskip\the\splittopskip}%
```

```
\mdf@put@frame@standalone
```

Output of mdframed inside a non breakable environement.

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

`\mdf@put@frame`

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

```
894 \def\mdf@put@frame{\relax%
895 \ifvoid\mdf@splitbox@one\relax
896 \mdf@PackageWarning{The environment is empty\MessageBreak}%
897 \let\mdf@reserved@a\relax%
898 \else
899   \setlength\mdfboundingboxwidth{\wd\mdf@splitbox@one}%
900   \mdf@print@space%
901   \mdf@freepagevspace%gives \mdf@freevspace@length
902   \mdf@PackageInfoSpace{\the\mdf@freevspace@length before the beginning of \MessageBreak
903                   the environment ending on input line \MessageBreak}%
904   \ifdimless{\mdf@freevspace@length}{2\baselineskip}
905           {\mdf@PackageInfo{Not enough space on this page}
906            \vfill\eject%
907            \def\mdf@reserved@a{\mdf@put@frame}%
908           }{%
909            %Hier berechnung Box-Inhalt+Rahmen oben und unten
910            \setlength{\mdf@verticalmarginwhole@length}%
911                    {\dimexpr\ht\mdf@splitbox@one+\dp\mdf@splitbox@one\relax}%
912            \mdf@dolist{\mdf@advancelength@verticalmarginwhole}{%
913                  outerlinewidth,middlelinewidth,innerlinewidth,innertopmargin,
914                  innerbottommargin,innerlinewidth,middlelinewidth,outerlinewidth}%
915            \mdf@keeplines@single%
916            \ifdimless{\mdf@verticalmarginwhole@length}{\mdf@freevspace@length}%
917               {%passt auf Seite%
918                 \begingroup
919                  \mdf@@setzref
920                   \mdf@putbox@single%
921                  \endgroup
922                 \let\mdf@reserved@a\relax}%
923               {\def\mdf@reserved@a{\mdf@put@frame@i}}%passt nicht auf Seite
924           }%
925 \fi
926 \mdf@reserved@a%
927 }
```

`\mdf@put@frame@i`

Output of the first splitted box.

```
928 \def\mdf@put@frame@i{%Box muss gesplittet werden -- Ausgabe der ersten Teilbox
929 %Berechnung der Splittgroesse -- Linien und Abstand oben
930 %\vbox to 0pt{}%
931 %\rlap{\smash{\the\mdf@freevspace@length}}%\hrule \@height\z@ \@width\hsize
932 \mdf@freepagevspace%gives \mdf@freevspace@length
933 %Berechnung ob nur oberen Linien nur auf die Seite passe
934 \dimen@=\the\mdf@freevspace@length%
935 \dimen@i=\mdf@innertopmargin@length%
936 \advance\dimen@i by \mdf@innerlinewidth@length%
937 \advance\dimen@i by \mdf@middlelinewidth@length%
938 \advance\dimen@i by \mdf@outerlinewidth@length%
939 \advance\dimen@i by 2\baselineskip%
```

```
940  \ifdimless{\dimen@}{\dimen@i}%
941    {\hrule \@height\z@ \@width\hsize%
942     \vfill\eject%
943     \def\mdf@reserved@a{\mdf@put@frame}%
944    }{%
945     \mdf@freepagevspace%
946     \dimen@=\the\mdf@freevspace@length%
947     \mdf@dolist{\mdf@advancelength@freevspace@sub}{%calculate with \dimen@
948               outerlinewidth,middlelinewidth,innerlinewidth,%
949               innertopmargin,splitbottomskip}%
950     \ifbool{mdf@everyline}{%
951       \ifbool{mdf@bottomline}{%
952               \advance\dimen@ by -\mdf@innerlinewidth@length%
953               \advance\dimen@ by -\mdf@middlelinewidth@length%
954               \advance\dimen@ by -\mdf@outerlinewidth@length%
955          }{}%
956        }{}%
957     \ifbool{mdf@topline}{}{%
958               \advance\dimen@ by \mdf@innerlinewidth@length%
959               \advance\dimen@ by \mdf@middlelinewidth@length%
960               \advance\dimen@ by \mdf@outerlinewidth@length%
961          }%
962     \advance\dimen@.8\pageshrink
963     \ifdimless{\ht\mdf@splitbox@one+\dp\mdf@splitbox@one}{\dimen@}%
964        {\mdf@PackageWarning{You got a bad break\MessageBreak
965                        you have to change it manually\MessageBreak
966                          by changing the text, the space\MessageBreak
967                          or something else}%
968         \advance\dimen@ by -1.8\baselineskip\relax%
969        }{}%
970 %      \advance\dimen@ by -1pt\relax%Box darf nicht zu Groß werden.
971     \splitmaxdepth\z@ \splittopskip\mdf@splittopskip@length%
972     \mdf@ignorevbadness%
973     \setbox\mdf@splitbox@two\vsplit\mdf@splitbox@one to \dimen@
974     \setbox\mdf@splitbox@two\vbox{\unvbox\mdf@splitbox@two}%
975     \setbox\mdf@splitbox@one\vbox{\unvbox\mdf@splitbox@one}%
976     \ifbool{mdf@repeatframetitle}{%
977             \setbox\mdf@splitbox@one\vbox{%
978                 \vbox to \mdf@splittopskip@length{\hsize\z@}
979                 %\par\unskip\nointerlineskip
980                 \unvcopy\mdf@frametitlebox%
981                 \mdf@@frametitlerule%
982                 \vbox to\dimexpr
983                     -\mdf@splittopskip@length+\ht\strutbox+\dp\strutbox
984                     +\mdf@innertopmargin@length\relax{\hsize\z@}%
985                 \unvbox\mdf@splitbox@one}%
986           }{}%
987     \ifdimgreater{\ht\mdf@splitbox@two+\dp\mdf@splitbox@two}{\dimen@}%
988        {%Falsch gesplittet
989         \mdf@PackageInfo{Box was splittet wrong\MessageBreak}%
990          \dimen@i=\dimen@
991           \advance\dimen@ by -\ht\mdf@splitbox@two
992           \advance\dimen@ by -\dp\mdf@splitbox@two
993           \advance\dimen@i by 0.5\dimen@
994           \splittopskip\z@%
995           \setbox\mdf@splitbox@one\vbox{\unvbox\mdf@splitbox@two%
```

```
996                       %benoetigt um Tiefe zu haben
997                       \hrule \@height\dp\strutbox \@width\z@
998                       \unvbox\mdf@splitbox@one}
999            \splittopskip\mdf@splittopskip@length%
1000           \mdf@ignorevbadness%
1001           \setbox\mdf@splitbox@two\vsplit\mdf@splitbox@one to \dimen@i
1002           \setbox\mdf@splitbox@two\vbox{\unvbox\mdf@splitbox@two}%
1003           \setbox\mdf@splitbox@one\vbox{\unvbox\mdf@splitbox@one}%
1004           \ifdimgreater{\ht\mdf@splitbox@two+\dp\mdf@splitbox@two}{\dimen@}
1005                   {%
1006                   \splittopskip\z@\mdf@ignorevbadness%%
1007                   \setbox\mdf@splitbox@one\vbox{\unvbox\mdf@splitbox@two%
1008                                       %benoetigt um Tiefe zu haben
1009                                       \hrule \@height\dp\strutbox \@width\z@
1010                                       \unvbox\mdf@splitbox@one}%
1011                   \mdf@ignorevbadness%
1012                   \setbox\mdf@splitbox@one\vbox{\unvbox\mdf@splitbox@one}%
1013                   }{}%
1014        \ifbool{mdf@repeatframetitle}{%
1015               \setbox\mdf@splitbox@one\vbox{%
1016                   \vbox to \mdf@splittopskip@length{\hsize\z@}
1017                   %\par\unskip\nointerlineskip
1018                   \unvcopy\mdf@frametitlebox%
1019                   \mdf@@frametitlerule%
1020                   \vbox to\dimexpr
1021                       -\mdf@splittopskip@length+\ht\strutbox+\dp\strutbox
1022                       +\mdf@innertopmargin@length\relax{\hsize\z@}%
1023                   \unvbox\mdf@splitbox@one}%
1024           }{}%
1025          }{}%
1026       \ifvoid\mdf@splitbox@one
1027         \mdf@PackageWarning{You got a bad break\MessageBreak
1028                           because the splittet box is empty\MessageBreak
1029                           You have to change the page settings\MessageBreak
1030                           like enlargethispage or something else}%
1031       \setbox\mdf@splitbox@one\vbox{\unvbox\mdf@splitbox@two}%
1032       \setbox\mdf@splitbox@one\vbox{\unvbox\mdf@splitbox@one}%
1033       \enlargethispage{\baselineskip}%
1034       \def\mdf@reserved@a{\mdf@put@frame}%
1035      \fi
1036      \ifvoid\mdf@splitbox@two%%pruefe, ob erste Box leer ist
1037       {\hrule \@height\f@size pt \@width\z@%
1038       \hrule \@height\z@ \@width\hsize}%
1039 %      \vfill\eject%
1040 %     \vskip\baselineskip
1041 %     {\hrule \@height\z@ \@width\hsize}
1042       %
1043       \def\mdf@reserved@a{\mdf@put@frame}%
1044      \else
1045       \ifdimequal{\ht\mdf@splitbox@two}{0pt}%
1046         {\hrule \@height\z@ \@width\hsize%
1047         \vfill\eject%
1048         \setbox\mdf@splitbox@one\vbox{\unvbox\mdf@splitbox@two\unvbox\mdf@splitbox@one}
1049         \def\mdf@reserved@a{\mdf@put@frame}%
1050        }%
1051        {%
```

```
1052              \begingroup%
1053                 \mdf@@setzref
1054                 \mdf@putbox@first%%%Groesse des Splittens passt
1055              \endgroup%
1056              \hrule \@height\z@ \@width\hsize%
1057              \vfill\eject%
1058              \def\mdf@reserved@a{\mdf@put@frame@ii}%
1059              }%
1060           \fi%
1061        }%
1062 \mdf@reserved@a%
1063 }
```

`\mdf@put@frame@ii`

Output of the middle and last box.

```
1064 \def\mdf@put@frame@ii{%Ausgabe der mittleren Box(en) wenn vorhanden
1065   \setlength{\mdf@freevspace@length}{\vsize}%
1066   \setlength{\dimen@}{\dimexpr\ht\mdf@splitbox@one+\dp\mdf@splitbox@one\relax}%
1067   \mdf@dolist{\mdf@advancelength@freevspace@add}{%used \dimen@
1068              outerlinewidth,middlelinewidth,innerlinewidth,%
1069              innerbottommargin}%%%Addition der Linien unten
1070   \ifbool{mdf@everyline}{%
1071      \ifbool{mdf@topline}{%
1072              \advance\dimen@ by \mdf@innerlinewidth@length%
1073              \advance\dimen@ by \mdf@middlelinewidth@length%
1074              \advance\dimen@ by \mdf@outerlinewidth@length%
1075          }{}%
1076        }{}%
1077   \ifbool{mdf@bottomline}{}{%
1078              \advance\dimen@ by -\mdf@innerlinewidth@length%
1079              \advance\dimen@ by -\mdf@middlelinewidth@length%
1080              \advance\dimen@ by -\mdf@outerlinewidth@length%
1081        \relax}%
1082   \ifdimgreater{\dimen@}{\mdf@freevspace@length}%
1083    {%
1084    \advance\mdf@freevspace@length by -\mdf@splitbottomskip@length\relax%
1085    \advance\mdf@freevspace@length by .5\ht\strutbox\relax%
1086    \ifbool{mdf@everyline}{%
1087      \ifbool{mdf@topline}{%
1088              \advance\mdf@freevspace@length by -\mdf@innerlinewidth@length%
1089              \advance\mdf@freevspace@length by -\mdf@middlelinewidth@length%
1090              \advance\mdf@freevspace@length by -\mdf@outerlinewidth@length%
1091          }{}%
1092      \ifbool{mdf@bottomline}{%
1093              \advance\mdf@freevspace@length by -\mdf@innerlinewidth@length%
1094              \advance\mdf@freevspace@length by -\mdf@middlelinewidth@length%
1095              \advance\mdf@freevspace@length by -\mdf@outerlinewidth@length%
1096        \relax}{}%
1097        }{}%
1098        \splitmaxdepth\z@ \splittopskip\mdf@splittopskip@length%
1099        \mdf@ignorevbadness%
1100        \setbox\mdf@splitbox@two\vsplit\mdf@splitbox@one to \mdf@freevspace@length%
1101        \setbox\mdf@splitbox@two\vbox{\unvbox\mdf@splitbox@two}%PRUEFEN!!!
1102        \setbox\mdf@splitbox@one\vbox{\unvbox\mdf@splitbox@one}%PRUEFEN!!!!
```

```
1103            \ifbool{mdf@repeatframetitle}{%
1104                    \setbox\mdf@splitbox@one\vbox{%
1105                        \vbox to \mdf@splittopskip@length{\hsize\z@}
1106                        %\par\unskip\nointerlineskip
1107                        \unvcopy\mdf@frametitlebox%
1108                        \mdf@@frametitlerule%
1109                        \vbox to\dimexpr
1110                            -\mdf@splittopskip@length+\ht\strutbox+\dp\strutbox
1111                            +\mdf@innertopmargin@length\relax{\hsize\z@}%
1112                        \unvbox\mdf@splitbox@one}%
1113                }{}%
1114          \ifvoid\mdf@splitbox@one\relax%
1115            \mdf@PackageWarning{You got a bad break\MessageBreak
1116                              because the split box is empty\MessageBreak
1117                              You have to change the settings}%
1118          \setbox\mdf@splitbox@one{\unvbox\mdf@splitbox@two}%
1119          \def\mdf@reserved@a{\enlargethispage{\baselineskip}\mdf@put@frame@ii}%
1120          \else
1121            \begingroup
1122             \mdf@@setzref
1123             \mdf@putbox@middle%
1124            \endgroup
1125            \hrule \@height\z@ \@width\hsize
1126            \vfill\eject
1127            \def\mdf@reserved@a{\mdf@put@frame@ii}%
1128          \fi
1129      }%Hier die Ausgabe der mittleren Box
1130      {\ifvoid\mdf@splitbox@one
1131          \mdf@PackageWarning{You got a bad break\MessageBreak
1132                            because the last split box is empty\MessageBreak
1133                            You have to change the settings}%%
1134          \setbox\mdf@splitbox@one\vbox{\unvbox\mdf@splitbox@one\hrule \@height\z@ \@width\mdfbounding
1135       \fi%
1136       \ifdimless{\ht\mdf@splitbox@one}{1sp}{%
1137          \mdf@PackageWarning{You got a bad break\MessageBreak
1138                            because the last split box is empty\MessageBreak
1139                            You have to change the settings}%
1140          %\hb@xt@\z@{\box\mdf@splitbox@one}%
1141          \let\mdf@reserved@a\relax%
1142          \setbox\mdf@splitbox@one\vbox{\unvbox\mdf@splitbox@one\hrule \@height\z@ \@width\mdfboundir
1143       }{}%
1144       \begingroup%
1145         \mdf@@setzref
1146         \mdf@putbox@second%
1147         \hrule \@height\z@ \@width\hsize%
1148       \endgroup%
1149       \let\mdf@reserved@a\relax%
1150      }%Hier kommt die Ausgabe der letzten Box
1151   \mdf@reserved@a%
1152 }
1153
```

```
\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.

```
1154 %%%%      _____t_____
1155 %%%%    |           |
1156 %%%%    |           |
1157 %%%%    |           |
1158 %%%%  l|           |r
1159 %%%%    |           |
1160 %%%%    |           |
1161 %%%%    |_____|
1162 %%%%          b
1163 %%Zusammenhaenge abfragen:
1164 \newrobustcmd*\mdf@test@ltrb{%
1165     \ifboolexpr{ (bool {mdf@topline}) and (bool {mdf@bottomline})
1166                 and (bool {mdf@leftline}) and (bool {mdf@rightline})}}
1167 %3-set
1168 \newrobustcmd*\mdf@test@ltr{%
1169     \ifboolexpr{ (bool {mdf@topline}) and not (bool {mdf@bottomline})
1170                 and (bool {mdf@leftline}) and (bool {mdf@rightline})}}
1171 \newrobustcmd*\mdf@test@ltb{%
1172     \ifboolexpr{ (bool {mdf@topline}) and (bool {mdf@bottomline})
1173                 and (bool {mdf@leftline}) and not (bool {mdf@rightline})}}
1174 \newrobustcmd*\mdf@test@trb{%
1175     \ifboolexpr{ (bool {mdf@topline}) and (bool {mdf@bottomline})
1176                 and not (bool {mdf@leftline}) and (bool {mdf@rightline})}}
1177 \newrobustcmd*\mdf@test@lrb{%
1178     \ifboolexpr{ not (bool {mdf@topline}) and (bool {mdf@bottomline})
1179                 and (bool {mdf@leftline}) and (bool {mdf@rightline})}}
1180 %2-set
1181 \newrobustcmd*\mdf@test@lb{%
1182     \ifboolexpr{ not (bool {mdf@topline}) and (bool {mdf@bottomline})
1183                 and (bool {mdf@leftline}) and not (bool {mdf@rightline})}}
1184 \newrobustcmd*\mdf@test@rb{%
1185     \ifboolexpr{ not (bool {mdf@topline}) and (bool {mdf@bottomline})
1186                 and not (bool {mdf@leftline}) and (bool {mdf@rightline})}}
1187 \newrobustcmd*\mdf@test@tr{%
1188     \ifboolexpr{ (bool {mdf@topline}) and not (bool {mdf@bottomline})
1189                 and not (bool {mdf@leftline}) and (bool {mdf@rightline})}}
1190 \newrobustcmd*\mdf@test@lt{%
1191     \ifboolexpr{ (bool {mdf@topline}) and not (bool {mdf@bottomline})
```

```
1192                     and (bool {mdf@leftline}) and not (bool {mdf@rightline})}}
1193 \newrobustcmd*\mdf@test@lr{%
1194     \ifboolexpr{not (bool {mdf@topline}) and not (bool {mdf@bottomline})
1195                     and (bool {mdf@leftline}) and (bool {mdf@rightline})}}
1196 \newrobustcmd*\mdf@test@tb{%
1197     \ifboolexpr{ (bool {mdf@topline}) and (bool {mdf@bottomline})
1198                     and not (bool {mdf@leftline}) and not (bool {mdf@rightline})}}
1199 %Einzellinien
1200 \newrobustcmd*\mdf@test@l{%
1201     \ifboolexpr{ not (bool {mdf@topline}) and not (bool {mdf@bottomline})
1202                     and (bool {mdf@leftline}) and not (bool {mdf@rightline})}}
1203 \newrobustcmd*\mdf@test@r{%
1204     \ifboolexpr{ not (bool {mdf@topline}) and not (bool {mdf@bottomline})
1205                     and not (bool {mdf@leftline}) and (bool {mdf@rightline})}}
1206 \newrobustcmd*\mdf@test@t{%
1207     \ifboolexpr{ (bool {mdf@topline}) and not (bool {mdf@bottomline})
1208                     and not (bool {mdf@leftline}) and not (bool {mdf@rightline})}}
1209 \newrobustcmd*\mdf@test@b{%
1210     \ifboolexpr{ not (bool {mdf@topline}) and (bool {mdf@bottomline})
1211                     and not (bool {mdf@leftline}) and not (bool {mdf@rightline})}}
1212 %keine Linien
1213 \newrobustcmd*\mdf@test@noline{%
1214     \ifboolexpr{ not (bool {mdf@topline}) and not (bool {mdf@bottomline})
1215                     and not (bool {mdf@leftline}) and not (bool {mdf@rightline})}}
1216 \newrobustcmd*\mdf@test@single{%
1217     \ifboolexpr{ not (test {\mdf@test@ltrb} or test {\mdf@test@ltr} or
1218                     test {\mdf@test@ltb} or test {\mdf@test@trb} or
1219                     test {\mdf@test@lrb}  or test {\mdf@test@lb} or
1220                     test {\mdf@test@rb} or test {\mdf@test@tr} or
1221                     test {\mdf@test@lt} ) }}
1222 %

1223 \DisableKeyvalOption[action=warning,package=mdframed]{mdf}{framemethod}%
1224 \DisableKeyvalOption[action=warning,package=mdframed]{mdf}{xcolor}%
1225
1226  \endinput
```

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

```
1227 %% Style file for mdframed for package option 'framemethod=default'
1228 %%
1229 %% This package may be distributed under the terms of the LaTeX Project
1230 %% Public License, as described in lppl.txt in the base LaTeX distribution.
1231 %% Either version 1.0 or, at your option, any later version.
1232 %%
1233 %%
1234 %%$Id: mdframed.dtx 378 2012-04-13 07:55:45Z marco $
1235 %
```

```
\mdframed0packagename
\mdf@frame0date@svn
```

local settings

```
1236 \def\mdframed0packagename{md-frame-0}
1237 \def\mdf@frame0date@svn$#1: #2 #3 #4-#5-#6 #7 #8${#4/#5/#6\space }
1238 \ProvidesFile{md-frame-0.mdf}%
```

```
1239      [\mdf@frame0date@svn$Id: mdframed.dtx 378 2012-04-13 07:55:45Z marco $%
1240        \mdversion: \mdframed0packagename]
```

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

short command

```
1241 \def\mdf@background@default{\color{\mdf@backgroundcolor}}
1242 \def\mdf@frametitlebackground@default{\color{\mdf@frametitlebackgroundcolor}}
1243 \def\mdf@shadow@default{\color{\mdf@shadowcolor}}
1244 \def\mdf@innerlinecolor@default{\color{\mdf@innerlinecolor}}
1245 \def\mdf@middlelinecolor@default{\color{\mdf@middlelinecolor}}
1246 \def\mdf@outerlinecolor@default{\color{\mdf@outerlinecolor}}
1247 \def\mdf@frametitlerulecolor@default{\color{\mdf@frametitlerulecolor}}
1248 \let\mdf@linecolor@default\mdf@middlelinecolor@default
1249 \def\mdf@@frametitlerule{%
1250   \ifbool{mdf@frametitlerule}{%
1251    \vbox to \mdf@frametitlerulewidth@length {\hsize\mdfframetitleboxwidth%
1252      \par\unskip\vskip\mdf@frametitlebelowskip@length%
1253      \rlap{\noindent\hspace*{-\mdf@innerleftmargin@length}%
1254      \mdf@frametitlerulecolor@default%
1255      \rule{\dimexpr\mdfframetitleboxwidth%
1256           +\mdf@innerleftmargin@length
1257           +\mdf@innerrightmargin@length\relax
1258         }{\mdf@frametitlerulewidth@length}%
1259       }}%
1260   }{}
1261   \par\unskip\vskip\mdf@innertopmargin@length%
1262 }%
1263
```

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

The frame of of a non splitted contents of mdframed

```
1264 \def\mdf@frame@background@single{%
1265   \ifbool{mdf@shadow}{%
1266    \rlap{\smash{\mdf@shadow@default%
1267      \rule[\dimexpr-\mdfboundingboxdepth
1268                 -\mdf@shadowsize@length
1269                 \ifbool{mdf@bottomline}{-\mdf@middlelinewidth@length}{}\relax]%
1270         {\dimexpr\mdfboundingboxtotalwidth
1271           +\mdf@shadowsize@length
1272           \ifbool{mdf@rightline}{+\mdf@middlelinewidth@length}{}\relax}%
1273         {\dimexpr\mdfboundingboxtotalheight
1274           +\mdf@shadowsize@length
1275           \ifbool{mdf@bottomline}{+\mdf@middlelinewidth@length}{}\relax}%
1276     }%
1277   }}{}%
1278   \rlap{\mdf@background@default%
```

```
1279        \rule[-\mdfboundingboxdepth]%
1280            {\mdfboundingboxtotalwidth}%
1281            {\mdfboundingboxtotalheight}%
1282      }%
1283 }%
1284 \def\mdf@frame@frametitlebackground@single{%
1285   \rlap{\mdf@frametitlebackground@default%
1286      \rule[\dimexpr-\mdfboundingboxdepth+\mdfboundingboxtotalheight-\mdfframetitleboxtotalheight\relax]
1287            {\mdfboundingboxtotalwidth}%
1288            {\mdfframetitleboxtotalheight}%
1289    }%
1290 }%
1291
1292 \def\mdf@frame@topline@single{%
1293   \rlap{\mdf@linecolor@default%
1294      \ifbool{mdf@topline}{%
1295          \rule[\dimexpr\mdfboundingboxheight-\mdfboundingboxdepth%
1296                    +\mdf@innerbottommargin@length+\mdf@innertopmargin@length\relax]%
1297              {\mdfboundingboxtotalwidth}%
1298              {\mdf@middlelinewidth@length}}%
1299          {}%
1300   }%
1301 }%
1302 \def\mdf@frame@bottomline@single{%
1303   \rlap{\ifbool{mdf@leftline}{\hspace*{-\mdf@middlelinewidth@length}}{}\mdf@linecolor@default%
1304      \ifbool{mdf@bottomline}{%
1305          \rule[\dimexpr-\mdfboundingboxdepth-\mdf@middlelinewidth@length\relax]%
1306              {\dimexpr\mdfboundingboxtotalwidth
1307                    \ifbool{mdf@rightline}{+\mdf@middlelinewidth@length}{}%
1308                    \ifbool{mdf@leftline}{+\mdf@middlelinewidth@length}{}\relax}%
1309              {\mdf@middlelinewidth@length}}%
1310          {}%
1311   }%
1312 }%
1313 \def\mdf@frame@leftline@single{%
1314   \llap{\mdf@linecolor@default%
1315      \rule[-\mdfboundingboxdepth]%
1316            {\mdf@middlelinewidth@length}%
1317            {\dimexpr\mdfboundingboxtotalheight%
1318             \ifbool{mdf@topline}{+\mdf@middlelinewidth@length}{}\relax}%
1319   }%
1320 }%
1321 \def\mdf@frame@rightline@single{%
1322   \rlap{\mdf@linecolor@default%
1323      \hspace*{\mdfboundingboxwidth}%
1324      \hspace*{\mdf@innerrightmargin@length}%
1325      \rule[\dimexpr-\mdfboundingboxdepth%
1326            \relax]%
1327            {\mdf@middlelinewidth@length}%
1328            {\dimexpr\mdfboundingboxtotalheight%
1329             +\ifbool{mdf@topline}{\mdf@middlelinewidth@length}{0pt}\relax}%
1330   }%
1331 }%
1332 \def\mdf@putbox@single{%%%% Ausgabe der ungesplitteten Gesamtbox
1333   \ifvoid\mdf@splitbox@one
1334   \else%
```

```
1335      \mdf@makebox@out{%
1336        \mdf@makeboxalign@left%
1337        \setlength{\mdfboundingboxwidth}%
1338                    {\wd\mdf@splitbox@one}%
1339        \setlength{\mdfboundingboxtotalwidth}%
1340                    {\dimexpr\mdfboundingboxwidth+\mdf@innerleftmargin@length%
1341                      +\mdf@innerrightmargin@length\relax}%
1342        \setlength{\mdfboundingboxheight}%
1343                    {\dimexpr\ht\mdf@splitbox@one+\dp\mdf@splitbox@one\relax}%
1344        \setlength{\mdfboundingboxdepth}%
1345                    {\dimexpr\dp\mdf@splitbox@one+\mdf@innerbottommargin@length\relax}%
1346        \setlength{\mdfboundingboxtotalheight}%
1347                    {\dimexpr\mdfboundingboxheight+\mdf@innertopmargin@length%
1348                      +\mdf@innerbottommargin@length\relax}%
1349        \setlength{\mdftotallinewidth}{%
1350                    \dimexpr\mdf@innerlinewidth@length+\mdf@middlelinewidth@length%
1351                    +\mdf@outerlinewidth@length}%
1352        \noindent%
1353        \setlength{\@tempdima}{\dimexpr\mdfboundingboxtotalwidth%
1354                              +\ifbool{mdf@leftline}%
1355                                    {\mdf@middlelinewidth@length}{\z@}%
1356                              +\ifbool{mdf@rightline}%
1357                                    {\mdf@middlelinewidth@length}{\z@}\relax}%
1358        \mdf@makebox@in[\@tempdima]{%
1359          \null%
1360          \ifbool{mdf@leftline}{%
1361            \hspace*{\mdftotallinewidth}%
1362            \mdf@frame@leftline@single%
1363             }{}%
1364          \mdf@frame@topline@single%
1365          \mdf@frame@background@single%
1366          \mdf@frame@bottomline@single%
1367          \ifdefempty{\mdf@frametitle}{}{\mdf@frame@frametitlebackground@single}%
1368          \hspace*{\mdf@innerleftmargin@length}%
1369          \ifbool{mdf@rightline}{%
1370            \mdf@frame@rightline@single%
1371           }{}%
1372          {\box\mdf@splitbox@one}%
1373        }%
1374        \mdf@makeboxalign@right%
1375      }%
1376    \fi%
1377 }
```

┌──┐
│ \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

```
1378 \def\mdf@frame@background@first{%
1379   \ifbool{mdf@shadow}{%
1380    \rlap{\smash{\mdf@shadow@default%
1381      \rule[\dimexpr-\mdfboundingboxdepth
```

```
1382                      -\mdf@shadowsize@length\relax]%
1383           {\dimexpr\mdfboundingboxtotalwidth
1384                      +\mdf@shadowsize@length
1385                      \ifbool{mdf@rightline}{+\mdf@middlelinewidth@length}{}\relax}%
1386           {\dimexpr\mdfboundingboxtotalheight
1387                      +\mdf@shadowsize@length\relax}%
1388        }%
1389   }}{}%
1390   \rlap{\mdf@background@default%
1391      \rule[-\mdfboundingboxdepth]%
1392           {\mdfboundingboxtotalwidth}%
1393           {\mdfboundingboxtotalheight}%
1394   }%
1395 }%
1396 \def\mdf@frame@frametitlebackground@first{%
1397  \ifdimless{\mdfframetitleboxtotalheight}{\mdfboundingboxtotalheight}%
1398   {%
1399    \rlap{\mdf@frametitlebackground@default%
1400      \rule[\dimexpr-\mdfboundingboxdepth+\mdfboundingboxtotalheight-\mdfframetitleboxtotalheight\relax]
1401           {\mdfboundingboxtotalwidth}%
1402           {\mdfframetitleboxtotalheight}%
1403      }%
1404    \global\mdfframetitleboxtotalheight=-\p@\relax%
1405   }{\mdf@PackageWarning{You got a page break inside the frame title\MessageBreak
1406                       Current this isn't well supported}%
1407    \rlap{\mdf@frametitlebackground@default%
1408       \rule[-\mdfboundingboxdepth]%
1409           {\mdfboundingboxtotalwidth}%
1410           {\mdfboundingboxtotalheight}%
1411      }%
1412    \global\mdfframetitleboxtotalheight=\dimexpr\mdfframetitleboxtotalheight
1413                      -\mdfboundingboxheight
1414                      +\mdf@frametitlebelowskip@length
1415                      +.5\baselineskip-1pt
1416 %                     +\dp\strutbox
1417                      \relax%
1418   }%
1419 }%
1420 \def\mdf@frame@leftline@first{%
1421  \llap{\mdf@linecolor@default%
1422      \rule[-\mdfboundingboxdepth]%
1423           {\mdf@middlelinewidth@length}%
1424           {\dimexpr\mdfboundingboxtotalheight%
1425             +\ifbool{mdf@topline}{\mdf@middlelinewidth@length}{0pt}\relax}%
1426   }%
1427 }%
1428 \def\mdf@frame@topline@first{%
1429  \rlap{\mdf@linecolor@default%
1430      \rule[\dimexpr\mdfboundingboxheight-\mdfboundingboxdepth+%
1431           \mdf@splitbottomskip@length+\mdf@innertopmargin@length\relax]%
1432           {\mdfboundingboxtotalwidth}%
1433           {\mdf@middlelinewidth@length}%
1434   }%
1435 }
1436 \def\mdf@frame@rightline@first{%
1437  \rlap{\mdf@linecolor@default\hspace*{\mdfboundingboxwidth}%
```

```
1438        \hspace*{\mdf@innerrightmargin@length}%
1439        \rule[-\mdfboundingboxdepth]%
1440            {\mdf@middlelinewidth@length}%
1441           {\dimexpr\mdfboundingboxtotalheight%
1442             +\ifbool{mdf@topline}{\mdf@middlelinewidth@length}{0pt}\relax}%
1443     }%
1444 }%
1445 \def\mdf@frame@bottomline@first{%
1446   \rlap{\ifbool{mdf@leftline}{\hspace*{-\mdf@middlelinewidth@length}}{}}\mdf@linecolor@default%
1447     \ifbool{mdf@bottomline}{%
1448         \rule[\dimexpr-\mdfboundingboxdepth-\mdf@middlelinewidth@length\relax]%
1449             {\dimexpr\mdfboundingboxtotalwidth
1450                     \ifbool{mdf@rightline}{+\mdf@middlelinewidth@length}{}%
1451                     \ifbool{mdf@leftline}{+\mdf@middlelinewidth@length}{}\relax}%
1452             {\mdf@middlelinewidth@length}}%
1453         {}%
1454   }%
1455 }%
1456 \def\mdf@putbox@first{%%%% Ausgabe der Teilbox 1
1457   \ifvoid\mdf@splitbox@two
1458   \else%
1459     \mdf@makebox@out[\linewidth]{%
1460       \mdf@makeboxalign@left%
1461       \setlength{\mdfboundingboxwidth}{\wd\mdf@splitbox@two}%
1462       \setlength{\mdfboundingboxtotalwidth}%
1463                   {\dimexpr\mdfboundingboxwidth+\mdf@innerleftmargin@length%
1464                       +\mdf@innerrightmargin@length\relax}%
1465       \setlength{\mdfboundingboxheight}{\dimexpr\ht\mdf@splitbox@two+\dp\mdf@splitbox@two\relax}%
1466       \setlength{\mdfboundingboxdepth}%
1467                   {\dimexpr\dp\mdf@splitbox@two+\mdf@splitbottomskip@length\relax}%
1468       \setlength{\mdfboundingboxtotalheight}%
1469                   {\dimexpr\mdfboundingboxheight+\mdf@innertopmargin@length%
1470                       +\mdf@splitbottomskip@length\relax}%
1471       \setlength{\@tempdima}%
1472                   {\dimexpr\mdfboundingboxtotalwidth%
1473                       +\ifbool{mdf@leftline}{\mdf@middlelinewidth@length}{\z@}%
1474                       +\ifbool{mdf@rightline}{\mdf@middlelinewidth@length}{\z@}%
1475                    \relax}%
1476     \mdf@makebox@in[\@tempdima]{%
1477       \null%
1478       \ifbool{mdf@leftline}{%
1479          \hspace*{\mdf@middlelinewidth@length}%
1480          \mdf@frame@leftline@first}{}%
1481       \ifbool{mdf@everyline}%
1482             {\mdf@frame@bottomline@first}{}%
1483       \ifbool{mdf@topline}{%
1484          \mdf@frame@topline@first}{}%
1485       \mdf@frame@background@first%
1486       \ifdefempty{\mdf@frametitle}{}{\mdf@frame@frametitlebackground@first}%
1487       \hspace*{\mdf@innerleftmargin@length}%
1488       \ifbool{mdf@rightline}{%
1489             \mdf@frame@rightline@first}{}%
1490       {\box\mdf@splitbox@two}%
1491     }%
1492     \mdf@makeboxalign@right%
1493   }%
```

```
1494  \fi%
1495 }
```

```
\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

```
1496 \def\mdf@frame@background@second{%
1497  \ifbool{mdf@shadow}{%
1498   \rlap{\smash{\mdf@shadow@default%
1499     \rule[\dimexpr-\mdfboundingboxdepth
1500                 -\mdf@shadowsize@length
1501                 \ifbool{mdf@bottomline}{-\mdf@middlelinewidth@length}{}\relax]%
1502        {\dimexpr\mdfboundingboxtotalwidth
1503                +\mdf@shadowsize@length
1504                \ifbool{mdf@rightline}{+\mdf@middlelinewidth@length}{}\relax}%
1505        {\dimexpr\mdfboundingboxtotalheight
1506                +\mdf@shadowsize@length\relax}%
1507     }%
1508  }}{}%
1509  \rlap{\mdf@background@default%
1510     \rule[-\mdfboundingboxdepth]%
1511          {\mdfboundingboxtotalwidth}%
1512          {\mdfboundingboxtotalheight}%
1513  }%
1514 }%
1515 \def\mdf@frame@frametitlebackground@second{%
1516 \ifdimless{\mdfframetitleboxtotalheight}{\z@}%
1517  {}%
1518  {\rlap{\mdf@frametitlebackground@default%
1519     \rule[\dimexpr-\mdfboundingboxdepth+\mdfboundingboxtotalheight-\mdfframetitleboxtotalheight\relax]
1520          {\mdfboundingboxtotalwidth}%
1521          {\mdfframetitleboxtotalheight}%
1522     }%
1523  }%
1524 }%
1525 \def\mdf@frame@leftline@second{%
1526  \llap{\mdf@linecolor@default%
1527     \rule[-\mdfboundingboxdepth]%
1528          {\mdf@middlelinewidth@length}%
1529          {\dimexpr\mdfboundingboxtotalheight}%
1530  }%
1531 }%
1532 \def\mdf@frame@bottomline@second{%
1533  \rlap{\ifbool{mdf@leftline}{\hspace*{-\mdf@middlelinewidth@length}}{}\mdf@linecolor@default%
1534     \rule[\dimexpr-\mdfboundingboxdepth-\mdf@middlelinewidth@length\relax]%
1535             {\dimexpr\mdfboundingboxtotalwidth
1536                     \ifbool{mdf@rightline}{+\mdf@middlelinewidth@length}{}
1537                     \ifbool{mdf@leftline}{+\mdf@middlelinewidth@length}{}\relax}%
1538          {\mdf@middlelinewidth@length}%
1539  }%
1540 }%
```

```
1541 \def\mdf@frame@rightline@second{%
1542   \rlap{\mdf@linecolor@default\hspace*{\mdfboundingboxwidth}%
1543     \hspace*{\mdf@innerrightmargin@length}%
1544     \rule[-\mdfboundingboxdepth]%
1545         {\mdf@middlelinewidth@length}%
1546         {\mdfboundingboxtotalheight}%
1547   }%
1548 }%
1549 \def\mdf@frame@topline@second{%
1550   \rlap{\ifbool{mdf@leftline}{\hspace*{-\mdf@middlelinewidth@length}}{}\mdf@linecolor@default%
1551     \ifbool{mdf@topline}{%
1552         \rule[\dimexpr\mdfboundingboxheight-\mdfboundingboxdepth%
1553                 +\mdf@innerbottommargin@length\relax]%
1554           {\dimexpr\mdfboundingboxtotalwidth
1555                 \ifbool{mdf@rightline}{+\mdf@middlelinewidth@length}{}%
1556                 \ifbool{mdf@leftline}{+\mdf@middlelinewidth@length}{}\relax
1557           }%
1558           {\mdf@middlelinewidth@length}}%
1559        {}%
1560   }%
1561 }%
1562
1563 \def\mdf@putbox@second{%
1564   \ifvoid\mdf@splitbox@one%
1565   \else
1566    \mdf@makebox@out{%
1567       \mdf@makeboxalign@left%
1568       \setlength{\mdfboundingboxwidth}{\wd\mdf@splitbox@one}%
1569       \setlength{\mdfboundingboxtotalwidth}%
1570               {\dimexpr\mdfboundingboxwidth+\mdf@innerleftmargin@length%
1571                   +\mdf@innerrightmargin@length\relax}%
1572       \setlength{\mdfboundingboxheight}{\dimexpr\ht\mdf@splitbox@one+\dp\mdf@splitbox@one\relax}%
1573       \setlength{\mdfboundingboxdepth}%
1574               {\dimexpr\dp\mdf@splitbox@one+\mdf@innerbottommargin@length\relax}%
1575       \setlength{\mdfboundingboxtotalheight}%
1576               {\dimexpr\mdfboundingboxheight+\mdf@innerbottommargin@length\relax}%
1577       \setlength{\@tempdima}{\dimexpr\mdfboundingboxtotalwidth%
1578                       +\ifbool{mdf@leftline}{\mdf@middlelinewidth@length}{\z@}%
1579                       +\ifbool{mdf@rightline}{\mdf@middlelinewidth@length}{\z@}%
1580                       \relax}%
1581       \mdf@makebox@in[\@tempdima]{%
1582       \null%
1583         \ifbool{mdf@leftline}{%
1584            \hspace*{\mdf@middlelinewidth@length}%
1585            \mdf@frame@leftline@second}{}%
1586         \ifbool{mdf@everyline}%
1587              {\mdf@frame@topline@second}{}%
1588         \mdf@frame@background@second%
1589         \ifbool{mdf@bottomline}{%
1590            \mdf@frame@bottomline@second}{}%
1591         \ifdefempty{\mdf@frametitle}{}{\mdf@frame@frametitlebackground@second}%
1592         \hspace*{\mdf@innerleftmargin@length}%
1593         \ifbool{mdf@rightline}{%
1594            \mdf@frame@rightline@second}{}%
1595         {\box\mdf@splitbox@one}%
1596     }%
```

```
1597        \mdf@makeboxalign@right%
1598    }%
1599    \fi%
1600 }%
```

```
\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

```
1601 \def\mdf@frame@leftline@middle{%
1602    \llap{\mdf@linecolor@default%
1603        \rule[-\mdfboundingboxdepth]%
1604            {\mdf@middlelinewidth@length}%
1605            {\mdfboundingboxtotalheight}%
1606    }%
1607 }%
1608 \def\mdf@frame@background@middle{%
1609    \ifbool{mdf@shadow}{%
1610     \rlap{\smash{\mdf@shadow@default%
1611        \rule[\dimexpr-\mdfboundingboxdepth
1612                    -\mdf@shadowsize@length\relax]%
1613            {\dimexpr\mdfboundingboxtotalwidth
1614                +\mdf@shadowsize@length
1615                \ifbool{mdf@rightline}{+\mdf@middlelinewidth@length}{}\relax}%
1616            {\dimexpr\mdfboundingboxtotalheight\relax}%
1617        }%
1618    }}{}%
1619    \rlap{\mdf@background@default%
1620        \rule[-\mdfboundingboxdepth]%
1621            {\mdfboundingboxtotalwidth}%
1622            {\mdfboundingboxtotalheight}%
1623    }%
1624 }%
1625 \def\mdf@frame@frametitlebackground@middle{%
1626  \ifdimless{\mdfframetitleboxtotalheight}{\z@}%
1627    {}%
1628    {\rlap{\mdf@frametitlebackground@default%
1629        \rule[\dimexpr-\mdfboundingboxdepth+\mdfboundingboxtotalheight-\mdfframetitleboxtotalheight\relax]
1630            {\mdfboundingboxtotalwidth}%
1631            {\mdfframetitleboxtotalheight}%
1632        }%
1633    \global\mdfframetitleboxtotalheight=-\p@\relax%
1634    }%
1635 }%
1636 \def\mdf@frame@rightline@middle{%
1637    \rlap{\mdf@linecolor@default\hspace*{\mdfboundingboxwidth}%
1638        \hspace*{\mdf@innerrightmargin@length}%
1639        \rule[-\mdfboundingboxdepth]%
1640            {\mdf@middlelinewidth@length}%
1641            {\mdfboundingboxtotalheight}%
1642    }%
1643 }%
1644 \def\mdf@frame@topline@middle{%
```

```
1645    \rlap{\ifbool{mdf@leftline}{\hspace*{-\mdf@middlelinewidth@length}}{}}\mdf@linecolor@default%
1646        \ifbool{mdf@topline}{%
1647            \rule[\dimexpr\mdfboundingboxtotalheight-\mdfboundingboxdepth\relax]%
1648                {\dimexpr\mdfboundingboxtotalwidth
1649                        \ifbool{mdf@rightline}{+\mdf@middlelinewidth@length}{}%
1650                        \ifbool{mdf@leftline}{+\mdf@middlelinewidth@length}{}\relax
1651                    }%
1652                {\mdf@middlelinewidth@length}}%
1653            {}%
1654    }%
1655 }%
1656 \def\mdf@frame@bottomline@middle{%
1657    \rlap{\ifbool{mdf@leftline}{\hspace*{-\mdf@middlelinewidth@length}}{}}\mdf@linecolor@default%
1658        \ifbool{mdf@bottomline}{%
1659            \rule[\dimexpr-\mdfboundingboxdepth-\mdf@middlelinewidth@length\relax]%
1660                {\dimexpr\mdfboundingboxtotalwidth
1661                        \ifbool{mdf@rightline}{+\mdf@middlelinewidth@length}{}%
1662                        \ifbool{mdf@leftline}{+\mdf@middlelinewidth@length}{}\relax}%
1663                {\mdf@middlelinewidth@length}}%
1664            {}%
1665    }%
1666 }%
1667
1668 \def\mdf@putbox@middle{%
1669    \ifvoid\mdf@splitbox@two%
1670    \else
1671     \mdf@makebox@out{%
1672        \mdf@makeboxalign@left%
1673        \setlength{\mdfboundingboxwidth}{\wd\mdf@splitbox@two}%
1674        \setlength{\mdfboundingboxtotalwidth}%
1675                {\dimexpr\mdfboundingboxwidth+\mdf@innerleftmargin@length%
1676                        +\mdf@innerrightmargin@length\relax}%
1677        \setlength{\mdfboundingboxheight}{\dimexpr\ht\mdf@splitbox@two+\dp\mdf@splitbox@two\relax}%
1678        \setlength{\mdfboundingboxdepth}%
1679                {\dimexpr\dp\mdf@splitbox@two+\mdf@splitbottomskip@length\relax}%
1680        \setlength{\mdfboundingboxtotalheight}%
1681                {\dimexpr\mdfboundingboxheight+\mdf@splitbottomskip@length\relax}%
1682        \setlength{\@tempdima}{\dimexpr\mdfboundingboxtotalwidth%
1683                        +\ifbool{mdf@leftline}{\mdf@middlelinewidth@length}{\z@}%
1684                        +\ifbool{mdf@rightline}{\mdf@middlelinewidth@length}{\z@}%
1685                    \relax}%
1686        \mdf@makebox@in[\@tempdima]{%
1687          \null%
1688          \ifbool{mdf@leftline}{%
1689             \hspace*{\mdf@middlelinewidth@length}%
1690             \mdf@frame@leftline@middle}{}%
1691          \mdf@frame@background@middle%
1692          \ifbool{mdf@everyline}%
1693                {\mdf@frame@topline@middle}{}%
1694          \ifdefempty{\mdf@frametitle}{}{\mdf@frame@frametitlebackground@middle}%
1695          \ifbool{mdf@everyline}%
1696                {\mdf@frame@bottomline@middle}{}%
1697          \hspace*{\mdf@innerleftmargin@length}%
1698          \ifbool{mdf@rightline}{%
1699             \mdf@frame@rightline@middle}{}%
1700             {\box\mdf@splitbox@two}%
```

```
1701    }%
1702    \mdf@makeboxalign@right%
1703   }
1704  \fi%
1705 }


1706  \endinput
```

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

```
1707 %% Style file for mdframed for package option 'framemethod=default'
1708 %%
1709 %% This package may be distributed under the terms of the LaTeX Project
1710 %% Public License, as described in lppl.txt in the base LaTeX distribution.
1711 %% Either version 1.0 or, at your option, any later version.
1712 %%
1713 %%
1714 %%$Id: mdframed.dtx 378 2012-04-13 07:55:45Z marco $
1715 %
```

\mdframedIpackagename
\mdf@frameIdate@svn
---

local settings

```
1716 \def\mdframedIpackagename{md-frame-1}
1717 \def\mdf@frameIdate@svn$#1: #2 #3 #4-#5-#6 #7 #8${#4/#5/#6\space }
1718 \ProvidesFile{md-frame-1.mdf}%
1719          [\mdf@frameIdate@svn$Id: mdframed.dtx 378 2012-04-13 07:55:45Z marco $ %
1720           \mdversion: \mdframedIpackagename]
1721 %
```

\mdf@tikz@settings

Define settings for tikz

```
1722 %Allgemeine Einstellungen fuer tikz
1723 \def\mdf@tikz@settings{%
1724 %
1725   \tikzset{mdfbox/.style={anchor=south west,%
1726                            inner sep=0pt,%
1727                            outer sep=0pt,%
1728                            \mdf@fontcolor,}}% anchor der Ausgabebox ist unten links
1729   \tikzset{mdfcorners/.style={rounded corners=\mdf@roundcorner@length}}%
1730   \tikzset{mdfbackground/.style={fill=\mdf@backgroundcolor,%
1731                                  draw=\mdf@backgroundcolor}}%
1732   \tikzset{mdfframetitlebackground/.style={fill=\mdf@frametitlebackgroundcolor,%
1733                                  draw=none,%
1734                                  rounded corners={max(\mdf@roundcorner@length%
1735                                                -\mdf@innerlinewidth@length%
1736                                                -.5\mdf@middlelinewidth@length,0)}}}}%
1737 %
1738   \tikzset{mdfouterline/.style={}}%
1739 % nur wenn outerlinewidth>0 wird aussere Linie gezeichnet
1740   \ifdimgreater{\mdf@outerlinewidth@length}{\z@
1741     {\tikzset{mdfouterline/.append style={%
1742       draw=\mdf@outerlinecolor,%
```

```
1743        line width=2\mdf@outerlinewidth@length+\mdf@middlelinewidth@length}}}{}%
1744 %
1745   \tikzset{mdfinnerline/.style={}}%
1746 % nur wenn innerlinewidth>0 wird innere Linie gezeichnet
1747   \ifdimgreater{\mdf@innerlinewidth@length}{\z@}
1748     {\tikzset{mdfinnerline/.append style={%
1749       draw=\mdf@innerlinecolor,%
1750       line width=2\mdf@innerlinewidth@length+\mdf@middlelinewidth@length}}}{}%
1751 %
1752   \tikzset{mdfshadow/.style={drop shadow={%
1753                                shadow xshift=\mdf@shadowsize@length-2pt,
1754                                shadow yshift=-\mdf@shadowsize@length+2pt,
1755                                fill=\mdf@shadowcolor,
1756                                every shadow }}}%
1757 %
1758   \mdf@tikzset@local
1759   \tikzset{mdfmiddleline/.style={}}%
1760 % nur wenn middlelinewidth>0 wird mittlere Linie gezeichnet
1761   \ifdimgreater{\mdf@middlelinewidth@length}{\z@}
1762     {\tikzset{mdfmiddleline/.append style={%
1763       preaction={draw=\mdf@middlelinecolor,%
1764                line width=\mdf@middlelinewidth@length},%
1765       line width=\mdf@middlelinewidth@length,%
1766       tikzsetting}}%
1767     }{}%
1768 }%
```

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

Befehle fuer Ausgabe von Rahmen und Hintergrund

```
1769 \newrobustcmd*\mdf@tikzbox@tfl[1]{%three or four borders
1770     \clip(0,0)rectangle(\mdfboundingboxwidth,\mdfboundingboxheight);%
1771     \begin{scope}[mdfcorners]%
1772       \clip[preaction=mdfouterline]%
1773           [postaction=mdfbackground]%
1774           [postaction=mdfinnerline]#1;%
1775     \end{scope}%
1776     \path[mdfmiddleline,mdfcorners]#1;
1777   }%
1778
1779
1780
1781 \newrobustcmd*\mdf@tikzbox@otl[2]{%one or two borders
1782     \clip(0,0)rectangle(\mdfboundingboxwidth,\mdfboundingboxheight);%
1783     \begin{scope}
1784       \path[mdfouterline,mdfcorners]#1;%
1785       \clip[postaction=mdfbackground]#2;%
1786       \path[mdfinnerline,mdfcorners]#1;%
1787     \end{scope}%
1788     \path[mdfmiddleline,mdfcorners]#1;}%
```

```
\mdf@put@frametitlerule
```

frametitlerule with tikz

```
1789 \tikzset{mdfframetitlerule/.style={%
1790    draw=none,
1791    fill=\mdf@frametitlerulecolor,
1792  }%
1793 }
1794 \def\mdf@@frametitlerule{%
1795    \ifbool{mdf@frametitlerule}{%
1796    \vbox{\hsize0pt
1797      \par\unskip\vskip\mdf@frametitlebelowskip@length
1798      \noindent\rlap{\hspace*{-\mdf@innerleftmargin@length}}%
1799      \begingroup%
1800      \pgfmathsetlength{\dimen@}{\mdfframetitleboxwidth+\mdf@innerleftmargin@length+\mdf@innerrightmargi
1801      \tikz\draw[mdfframetitlerule] (0,0)%
1802              rectangle (\dimen@,\mdf@frametitlerulewidth@length);
1803      \endgroup}
1804    }%
1805    }{}
1806    \par\unskip\vskip\mdf@innertopmargin@length%
1807 }%
1808
```

> `\mdf@putbox@single`

Output of the non breakable contents.

```
1809 % Info zu den verwendeten Punkten:
1810 % O ist die untere linke Ecke der Mitte der middleline
1811 % P ist die obere rechte Ecke der Mitte der middleline
1812 % A ist der Punkt fuer den anchor (d.h. die untere linke Ecke) der Ausgabebox
1813 %
1814 \def\mdf@putbox@single{%
1815    \ifvoid\mdf@splitbox@one
1816    \else%
1817    \mdf@makebox@out{%
1818      \mdf@makeboxalign@left%
1819      \mdf@tikz@settings%
1820 %
1821      \setlength\mdfboundingboxwidth{\wd\mdf@splitbox@one}%
1822      \advance\mdfboundingboxwidth by \mdf@innerleftmargin@length\relax%
1823      \advance\mdfboundingboxwidth by \mdf@innerrightmargin@length\relax%
1824      \ifbool{mdf@leftline}{%
1825        \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
1826        \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
1827        \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}{}%
1828      \ifbool{mdf@rightline}{%
1829        \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
1830        \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
1831        \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}{}%
1832 %
1833      \setlength\mdfboundingboxheight{\dimexpr\ht\mdf@splitbox@one+\dp\mdf@splitbox@one\relax}%
1834      \advance\mdfboundingboxheight by \mdf@innertopmargin@length\relax%
1835      \advance\mdfboundingboxheight by \mdf@innerbottommargin@length\relax%
1836      \ifbool{mdf@topline}{%
1837        \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
1838        \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
1839        \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}{}%
```

```
1840        \ifbool{mdf@bottomline}{%
1841          \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
1842          \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
1843          \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}{}%
1844        \mdf@makebox@in[\mdfboundingboxwidth]{%
1845        \null%
1846        \begin{tikzpicture}[remember picture]%
1847          \pgfmathsetlengthmacro\mdf@Ax{+\mdf@innerleftmargin@length}%
1848          \pgfmathsetlengthmacro\mdf@Ay{+\mdf@innerbottommargin@length}%
1849          \pgfmathsetlengthmacro\mdf@Ox{+0pt}%
1850          \pgfmathsetlengthmacro\mdf@Oy{+0pt}%
1851          \pgfmathsetlengthmacro\mdf@Px{+\mdfboundingboxwidth}%
1852          \pgfmathsetlengthmacro\mdf@Py{+\mdfboundingboxheight}%
1853          \ifbool{mdf@leftline}%
1854            {%
1855            \pgfmathsetlengthmacro\mdf@Ax%
1856                {\mdf@Ax+\mdf@outerlinewidth@length+%
1857                 \mdf@middlelinewidth@length+\mdf@innerlinewidth@length}%
1858            \pgfmathsetlengthmacro\mdf@Ox%
1859                {\mdf@Ox+\mdf@outerlinewidth@length+0.5\mdf@middlelinewidth@length}%
1860            }{}%
1861          \ifbool{mdf@rightline}%
1862            {%
1863            \pgfmathsetlengthmacro\mdf@Px%
1864                {\mdf@Px-\mdf@outerlinewidth@length-0.5\mdf@middlelinewidth@length}%
1865            }{}%
1866          \ifbool{mdf@bottomline}%
1867            {%
1868            \pgfmathsetlengthmacro\mdf@Ay%
1869                {\mdf@Ay+\mdf@outerlinewidth@length+\mdf@middlelinewidth@length%
1870                 +\mdf@innerlinewidth@length}%
1871            \pgfmathsetlengthmacro\mdf@Oy%
1872                {\mdf@Oy+\mdf@outerlinewidth@length+0.5\mdf@middlelinewidth@length}%
1873            }{}%
1874          \ifbool{mdf@topline}%
1875            {%
1876            \pgfmathsetlengthmacro\mdf@Py%
1877                {\mdf@Py-\mdf@outerlinewidth@length-0.5\mdf@middlelinewidth@length}%
1878            }{}%
1879 %
1880          \coordinate(O)at(\mdf@Ox,\mdf@Oy);%
1881          \coordinate(P)at(\mdf@Px,\mdf@Py);%
1882 %
1883          \ifbool{mdf@shadow}
1884            {\path[mdfshadow,mdfcorners](O) rectangle (P);}{}%
1885 %
1886         \begin{scope}[use as bounding box]
1887          \mdf@test@ltrb{\mdf@tikzbox@tfl{(O)--(O|-P)--(P)--(P|-O)--cycle}}{}%
1888 %
1889          \mdf@test@ltb{\mdf@tikzbox@tfl{(P|-O)--(O)--(O|-P)--(P)}}{}%
1890          \mdf@test@trb{\mdf@tikzbox@tfl{(O|-P)--(P)--(P|-O)--(O)}}{}%
1891          \mdf@test@ltr{\mdf@tikzbox@tfl{(O)--(O|-P)--(P)--(P|-O)}}{}%
1892          \mdf@test@lrb{\mdf@tikzbox@tfl{(P-|O)--(O)--(O-|P)--(P)}}{}%
1893 %
1894          \mdf@test@lb{\mdf@tikzbox@otl{(P|-O)--(O)--(O|-P)}%
1895                                      {(P)--(P|-O)[mdfcorners]--(O)--(O|-P)}%
```

```
1896                    }{}%
1897          \mdf@test@rb{\mdf@tikzbox@otl{(P)--(P|-O)--(O)}%
1898                                    {(O|-P)--(P)[mdfcorners]--(P|-O)--(O)}%
1899                    }{}%
1900          \mdf@test@tr{\mdf@tikzbox@otl{(O-|P)--(P)--(P-|O)}%
1901                                    {(O)--(O|-P)[mdfcorners]--(P)--(P|-O)}%
1902                    }{}%
1903          \mdf@test@lt{\mdf@tikzbox@otl{(O)--(O|-P)--(P)}%
1904                                    {(P|-O)--(O)[mdfcorners]--(O|-P)--(P)}%
1905                    }{}%
1906          \mdf@test@lr{\mdf@tikzbox@otl{(O)--(O|-P)(P)--(P|-O)}%
1907                                    {(O)rectangle(P)}%
1908                    }{}%
1909          \mdf@test@tb{\mdf@tikzbox@otl{(O)--(O-|P)(O|-P)--(P)}%
1910                                    {(O)rectangle(P)}%
1911                    }{}%
1912 %
1913          \mdf@test@l{\mdf@tikzbox@otl{(O)--(O|-P)}%
1914                                    {(O)rectangle(P)}%
1915                    }{}%
1916          \mdf@test@r{\mdf@tikzbox@otl{(O-|P)--(P)}%
1917                                    {(O)rectangle(P)}%
1918                    }{}%
1919          \mdf@test@t{\mdf@tikzbox@otl{(O|-P)--(P)}%
1920                                    {(O)rectangle(P)}%
1921                    }{}%
1922          \mdf@test@b{\mdf@tikzbox@otl{(O)--(O-|P)}%
1923                                    {(O)rectangle(P)}%
1924                    }{}%
1925 %
1926          \mdf@test@noline{\path[mdfbackground,mdfcorners](O)rectangle(P);}{}%
1927 %
1928            %Frametitlebackground
1929              \drawbrackgroundframetitle@single
1930 %
1931          \node[mdfbox]at(\mdf@Ax,\mdf@Ay){\box\mdf@splitbox@one};% Ausgabebox einfuegen
1932        \end{scope}
1933        %HIER KOMMT EIN WEITERES MAKRO
1934        \mdf@singleextra
1935        \mdfcreateextratikz
1936      \end{tikzpicture}%
1937      }%
1938    \mdf@makeboxalign@right%
1939  }%
1940  \fi
1941 }%
1942 \def\drawbrackgroundframetitle@single{%
1943  \ifdefempty{\mdf@frametitle}{}{%
1944    \drawbrackgroundframetitle@@single%
1945  }%
1946 }%
1947 \def\drawbrackgroundframetitle@@single{%
1948        \begin{scope}%background frame title
1949          \ifbool{mdf@leftline}{
1950            \pgfmathsetlengthmacro\mdf@Ox%
1951                {\mdf@Ox+\mdf@innerlinewidth@length+0.5\mdf@middlelinewidth@length}
```

```
1952             }{}%
1953         \ifbool{mdf@rightline}{%
1954           \pgfmathsetlengthmacro\mdf@Px%
1955               {\mdf@Px-\mdf@innerlinewidth@length-0.5\mdf@middlelinewidth@length}
1956           }{}%
1957         \ifbool{mdf@topline}{%
1958           \pgfmathsetlengthmacro\mdf@Py%
1959               {\mdf@Py-\mdf@innerlinewidth@length-0.5\mdf@middlelinewidth@length}
1960           }{}%
1961         \pgfmathsetlengthmacro\mdf@Fy
1962               {\mdf@Py-\mdfframetitleboxtotalheight}
1963         \path[mdfframetitlebackground]
1964               (\mdf@Ox,\mdf@Fy) -- (\mdf@Ox,\mdf@Py)%
1965               --(\mdf@Px,\mdf@Py) --(\mdf@Px,\mdf@Fy);
1966       \end{scope}
1967 }
```

`\mdf@putbox@first`

Output of the first breakable contents.

```
1968 \def\drawbrackgroundframetitle@first{%
1969  \ifdefempty{\mdf@frametitle}{}{%
1970   \ifdimgreater{\mdfboundingboxheight}{\mdfframetitleboxtotalheight}%
1971   {%
1972    \drawbrackgroundframetitle@@first
1973    \pgfmathsetlength{\global\mdfframetitleboxtotalheight}{-\p@}%
1974   }{\mdf@PackageWarning{You got a page break inside the frame title\MessageBreak
1975                     Currently this isn't well supported}%
1976     \drawbrackgroundframetitle@@first
1977     \pgfmathsetlength{\global\mdfframetitleboxtotalheight}%
1978                   {\mdfframetitleboxtotalheight-\mdfboundingboxheight-
1979                    \mdf@innerlinewidth@length-0.5\mdf@middlelinewidth@length%
1980                    +\mdf@frametitlebelowskip@length+\mdf@splitbottomskip@length+\mdf@splittopskip@leng
1981                    +\dp\strutbox%
1982                    }%
1983   }%
1984  }%
1985 }%
1986 %
1987 \def\drawbrackgroundframetitle@@first{%
1988  \begin{scope}%background frame title
1989       \ifbool{mdf@leftline}{%
1990         \pgfmathsetlengthmacro\mdf@Ox%
1991             {\mdf@Ox+\mdf@innerlinewidth@length+0.5\mdf@middlelinewidth@length}
1992         }{}%
1993       \ifbool{mdf@rightline}{%
1994         \pgfmathsetlengthmacro\mdf@Px%
1995             {\mdf@Px-\mdf@innerlinewidth@length-0.5\mdf@middlelinewidth@length}
1996         }{}%
1997       \ifbool{mdf@topline}{%
1998         \pgfmathsetlengthmacro\mdf@Py%
1999             {\mdf@Py-\mdf@innerlinewidth@length-0.5\mdf@middlelinewidth@length}
2000         }{}%
2001       \pgfmathsetlengthmacro\mdf@Fy
2002             {max(0,\mdf@Py-\mdfframetitleboxtotalheight)}
```

```
2003          \path[mdfframetitlebackground]
2004               (\mdf@Ox,\mdf@Fy) -- (\mdf@Ox,\mdf@Py)%
2005               --(\mdf@Px,\mdf@Py) --(\mdf@Px,\mdf@Fy);
2006         \end{scope}%
2007 }%
2008 %
2009 \def\mdf@putbox@first{%
2010   \ifvoid\mdf@splitbox@two
2011   \else%
2012    \mdf@makebox@out{%
2013     \mdf@makeboxalign@left%
2014     \mdf@tikz@settings%
2015     \setlength\mdfboundingboxwidth{\wd\mdf@splitbox@two}%
2016     \advance\mdfboundingboxwidth by \mdf@innerleftmargin@length\relax%
2017     \advance\mdfboundingboxwidth by \mdf@innerrightmargin@length\relax%
2018     \ifbool{mdf@leftline}{%
2019       \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
2020       \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
2021       \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}{}%
2022     \ifbool{mdf@rightline}{%
2023       \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
2024       \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
2025       \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}{}%
2026     \setlength\mdfboundingboxheight{\dimexpr\ht\mdf@splitbox@two+\dp\mdf@splitbox@two\relax}%
2027     \advance\mdfboundingboxheight by \mdf@innertopmargin@length\relax%
2028     \advance\mdfboundingboxheight by \mdf@splitbottomskip@length\relax%
2029     \ifbool{mdf@topline}{%
2030       \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
2031       \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
2032       \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}{}%
2033 %%%%%%%%
2034     \ifbool{mdf@everyline}{%
2035      \ifbool{mdf@bottomline}{%
2036       \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
2037       \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
2038       \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}{}%
2039      }{}%
2040 %%%%%%%%%%%%
2041     %\ifdimequal{\pagegoal}{\maxdimen}{\enlargethispage{\baselineskip}}{}% ???
2042     \ifdimgreater{\pagegoal-\maxdimen}{0pt}{}{\enlargethispage{\baselineskip}}%
2043     \mdf@makebox@in[\mdfboundingboxwidth]{%
2044     \null%
2045     \begin{tikzpicture}[remember picture]
2046       \pgfmathsetlengthmacro\mdf@Ax{+\mdf@innerleftmargin@length}%
2047       \pgfmathsetlengthmacro\mdf@Ay{+\mdf@splitbottomskip@length}%
2048       \pgfmathsetlengthmacro\mdf@Ox{+0pt}%
2049       \pgfmathsetlengthmacro\mdf@Oy{+0pt}%
2050       \pgfmathsetlengthmacro\mdf@Px{+\mdfboundingboxwidth}%
2051       \pgfmathsetlengthmacro\mdf@Py{+\mdfboundingboxheight}%
2052       \ifbool{mdf@leftline}
2053         {%
2054         \pgfmathsetlengthmacro\mdf@Ax%
2055             {\mdf@Ax+\mdf@outerlinewidth@length+%
2056              \mdf@middlelinewidth@length+\mdf@innerlinewidth@length}%
2057         \pgfmathsetlengthmacro\mdf@Ox%
2058             {\mdf@Ox+\mdf@outerlinewidth@length+0.5\mdf@middlelinewidth@length}%
```

```
2059            }{}%
2060        \ifbool{mdf@rightline}{%
2061            \pgfmathsetlengthmacro\mdf@Px%
2062                {\mdf@Px-\mdf@outerlinewidth@length-0.5\mdf@middlelinewidth@length}%
2063            }{}%
2064        \ifbool{mdf@topline}{%
2065            \pgfmathsetlengthmacro\mdf@Py%
2066                {\mdf@Py-\mdf@outerlinewidth@length-0.5\mdf@middlelinewidth@length}%
2067            }{}%
2068 %%
2069        \ifbool{mdf@everyline}{%
2070        \ifbool{mdf@bottomline}%
2071            {%
2072            \pgfmathsetlengthmacro\mdf@Ay%
2073                {\mdf@Ay+\mdf@outerlinewidth@length+\mdf@middlelinewidth@length%
2074                    +\mdf@innerlinewidth@length}%
2075            \pgfmathsetlengthmacro\mdf@Oy%
2076                {\mdf@Oy+\mdf@outerlinewidth@length+0.5\mdf@middlelinewidth@length}%
2077            }{}%
2078        \ifbool{mdf@topline}%
2079            {%
2080            \pgfmathsetlengthmacro\mdf@Py%
2081                {\mdf@Py-\mdf@outerlinewidth@length-0.5\mdf@middlelinewidth@length}%
2082            }{}%
2083        }{}%
2084 %%
2085        \coordinate(O)at(\mdf@Ox,\mdf@Oy);%
2086        \coordinate(P)at(\mdf@Px,\mdf@Py);%
2087        \ifbool{mdf@shadow}
2088            {\path[mdfshadow] (O) -- (O|-P) to[mdfcorners] (P) -- (P|-O) -- (O);}{}%
2089        \begin{scope}[use as bounding box]
2090 %%%%%%%%%%%%%
2091        \ifbool{mdf@everyline}{%
2092        \mdf@test@ltrb{\mdf@tikzbox@tfl{(O)--(O|-P)--(P)--(P|-O)--cycle}}{}%
2093        \mdf@test@ltb{\mdf@tikzbox@tfl{(P|-O)--(O)--(O|-P)--(P)}}{}%
2094        \mdf@test@trb{\mdf@tikzbox@tfl{(O|-P)--(P)--(P|-O)--(O)}}{}%
2095        \mdf@test@ltr{\mdf@tikzbox@tfl{(O)--(O|-P)--(P)--(P|-O)}}{}%
2096        \mdf@test@lrb{\mdf@tikzbox@tfl{(P-|O)--(O)--(O-|P)--(P)}}{}%
2097        \mdf@test@lb{\mdf@tikzbox@otl{(P|-O)--(O)--(O|-P)}%
2098                            {(P)--(P|-O)[mdfcorners]--(O)--(O|-P)}%
2099                }{}%
2100        \mdf@test@rb{\mdf@tikzbox@otl{(P)--(P|-O)--(O)}%
2101                            {(O|-P)--(P)[mdfcorners]--(P|-O)--(O)}%
2102                }{}%
2103        \mdf@test@tr{\mdf@tikzbox@otl{(O-|P)--(P)--(P-|O)}%
2104                            {(O)--(O|-P)[mdfcorners]--(P)--(P|-O)}%
2105                }{}%
2106        \mdf@test@lt{\mdf@tikzbox@otl{(O)--(O|-P)--(P)}%
2107                            {(P|-O)--(O)[mdfcorners]--(O|-P)--(P)}%
2108                }{}%
2109        \mdf@test@lr{\mdf@tikzbox@otl{(O)--(O|-P)(P)--(P|-O)}%
2110                            {(O)rectangle(P)}%
2111                }{}%
2112        \mdf@test@tb{\mdf@tikzbox@otl{(O)--(O-|P)(O|-P)--(P)}%
2113                            {(O)rectangle(P)}%
2114                }{}%
```

```
2115        \mdf@test@l{\mdf@tikzbox@otl{(O)--(O|-P)}%
2116                              {(O)rectangle(P)}%
2117              }{}%
2118        \mdf@test@r{\mdf@tikzbox@otl{(O-|P)--(P)}%
2119                              {(O)rectangle(P)}%
2120              }{}%
2121        \mdf@test@t{\mdf@tikzbox@otl{(O|-P)--(P)}%
2122                              {(O)rectangle(P)}%
2123              }{}%
2124        \mdf@test@b{\mdf@tikzbox@otl{(O)--(O-|P)}%
2125                              {(O)rectangle(P)}%
2126              }{}%
2127        \mdf@test@noline{\path[mdfbackground,mdfcorners](O)rectangle(P);}{}%
2128      }{
2129       \ifboolexpr{test {\mdf@test@ltrb} or test {\mdf@test@ltr}}%
2130         {\mdf@tikzbox@tfl{(O)--(O|-P)--(P)--(P|-O)}}%
2131         {}%
2132       \ifboolexpr{test {\mdf@test@ltb} or test {\mdf@test@lt}}%
2133         {\mdf@tikzbox@otl{(O)--(O|-P)--(P)}{(P|-O)--(O)[mdfcorners]--(O|-P)--(P)}}%
2134         {}%
2135       \ifboolexpr{test {\mdf@test@trb} or test {\mdf@test@tr}}%
2136         {\mdf@tikzbox@otl{(O-|P)--(P)--(P-|O)}{(O)--(O|-P)[mdfcorners]--(P)--(P|-O)}}%
2137         {}%
2138       \ifboolexpr{test {\mdf@test@lrb} or test {\mdf@test@lr}}%
2139         {\mdf@tikzbox@otl{(O)--(O|-P)(P)--(P|-O)}{(O)rectangle(P)}}%
2140         {}%
2141       \ifboolexpr{test {\mdf@test@tb} or test {\mdf@test@t}}%
2142         {\mdf@tikzbox@otl{(O|-P)--(P)}{(O)rectangle(P)}}%
2143         {}%
2144       \ifboolexpr{test {\mdf@test@lb} or test {\mdf@test@l}}%
2145         {\mdf@tikzbox@otl{(O)--(O|-P)}{(O)rectangle(P)}}%
2146         {}%
2147       \ifboolexpr{test {\mdf@test@rb} or test {\mdf@test@r}}%
2148         {\mdf@tikzbox@otl{(O-|P)--(P)}{(O)rectangle(P)}}%
2149         {}%
2150       \mdf@test@b{\path[mdfbackground](O)rectangle(P);}{}%
2151       \mdf@test@noline{\path[mdfbackground,mdfcorners](O)--(O|-P)--(P)--(P|-O);}{}%
2152      }
2153 %%%%%%%%%%%%
2154        \drawbrackgroundframetitle@first
2155        \node[mdfbox]at(\mdf@Ax,\mdf@Ay){\box\mdf@splitbox@two};% Ausgabebox einfuegen
2156      \end{scope}
2157      %HIER KOMMT EIN WEITERES MAKRO
2158      \mdf@firstextra
2159      \mdfcreateextratikz%
2160     \end{tikzpicture}%
2161     }%
2162    \mdf@makeboxalign@right%
2163   }%
2164 \fi
2165 }%
```

\mdf@putbox@middle

Output of the middle breakable contents.

```
2166 \def\drawbrackgroundframetitle@middle{%
2167 \ifdefempty{\mdf@frametitle}{}{%
2168 \ifdimless{\mdfframetitleboxtotalheight}{\z@}
2169 {}{%
2170   \drawbrackgroundframetitle@@middle%
2171   \pgfmathsetlength{\global\mdfframetitleboxtotalheight}{-\p@}%
2172 }%
2173 }%
2174 }%
2175 %
2176 \def\drawbrackgroundframetitle@@middle{%
2177      \begin{scope}%background frame title
2178       \ifbool{mdf@leftline}{
2179        \pgfmathsetlengthmacro\mdf@Ox%
2180            {\mdf@Ox+\mdf@innerlinewidth@length+0.5\mdf@middlelinewidth@length}
2181        }{}%
2182       \ifbool{mdf@rightline}{%
2183        \pgfmathsetlengthmacro\mdf@Px%
2184            {\mdf@Px-\mdf@innerlinewidth@length-0.5\mdf@middlelinewidth@length}
2185        }{}%
2186       \pgfmathsetlengthmacro\mdf@Fy
2187            {\mdf@Py-\mdfframetitleboxtotalheight}
2188       \path[mdfframetitlebackground,rounded corners=\z@]
2189            (\mdf@Ox,\mdf@Fy) -- (\mdf@Ox,\mdf@Py)%
2190            --(\mdf@Px,\mdf@Py) --(\mdf@Px,\mdf@Fy);
2191      \end{scope}
2192 }%
2193 %
2194 \def\drawbrackgroundframetitle@@middle{%
2195      \begin{scope}%background frame title
2196       \ifbool{mdf@leftline}{
2197        \pgfmathsetlengthmacro\mdf@Ox%
2198            {\mdf@Ox+\mdf@innerlinewidth@length+0.5\mdf@middlelinewidth@length}
2199        }{}%
2200       \ifbool{mdf@rightline}{%
2201        \pgfmathsetlengthmacro\mdf@Px%
2202            {\mdf@Px-\mdf@innerlinewidth@length-0.5\mdf@middlelinewidth@length}
2203        }{}%
2204       \pgfmathsetlengthmacro\mdf@Fy
2205            {\mdf@Py-\mdfframetitleboxtotalheight}
2206       \path[mdfframetitlebackground,rounded corners=\z@]
2207            (\mdf@Ox,\mdf@Fy) -- (\mdf@Ox,\mdf@Py)%
2208            --(\mdf@Px,\mdf@Py) --(\mdf@Px,\mdf@Fy);
2209      \end{scope}
2210 }%
2211 \def\mdf@putbox@middle{%
2212 \ifvoid\mdf@splitbox@two
2213 \else%
2214      \mdf@makebox@out{%
2215  \mdf@makeboxalign@left%
2216  \mdf@tikz@settings%
2217  \setlength\mdfboundingboxwidth{\wd\mdf@splitbox@two}%
2218  \advance\mdfboundingboxwidth by \mdf@innerleftmargin@length\relax%
2219  \advance\mdfboundingboxwidth by \mdf@innerrightmargin@length\relax%
2220  \ifbool{mdf@leftline}{%
2221    \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
```

```
2222        \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
2223        \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}{}%
2224      \ifbool{mdf@rightline}{%
2225        \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
2226        \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
2227        \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}{}%
2228      \setlength\mdfboundingboxheight{\dimexpr\ht\mdf@splitbox@two+\dp\mdf@splitbox@two\relax}%
2229      \advance\mdfboundingboxheight by \mdf@splitbottomskip@length\relax%
2230 %%%%%%%%
2231      \ifbool{mdf@everyline}{%
2232       \ifbool{mdf@topline}{%
2233       \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
2234       \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
2235       \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}{}%
2236       \ifbool{mdf@bottomline}{%
2237       \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
2238       \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
2239       \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}{}%
2240       }{}%
2241 %%%%%%%%%%%%%
2242      \mdf@makebox@in[\mdfboundingboxwidth]{%
2243      \null%
2244      \begin{tikzpicture}[remember picture]
2245        \pgfmathsetlengthmacro\mdf@Ax{+\mdf@innerleftmargin@length}%
2246        \pgfmathsetlengthmacro\mdf@Ay{+\mdf@splitbottomskip@length}%
2247        \pgfmathsetlengthmacro\mdf@Ox{+0pt}%
2248        \pgfmathsetlengthmacro\mdf@Oy{+0pt}%
2249        \pgfmathsetlengthmacro\mdf@Px{+\mdfboundingboxwidth}%
2250        \pgfmathsetlengthmacro\mdf@Py{+\mdfboundingboxheight}%
2251        \ifbool{mdf@leftline}%
2252          {%
2253           \pgfmathsetlengthmacro\mdf@Ax%
2254                {\mdf@Ax+\mdf@outerlinewidth@length+%
2255                 \mdf@middlelinewidth@length+\mdf@innerlinewidth@length}%
2256           \pgfmathsetlengthmacro\mdf@Ox%
2257                {\mdf@Ox+\mdf@outerlinewidth@length+0.5\mdf@middlelinewidth@length}%
2258          }{}%
2259        \ifbool{mdf@rightline}%
2260          {%
2261           \pgfmathsetlengthmacro\mdf@Px%
2262                {\mdf@Px-\mdf@outerlinewidth@length-0.5\mdf@middlelinewidth@length}%
2263          }{}%
2264 %%
2265        \ifbool{mdf@everyline}{%
2266         \ifbool{mdf@bottomline}%
2267           {%
2268            \pgfmathsetlengthmacro\mdf@Ay%
2269                 {\mdf@Ay+\mdf@outerlinewidth@length+\mdf@middlelinewidth@length%
2270                  +\mdf@innerlinewidth@length}%
2271            \pgfmathsetlengthmacro\mdf@Oy%
2272                 {\mdf@Oy+\mdf@outerlinewidth@length+0.5\mdf@middlelinewidth@length}%
2273           }{}%
2274         \ifbool{mdf@topline}%
2275           {%
2276            \pgfmathsetlengthmacro\mdf@Py%
2277                 {\mdf@Py-\mdf@outerlinewidth@length-0.5\mdf@middlelinewidth@length}%
```

```
2278          }{}%
2279       }{}%
2280 %%
2281       \coordinate(O)at(\mdf@Ox,\mdf@Oy);%
2282       \coordinate(P)at(\mdf@Px,\mdf@Py);%
2283       \ifbool{mdf@shadow}
2284          {\path[mdfshadow](O) rectangle (P);}{}%
2285       \begin{scope}[use as bounding box]
2286 %%%%%%%%%%%
2287       \ifbool{mdf@everyline}{%
2288         \mdf@test@ltrb{\mdf@tikzbox@tfl{(O)--(O|-P)--(P)--(P|-O)--cycle}}{}%
2289         \mdf@test@ltb{\mdf@tikzbox@tfl{(P|-O)--(O)--(O|-P)--(P)}}{}%
2290         \mdf@test@trb{\mdf@tikzbox@tfl{(O|-P)--(P)--(P|-O)--(O)}}{}%
2291         \mdf@test@ltr{\mdf@tikzbox@tfl{(O)--(O|-P)--(P)--(P|-O)}}{}%
2292         \mdf@test@lrb{\mdf@tikzbox@tfl{(P-|O)--(O)--(O-|P)--(P)}}{}%
2293         \mdf@test@lb{\mdf@tikzbox@otl{(P|-O)--(O)--(O|-P)}%
2294                                {(P)--(P|-O)[mdfcorners]--(O)--(O|-P)}%
2295               }{}%
2296         \mdf@test@rb{\mdf@tikzbox@otl{(P)--(P|-O)--(O)}%
2297                                {(O|-P)--(P)[mdfcorners]--(P|-O)--(O)}%
2298               }{}%
2299         \mdf@test@tr{\mdf@tikzbox@otl{(O-|P)--(P)--(P-|O)}%
2300                                {(O)--(O|-P)[mdfcorners]--(P)--(P|-O)}%
2301               }{}%
2302         \mdf@test@lt{\mdf@tikzbox@otl{(O)--(O|-P)--(P)}%
2303                                {(P|-O)--(O)[mdfcorners]--(O|-P)--(P)}%
2304               }{}%
2305         \mdf@test@lr{\mdf@tikzbox@otl{(O)--(O|-P)(P)--(P|-O)}%
2306                                {(O)rectangle(P)}%
2307               }{}%
2308         \mdf@test@tb{\mdf@tikzbox@otl{(O)--(O-|P)(O|-P)--(P)}%
2309                                {(O)rectangle(P)}%
2310               }{}%
2311         \mdf@test@l{\mdf@tikzbox@otl{(O)--(O|-P)}%
2312                                {(O)rectangle(P)}%
2313               }{}%
2314         \mdf@test@r{\mdf@tikzbox@otl{(O-|P)--(P)}%
2315                                {(O)rectangle(P)}%
2316               }{}%
2317         \mdf@test@t{\mdf@tikzbox@otl{(O|-P)--(P)}%
2318                                {(O)rectangle(P)}%
2319               }{}%
2320         \mdf@test@b{\mdf@tikzbox@otl{(O)--(O-|P)}%
2321                                {(O)rectangle(P)}%
2322               }{}%
2323         \mdf@test@noline{\path[mdfbackground,mdfcorners](O)rectangle(P);}{}%
2324       }{
2325         \ifboolexpr{bool {mdf@leftline} and bool {mdf@rightline}}%
2326                {\mdf@tikzbox@otl{(O)--(O|-P)(P)--(P|-O)}{(O)rectangle(P)}}{}%
2327         \ifboolexpr{bool {mdf@leftline} and not (bool {mdf@rightline})}%
2328                {\mdf@tikzbox@otl{(O)--(O|-P)}{(O)rectangle(P)}}{}%
2329         \ifboolexpr{not (bool {mdf@leftline}) and bool {mdf@rightline}}%
2330                {\mdf@tikzbox@otl{(P)--(P|-O)}{(O)rectangle(P)}}{}%
2331         \ifboolexpr{not (bool {mdf@leftline}) and not (bool {mdf@rightline})}%
2332                {\path[mdfbackground](O)rectangle(P);}{}%
2333       }
```

```
2334 %%%%%%%
2335       \drawbrackgroundframetitle@middle
2336       \node[mdfbox]at(\mdf@Ax,\mdf@Ay){\box\mdf@splitbox@two};% Ausgabebox einfuegen
2337     \end{scope}
2338     \mdf@middleextra
2339     %HIER KOMMT EIN WEITERES MAKRO
2340     \mdfcreateextratikz
2341   \end{tikzpicture}%
2342   }%
2343  \mdf@makeboxalign@right%
2344 }%
2345 \fi
2346 }%
```

```
\mdf@putbox@second
```

Output of the last breakable contents.

```
2347 \def\drawbrackgroundframetitle@second{%
2348 \ifdefempty{\mdf@frametitle}{}{%
2349  \ifdimless{\mdfframetitleboxtotalheight}{\z@}
2350  {}{%
2351   \drawbrackgroundframetitle@@second%
2352  }%
2353 }%
2354 }%
2355 %
2356 \def\drawbrackgroundframetitle@@second{%
2357       \begin{scope}%background frame title
2358        \ifbool{mdf@leftline}{
2359         \pgfmathsetlengthmacro\mdf@Ox%
2360            {\mdf@Ox+\mdf@innerlinewidth@length+0.5\mdf@middlelinewidth@length}
2361        }{}%
2362        \ifbool{mdf@rightline}{%
2363         \pgfmathsetlengthmacro\mdf@Px%
2364            {\mdf@Px-\mdf@innerlinewidth@length-0.5\mdf@middlelinewidth@length}
2365        }{}%
2366        \pgfmathsetlengthmacro\mdf@Fy
2367            {\mdf@Py-\mdfframetitleboxtotalheight}
2368        \path[mdfframetitlebackground,rounded corners=\z@]
2369            (\mdf@Ox,\mdf@Fy) -- (\mdf@Ox,\mdf@Py)%
2370            --(\mdf@Px,\mdf@Py) --(\mdf@Px,\mdf@Fy);
2371       \end{scope}
2372 }%
2373 \def\mdf@putbox@second{%
2374   \ifvoid\mdf@splitbox@one
2375   \else%
2376        \mdf@makebox@out{%
2377     \mdf@makeboxalign@left%
2378     \mdf@tikz@settings%
2379     \setlength\mdfboundingboxwidth{\wd\mdf@splitbox@one}%
2380     \advance\mdfboundingboxwidth by \mdf@innerleftmargin@length\relax%
2381     \advance\mdfboundingboxwidth by \mdf@innerrightmargin@length\relax%
2382     \ifbool{mdf@leftline}{%
2383       \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
2384       \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
```

```
2385        \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}{}%
2386      \ifbool{mdf@rightline}{%
2387        \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
2388        \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
2389        \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}{}%
2390      \setlength\mdfboundingboxheight{\dimexpr\ht\mdf@splitbox@one+\dp\mdf@splitbox@one\relax}%
2391      \advance\mdfboundingboxheight by \mdf@innerbottommargin@length\relax%
2392      \ifbool{mdf@bottomline}{%
2393        \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
2394        \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
2395        \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}{}%
2396 %%%%%%%%%
2397      \ifbool{mdf@everyline}{%
2398       \ifbool{mdf@topline}{%
2399        \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
2400        \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
2401        \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}{}%
2402      }{}%
2403 %%%%%%%%%%%%%%
2404      \mdf@makebox@in[\mdfboundingboxwidth]{%
2405      \null%
2406      \begin{tikzpicture}[remember picture]
2407        \pgfmathsetlengthmacro\mdf@Ax{+\mdf@innerleftmargin@length}%
2408        \pgfmathsetlengthmacro\mdf@Ay{+\mdf@innerbottommargin@length}%
2409        \pgfmathsetlengthmacro\mdf@Ox{+0pt}%
2410        \pgfmathsetlengthmacro\mdf@Oy{+0pt}%
2411        \pgfmathsetlengthmacro\mdf@Px{+\mdfboundingboxwidth}%
2412        \pgfmathsetlengthmacro\mdf@Py{+\mdfboundingboxheight}%
2413        \ifbool{mdf@leftline}%
2414          {%
2415          \pgfmathsetlengthmacro\mdf@Ax%
2416              {\mdf@Ax+\mdf@outerlinewidth@length+%
2417               \mdf@middlelinewidth@length+\mdf@innerlinewidth@length}%
2418           \pgfmathsetlengthmacro\mdf@Ox%
2419              {\mdf@Ox+\mdf@outerlinewidth@length+0.5\mdf@middlelinewidth@length}%
2420          }{}%
2421        \ifbool{mdf@rightline}%
2422          {%
2423           \pgfmathsetlengthmacro\mdf@Px%
2424              {\mdf@Px-\mdf@outerlinewidth@length-0.5\mdf@middlelinewidth@length}%
2425          }{}%
2426        \ifbool{mdf@bottomline}%
2427          {%
2428           \pgfmathsetlengthmacro\mdf@Ay%
2429              {\mdf@Ay+\mdf@outerlinewidth@length+%
2430               \mdf@middlelinewidth@length+\mdf@innerlinewidth@length}%
2431           \pgfmathsetlengthmacro\mdf@Oy%
2432              {\mdf@Oy+\mdf@outerlinewidth@length+0.5\mdf@middlelinewidth@length}%
2433          }{}%
2434 %%
2435        \ifbool{mdf@everyline}{%
2436        \ifbool{mdf@topline}%
2437          {%
2438          \pgfmathsetlengthmacro\mdf@Py%
2439              {\mdf@Py-\mdf@outerlinewidth@length-0.5\mdf@middlelinewidth@length}%
2440          }{}%
```

```
2441        }{}%
2442 %%
2443        \coordinate(O)at(\mdf@Ox,\mdf@Oy);%
2444        \coordinate(P)at(\mdf@Px,\mdf@Py);%
2445        \ifbool{mdf@shadow}
2446          {\path[mdfshadow]  (O|-P) to[mdfcorners] (O) to[mdfcorners] (P|-O) -- (P) -- (O|-P);}{}%
2447        \begin{scope}[use as bounding box]
2448 %%%%%%%%%%%%
2449      \ifbool{mdf@everyline}{%
2450        \mdf@test@ltrb{\mdf@tikzbox@tfl{(O)--(O|-P)--(P)--(P|-O)--cycle}}{}%
2451        \mdf@test@ltb{\mdf@tikzbox@tfl{(P|-O)--(O)--(O|-P)--(P)}}{}%
2452        \mdf@test@trb{\mdf@tikzbox@tfl{(O|-P)--(P)--(P|-O)--(O)}}{}%
2453        \mdf@test@ltr{\mdf@tikzbox@tfl{(O)--(O|-P)--(P)--(P|-O)}}{}%
2454        \mdf@test@lrb{\mdf@tikzbox@tfl{(P-|O)--(O)--(O-|P)--(P)}}{}%
2455        \mdf@test@lb{\mdf@tikzbox@otl{(P|-O)--(O)--(O|-P)}%
2456                                     {(P)--(P|-O)[mdfcorners]--(O)--(O|-P)}%
2457                }{}%
2458        \mdf@test@rb{\mdf@tikzbox@otl{(P)--(P|-O)--(O)}%
2459                                     {(O|-P)--(P)[mdfcorners]--(P|-O)--(O)}%
2460                }{}%
2461        \mdf@test@tr{\mdf@tikzbox@otl{(O-|P)--(P)--(P-|O)}%
2462                                     {(O)--(O|-P)[mdfcorners]--(P)--(P|-O)}%
2463                }{}%
2464        \mdf@test@lt{\mdf@tikzbox@otl{(O)--(O|-P)--(P)}%
2465                                     {(P|-O)--(O)[mdfcorners]--(O|-P)--(P)}%
2466                }{}%
2467        \mdf@test@lr{\mdf@tikzbox@otl{(O)--(O|-P)(P)--(P|-O)}%
2468                                     {(O)rectangle(P)}%
2469                }{}%
2470        \mdf@test@tb{\mdf@tikzbox@otl{(O)--(O-|P)(O|-P)--(P)}%
2471                                     {(O)rectangle(P)}%
2472                }{}%
2473        \mdf@test@l{\mdf@tikzbox@otl{(O)--(O|-P)}%
2474                                    {(O)rectangle(P)}%
2475                }{}%
2476        \mdf@test@r{\mdf@tikzbox@otl{(O-|P)--(P)}%
2477                                    {(O)rectangle(P)}%
2478                }{}%
2479        \mdf@test@t{\mdf@tikzbox@otl{(O|-P)--(P)}%
2480                                    {(O)rectangle(P)}%
2481                }{}%
2482        \mdf@test@b{\mdf@tikzbox@otl{(O)--(O-|P)}%
2483                                    {(O)rectangle(P)}%
2484                }{}%
2485        \mdf@test@noline{\path[mdfbackground,mdfcorners](O)rectangle(P);}{}%
2486      }{%
2487        \ifboolexpr{test {\mdf@test@ltrb} or test {\mdf@test@lrb}}%
2488          {\mdf@tikzbox@tfl{(P-|O)--(O)--(O-|P)--(P)}}%
2489          {}%
2490        \ifboolexpr{test {\mdf@test@ltb} or test {\mdf@test@lb}}%
2491          {\mdf@tikzbox@otl{(P-|O)--(O)--(O-|P)}{(P)--(P|-O)[mdfcorners]--(O)--(O|-P)}}%
2492          {}%
2493        \ifboolexpr{test {\mdf@test@trb} or test {\mdf@test@rb}}%
2494          {\mdf@tikzbox@otl{(P)--(P|-O)--(O)}{(O|-P)--(P)[mdfcorners]--(P|-O)--(O)}}%
2495          {}%
2496        \ifboolexpr{test {\mdf@test@ltr} or test {\mdf@test@lr}}%
```

```
2497          {\mdf@tikzbox@otl{(O)--(O|-P)(P)--(P|-O)}{(O)rectangle(P)}}%
2498          {}%
2499        \ifboolexpr{test {\mdf@test@tb} or test {\mdf@test@b}}%
2500          {\mdf@tikzbox@otl{(O)--(O-|P)}{(O)rectangle(P)}}%
2501          {}%
2502        \ifboolexpr{test {\mdf@test@lt} or test {\mdf@test@l}}%
2503          {\mdf@tikzbox@otl{(O)--(O|-P)}{(O)rectangle(P)}}%
2504          {}%
2505        \ifboolexpr{test {\mdf@test@tr} or test {\mdf@test@r}}%
2506          {\mdf@tikzbox@otl{(O-|P)--(P)}{(O)rectangle(P)}}%
2507          {}%
2508        \mdf@test@t{\path[mdfbackground,mdfcorners](O|-P)--(O)--(O-|P)--(P);}{}%
2509        \mdf@test@noline{\path[mdfbackground,mdfcorners](O|-P)--(O)--(O-|P)--(P);}{}%
2510      }%
2511        \drawbrackgroundframetitle@second
2512        \node[mdfbox] at (\mdf@Ax,\mdf@Ay){\box\mdf@splitbox@one};% Ausgabebox einfuegen
2513      \end{scope}
2514        \mdf@secondextra
2515      %HIER KOMMT EIN WEITERES MAKRO
2516        \mdfcreateextratikz
2517      \end{tikzpicture}%
2518      }%
2519    \mdf@makeboxalign@right%
2520   }%
2521  \fi
2522 }%


2523  \endinput
```

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

```
2524 %% Style file for mdframed for package option 'framemethod=default'
2525 %%
2526 %% This package may be distributed under the terms of the LaTeX Project
2527 %% Public License, as described in lppl.txt in the base LaTeX distribution.
2528 %% Either version 1.0 or, at your option, any later version.
2529 %%
2530 %%
2531 %%$Id: mdframed.dtx 378 2012-04-13 07:55:45Z marco $
2532 %
```

┌─────────────────────────────┐
│ \mdframedIIpackagename   │
│ \mdf@frameIIdate@svn   │
└─────────────────────────────┘

local settings

```
2533 \def\mdframedIIpackagename{md-frame-2}
2534 \def\mdf@frameIIdate@svn$#1: #2 #3 #4-#5-#6 #7 #8${#4/#5/#6\space }
2535 \ProvidesFile{md-frame-2.mdf}%
2536          [\mdf@frameIIdate@svn$Id: mdframed.dtx 378 2012-04-13 07:55:45Z marco $ %
2537           \mdversion: \mdframedIIpackagename]
```

┌─────────────────────────────┐
│ \mdf@ptlength@to@pscode   │
│ \ptTps   │
└─────────────────────────────┘

Command to calculate a latex length to postscript

```
2538 \def\mdf@ptlength@to@pscode#1{\pst@number{#1} \pst@number\psxunit div }
2539 \def\mdf@ptlength@to@pscode@length#1{\pst@number{\csname mdf@#1@length\endcsname} \pst@number\psxunit o
2540 \let\ptTps\mdf@ptlength@to@pscode\relax
2541 \let\ptTpsL\mdf@ptlength@to@pscode@length\relax
```

```
\mdfbackgroundstyle
\mdflinestyle
\mdfframetitlerule
\mdfframetitlebackground
```

background and line settings for pstricks

```
2542 \def\mdfpstricks@settings{%expand by \addtopsstyle
2543   \newpsstyle{mdfbackgroundstyle}%
2544     {linecolor=\mdf@backgroundcolor,fillstyle=solid,%
2545      fillcolor=\mdf@backgroundcolor,linestyle=none,%
2546     ,dimen=middle,%
2547     }%
2548 %
2549   \newpsstyle{mdfframetitlebackgroundstyle}{%
2550       linecolor=\mdf@frametitlebackgroundcolor,
2551       fillcolor=\mdf@frametitlebackgroundcolor,
2552       fillstyle=solid,linestyle=none,
2553       linearc=\ifdimgreater{\mdf@roundcorner@length%
2554                            -\mdf@innerlinewidth@length%
2555                            -.5\mdf@middlelinewidth@length}
2556                          {\z@}{\dimexpr\mdf@roundcorner@length%
2557                            -\mdf@innerlinewidth@length%
2558                            -.5\mdf@middlelinewidth@length}{\z@},
2559   }
2560 %
2561   \newpsstyle{mdfouterlinestyle}{linestyle=none}%
2562   \ifdimgreater{\mdf@outerlinewidth@length}{\z@}
2563     {\newpsstyle{mdfouterlinestyle}{%
2564       linecolor=\mdf@outerlinecolor,%
2565       linewidth=\dimexpr2\mdf@outerlinewidth@length+\mdf@middlelinewidth@length\relax,
2566       dimen=middle,
2567       }}{}%
2568 %
2569   \newpsstyle{mdfinnerlinestyle}{linestyle=none}%
2570   \ifdimgreater{\mdf@innerlinewidth@length}{\z@}%
2571     {\newpsstyle{mdfinnerlinestyle}{%
2572       linecolor=\mdf@innerlinecolor,%
2573       linewidth=\dimexpr2\mdf@innerlinewidth@length+\mdf@middlelinewidth@length\relax,
2574       dimen=middle,
2575       }}{}%
2576 %
2577   \newpsstyle{mdfmiddlelinestyle}{linestyle=none}%
2578   \newpsstyle{mdfshadow}{shadow=true,shadowcolor=\mdf@shadowcolor,shadowsize=\mdf@shadowsize@length}%
2579   \ifdimgreater{\mdf@middlelinewidth@length}{\z@}%
2580     {\newpsstyle{mdfmiddlelinestyle}{%
2581       linewidth=\mdf@middlelinewidth@length,%
2582       linecolor=\mdf@middlelinecolor,dimen=middle
2583       }}{}%
2584 \mdfpstricks@appendsettings
2585 }%
```

```
2586 %
2587 \newrobustcmd*\mdf@pstricksbox@fl[2]{%four lines
2588   \psframe[style=mdfouterlinestyle](#1)(#2)%aussen=3mm
2589   \psframe[style=mdfbackgroundstyle](#1)(#2)%Hintergrund
2590   \psclip{\psframe[style=mdfmiddlelinestyle](#1)(#2)}
2591    \psframe[style=mdfinnerlinestyle](#1)(#2)%innere=3mm
2592   \endpsclip
2593   \psframe[style=mdfmiddlelinestyle](#1)(#2)%mittlere=2mm
2594   }%
2595 \newrobustcmd*\mdf@pstricksbox@tl[1]{%three lines
2596   \psline[style=mdfouterlinestyle]#1%aussen=3mm
2597   \psline[style=mdfbackgroundstyle]#1%Hintergrund
2598   \psclip{\psline[style=mdfmiddlelinestyle]#1}
2599     \psline[style=mdfinnerlinestyle]#1%innere=3mm
2600   \endpsclip
2601   \psline[style=mdfmiddlelinestyle]#1%mittlere=2mm
2602   }%
2603 \newrobustcmd*\mdf@pstricksbox@tcl[2]{%two combined lines
2604 %%#1 background comple
2605 %%#2 line path
2606   \psline[style=mdfouterlinestyle]#2%aussen=3mm
2607   \psline[style=mdfbackgroundstyle]#2%Hintergrund
2608   \psclip{\pscustom[linestyle=none]{
2609         \psline[style=mdfmiddlelinestyle]#2
2610         \psline[linestyle=none,linearc=0pt]#1}
2611         }
2612     \psframe[style=mdfbackgroundstyle,linearc=0pt](mdf@O)(mdf@P)%Hintergrund
2613     \psline[style=mdfinnerlinestyle]#2%innere=3mm
2614   \endpsclip
2615   \psline[style=mdfmiddlelinestyle]#2%mittlere=2mm
2616 }%
2617 \newrobustcmd*\mdf@pstricksbox@tncl[2]{%two not combined lines
2618  \begingroup
2619  \psset{linearc=0pt}
2620  \psline[style=mdfouterlinestyle](mdf@O)#1%aussen=3mm
2621  \psline[style=mdfouterlinestyle](mdf@P)#2%aussen=3mm
2622  \psclip{
2623    \pscustom[linestyle=none]{%
2624        \psline[style=mdfmiddlelinestyle](mdf@O)#1%mittlere=2mm
2625        \psline[linestyle=none](mdf@O)#2
2626        \psline[style=mdfmiddlelinestyle](mdf@P)#2%mittlere=2mm
2627        \psline[linestyle=none](mdf@P)#1
2628      }%
2629    }%
2630    \psframe[style=mdfbackgroundstyle,linearc=0pt](mdf@O)(mdf@P)%Hintergrund
2631    \psline[style=mdfinnerlinestyle](mdf@O)#1%innere=3mm
2632    \psline[style=mdfinnerlinestyle](mdf@P)#2%innere=3mm
2633  \endpsclip
2634  \psline[style=mdfmiddlelinestyle](mdf@O)#1%mittlere=2mm
2635  \psline[style=mdfmiddlelinestyle](mdf@P)#2%mittlere=2mm
2636  \endgroup
2637 }%
2638 \newrobustcmd*\mdf@pstricksbox@ol[1]{%one line
2639  \begingroup
2640  \psset{linearc=0pt}
2641  \psline[style=mdfouterlinestyle]#1%aussen=3mm
```

```
2642    \psline[style=mdfbackgroundstyle]#1%Hintergrund
2643    \psclip{\pscustom[linestyle=none]{
2644            \psline[style=mdfmiddlelinestyle]#1
2645            \psframe[linestyle=none,fillstyle=none,dimen=inner](mdf@O)(mdf@P)
2646            }}
2647      \psframe[style=mdfbackgroundstyle](mdf@O)(mdf@P)
2648      \psline[style=mdfinnerlinestyle]#1%innere=3mm
2649    \endpsclip
2650    \psline[style=mdfmiddlelinestyle]#1%mittlere=2mm
2651    \endgroup%
2652 }%
2653
2654 %
2655 \newpsstyle{mdfframetitlerule}{%
2656      linecolor=\mdf@frametitlerulecolor,%
2657      fillcolor=\mdf@frametitlerulecolor,%
2658      fillstyle=solid,dimen=outer,%
2659 }
2660 %
```

\mdf@put@frametitlerule

frametitlerule with pstricks

```
2661 \def\mdf@@frametitlerule{%
2662    \ifbool{mdf@frametitlerule}{%
2663     \vbox{\hsize0pt
2664        \par\unskip\vskip\mdf@frametitlebelowskip@length
2665        \noindent\rlap{%
2666        \begingroup%
2667        \begin{pspicture}(0,0)(0,\mdf@frametitlerulewidth@length)
2668         \psframe[style=mdfframetitlerule](!\ptTpsL{innerleftmargin} neg 0)%
2669                                    (! \ptTpsL{innerrightmargin}
2670                                        \ptTps{\mdfframetitleboxwidth} add \ptTpsL{frametitlerulewidth})
2671        \end{pspicture}
2672        \endgroup}
2673     }%
2674    }{}
2675    \par\unskip\vskip\mdf@innertopmargin@length%
2676 }%
2677 %
2678 % \begin{macro}{mdf@putbox@single}
2679 % Single output
2680 %    \begin{macrocode}
2681 % Info zu den verwendeten Punkten:
2682 % O ist die untere linke Ecke der Mitte der middleline
2683 % P ist die obere rechte Ecke der Mitte der middleline
2684 % A ist der Punkt fuer den anchor (d.h. die untere linke Ecke) der Ausgabebox
2685 \def\mdf@putbox@single{%
2686    \ifvoid\mdf@splitbox@one
2687    \else%
2688    \mdf@makebox@out{%
2689       \mdf@makeboxalign@left%
2690    \setlength\mdfboundingboxwidth{\wd\mdf@splitbox@one}%
2691    \advance\mdfboundingboxwidth by \mdf@innerleftmargin@length\relax%
2692    \advance\mdfboundingboxwidth by \mdf@innerrightmargin@length\relax%
```

```
2693      \ifbool{mdf@leftline}{%
2694        \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
2695        \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
2696        \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}{}%
2697      \ifbool{mdf@rightline}{%
2698        \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
2699        \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
2700        \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}{}%
2701 %
2702      \setlength\mdfboundingboxheight{\dimexpr\ht\mdf@splitbox@one+\dp\mdf@splitbox@one\relax}%
2703      \advance\mdfboundingboxheight by \mdf@innerbottommargin@length\relax%
2704      \advance\mdfboundingboxheight by \mdf@innertopmargin@length\relax%
2705      \ifbool{mdf@topline}{%
2706        \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
2707        \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
2708        \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}{}%
2709      \ifbool{mdf@bottomline}{%
2710        \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
2711        \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
2712        \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}{}%
2713 %
2714    \setlength\mdftotallinewidth{\dimexpr\mdf@innerlinewidth@length%
2715                                +\mdf@middlelinewidth@length
2716                                +\mdf@outerlinewidth@length\relax}%
2717     \psset{unit=1truecm}%
2718     \mdf@makebox@in[\mdfboundingboxwidth]{%
2719       \null%
2720       \begin{pspicture}(0,0)(\mdfboundingboxwidth,\mdfboundingboxheight)
2721        \mdfpstricks@settings%
2722        \psset{linearc=\mdf@roundcorner@length,cornersize=absolut,}%
2723        \expandafter\psset\expandafter{\mdf@psset@local}%
2724        \pnode(\mdf@innerleftmargin@length,\mdf@innerbottommargin@length){mdf@A}
2725        \pnode(0,0){mdf@O}
2726        \pnode(\mdfboundingboxwidth,\mdfboundingboxheight){mdf@P}
2727        \ifbool{mdf@leftline}%
2728          {%
2729          \nodexn{(mdf@A)+(\mdf@outerlinewidth@length,0)
2730                        +(\mdf@middlelinewidth@length,0)
2731                        +(\mdf@innerlinewidth@length,0)}{mdf@A}%
2732          \nodexn{(mdf@O)+(\mdf@outerlinewidth@length,0)
2733                        +0.5(\mdf@middlelinewidth@length,0)}{mdf@O}%
2734          }{}%
2735       \ifbool{mdf@rightline}%
2736          {%
2737          \nodexn{(mdf@P)-(\mdf@outerlinewidth@length,0)
2738                        -0.5(\mdf@middlelinewidth@length,0)}{mdf@P}%
2739          }{}%
2740       \ifbool{mdf@bottomline}%
2741          {%
2742          \nodexn{(mdf@A)+(0,\mdf@outerlinewidth@length)
2743                        +(0,\mdf@middlelinewidth@length)
2744                        +(0,\mdf@innerlinewidth@length)}{mdf@A}%
2745          \nodexn{(mdf@O)+(0,\mdf@outerlinewidth@length)
2746                        +0.5(0,\mdf@middlelinewidth@length)}{mdf@O}%
2747          }{}%
2748       \ifbool{mdf@topline}%
```

```
2749            {%
2750             \nodexn{(mdf@P)-(0,\mdf@outerlinewidth@length)
2751                       -0.5(0,\mdf@middlelinewidth@length)}{mdf@P}
2752            }{}%
2753         \ifbool{mdf@shadow}
2754             {\psframe[style=mdfshadow](mdf@O)(mdf@P)}{}
2755 %      \psclip{%
2756         %Four lines
2757          \mdf@test@ltrb{\mdf@pstricksbox@fl{mdf@O}{mdf@P}}{}
2758         %three lines
2759          \mdf@test@ltb{\mdf@pstricksbox@tl{(mdf@P|mdf@O)(mdf@O)(mdf@O|mdf@P)(mdf@P)}}{}
2760          \mdf@test@trb{\mdf@pstricksbox@tl{(mdf@O)(mdf@P|mdf@O)(mdf@P)(mdf@O|mdf@P)}}{}
2761          \mdf@test@ltr{\mdf@pstricksbox@tl{(mdf@O)(mdf@O|mdf@P)(mdf@P)(mdf@P|mdf@O)}}{}%
2762          \mdf@test@lrb{\mdf@pstricksbox@tl{(mdf@O|mdf@P)(mdf@O)(mdf@P|mdf@O)(mdf@P)}}{}%
2763         %two lines combinded
2764          \mdf@test@lb{\mdf@pstricksbox@tcl{(mdf@P|mdf@O)(mdf@P)(mdf@O|mdf@P)}%
2765                                        {(mdf@O|mdf@P)(mdf@O)(mdf@P|mdf@O)}}{}
2766          \mdf@test@rb{\mdf@pstricksbox@tcl{(mdf@P)(mdf@O|mdf@P)(mdf@O)}%
2767                                        {(mdf@O)(mdf@P|mdf@O)(mdf@P)}}{}
2768          \mdf@test@tr{\mdf@pstricksbox@tcl{(mdf@P|mdf@O)(mdf@O)(mdf@O|mdf@P)}%
2769                                        {(mdf@O|mdf@P)(mdf@P)(mdf@P|mdf@O)}}{}
2770          \mdf@test@lt{\mdf@pstricksbox@tcl{(mdf@O)(mdf@P|mdf@O)(mdf@P)}%
2771                                        {(mdf@O)(mdf@O|mdf@P)(mdf@P)}}{}
2772         %two lines not combinded combinded
2773          \mdf@test@lr{\mdf@pstricksbox@tncl{(mdf@O|mdf@P)}{(mdf@P|mdf@O)}
2774                     }{}
2775          \mdf@test@tb{\mdf@pstricksbox@tncl{(mdf@P|mdf@O)}{(mdf@O|mdf@P)}
2776                     }{}
2777        %single line
2778          \mdf@test@l{\mdf@pstricksbox@ol{(mdf@O)(mdf@O|mdf@P)}}{}
2779          \mdf@test@r{\mdf@pstricksbox@ol{(mdf@P)(mdf@P|mdf@O)}}{}
2780          \mdf@test@t{\mdf@pstricksbox@ol{(mdf@P)(mdf@O|mdf@P)}}{}
2781          \mdf@test@b{\mdf@pstricksbox@ol{(mdf@O)(mdf@P|mdf@O)}}{}
2782         %no line
2783          \mdf@test@noline{\psframe[style=mdfbackgroundstyle](mdf@O)(mdf@P)}{}
2784 %         }
2785         %Frametitlebackground
2786          \drawbrackgroundframetitle@single
2787        %output%
2788          \rput[bl](mdf@A){\box\mdf@splitbox@one}
2789 %          \psdot(mdf@A)\uput[90](mdf@A){mdf at A}
2790 %          \psdot(mdf@P)\uput[90](mdf@P){mdf at P}
2791 %          \psdot(mdf@O)\uput[90](mdf@O){mdf at O}
2792 %
2793 %          \endpsclip
2794          \mdf@singleextra
2795        \end{pspicture}%
2796     }%
2797    \mdf@makeboxalign@right%
2798  }%
2799  \fi
2800 }%
2801 \def\drawbrackgroundframetitle@single{%
2802 \ifdefempty{\mdf@frametitle}{}{%
2803    \drawbrackgroundframetitle@@single%
2804 }%
```

```
2805 }%
2806 \def\drawbrackgroundframetitle@@single{%
2807   \begingroup%
2808   \ifbool{mdf@leftline}{%
2809       \nodexn{(mdf@O)+(\mdf@innerlinewidth@length,0)
2810             +0.5(\mdf@middlelinewidth@length,0)}{mdf@O}%
2811       }{}%
2812   \ifbool{mdf@rightline}{%
2813       \nodexn{(mdf@P)-(\mdf@innerlinewidth@length,0)
2814             -0.5(\mdf@middlelinewidth@length,0)}{mdf@P}%
2815       }{}%
2816   \ifbool{mdf@topline}{%
2817       \nodexn{(mdf@P)-(0,\mdf@innerlinewidth@length)
2818             -0.5(0,\mdf@middlelinewidth@length)}{mdf@P}%
2819       }{}%
2820   \nodexn{(mdf@P)-(0,\mdfframetitleboxtotalheight)}{mdf@F}%
2821   \psline[style=mdfframetitlebackgroundstyle](mdf@O|mdf@F)(mdf@O|mdf@P)
2822                                           (mdf@P)(mdf@P|mdf@F)%
2823   \endgroup
2824 }
```

\mdf@putbox@first

First output

```
2825 \def\mdf@putbox@first{%
2826   \ifvoid\mdf@splitbox@two
2827   \else%
2828    \mdf@makebox@out{%
2829      \mdf@makeboxalign@left%
2830      %\ifbool{mdf@leftline}{\hspace*{\mdf@middlelinewidth@length}}{}%
2831    \setlength\mdfboundingboxwidth{\wd\mdf@splitbox@two}%
2832    \advance\mdfboundingboxwidth by \mdf@innerleftmargin@length\relax%
2833    \advance\mdfboundingboxwidth by \mdf@innerrightmargin@length\relax%
2834    \ifbool{mdf@leftline}{%
2835      \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
2836      \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
2837      \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}{}%
2838    \ifbool{mdf@rightline}{%
2839      \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
2840      \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
2841      \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}{}%
2842    \setlength\mdfboundingboxheight{\dimexpr\ht\mdf@splitbox@two+\dp\mdf@splitbox@two\relax}%
2843    \advance\mdfboundingboxheight by \mdf@innertopmargin@length\relax%
2844    \advance\mdfboundingboxheight by \mdf@splitbottomskip@length\relax%
2845    \ifbool{mdf@topline}{%
2846      \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
2847      \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
2848      \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}{}%
2849 %%%%%%%%
2850      \ifbool{mdf@everyline}{%
2851      \ifbool{mdf@bottomline}{%
2852      \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
2853      \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
2854      \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}{}%
2855      }{}%
```

```
2856 %%%%%%%%%%%%%
2857     \psset{linearc=\mdf@roundcorner@length,cornersize=absolute}%
2858     \expandafter\psset\expandafter{\mdf@psset@local}%
2859     \mdf@makebox@in[\mdfboundingboxwidth]{%
2860      \null%
2861      \psset{unit=1truecm}%
2862      \ifdimgreater{\mdfboundingboxheight}{\vsize}
2863      {\begin{pspicture}(0,0)(\mdfboundingboxwidth,\vsize)}
2864      {\begin{pspicture}(0,0)(\mdfboundingboxwidth,\mdfboundingboxheight)}
2865       \mdfpstricks@settings%
2866       \psset{linearc=\mdf@roundcorner@length,cornersize=absolut,}%
2867       \expandafter\psset\expandafter{\mdf@psset@local}%
2868       \pnode(\mdf@innerleftmargin@length,\mdf@splitbottomskip@length){mdf@A}
2869       \pnode(0,0){mdf@O}
2870       \pnode(\mdfboundingboxwidth,\mdfboundingboxheight){mdf@P}
2871       \ifbool{mdf@leftline}%
2872         {%
2873         \nodexn{(mdf@A)+(\mdf@outerlinewidth@length,0)
2874                        +(\mdf@middlelinewidth@length,0)
2875                        +(\mdf@innerlinewidth@length,0)}{mdf@A}
2876         \nodexn{(mdf@O)+(\mdf@outerlinewidth@length,0)
2877                        +0.5(\mdf@middlelinewidth@length,0)}{mdf@O}
2878         }{}%
2879       \ifbool{mdf@rightline}%
2880         {%
2881          \nodexn{(mdf@P)-(\mdf@outerlinewidth@length,0)
2882                         -0.5(\mdf@middlelinewidth@length,0)}{mdf@P}
2883         }{}%
2884       \ifbool{mdf@topline}%
2885         {%
2886          \nodexn{(mdf@P)-(0,\mdf@outerlinewidth@length)
2887                         -0.5(0,\mdf@middlelinewidth@length)}{mdf@P}
2888         }{}%
2889 %%%%%%%%%%
2890       \ifbool{mdf@everyline}{%
2891        \ifbool{mdf@bottomline}%
2892          {%
2893          \nodexn{(mdf@A)+(0,\mdf@outerlinewidth@length)
2894                         +(0,\mdf@middlelinewidth@length)
2895                         +(0,\mdf@innerlinewidth@length)}{mdf@A}%
2896          \nodexn{(mdf@O)+(0,\mdf@outerlinewidth@length)
2897                         +0.5(0,\mdf@middlelinewidth@length)}{mdf@O}%
2898          }{}%
2899        }{}%
2900 %%%%%%%%%%
2901       \ifbool{mdf@shadow}
2902          {\pscustom[style=mdfshadow,linestyle=none]{%
2903               \psline[linejoin=2,linecap=1,](mdf@P|mdf@O)(mdf@P)(mdf@O|mdf@P)%
2904               \psline[linejoin=2,linecap=1,linearc=\z@](mdf@O|mdf@P)(mdf@O)(mdf@P|mdf@O)
2905               \closedshadow
2906               }
2907          }{}
2908 %      \psclip{
2909 %%%%%%%%%%%%%
2910      \ifbool{mdf@everyline}{%
2911          %Four lines
```

```
2912            \mdf@test@ltrb{\mdf@pstricksbox@fl{mdf@O}{mdf@P}}{}
2913          %three lines
2914           \mdf@test@ltb{\mdf@pstricksbox@tl{(mdf@P|mdf@O)(mdf@O)(mdf@O|mdf@P)(mdf@P)}}{}
2915           \mdf@test@trb{\mdf@pstricksbox@tl{(mdf@O)(mdf@P|mdf@O)(mdf@P)(mdf@O|mdf@P)}}{}
2916           \mdf@test@ltr{\mdf@pstricksbox@tl{(mdf@O)(mdf@O|mdf@P)(mdf@P)(mdf@P|mdf@O)}}{}%
2917           \mdf@test@lrb{\mdf@pstricksbox@tl{(mdf@O|mdf@P)(mdf@O)(mdf@P|mdf@O)(mdf@P)}}{}%
2918          %two lines combinded
2919           \mdf@test@lb{\mdf@pstricksbox@tcl{(mdf@P|mdf@O)(mdf@P)(mdf@O|mdf@P)}%
2920                                            {(mdf@O|mdf@P)(mdf@O)(mdf@P|mdf@O)}}{}
2921           \mdf@test@rb{\mdf@pstricksbox@tcl{(mdf@P)(mdf@O|mdf@P)(mdf@O)}%
2922                                            {(mdf@O)(mdf@P|mdf@O)(mdf@P)}}{}
2923           \mdf@test@tr{\mdf@pstricksbox@tcl{(mdf@P|mdf@O)(mdf@O)(mdf@O|mdf@P)}%
2924                                            {(mdf@O|mdf@P)(mdf@P)(mdf@P|mdf@O)}}{}
2925           \mdf@test@lt{\mdf@pstricksbox@tcl{(mdf@O)(mdf@P|mdf@O)(mdf@P)}%
2926                                            {(mdf@O)(mdf@O|mdf@P)(mdf@P)}}{}
2927          %two lines not combinded combinded
2928           \mdf@test@lr{\mdf@pstricksbox@tncl{(mdf@O|mdf@P)}{(mdf@P|mdf@O)}
2929                       }{}
2930           \mdf@test@tb{\mdf@pstricksbox@tncl{(mdf@P|mdf@O)}{(mdf@O|mdf@P)}
2931                       }{}
2932         %single line
2933          \mdf@test@l{\mdf@pstricksbox@ol{(mdf@O)(mdf@O|mdf@P)}}{}
2934          \mdf@test@r{\mdf@pstricksbox@ol{(mdf@P)(mdf@P|mdf@O)}}{}
2935          \mdf@test@t{\mdf@pstricksbox@ol{(mdf@P)(mdf@O|mdf@P)}}{}
2936          \mdf@test@b{\mdf@pstricksbox@ol{(mdf@O)(mdf@P|mdf@O)}}{}
2937         %no line
2938          \mdf@test@noline{\psframe[style=mdfbackgroundstyle](mdf@O)(mdf@P)}{}%
2939       }{%
2940        %Four or Three lines
2941         \ifboolexpr{test {\mdf@test@ltrb} or test {\mdf@test@ltr}}%
2942         {\mdf@pstricksbox@tl{(mdf@O)(mdf@O|mdf@P)(mdf@P)(mdf@P|mdf@O)}}%
2943         {}%
2944        %two combinded lines
2945        \ifboolexpr{test {\mdf@test@ltb} or test {\mdf@test@lt}}
2946                 {\mdf@pstricksbox@tcl{(mdf@O)(mdf@P|mdf@O)(mdf@P)}%
2947                                      {(mdf@O)(mdf@O|mdf@P)(mdf@P)}}{}
2948        \ifboolexpr{test {\mdf@test@trb} or test {\mdf@test@tr}}%
2949                 {\mdf@pstricksbox@tcl{(mdf@P|mdf@O)(mdf@O)(mdf@O|mdf@P)}%
2950                                      {(mdf@O|mdf@P)(mdf@P)(mdf@P|mdf@O)}}{}
2951        %two not combinded lines
2952        \ifboolexpr{test {\mdf@test@lrb} or test {\mdf@test@lr}}%
2953                 {\mdf@pstricksbox@tncl{(mdf@O|mdf@P)}{(mdf@P|mdf@O)}}{}
2954        %single line
2955        \ifboolexpr{test {\mdf@test@tb} or test {\mdf@test@t}}%
2956                 {\mdf@pstricksbox@ol{(mdf@P)(mdf@O|mdf@P)}}{}
2957        \ifboolexpr{test {\mdf@test@lb} or test {\mdf@test@l}}%
2958                 {\mdf@pstricksbox@ol{(mdf@O)(mdf@O|mdf@P)}}{}
2959        \ifboolexpr{test {\mdf@test@rb} or test {\mdf@test@r}}%
2960                 {\mdf@pstricksbox@ol{(mdf@P)(mdf@P|mdf@O)}}{}
2961        %no line
2962        \mdf@test@b{\psframe[style=mdfbackgroundstyle](mdf@O)(mdf@P)}{}%
2963        \mdf@test@noline{\psframe[style=mdfbackgroundstyle](mdf@O)(mdf@P)}{}%
2964      }%
2965 %    }
2966      %Frametitlebackground
2967       \drawbrackgroundframetitle@first
```

```
2968        %output%
2969         \rput[bl](mdf@A){\box\mdf@splitbox@two}
2970 %        \psdot(mdf@A)\uput[90](mdf@A){mdf at A}
2971 %        \psdot(mdf@P)\uput[90](mdf@P){mdf at P}
2972 %        \psdot(mdf@O)\uput[90](mdf@O){mdf at O}
2973 %      \endpsclip
2974        \mdf@firstextra
2975       \end{pspicture}
2976     }%
2977    \mdf@makeboxalign@right%
2978   }%
2979 \fi
2980 }%
2981 \def\drawbrackgroundframetitle@first{%
2982 \ifdefempty{\mdf@frametitle}{}{%
2983   \ifdimgreater{\mdfboundingboxheight}{\mdfframetitleboxtotalheight}%
2984   {%
2985    \drawbrackgroundframetitle@@first
2986    \global\mdfframetitleboxtotalheight=-\p@%
2987   }{\mdf@PackageWarning{You got a page break inside the frame title\MessageBreak
2988                    Currently this isn't well supported}%
2989     \drawbrackgroundframetitle@@first
2990     \global\mdfframetitleboxtotalheight=\dimexpr\mdfframetitleboxtotalheight
2991                   -\mdfboundingboxheight
2992                   -\mdf@innerlinewidth@length-0.5\mdf@middlelinewidth@length%
2993                   +\mdf@frametitlebelowskip@length+\mdf@splitbottomskip@length
2994                   +\mdf@splittopskip@length
2995                   +\dp\strutbox\relax%
2996   }%
2997 }%
2998 }%
2999 \def\drawbrackgroundframetitle@@first{%
3000 \begingroup%
3001  \ifbool{mdf@leftline}{%
3002      \nodexn{(mdf@O)+(\mdf@innerlinewidth@length,0)
3003             +0.5(\mdf@middlelinewidth@length,0)}{mdf@O}%
3004      }{}%
3005  \ifbool{mdf@rightline}{%
3006      \nodexn{(mdf@P)-(\mdf@innerlinewidth@length,0)
3007             -0.5(\mdf@middlelinewidth@length,0)}{mdf@P}%
3008      }{}%
3009  \ifbool{mdf@topline}{%
3010      \nodexn{(mdf@P)-(0,\mdf@innerlinewidth@length)
3011             -0.5(0,\mdf@middlelinewidth@length)}{mdf@P}%
3012      }{}%
3013 \ifdimgreater{\mdfboundingboxheight}{\mdfframetitleboxtotalheight}
3014    {\nodexn{(mdf@P)-(0,\mdfframetitleboxtotalheight)}{mdf@F}}%
3015    {\nodexn{(mdf@O)}{mdf@F}}%
3016  \psline[style=mdfframetitlebackgroundstyle](mdf@O|mdf@F)(mdf@O|mdf@P)
3017                                            (mdf@P)(mdf@P|mdf@F)%
3018 \endgroup
3019 }
```

\mdf@putbox@middle

Middle output

```
3020 \def\mdf@putbox@middle{%
3021   \ifvoid\mdf@splitbox@two
3022   \else%
3023    \mdf@makebox@out{%
3024     \mdf@makeboxalign@left%
3025 %     \ifbool{mdf@leftline}{\hspace*{\mdf@middlelinewidth@length}}{}%
3026     \setlength\mdfboundingboxwidth{\wd\mdf@splitbox@two}%
3027     \advance\mdfboundingboxwidth by \mdf@innerleftmargin@length\relax%
3028     \advance\mdfboundingboxwidth by \mdf@innerrightmargin@length\relax%
3029     \ifbool{mdf@leftline}{%
3030       \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
3031       \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
3032       \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}{}%
3033     \ifbool{mdf@rightline}{%
3034       \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
3035       \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
3036       \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}{}%
3037     \setlength\mdfboundingboxheight{\dimexpr\ht\mdf@splitbox@two+\dp\mdf@splitbox@two\relax}%
3038     \advance\mdfboundingboxheight by \mdf@splitbottomskip@length\relax%
3039 %%%%%%%%%
3040     \ifbool{mdf@everyline}{%
3041      \ifbool{mdf@topline}{%
3042      \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
3043      \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
3044      \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}{}%
3045      \ifbool{mdf@bottomline}{%
3046      \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
3047      \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
3048      \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}{}%
3049     }{}%
3050 %%%%%%%%%%%%%
3051     \psset{unit=1truecm}%
3052     \mdf@makebox@in[\mdfboundingboxwidth]{%
3053      \null%
3054      \ifdimgreater{\mdfboundingboxheight}{\vsize}
3055       {\begin{pspicture}(0,0)(\mdfboundingboxwidth,\vsize)}
3056       {\begin{pspicture}(0,0)(\mdfboundingboxwidth,\mdfboundingboxheight)}
3057        \mdfpstricks@settings%
3058        \psset{linearc=0pt,cornersize=absolut,}%
3059        \expandafter\psset\expandafter{\mdf@psset@local}%
3060        %%%%
3061        \pnode(\mdf@innerleftmargin@length,\mdf@splitbottomskip@length){mdf@A}
3062        \pnode(0,0){mdf@O}
3063        \pnode(\mdfboundingboxwidth,\mdfboundingboxheight){mdf@P}
3064        \ifbool{mdf@leftline}%
3065         {%
3066         \nodexn{(mdf@A)+(\mdf@outerlinewidth@length,0)
3067                     +(\mdf@middlelinewidth@length,0)
3068                     +(\mdf@innerlinewidth@length,0)}{mdf@A}
3069         \nodexn{(mdf@O)+(\mdf@outerlinewidth@length,0)
3070                     +0.5(\mdf@middlelinewidth@length,0)}{mdf@O}
3071        }{}%
3072        \ifbool{mdf@rightline}%
3073         {%
3074          \nodexn{(mdf@P)-(\mdf@outerlinewidth@length,0)
```

```
3075                          -0.5(\mdf@middlelinewidth@length,0)}{mdf@P}
3076          }{}%
3077       %%
3078 %%%%%%%%%%
3079       \ifbool{mdf@everyline}{%
3080        \ifbool{mdf@bottomline}%
3081          {%
3082           \nodexn{(mdf@A)+(0,\mdf@outerlinewidth@length)
3083                           +(0,\mdf@middlelinewidth@length)
3084                           +(0,\mdf@innerlinewidth@length)}{mdf@A}%
3085           \nodexn{(mdf@O)+(0,\mdf@outerlinewidth@length)
3086                           +0.5(0,\mdf@middlelinewidth@length)}{mdf@O}%
3087          }{}%
3088        \ifbool{mdf@topline}%
3089          {%
3090           \nodexn{(mdf@P)-(0,\mdf@outerlinewidth@length)
3091                            -0.5(0,\mdf@middlelinewidth@length)}{mdf@P}
3092          }{}%
3093        }{}%
3094 %%%%%%%%%
3095        %%
3096       \ifbool{mdf@shadow}
3097          {\psframe[style=mdfshadow](mdf@O)(mdf@P)}{}
3098 %%%%%%%%%%%%
3099     \ifbool{mdf@everyline}{%
3100         %Four lines
3101          \mdf@test@ltrb{\mdf@pstricksbox@fl{mdf@O}{mdf@P}}{}
3102         %three lines
3103          \mdf@test@ltb{\mdf@pstricksbox@tl{(mdf@P|mdf@O)(mdf@O)(mdf@O|mdf@P)(mdf@P)}}{}
3104          \mdf@test@trb{\mdf@pstricksbox@tl{(mdf@O)(mdf@P|mdf@O)(mdf@P)(mdf@O|mdf@P)}}{}
3105          \mdf@test@ltr{\mdf@pstricksbox@tl{(mdf@O)(mdf@O|mdf@P)(mdf@P)(mdf@P|mdf@O)}}{}%
3106          \mdf@test@lrb{\mdf@pstricksbox@tl{(mdf@O|mdf@P)(mdf@O)(mdf@P|mdf@O)(mdf@P)}}{}%
3107         %two lines combinded
3108          \mdf@test@lb{\mdf@pstricksbox@tcl{(mdf@P|mdf@O)(mdf@P)(mdf@O|mdf@P)}%
3109                                            {(mdf@O|mdf@P)(mdf@O)(mdf@P|mdf@O)}}{}
3110          \mdf@test@rb{\mdf@pstricksbox@tcl{(mdf@P)(mdf@O|mdf@P)(mdf@O)}%
3111                                            {(mdf@O)(mdf@P|mdf@O)(mdf@P)}}{}
3112          \mdf@test@tr{\mdf@pstricksbox@tcl{(mdf@P|mdf@O)(mdf@O)(mdf@O|mdf@P)}%
3113                                            {(mdf@O|mdf@P)(mdf@P)(mdf@P|mdf@O)}}{}
3114          \mdf@test@lt{\mdf@pstricksbox@tcl{(mdf@O)(mdf@P|mdf@O)(mdf@P)}%
3115                                            {(mdf@O)(mdf@O|mdf@P)(mdf@P)}}{}
3116         %two lines not combinded combinded
3117          \mdf@test@lr{\mdf@pstricksbox@tncl{(mdf@O|mdf@P)}{(mdf@P|mdf@O)}
3118                      }{}
3119          \mdf@test@tb{\mdf@pstricksbox@tncl{(mdf@P|mdf@O)}{(mdf@O|mdf@P)}
3120                      }{}
3121        %single line
3122          \mdf@test@l{\mdf@pstricksbox@ol{(mdf@O)(mdf@O|mdf@P)}}{}
3123          \mdf@test@r{\mdf@pstricksbox@ol{(mdf@P)(mdf@P|mdf@O)}}{}
3124          \mdf@test@t{\mdf@pstricksbox@ol{(mdf@P)(mdf@O|mdf@P)}}{}
3125          \mdf@test@b{\mdf@pstricksbox@ol{(mdf@O)(mdf@P|mdf@O)}}{}
3126        %no line
3127          \mdf@test@noline{\psframe[style=mdfbackgroundstyle](mdf@O)(mdf@P)}{}%
3128     }{%
3129      \ifboolexpr{bool {mdf@leftline} and bool {mdf@rightline}}%
3130              {\mdf@pstricksbox@tncl{(mdf@O|mdf@P)}{(mdf@P|mdf@O)}}{}%
```

```
3131        \ifboolexpr{bool {mdf@leftline} and not (bool {mdf@rightline})}%
3132                {\mdf@pstricksbox@ol{(mdf@O)(mdf@O|mdf@P)}}{}%
3133        \ifboolexpr{not (bool {mdf@leftline}) and bool {mdf@rightline}}%
3134                {\mdf@pstricksbox@ol{(mdf@P)(mdf@P|mdf@O)}}{}%
3135        \ifboolexpr{not (bool {mdf@leftline}) and not (bool {mdf@rightline})}%
3136                {\psframe[style=mdfbackgroundstyle](mdf@O)(mdf@P)}{}%
3137      }%
3138      %Frametitlebackground
3139        \drawbrackgroundframetitle@middle
3140      %output%
3141        \rput[bl](mdf@A){\box\mdf@splitbox@two}
3142 %      \psdot(mdf@A)\uput[90](mdf@A){mdf at A}
3143 %      \psdot(mdf@P)\uput[90](mdf@P){mdf at P}
3144 %      \psdot(mdf@O)\uput[90](mdf@O){mdf at O}
3145      \mdf@middleextra
3146     \end{pspicture}%
3147    }%
3148   \mdf@makeboxalign@right%
3149  }%
3150 \fi
3151 }%
3152 \def\drawbrackgroundframetitle@middle{%
3153 \ifdefempty{\mdf@frametitle}{}{%
3154   \ifdimless{\mdfframetitleboxtotalheight}{\z@}
3155   {}{%
3156     \drawbrackgroundframetitle@@middle
3157     \global\mdfframetitleboxtotalheight=-\p@\relax%
3158   }%
3159  }%
3160 }%
3161 \def\drawbrackgroundframetitle@@middle{%
3162 \begingroup%
3163  \ifbool{mdf@leftline}{%
3164        \nodexn{(mdf@O)+(\mdf@innerlinewidth@length,0)
3165               +0.5(\mdf@middlelinewidth@length,0)}{mdf@O}%
3166        }{}%
3167  \ifbool{mdf@rightline}{%
3168        \nodexn{(mdf@P)-(\mdf@innerlinewidth@length,0)
3169               -0.5(\mdf@middlelinewidth@length,0)}{mdf@P}%
3170        }{}%
3171  \nodexn{(mdf@P)-(0,\mdfframetitleboxtotalheight)}{mdf@F}%
3172  \psline[style=mdfframetitlebackgroundstyle,linearc=\z@](mdf@O|mdf@F)(mdf@O|mdf@P)
3173                                                (mdf@P)(mdf@P|mdf@F)%
3174  \endgroup
3175 }
```

\mdf@putbox@second

Last output

```
3176 \def\mdf@putbox@second{
3177   \ifvoid\mdf@splitbox@one
3178   \else%
3179    \mdf@makebox@out{%
3180      \mdf@makeboxalign@left%
3181 %      \ifbool{mdf@leftline}{\hspace*{\mdf@middlelinewidth@length}}{}%
```

```
3182      \setlength\mdfboundingboxwidth{\wd\mdf@splitbox@one}%
3183      \advance\mdfboundingboxwidth by \mdf@innerleftmargin@length\relax%
3184      \advance\mdfboundingboxwidth by \mdf@innerrightmargin@length\relax%
3185      \ifbool{mdf@leftline}{%
3186        \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
3187        \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
3188        \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}{}%
3189      \ifbool{mdf@rightline}{%
3190        \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
3191        \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
3192        \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}{}%
3193      \setlength\mdfboundingboxheight{\dimexpr\ht\mdf@splitbox@one+\dp\mdf@splitbox@one\relax}%
3194      \advance\mdfboundingboxheight by \mdf@innerbottommargin@length\relax%
3195      \ifbool{mdf@bottomline}{%
3196        \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
3197        \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
3198        \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}{}%
3199 %%%%%%%%%
3200      \ifbool{mdf@everyline}{%
3201       \ifbool{mdf@topline}{%
3202        \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
3203        \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
3204        \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}{}%
3205      }{}%
3206 %%%%%%%%%%%%
3207      \psset{unit=1truecm}%
3208     \mdf@makebox@in[\mdfboundingboxwidth]{%
3209        \null%
3210        \begin{pspicture}(0,0)(\mdfboundingboxwidth,\mdfboundingboxheight)
3211         \mdfpstricks@settings%
3212         \psset{linearc=\mdf@roundcorner@length,cornersize=absolut,}%
3213         \expandafter\psset\expandafter{\mdf@psset@local}%
3214         \pnode(\mdf@innerleftmargin@length,\mdf@innerbottommargin@length){mdf@A}
3215         \pnode(0,0){mdf@O}
3216         \pnode(\mdfboundingboxwidth,\mdfboundingboxheight){mdf@P}
3217         \ifbool{mdf@leftline}%
3218           {%
3219           \nodexn{(mdf@A)+(\mdf@outerlinewidth@length,0)
3220                         +(\mdf@middlelinewidth@length,0)
3221                         +(\mdf@innerlinewidth@length,0)}{mdf@A}
3222           \nodexn{(mdf@O)+(\mdf@outerlinewidth@length,0)
3223                         +0.5(\mdf@middlelinewidth@length,0)}{mdf@O}
3224         }{}%
3225         \ifbool{mdf@rightline}%
3226           {%
3227           \nodexn{(mdf@P)-(\mdf@outerlinewidth@length,0)
3228                         -0.5(\mdf@middlelinewidth@length,0)}{mdf@P}
3229         }{}%
3230         \ifbool{mdf@bottomline}%
3231           {%
3232           \nodexn{(mdf@A)+(0,\mdf@outerlinewidth@length)
3233                         +(0,\mdf@middlelinewidth@length)
3234                         +(0,\mdf@innerlinewidth@length)}{mdf@A}
3235           \nodexn{(mdf@O)+(0,\mdf@outerlinewidth@length)
3236                         +0.5(0,\mdf@middlelinewidth@length)}{mdf@O}
3237         }{}%
```

```
3238 %%%%%%%%%
3239      \ifbool{mdf@everyline}{%
3240       \ifbool{mdf@topline}%
3241         {%
3242          \nodexn{(mdf@P)-(0,\mdf@outerlinewidth@length)
3243                       -0.5(0,\mdf@middlelinewidth@length)}{mdf@P}
3244         }{}%
3245       }{}%
3246 %%%%%%%%%
3247      %%
3248       \ifbool{mdf@shadow}
3249         {\pscustom[style=mdfshadow,linestyle=none]{%
3250              \psline[linejoin=2,linecap=1,](mdf@O|mdf@P)(mdf@O)(mdf@P|mdf@O)(mdf@P)%
3251              \psline[linejoin=2,linecap=1,linearc=\z@](mdf@O|mdf@P)(mdf@P)
3252              \closedshadow
3253              }
3254         }{}
3255 %%%%%%%%%%%%%
3256    \ifbool{mdf@everyline}{%
3257       %Four lines
3258        \mdf@test@ltrb{\mdf@pstricksbox@fl{mdf@O}{mdf@P}}{}
3259       %three lines
3260        \mdf@test@ltb{\mdf@pstricksbox@tl{(mdf@P|mdf@O)(mdf@O)(mdf@O|mdf@P)(mdf@P)}}{}
3261        \mdf@test@trb{\mdf@pstricksbox@tl{(mdf@O)(mdf@P|mdf@O)(mdf@P)(mdf@O|mdf@P)}}{}
3262        \mdf@test@ltr{\mdf@pstricksbox@tl{(mdf@O)(mdf@O|mdf@P)(mdf@P)(mdf@P|mdf@O)}}{}%
3263        \mdf@test@lrb{\mdf@pstricksbox@tl{(mdf@O|mdf@P)(mdf@O)(mdf@P|mdf@O)(mdf@P)}}{}%
3264       %two lines combinded
3265        \mdf@test@lb{\mdf@pstricksbox@tcl{(mdf@P|mdf@O)(mdf@P)(mdf@O|mdf@P)}%
3266                                       {(mdf@O|mdf@P)(mdf@O)(mdf@P|mdf@O)}}{}
3267        \mdf@test@rb{\mdf@pstricksbox@tcl{(mdf@P)(mdf@O|mdf@P)(mdf@O)}%
3268                                       {(mdf@O)(mdf@P|mdf@O)(mdf@P)}}{}
3269        \mdf@test@tr{\mdf@pstricksbox@tcl{(mdf@P|mdf@O)(mdf@O)(mdf@O|mdf@P)}%
3270                                       {(mdf@O|mdf@P)(mdf@P)(mdf@P|mdf@O)}}{}
3271        \mdf@test@lt{\mdf@pstricksbox@tcl{(mdf@O)(mdf@P|mdf@O)(mdf@P)}%
3272                                       {(mdf@O)(mdf@O|mdf@P)(mdf@P)}}{}
3273       %two lines not combinded combinded
3274        \mdf@test@lr{\mdf@pstricksbox@tncl{(mdf@O|mdf@P)}{(mdf@P|mdf@O)}
3275                    }{}
3276        \mdf@test@tb{\mdf@pstricksbox@tncl{(mdf@P|mdf@O)}{(mdf@O|mdf@P)}
3277                    }{}
3278       %single line
3279        \mdf@test@l{\mdf@pstricksbox@ol{(mdf@O)(mdf@O|mdf@P)}}{}
3280        \mdf@test@r{\mdf@pstricksbox@ol{(mdf@P)(mdf@P|mdf@O)}}{}
3281        \mdf@test@t{\mdf@pstricksbox@ol{(mdf@P)(mdf@O|mdf@P)}}{}
3282        \mdf@test@b{\mdf@pstricksbox@ol{(mdf@O)(mdf@P|mdf@O)}}{}
3283       %no line
3284        \mdf@test@noline{\psframe[style=mdfbackgroundstyle](mdf@O)(mdf@P)}{}%
3285    }{%
3286     %Four + Three
3287     \ifboolexpr{test {\mdf@test@ltrb} or test {\mdf@test@lrb}}%
3288        {\mdf@pstricksbox@tl{(mdf@O|mdf@P)(mdf@O)(mdf@P|mdf@O)(mdf@P)}}{}%
3289     %Two combinded
3290     \ifboolexpr{test {\mdf@test@ltb} or test {\mdf@test@lb}}%
3291        {\mdf@pstricksbox@tcl{(mdf@P|mdf@O)(mdf@P)(mdf@O|mdf@P)}%
3292                                       {(mdf@O|mdf@P)(mdf@O)(mdf@P|mdf@O)}}{}
3293     \ifboolexpr{test {\mdf@test@trb} or test {\mdf@test@rb}}%
```

```
3294          {\mdf@pstricksbox@tcl{(mdf@P)(mdf@O|mdf@P)(mdf@O)}%
3295                                      {(mdf@O)(mdf@P|mdf@O)(mdf@P)}}{}
3296       %Two not combinded
3297        \ifboolexpr{test {\mdf@test@ltr} or test {\mdf@test@lr}}%
3298          {\mdf@pstricksbox@tncl{(mdf@O|mdf@P)}{(mdf@P|mdf@O)}}{}%
3299       %one line
3300        \ifboolexpr{test {\mdf@test@tb} or test {\mdf@test@b}}%
3301          {\mdf@pstricksbox@ol{(mdf@O)(mdf@P|mdf@O)}}{}
3302        \ifboolexpr{test {\mdf@test@lt} or test {\mdf@test@l}}%
3303          {\mdf@pstricksbox@ol{(mdf@O)(mdf@O|mdf@P)}}{}
3304        \ifboolexpr{test {\mdf@test@tr} or test {\mdf@test@r}}%
3305          {\mdf@pstricksbox@ol{(mdf@P)(mdf@P|mdf@O)}}{}
3306       %no line
3307        \mdf@test@t{\psframe[style=mdfbackgroundstyle](mdf@O)(mdf@P)}{}%
3308        \mdf@test@noline{\psframe[style=mdfbackgroundstyle](mdf@O)(mdf@P)}{}%
3309      }%
3310      %Frametitlebackground
3311        \drawbrackgroundframetitle@second
3312       %output%
3313        \rput[bl](mdf@A){\box\mdf@splitbox@one}
3314       \mdf@secondextra
3315 %      \psdot(mdf@A)\uput[90](mdf@A){mdf at A}
3316 %      \psdot(mdf@P)\uput[90](mdf@P){mdf at P}
3317 %      \psdot(mdf@O)\uput[90](mdf@O){mdf at O}
3318      \end{pspicture}%
3319      }%
3320     \mdf@makeboxalign@right%
3321   }%
3322  \fi
3323 }%
3324 \def\drawbrackgroundframetitle@second{%
3325  \ifdefempty{\mdf@frametitle}{}{%
3326    \ifdimless{\mdfframetitleboxtotalheight}{\z@}
3327   {}{%
3328     \drawbrackgroundframetitle@@second
3329   }%
3330  }%
3331 }%
3332 \def\drawbrackgroundframetitle@@second{%
3333  \begingroup%
3334   \ifbool{mdf@leftline}{%
3335       \nodexn{(mdf@O)+(\mdf@innerlinewidth@length,0)
3336             +0.5(\mdf@middlelinewidth@length,0)}{mdf@O}%
3337       }{}%
3338   \ifbool{mdf@rightline}{%
3339       \nodexn{(mdf@P)-(\mdf@innerlinewidth@length,0)
3340             -0.5(\mdf@middlelinewidth@length,0)}{mdf@P}%
3341       }{}%
3342   \nodexn{(mdf@P)-(0,\mdfframetitleboxtotalheight)}{mdf@F}%
3343   \psline[style=mdfframetitlebackgroundstyle,linearc=\z@](mdf@O|mdf@F)(mdf@O|mdf@P)
3344                                          (mdf@P)(mdf@P|mdf@F)%
3345  \endgroup
3346 }
```

```
3347  \endinput
3348 %eof
```

C. The file mdframed-example-default

```
3349 %Documenation of the package mdframed
3350 %%$Id: mdframed.dtx 378 2012-04-13 07:55:45Z marco $
3351 \setcounter{errorcontextlines}{999}
3352 \documentclass[parskip=false,english,11pt]{ltxmdf}
3353 \ltxmdfsetifoot  $Id: mdframed.dtx 378 2012-04-13 07:55:45Z marco $
3354
3355 \usepackage{showexpl}
3356 \lstset{style=lstltxmdf,explpreset={pos=b,rframe={}},}
3357
3358 \newcommand\Loadedframemethod{default}
3359 \usepackage[framemethod=\Loadedframemethod]{mdframed}
3360
3361 \title{The \Pack{mdframed} package}
3362 \subtitle{Examples for \Opt{framemethod=\Loadedframemethod}}
3363 \author{\href{mailto:marco.daniel@mada-nada.de}{Marco Daniel}}
3364 \date{\mdfdateID$Id: mdframed.dtx 378 2012-04-13 07:55:45Z marco $}
3365 \version{\mdversion}
3366 \introduction{In this document I collect various examples for \Opt{framemethod=\Loadedframemethod}.
3367 Some presented examples are more or less exorbitant.}
3368
3369 \mdfsetup{skipabove=\topskip,skipbelow=\topskip}
3370 \newrobustcmd\ExampleText{%
3371        An \textit{inhomogeneous linear} differential equation has the form
3372         \begin{align}
3373           L[v ] = f,
3374         \end{align}
3375       where $L$ is a linear differential operator, $v$ is
3376       the dependent variable, and $f$ is a given non-zero
3377       function of the independent variables alone.
3378 }
3379
3380 \newcounter{examplecount}
3381 \setcounter{examplecount}{0}
3382 \renewcommand\thesubsection{}
3383 \newcommand\Examplesec[1]{%
3384 \stepcounter{examplecount}%
3385 \subsection{Example~\arabic{examplecount}~-~-~#1\relax}%
3386 }
3387
3388 \begin{document}
3389 \maketitle
3390 \section{Loading}
3391 In the preamble only the package \Pack{mdframed} width the option \Opt{framemethod=\Loadedframemethod}
3392
3393 {\large\color{red!50!black}
3394 \NOTE Every \Cmd{global} inside the examples is necessary to work with the package \Pack{showexpl}.}
3395
3396 \section{Examples}
3397 All examples have the following settings:
3398
3399 \begin{tltxmdfexample}
3400 \mdfsetup{skipabove=\topskip,skipbelow=\topskip}
3401 \newrobustcmd\ExampleText{%
3402 An \textit{inhomogeneous linear} differential equation
```

```
3403 has the form
3404 \begin{align}
3405 L[v ] = f,
3406 \end{align}
3407 where $L$ is a linear differential operator, $v$ is
3408 the dependent variable, and $f$ is a given non-zero
3409 function of the independent variables alone.
3410 }
3411 \end{tltxmdfexample}
3412 \clearpage
3413 \Examplesec{very simple}
3414 \begin{LTXexample}
3415 \global\mdfdefinestyle{exampledefault}{%
3416     linecolor=red,linewidth=3pt,%
3417     leftmargin=1cm,rightmargin=1cm
3418 }
3419 \begin{mdframed}[style=exampledefault]
3420 \ExampleText
3421 \end{mdframed}
3422 \end{LTXexample}
3423
3424 \Examplesec{hidden line + frame title}
3425 \begin{LTXexample}
3426 \global\mdfapptodefinestyle{exampledefault}{%
3427  topline=false,rightline=true,bottomline=false}
3428 \begin{mdframed}[style=exampledefault,frametitle={Inhomogeneous linear}]
3429 \ExampleText
3430 \end{mdframed}
3431 \end{LTXexample}
3432 \clearpage
3433
3434 \Examplesec{colored frame title}
3435 \begin{LTXexample}
3436
3437 \global\mdfapptodefinestyle{exampledefault}{%
3438     rightline=true,innerleftmargin=10,innerrightmargin=10,
3439     frametitlerule=true,frametitlerulecolor=green,
3440     frametitlebackgroundcolor=yellow,
3441     frametitlerulewidth=2pt}
3442 \begin{mdframed}[style=exampledefault,frametitle={Inhomogeneous linear}]
3443 \ExampleText
3444 \end{mdframed}
3445 \end{LTXexample}
3446
3447 \Examplesec{framed picture which is centered}
3448 \begin{LTXexample}
3449 \begin{mdframed}[userdefinedwidth=6cm,align=center,
3450                  linecolor=blue,linewidth=4pt]
3451 \includegraphics[width=\linewidth]{donald-duck}
3452 \end{mdframed}
3453 \end{LTXexample}
3454
3455 \clearpage
3456 \Examplesec{Theorem environments}
3457 \begin{LTXexample}
3458 \mdfdefinestyle{theoremstyle}{%
```

```
3459        linecolor=red,linewidth=2pt,%
3460        frametitlerule=true,%
3461        frametitlebackgroundcolor=gray!20,
3462        innertopmargin=\topskip,
3463    }
3464 \mdtheorem[style=theoremstyle]{definition}{Definition}
3465 \begin{definition}
3466 \ExampleText
3467 \end{definition}
3468 \begin{definition}[Inhomogeneous linear]
3469 \ExampleText
3470 \end{definition}
3471 \begin{definition*}[Inhomogeneous linear]
3472 \ExampleText
3473 \end{definition*}
3474 \end{LTXexample}
3475
3476
3477 \clearpage
3478 \Examplesec{theorem with separate header and the help of TikZ (complex)}
3479 \begin{LTXexample}
3480 \newcounter{theo}[section]
3481 \newenvironment{theo}[1][]{%
3482  \stepcounter{theo}%
3483   \ifstrempty{#1}%
3484   {\mdfsetup{%
3485     frametitle={%
3486       \tikz[baseline=(current bounding box.east),outer sep=0pt]
3487        \node[anchor=east,rectangle,fill=blue!20]
3488        {\strut Theorem~\thetheo};}}
3489    }%
3490   {\mdfsetup{%
3491     frametitle={%
3492       \tikz[baseline=(current bounding box.east),outer sep=0pt]
3493        \node[anchor=east,rectangle,fill=blue!20]
3494        {\strut Theorem~\thetheo:~#1};}}%
3495    }%
3496   \mdfsetup{innertopmargin=10pt,linecolor=blue!20,%
3497            linewidth=2pt,topline=true,
3498            frametitleaboveskip=\dimexpr-\ht\strutbox\relax,}
3499   \begin{mdframed}[]\relax%
3500   }{\end{mdframed}}
3501 \begin{theo}[Inhomogeneous Linear]
3502 \ExampleText
3503 \end{theo}
3504
3505 \begin{theo}
3506 \ExampleText
3507 \end{theo}
3508 \end{LTXexample}
3509
3510 \clearpage
3511 \Examplesec{hide only a part of a line}
3512 The example below is inspired by the following post on StackExchange \href{http://tex.stackexchange.com
3513 \begin{LTXexample}
3514 \makeatletter
```

```
3515 \newlength{\interruptlength}
3516 \setlength{\interruptlength}{2.5ex}
3517 \newrobustcmd\overlaplines{%
3518  \appto\mdf@frame@leftline@single{%
3519    \llap{\color{white}%
3520      \rule[\dimexpr-\mdfboundingboxdepth+\interruptlength\relax]%
3521          {\mdf@middlelinewidth@length}%
3522          {\dimexpr\mdfboundingboxtotalheight%
3523           \ifbool{mdf@topline}{+\mdf@middlelinewidth@length}{}
3524           -2\interruptlength\relax}%
3525    }%
3526 }%
3527 \appto\mdf@frame@rightline@single{%
3528    \rlap{\color{white}%
3529      \hspace*{\mdfboundingboxwidth}%
3530      \hspace*{\mdf@innerrightmargin@length}%
3531      \rule[\dimexpr-\mdfboundingboxdepth%
3532           +\interruptlength\relax]%
3533          {\mdf@middlelinewidth@length}%
3534          {\dimexpr\mdfboundingboxtotalheight%
3535           +\ifbool{mdf@topline}{\mdf@middlelinewidth@length}{0pt}
3536           -2\interruptlength\relax}%
3537    }%
3538 }%
3539 }
3540 \makeatother
3541 \overlaplines
3542
3543 \begin{mdframed}[linecolor=blue,linewidth=8pt]
3544 \ExampleText
3545 \end{mdframed}
3546 \end{LTXexample}
3547 \end{document}
3548  \endinput
```

D. The file mdframed-example-tikz

```
3549 %Documenation of the package mdframed
3550 %%$Id: mdframed.dtx 378 2012-04-13 07:55:45Z marco $
3551 \setcounter{errorcontextlines}{999}
3552 \documentclass[parskip=false,english,11pt]{ltxmdf}
3553 \ltxmdfsetifoot  $Id: mdframed.dtx 378 2012-04-13 07:55:45Z marco $
3554
3555
3556 \usepackage{showexpl}
3557 \lstset{style=lstltxmdf,explpreset={pos=b,rframe={}},}
3558
3559 \newcommand\Loadedframemethod{TikZ}
3560 \usepackage[framemethod=\Loadedframemethod]{mdframed}
3561
3562 \title{The \Pack{mdframed} package}
3563 \subtitle{Examples for \Opt{framemethod=\Loadedframemethod}}
3564 \author{\href{mailto:marco.daniel@mada-nada.de}{Marco Daniel}}
3565 \date{\mdfdateID$Id: mdframed.dtx 378 2012-04-13 07:55:45Z marco $}
3566 \version{\mdversion}
3567 \introduction{In this document I collect various examples for \Opt{framemethod=\Loadedframemethod}.
```

```
3568 Some presented examples are more or less exorbitant.}
3569
3570 \mdfsetup{skipabove=\topskip,skipbelow=\topskip}
3571 \newrobustcmd\ExampleText{%
3572     An \textit{inhomogeneous linear} differential equation has the form
3573      \begin{align}
3574         L[v ] = f,
3575      \end{align}
3576     where $L$ is a linear differential operator, $v$ is
3577     the dependent variable, and $f$ is a given non-zero
3578     function of the independent variables alone.
3579 }
3580
3581 \newcounter{examplecount}
3582 \setcounter{examplecount}{0}
3583 \renewcommand\thesubsection{}
3584 \newcommand\Examplesec[1]{%
3585 \stepcounter{examplecount}%
3586 \subsection{Example~\arabic{examplecount}~---~#1\relax}%
3587 }
3588
3589 \begin{document}
3590 \maketitle
3591 \section{Loading}
3592 In the preamble only the package \Pack{mdframed} width the option \Opt{framemethod=\Loadedframemethod}
3593
3594 {\large\color{red!50!black}
3595 \NOTE Every \Cmd{global} inside the examples is necessary to work with the package \Pack{showexpl}.}
3596
3597 \section{Examples}
3598 All examples have the following settings:
3599
3600 \begin{tltxmdfexample}
3601 \mdfsetup{skipabove=\topskip,skipbelow=\topskip}
3602 \newrobustcmd\ExampleText{%
3603 An \textit{inhomogeneous linear} differential equation
3604 has the form
3605 \begin{align}
3606 L[v ] = f,
3607 \end{align}
3608 where $L$ is a linear differential operator, $v$ is
3609 the dependent variable, and $f$ is a given non-zero
3610 function of the independent variables alone.
3611 }
3612 \end{tltxmdfexample}
3613 \clearpage
3614 \ExampleText{round corner}
3615 \begin{LTXexample}
3616 \global\mdfdefinestyle{exampledefault}{%
3617     outerlinewidth=5pt,innerlinewidth=0pt,
3618     outerlinecolor=red,roundcorner=5pt
3619 }
3620 \begin{mdframed}[style=exampledefault]
3621 \ExampleText
3622 \end{mdframed}
3623 \end{LTXexample}
```

```
3624
3625  \Examplesec{hidden line + frame title}
3626  \begin{LTXexample}
3627  \global\mdfapptodefinestyle{exampledefault}{%
3628   topline=false,leftline=false,}
3629  \begin{mdframed}[style=exampledefault,frametitle={Inhomogeneous linear}]
3630  \ExampleText
3631  \end{mdframed}
3632  \end{LTXexample}
3633  \clearpage
3634  \Examplesec{framed picture which is centered}
3635  \begin{LTXexample}
3636  \begin{mdframed}[userdefinedwidth=6cm,align=center,
3637                   linecolor=blue,middlelinewidth=4pt,roundcorner=5pt]
3638  \includegraphics[width=\linewidth]{donald-duck}
3639  \end{mdframed}
3640  \end{LTXexample}
3641
3642  \Examplesec{Gimmick}
3643  \begin{LTXexample}
3644  \mdfsetup{splitbottomskip=0.8cm,splittopskip=0cm,
3645           innerrightmargin=2cm,innertopmargin=1cm,%
3646           innerlinewidth=2pt,outerlinewidth=2pt,
3647           middlelinewidth=10pt,backgroundcolor=red,
3648           linecolor=blue,middlelinecolor=gray,
3649           tikzsetting={draw=yellow,line width=3pt,%
3650                        dashed,%
3651                        dash pattern= on 10pt off 3pt},
3652           rightline=false,bottomline=false}
3653  \begin{mdframed}
3654  \ExampleText
3655  \end{mdframed}
3656  \end{LTXexample}
3657
3658  \Examplesec{complex example with TikZ}
3659
3660  \begin{tltxmdfexample}
3661  \tikzstyle{titregris} =
3662      [draw=gray, thick, fill=white, shading = exersicetitle, %
3663       text=gray, rectangle, rounded corners, right,minimum height=.7cm]
3664
3665  \pgfdeclarehorizontalshading{exersicebackground}{100bp}
3666          {color(0bp)=(green!40); color(100bp)=(black!5)}
3667
3668  \pgfdeclarehorizontalshading{exersicetitle}{100bp}
3669          {color(0bp)=(red!40);color(100bp)=(black!5)}
3670
3671  \newcounter{exercise}
3672  \renewcommand*\theexercise{Exercise~n\arabic{exercise}}
3673  \makeatletter
3674  \def\mdf@@exercisepoints{}%new mdframed key:
3675  \define@key{mdf}{exercisepoints}{%
3676      \def\mdf@@exercisepoints{#1}
3677  }
3678  \makeatother
3679
```

```
3680 \mdfdefinestyle{exercisestyle}{%
3681   outerlinewidth=1pt,innerlinewidth=0pt,
3682   roundcorner=2pt,linecolor=gray,
3683   tikzsetting={shading = exersicebackground},
3684   innertopmargin=1.2\baselineskip,
3685   skipabove={\dimexpr0.5\baselineskip+\topskip\relax},
3686   needspace=3\baselineskip,
3687   frametitlefont=\sffamily\bfseries,
3688   settings={\global\stepcounter{exercise}},
3689   singleextra={%
3690       \node[titregris,xshift=1cm] at (P-|O) %
3691           {~\mdf@frametitlefont{\theexercise}~};
3692     \ifdefempty{\mdf@@exercisepoints}%
3693     {}%
3694     {\node[titregris,left,xshift=-1cm] at (P)%
3695       {~\mdf@frametitlefont{\mdf@@exercisepoints points}~};}%
3696   },
3697   firstextra={%
3698       \node[titregris,xshift=1cm] at (P-|O) %
3699           {~\mdf@frametitlefont{\theexercise}~};
3700     \ifdefempty{\mdf@@exercisepoints}%
3701     {}%
3702     {\node[titregris,left,xshift=-1cm] at (P)%
3703       {~\mdf@frametitlefont{\mdf@@exercisepoints points}~};}%
3704   },
3705 }
3706 \begin{mdframed}[style=exercisestyle,]
3707 \ExampleText
3708 \end{mdframed}
3709
3710 \begin{mdframed}[style=exercisestyle,exercisepoints=10]
3711 \ExampleText
3712 \end{mdframed}
3713 \end{tltxmdfexample}
3714 \clearpage
3715 \Examplesec{Theorem environments}
3716 \begin{LTXexample}
3717 \mdfdefinestyle{theoremstyle}{%
3718     linecolor=red,linewidth=2pt,%
3719     frametitlerule=true,%
3720     apptotikzsetting={\tikzset{mdfframetitlebackground/.append style={%
3721                       shade,left color=white, right color=blue!20}}},
3722     frametitlerulecolor=green!60,
3723     frametitlerulewidth=1pt,
3724     innertopmargin=\topskip,
3725   }
3726 \mdtheorem[style=theoremstyle]{definition}{Definition}
3727 \begin{definition}[Inhomogeneous linear]
3728 \ExampleText
3729 \end{definition}
3730 \begin{definition*}[Inhomogeneous linear]
3731 \ExampleText
3732 \end{definition*}
3733 \end{LTXexample}
3734
3735 \end{document}
```

3736 \endinput

E. The file mdframed-example-pstricks

```
3737 %Documenation of the package mdframed
3738 %%$Id: mdframed.dtx 378 2012-04-13 07:55:45Z marco $
3739 \setcounter{errorcontextlines}{999}
3740 \documentclass[parskip=false,english,11pt]{ltxmdf}
3741 \ltxmdfsetifoot$Id: mdframed.dtx 378 2012-04-13 07:55:45Z marco $
3742
3743 \lstDeleteShortInline{|}
3744 \newcommand\Loadedframemethod{PSTricks}
3745 \usepackage[framemethod=\Loadedframemethod]{mdframed}
3746
3747 \usepackage{showexpl}
3748 \lstset{style=lstltxmdf,explpreset={pos=b,rframe={}},}
3749
3750 \title{The \Pack{mdframed} package}
3751 \subtitle{Examples for \Opt{framemethod=\Loadedframemethod}}
3752 \author{\href{mailto:marco.daniel@mada-nada.de}{Marco Daniel}}
3753 \date{\mdfdateID$Id: mdframed.dtx 378 2012-04-13 07:55:45Z marco $}
3754 \version{\mdversion}
3755 \introduction{In this document I collect various examples for \Opt{framemethod=\Loadedframemethod}.
3756 Some presented examples are more or less exorbitant.}
3757
3758 \mdfsetup{skipabove=\topskip,skipbelow=\topskip}
3759 \newrobustcmd\ExampleText{%
3760        An \textit{inhomogeneous linear} differential equation has the form
3761         \begin{align}
3762            L[v ] = f,
3763         \end{align}
3764        where $L$ is a linear differential operator, $v$ is
3765        the dependent variable, and $f$ is a given non-zero
3766        function of the independent variables alone.
3767 }
3768
3769 \newcounter{examplecount}
3770 \setcounter{examplecount}{0}
3771 \renewcommand\thesubsection{}
3772 \newcommand\Examplesec[1]{%
3773 \stepcounter{examplecount}%
3774 \subsection{Example~\arabic{examplecount}~--~#1\relax}%
3775 }
3776
3777 \begin{document}
3778 \maketitle
3779 \section{Loading}
3780 In the preamble only the package \Pack{mdframed} width the option \Opt{framemethod=\Loadedframemethod}
3781
3782 {\large\color{red!50!black}
3783 \NOTE Every \Cmd{global} inside the examples is necessary to work with the package \Pack{showexpl}.}
3784 X
3785 \section{Examples}
3786 All examples have the following settings:
3787
3788 \begin{tltxmdfexample}
```

```
3789 \mdfsetup{skipabove=\topskip,skipbelow=\topskip}
3790 \newrobustcmd\ExampleText{%
3791 An \textit{inhomogeneous linear} differential equation
3792 has the form
3793 \begin{align}
3794 L[v ] = f,
3795 \end{align}
3796 where $L$ is a linear differential operator, $v$ is
3797 the dependent variable, and $f$ is a given non-zero
3798 function of the independent variables alone.
3799 }
3800 \end{tltxmdfexample}
3801 \clearpage
3802
3803 \Examplesec{very simple}
3804 \begin{LTXexample}
3805 \global\mdfdefinestyle{exampledefault}{%
3806     linecolor=red,middlelinewidth=3pt,%
3807     leftmargin=1cm,rightmargin=1cm
3808 }
3809 \begin{mdframed}[style=exampledefault,roundcorner=5]
3810 \ExampleText
3811 \end{mdframed}
3812 \end{LTXexample}
3813
3814 \Examplesec{hidden line + frame title}
3815 \begin{LTXexample}
3816 \global\mdfapptodefinestyle{exampledefault}{%
3817  topline=false,rightline=false,bottomline=false,
3818  frametitlerule=true,innertopmargin=6pt,
3819  outerlinewidth=6pt,outerlinecolor=blue,
3820  pstricksappsetting={\addtopsstyle{mdfouterlinestyle}{linestyle=dashed}},
3821  innerlinecolor=yellow,innerlinewidth=5pt}%
3822 \begin{mdframed}[style=exampledefault,frametitle={Inhomogeneous linear}]
3823 \ExampleText
3824 \end{mdframed}
3825 \end{LTXexample}
3826
3827 \clearpage
3828
3829 \Examplesec{Dash Lines}
3830 \begin{LTXexample}
3831 \global\mdfdefinestyle{exampledefault}{%
3832    pstrickssetting={linestyle=dashed,},linecolor=red,linewidth=5pt}
3833 \begin{mdframed}[style=exampledefault,]
3834 \ExampleText
3835 \end{mdframed}
3836 \end{LTXexample}
3837
3838 \Examplesec{Double Lines}
3839 \begin{LTXexample}
3840 \global\mdfdefinestyle{exampledefault}{%
3841    pstrickssetting={doubleline=true,doublesep=6pt},
3842    linecolor=red,linewidth=5pt,middlelinewidth=4pt}
3843 \begin{mdframed}[style=exampledefault,]
3844 \ExampleText
```

```
3845 \end{mdframed}
3846 \end{LTXexample}
3847
3848 \Examplesec{Shadow frame}
3849 \begin{LTXexample}
3850 \newmdenv[shadow=true,
3851        shadowsize=11pt,
3852        linewidth=8pt,
3853        frametitlerule=true,
3854        roundcorner=10pt,
3855        ]{myshadowbox}
3856 \begin{myshadowbox}[frametitle={Inhomogeneous linear}]
3857 \ExampleText
3858 \end{myshadowbox}
3859 \end{LTXexample}
3860 \end{document}
3861  \endinput
```

F. The file mdframed-example-texsx

```
3862 %Documenation of the package mdframed
3863 %%$Id: mdframed.dtx 378 2012-04-13 07:55:45Z marco $
3864 \setcounter{errorcontextlines}{999}
3865 \documentclass[parskip=false,english,11pt,ltxlipsum]{ltxmdf}
3866 \ltxmdfsetifoot  $Id: mdframed.dtx 378 2012-04-13 07:55:45Z marco $
3867
3868
3869 \usepackage{showexpl}
3870 \lstset{style=lstltxmdf,explpreset={pos=b,rframe={}},}
3871 \usepackage{tikz}
3872 \usetikzlibrary{calc,arrows}
3873 \newcommand\Loadedframemethod{tikz}
3874 \usepackage[framemethod=\Loadedframemethod]{mdframed}
3875
3876 \title{The \Pack{mdframed} package}
3877 \subtitle{Examples for \Opt{framemethod=\Loadedframemethod}}
3878 \author{\href{mailto:marco.daniel@mada-nada.de}{Marco Daniel}}
3879 \date{\mdfdateID$Id: mdframed.dtx 378 2012-04-13 07:55:45Z marco $}
3880 \version{\mdversion}
3881 \introduction{In this document I collect various examples for \Opt{framemethod=\Loadedframemethod}.
3882 Some presented examples are more or less exorbitant.}
3883
3884 \mdfsetup{skipabove=\topskip,skipbelow=\topskip}
3885 \newrobustcmd\ExampleText{%
3886        An \textit{inhomogeneous linear} differential equation has the form
3887         \begin{align}
3888            L[v ] = f,
3889         \end{align}
3890        where $L$ is a linear differential operator, $v$ is
3891        the dependent variable, and $f$ is a given non-zero
3892        function of the independent variables alone.
3893 }
3894
3895 \newcounter{examplecount}
3896 \setcounter{examplecount}{0}
3897 \renewcommand\thesubsection{}
```

```
3898 \newcommand\Examplesec[1]{%
3899 \stepcounter{examplecount}%
3900 \subsection{Example~\arabic{examplecount}~--~#1\relax}%
3901 }
3902
3903 \begin{document}
3904 \maketitle
3905 \section{Loading}
3906 In the preamble only the package \Pack{mdframed} width the option \Opt{framemethod=\Loadedframemethod}
3907
3908 {\large\color{red!50!black}
3909 \NOTE Every \Cmd{global} inside the examples is necessary to work with the package \Pack{showexpl}.}
3910
3911 \section{Examples}
3912 All examples have the following settings:
3913
3914 \begin{tltxmdfexample}
3915 \mdfsetup{skipabove=\topskip,skipbelow=\topskip}
3916 \newrobustcmd\ExampleText{%
3917 An \textit{inhomogeneous linear} differential equation
3918 has the form
3919 \begin{align}
3920 L[v ] = f,
3921 \end{align}
3922 where $L$ is a linear differential operator, $v$ is
3923 the dependent variable, and $f$ is a given non-zero
3924 function of the independent variables alone.
3925 }
3926 \end{tltxmdfexample}
3927 \clearpage
3928 \Examplesec{Package listings}
3929 The example below is inspired by the following post on StackExchange \href{http://tex.stackexchange.com
3930
3931 Here the solution which can be decorate as usual.
3932
3933 \begin{tltxmdfexample}[moretexcs={BeforeBeginEnvironment,AfterEndEnvironment},morekeywords={lstlisting}
3934 \BeforeBeginEnvironment{lstlisting}{%
3935     \begin{mdframed}[<modification>]%
3936     \vspace{-0.7em}}
3937 \AfterEndEnvironment{lstlisting}{%
3938     \vspace{-0.5em}%
3939     \end{mdframed}}
3940 \end{tltxmdfexample}
3941
3942 With the new command \Cmd{surroundwithmdframed} you can use
3943 \begin{tltxmdfexample}[moretexcs={BeforeBeginEnvironment,AfterEndEnvironment},morekeywords={lstlisting}
3944 \surroundwithmdframed{listings}
3945 \end{tltxmdfexample}
3946
3947 \Examplesec{Package multicol}
3948 How I wrote in \enquote{Known Problems} you can't combine \Pack{multicol}  with \Pack{mdframed}. In a s
3949 \begin{LTXexample}
3950 \begin{multicols}{2}
3951 \lipsum[1]
3952 \begin{mdframed}
3953 \ExampleText
```

```
3954 \end{mdframed}
3955 \lipsum[2]
3956 \end{multicols}
3957 \end{LTXexample}
3958 \clearpage
3959 \twocolumn[\Examplesec{Working in twocolumn mode}]
3960 \begin{tltxmdfexample}
3961 \twocolumn[%
3962   \Examplesec{Working in
3963         twocolumn mode}]
3964 \lipsum[1]\lipsum[2]
3965 \begin{mdframed}[%
3966     leftmargin=10pt,%
3967     rightmargin=10pt,%
3968     linecolor=red,
3969     backgroundcolor=yellow]
3970 \ExampleText
3971 \end{mdframed}
3972 \lipsum[2]
3973 \end{tltxmdfexample}
3974 \lipsum[1]\lipsum[2]
3975 \begin{mdframed}[leftmargin=10pt,%
3976                  rightmargin=10pt,%
3977                  linecolor=red,
3978                  backgroundcolor=yellow]
3979 \ExampleText
3980 \end{mdframed}
3981 \lipsum[2]
3982 \clearpage
3983 \onecolumn
3984 \Examplesec{Working inside enumerate}
3985 \begin{LTXexample}
3986 Text Text Text Text Text Text Text Text
3987 \begin{enumerate}
3988 \item in the following \ldots
3989     \begin{mdframed}[linecolor=blue,linewidth=2]
3990         \ExampleText
3991     \end{mdframed}
3992 \item \lipsum[2]
3993 \end{enumerate}
3994 Text Text Text Text Text Text
3995 \end{LTXexample}
3996 \clearpage
3997 \Examplesec{digression-environement inspired by Tobias Weh}
3998 \begin{lstlisting}
3999 \usetikzlibrary{calc,arrows}
4000 \tikzset{
4001   excursus arrow/.style={%
4002     line width=2pt,
4003     draw=gray!40,
4004     rounded corners=2ex,
4005   },
4006   excursus head/.style={
4007     fill=white,
4008     font=\bfseries\sffamily,
4009     text=gray!80,
```

```
4010          anchor=base west,
4011      },
4012 }
4013 \mdfdefinestyle{digressionarrows}{%
4014  singleextra={%
4015      \path let \p1=(P), \p2=(O) in (\x2,\y1) coordinate (Q);
4016      \path let \p1=(Q), \p2=(O) in (\x1,{(\y1-\y2)/2}) coordinate (M);
4017      \path [excursus arrow, round cap-to]
4018          ($(O)+(5em,0ex)$) -| (M) |- %
4019          ($(Q)+(12em,0ex)$) .. controls +(0:16em) and +(185:6em) .. %
4020          ++(23em,2ex);
4021      \node [excursus head] at ($(Q)+(2.5em,-0.75pt)$) {Digression};},
4022  firstextra={%
4023      \path let \p1=(P), \p2=(O) in (\x2,\y1) coordinate (Q);
4024      \path [excursus arrow,-to]
4025          (O) |- %
4026          ($(Q)+(12em,0ex)$) .. controls +(0:16em) and +(185:6em) .. %
4027          ++(23em,2ex);
4028      \node [excursus head] at ($(Q)+(2.5em,-2pt)$) {Digression};},
4029  secondextra={%
4030      \path let \p1=(P), \p2=(O) in (\x2,\y1) coordinate (Q);
4031      \path [excursus arrow,round cap-]
4032          ($(O)+(5em,0ex)$) -| (Q);},
4033  middleextra={%
4034      \path let \p1=(P), \p2=(O) in (\x2,\y1) coordinate (Q);
4035      \path [excursus arrow]
4036          (O) -- (Q);},
4037    middlelinewidth=2.5em,middlelinecolor=white,
4038    hidealllines=true,topline=true,
4039    innertopmargin=0.5ex,
4040    innerbottommargin=2.5ex,
4041    innerrightmargin=2pt,
4042    innerleftmargin=2ex,
4043    skipabove=0.87\baselineskip,
4044    skipbelow=0.62\baselineskip,
4045 }
4046
4047 \begin{mdframed}[style=digressionarrows]
4048          \ExampleText
4049 \end{mdframed}
4050 \end{lstlisting}
4051
4052 \tikzset{
4053    excursus arrow/.style={%
4054      line width=2pt,
4055      draw=gray!40,
4056      rounded corners=2ex,
4057    },
4058    excursus head/.style={
4059      fill=white,
4060      font=\bfseries\sffamily,
4061      text=gray!80,
4062      anchor=base west,
4063    },
4064 }
4065 \mdfdefinestyle{digressionarrows}{%
```

```
4066  singleextra={%
4067      \path let \p1=(P), \p2=(O) in (\x2,\y1) coordinate (Q);
4068      \path let \p1=(Q), \p2=(O) in (\x1,{(\y1-\y2)/2}) coordinate (M);
4069      \path [excursus arrow, round cap-to]
4070          ($(O)+(5em,0ex)$) -| (M) |- %
4071          ($(Q)+(12em,0ex)$) .. controls +(0:16em) and +(185:6em) .. %
4072          ++(23em,2ex);
4073      \node [excursus head] at ($(Q)+(2.5em,-0.75pt)$) {Digression};},
4074  firstextra={%
4075      \path let \p1=(P), \p2=(O) in (\x2,\y1) coordinate (Q);
4076      \path [excursus arrow,-to]
4077          (O) |- %
4078          ($(Q)+(12em,0ex)$) .. controls +(0:16em) and +(185:6em) .. %
4079          ++(23em,2ex);
4080      \node [excursus head] at ($(Q)+(2.5em,-2pt)$) {Digression};},
4081  secondextra={%
4082      \path let \p1=(P), \p2=(O) in (\x2,\y1) coordinate (Q);
4083      \path [excursus arrow,round cap-]
4084          ($(O)+(5em,0ex)$) -| (Q);},
4085  middleextra={%
4086      \path let \p1=(P), \p2=(O) in (\x2,\y1) coordinate (Q);
4087      \path [excursus arrow]
4088          (O) -- (Q);},
4089    middlelinewidth=2.5em,middlelinecolor=white,
4090    hidealllines=true,topline=true,
4091    innertopmargin=0.5ex,
4092    innerbottommargin=2.5ex,
4093    innerrightmargin=2pt,
4094    innerleftmargin=2ex,
4095    skipabove=0.87\baselineskip,
4096    skipbelow=0.62\baselineskip,
4097  }
4098
4099  \begin{mdframed}[style=digressionarrows]
4100          \ExampleText
4101  \end{mdframed}
4102  \end{document}
4103  \endinput
```

G. Change History

H. Index

The index only collect package relevant words.