

# The `mdframed` package <sup>1</sup>

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                         | 1  | 5.5. Theorems . . . . .          | 12 |
| 2. Syntax                             | 2  | 5.6. Footnotes . . . . .         | 13 |
| 3. The frames                         | 3  | 6. Examples                      | 13 |
| 4. Commands                           | 3  | 7. Errors, Warnings and Messages | 14 |
| 5. Options                            | 4  | 8. Known Problems                | 15 |
| 5.1. Global Options . . . . .         | 5  | 9. ToDo                          | 15 |
| 5.2. Global and Local Options . . . . | 5  | 10. Acknowledgements             | 15 |
| 5.3. Hidden Lines . . . . .           | 10 | A. More information              | 16 |
| 5.4. Frametitle . . . . .             | 11 |                                  |    |

## 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.*

---

<sup>1</sup>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.

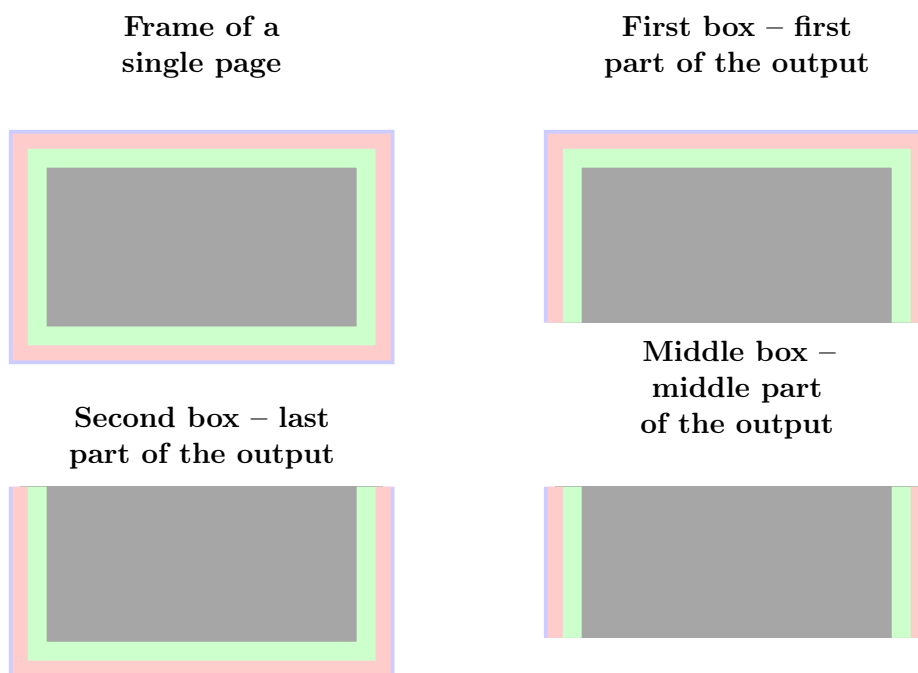


Figure 1: The basic frames

## 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.**<sup>2</sup>

#### `\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.<sup>3</sup>

## 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`.

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

<sup>3</sup>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.  $\text{\LaTeX}$ -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  |
|---------------------------|---|
| $\text{\LaTeX}$ -commands | <code>default</code> , <code>tex</code> , <code>latex</code> , <code>none</code> , <code>0</code> |
| <code>TikZ</code>         | <code>tikz</code> , <code>pgf</code> , <code>1</code>   |
| <code>PSTricks</code>     | <code>pstricks</code> , <code>ps</code> , <code>postscript</code> , <code>2</code>                |

### FYI

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

### Note

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

## 5.2. Global and Local Options

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

### 5.2.1. Options with lengths

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

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

`defaultunit` default=`pt`

see the sentence above.

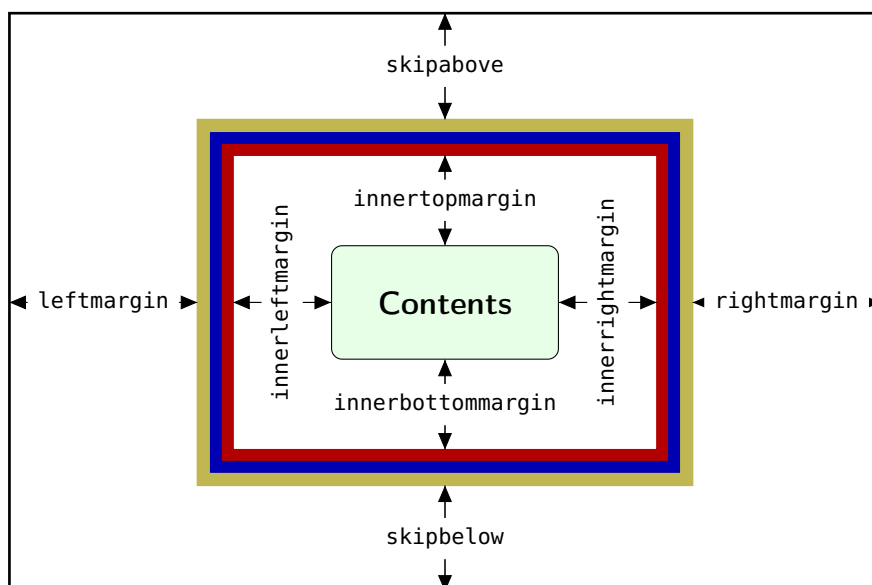


Figure 2: adjustable lengths of mdframed

`skipabove` default=0pt

Sets an additional skip above the frame.

`skipbelow` default=0pt

Sets an additional skip below the frame.

`margin`

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

`leftmargin` default=0pt

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

`rightmargin` default=0pt

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

`innerleftmargin` default=10pt

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

`innerrightmargin` default=10pt

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

`innertopmargin` default=.4\baselineskip

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

`innerbottommargin` default=.4\baselineskip  
 Sets the length of the inner bottom margin of the environment.

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

`userdefinedwidth` default=0pt  
 Sets the width of the whole `mdframed` environment. The width represent the width including the line width and the inner margins. The outer margins will be ignored.

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

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

`splittopskip` default=0pt  
 Sets the length of the skip above the split part of the environment.

`splitbottomskip` default=0pt  
 Sets the length of the skip below the split part of the environment.

`linewidth` default=0.4pt  
 Sets the width of the line around the environment.

`roundcorner` default=0pt  
 Sets the size of the radius of the corners of the frames.  
 This works only with `framemethod=TikZ` or `PSTricks`.

`innerlinewidth` default=0pt  
 Sets the width of the inner line around the environment.  
 This works only with `framemethod=TikZ` or `PSTricks`.

`outerlinewidth` default=0pt  
 Sets the width of the outer line around the environment.  
 This works only with `framemethod=TikZ` or `PSTricks`.

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

### 5.2.2. Colored Options

`linecolor` default=black  
 Sets the color of the line around the environment.

`backgroundcolor` default=white

Sets the color of the background of the environment.

`fontcolor` default=black

Sets the color of the contents of the environment.

`innerlinecolor` default=linecolor

Sets the color of the inner line around the environment.

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

`middlelinecolor` default=linecolor

Sets the color of the middle line around the environment.

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

`outerlinecolor` default=linecolor

Sets the color of the outer line around the environment.

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

### 5.2.3. General options

`everyline` default=false

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

`font` default={}

Sets the font of the environment.

`ntheorem` default=false

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

`nobreak` default=false

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

`usetwoside` default=true

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

`needspace` default=0pt

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

`style`

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

`settings` default=none



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

`align` default=`left`

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

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

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

`shadow` default=`false`

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

`shadowsize` default=`8pt`

Specify the size of the shadow.

`shadowcolor` default=`black!50`

Specify the color of the shadow.

`pstrickssetting` default=`none`

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

This works only with `framemethod=PSTricks`.

`pstricksappsetting` default=`none`

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

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

**Before you change one please have a look at the file `md-frame-2.mdf` to see the settings.**

This works only with `framemethod=PSTricks`.

`tikzsetting` default=`none`

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

This works only with `framemethod=TikZ`.

`apptotikzsetting` default=`none`

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

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

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

`singleextra` default=`{}`

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

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

`firstextra` default=`{}`

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

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

`middleextra` default=`{}`

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

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

`secondextra` default=`{}`

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

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

### 5.3. Hidden Lines

`topline` default=`true`

Draws a line at the top.

`bottomline` default=`true`

Draws a line at the bottom.

`leftline` default=true

Draws a line on the left.

`rightline` default=true

Draws a line on the right.

`hideallllines` 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<sup>4</sup> to simplify this process. The command has the following syntax:

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

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

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

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

So far there is no `\renewmdtheoremenv`!

### `\mdtheorem`

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

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

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

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

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.

<sup>4</sup>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 T<sub>E</sub>XGroup 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  $\text{\LaTeX}$ -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 unknown. See section 5.1.

You have not loaded `ntheorem` yet

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

You have only a width of 3cm

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

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

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

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

See the explanation above.

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

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

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

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

## 8. Known Problems

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

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

1. So far the environment isn't compatible with the package `gmverb`.
2. If you load the package `picins` the frame will no be splitted. That based on a problem of the package 'picins' which defines `\@capytype` global. To work with the package `picins` you can use the following hack.

```
\usepackage{picins}
\makeatletter
\let\@capytype\@undefined
\def\newcaption{%
\begin{group}%
\def\@capytype{figure}%
\refstepcounter\@capytype\@dblarg{\@newcaption\@capytype}%
\end{group}%
}
\makeatother
```

## 9. ToDo

**It is important to update the documentation**

1. see "Known Problems".
2. So far it isn't possible to combine the environment `\begin{multicols}` of the package `multicol` with `mdframed` with the whole option list.
3. Create new styles.
4. Improve page breaks.
5. Improve footnotes.
6. Improve documentation and examples.
7. Create styles for `frametitle`.
8. Create an inline version of `mdframed` that's works like `\fbox`
9. Add `\ht\strutbox` to file `md-frame-1.mdf`

## 10. Acknowledgements

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

Thanks for proofreading

Alan Munn and Nahid Shajari

I hope I forgot nobody.

## A. More information

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

### A.1. How does `mdframed` work?

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

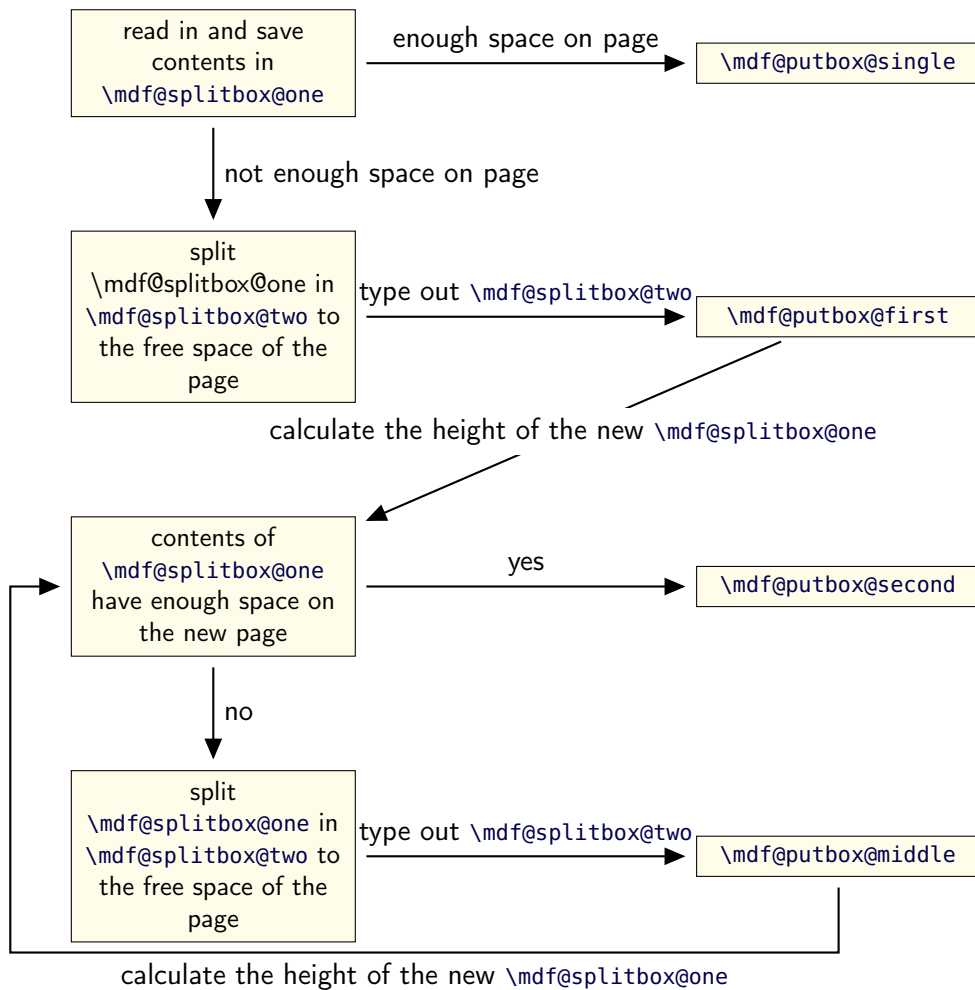


Figure 3: Setting the contents of `mdframed`

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

### A.2. The 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 unnecessary groups (Thanks Yi, Hoze)
- changed the definition of listings to allow copy paste of the examples

### Version 1.3a submitted 5 Feb 2012

- fixed bug (Thanks to Dietrich Grau)

### Version 1.3 submitted 4 Feb 2012

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

### Version 1.2 submitted 8 Jan 2012

- fixed documentation (Thanks to Dietrich Grau)
  - fixed bug in combination with `amsthm`
  - fixed bug in `\newmdtheoremenv`
  - defined new styles via `\newsstyle`
- 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 `\newsstylemdfbackgroundstyle` 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  $\varepsilon$ -TeX `\dimexpr`
- expand documentation
- trying to fix problems with `xcolor`
- fixed bug with `framemethod=pstricks`
- create file `mdframed-example-default`
- create file `mdframed-example-tikz`
- create file `mdframed-example-pstricks`
- create file `mdframed-example-texsx` (texsx stands for tex stackexchange)

### Version 0.9g submitted 08 Oct 2011

- fixed documentation
- added small footnote compatibility

### Version 0.9f submitted 04 Oct 2011

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

### Version 0.9e submitted 11 Sep 2011

- working with `twoside` modus

### Version 0.9d submitted 10 Sep 2011

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

**Version 0.9b submitted 7 Sep 2011**

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

**Version 0.9a submitted 5 Sep 2011**

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

**Version 0.9 submitted 4 Sep 2011**

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

**Version 0.8a**

- fixes bugs • fixes documentation

**Version 0.8 submitted 22 Aug 2011**

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

**Version 0.7a submitted 6 August 2011**

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

**Version 0.6a submitted 22 Dec 2010**

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

## B. Implementation

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

### B.1. The Explanation of mdframed.sty

*Id : mdframed.dtx3822012-04-17 14:35:02Zmarco Rev : 382 Author : marco*

*Date : 2012-04-17 14:35:02 +0200(Di, 17.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 382 2012-04-17 14:35:02Z marco $%
7     \mdversion: \mdframedpackagename]
```

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

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

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

Loading required packages

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

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

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

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

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

```

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

`\mdf@dolist`

Loop used by *mdframed*.

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

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

Command to define a new length with a default value.

```

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

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

```

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

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

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

```

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

```

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

```

```

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

```

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

```

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

```

```

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

```

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

```

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

```

```

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

```

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

```

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

```

Start declaration of options

```

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

```

Only provide to be backward compatible

```

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

```

```

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

```

`\mdf@framemethod`

```

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

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

```

`\mdf@do@lengthoption`

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

```

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

```

```

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

```

`\mdf@do@lengthoption`

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

```

160 \mdf@dolist{\mdf@do@stringoption}{%
161   {frametitle=={}},%
162   {defaultunit==pt},%
163   {linecolor==black},%
164   {backgroundcolor==white},%
165   {fontcolor==black},%
166   {frametitlefontcolor==black},%
167   {innerlinecolor==\mdf@linecolor},%
168   {outerlinecolor==\mdf@linecolor},%
169   {middlelinecolor==\mdf@linecolor},%
170   {psroundlinecolor==\mdf@backgroundcolor},%
171   {frametitlerulecolor==\mdf@linecolor},
172   {frametitlebackgroundcolor==\mdf@backgroundcolor},%
173   {shadowcolor==black!50},%
174   {settings=={}},%
175   {frametitlesettings=={}},%
176   {font=={}},%
177   {frametitlefont==\normalfont\bfseries},%
178   {printheight==none},%
179   {alignment=={}},%
180   {frametitlealignment=={}},%
181   {theoremseparator=={:}},%
182   {theoremcountersep=={.}},%
183   {theoremtitlefont=={}},%
184   {theoremspace==\space},%
185   {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     {usetwo-side==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 with 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@patchamsth{%
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 theorem header of amsthm\MessageBreak}%
380 }{%
381 \mdf@PackageInfo{mdframed detected package amsthm ^^J
382 changed the theorem header of amsthm failed\MessageBreak}%
383 }%
384 }%
385 }{\let\mdf@patchamsth\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 \@nmblistfalse%
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][\relax]{%
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{0}{ 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}{ 0{ } m o m o }%
463 {\ifcsdef{#2}%
464   {\mdf@PackageWarning{Environment #2 already exists\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           \ifstrempy{##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     \ifstrepty{##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     \ifstrepty{##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     \ifstrepty{##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     \ifstrepty{##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         \ifstrempy{##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@frametitulerule}{\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@frametitulerulecolor,%
556 %             backgroundcolor=\mdf@frametitlebackgroundcolor,%
557 %             middlelinewidth=\mdf@frametitulerulewidth@length,%
558 %             innerleftmargin=\mdf@frametitleleftmargin@length,%
559 %             innerrightmargin=\mdf@frametitlemargin@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@checknththeorem`

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

```

626
627 \newrobustcmd*\mdf@checknththeorem{%
628   \ifbool{mdf@nththeorem}%
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@footnotedistance@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!!!Needed for framemethod=default
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 }

```

\detected@mdf@put@frame

Detect whether inside a non breakable environment.

```

682 \let\mdf@reserved@a\@empty
683 \newrobustcmd*\detected@mdf@put@frame{%
684 \ifmdf@nobreak%Option nobreak=true?
685 \def\mdf@reserved@a{\mdf@put@frame@standalone}%
686 \else
687 \def\mdf@reserved@a{\mdf@put@frame}%
688 \ifx\@cuptype\@undefined
689 \def\mdf@reserved@a{\mdf@put@frame}%
690 \else
691 \mdf@PackageInfo{mdframed inside float ^^J
692 mdframed uses option nobreak \mdframedpackagename}%
693 \def\mdf@reserved@a{\mdf@put@frame@standalone}%
694 \fi
695 %% \ifnum\@floatpenalty<0\relax%Detecting float
696 %% \if@twocolumn%
697 %% \ifx\@cuptype\@undefined
698 %% \def\mdf@reserved@a{\mdf@put@frame}%
699 %% \else
700 %% \mdf@PackageInfo{mdframed inside float ^^J
701 %% mdframed uses option nobreak \mdframedpackagename}%
702 %% \def\mdf@reserved@a{\mdf@put@frame@standalone}%
703 %% \fi
704 %% \else
705 %% \mdf@PackageInfo{mdframed inside float ^^J
706 %% mdframed uses option nobreak \mdframedpackagename}%
707 %% \def\mdf@reserved@a{\mdf@put@frame@standalone}%
708 %% \fi%
709 %% \fi%
710 \if@minipage%
711 \mdf@PackageInfo{mdframed inside minipage ^^J
712 mdframed uses option nobreak \mdframedpackagename}%
713 \def\mdf@reserved@a{\mdf@put@frame@standalone}%
714 \fi%
715 \ifinner%
716 \mdf@PackageInfo{mdframed inside a box ^^J
717 mdframed uses option nobreak \mdframedpackagename}%
718 \def\mdf@reserved@a{\mdf@put@frame@standalone}%
719 \fi%
720 \fi%
721 \mdf@reserved@a%
722 }

```

\mdf@hidealllines@check

```

723 \newrobustcmd*\mdf@hidealllines@check{%
724   \ifbool{mdf@hidealllines}{%
725     \boolfalse{mdf@leftline}\boolfalse{mdf@rightline}%
726     \boolfalse{mdf@topline}\boolfalse{mdf@bottomline}%
727     \boolfalse{mdf@frametitleleftline}\boolfalse{mdf@frametitlerightline}%
728     \boolfalse{mdf@frametitletopline}\boolfalse{mdf@frametitlebottomline}%
729   }{%
730 }

```

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

That the user environment.

```

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

```

```

\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.

```

770 \newtoggle{md:checktwoside}
771 \settoggle{md:checktwoside}{false}
772 \newrobustcmd*\mdf@twoside@checklength{%
773   \if@twoside
774     \ifbool{mdf@usetwoside}%
775       {\mdf@PackageInfo{mdframed works in twoside mode}%
776         \settoggle{md:checktwoside}{true}%
777         \setlength\mdf@rightmargin@length{\mdf@outermargin@length}%
778         \setlength\mdf@leftmargin@length{\mdf@innermargin@length}%
779         }%
780       {\mdf@PackageInfo{mdframed inside twoside mode but\MessageBreak
781         works with oneside mode}%
782         \settoggle{md:checktwoside}{false}%
783         }%
784   \fi%
785 }
786
787 \newcounter{mdf@zref@counter}%keine doppelten laebes
788 \zref@newprop*\mdf@pagevalue}[0]{\number\value{page}}
789 \zref@addprop{\ZREF@mainlist}{mdf@pagevalue}
790 \newrobustcmd*\mdf@zref@label{%
791   \stepcounter{mdf@zref@counter}
792   \zref@label{mdf@pagelabel-\number\value{mdf@zref@counter}}}%
793 }
794 \newrobustcmd*\if@mdf@pageodd{%
795   \zref@refused{mdf@pagelabel-\the\value{mdf@zref@counter}}}%
796   \ifodd\zref@extract{mdf@pagelabel-\the\value{mdf@zref@counter}}{mdf@pagevalue}%
797     \setlength\mdf@rightmargin@length{\mdf@outermargin@length}%
798     \setlength\mdf@leftmargin@length{\mdf@innermargin@length}%
799   \else
800     \setlength\mdf@rightmargin@length{\mdf@innermargin@length}%
801     \setlength\mdf@leftmargin@length{\mdf@outermargin@length}%
802   \fi%
803 }
804 \newrobustcmd*\mdf@@setzref{%
805   \iftoggle{md:checktwoside}{\mdf@zref@label\if@mdf@pageodd}{}}%
806 }

```

```

\mdf@freepagevspace

```

```

807 \newrobustcmd*\mdf@freepagevspace{%
808   \penalty\@M \vskip 2\baselineskip
809   \penalty9999 \vskip -2\baselineskip
810   \penalty9999
811   \ifdimequal{\pagegoal}{\maxdimen}%

```

```

812      {\mdf@freevspace@length\vsizex}%
813      {\mdf@freevspace@length=\pagegoal\relax%
814       \advance\mdf@freevspace@length by -\pagetotal\relax%
815       \addtolength\mdf@freevspace@length{\dimexpr-\parskip\relax}\relax%
816      }%
817 }

```

```

\mdf@advance@length@horizontalmargin@add
\mdf@horizontal@space@of@box
\mdf@horizontalmargin@equation

```

Width of the box

```

818 \newrobustcmd*\mdf@advance@length@horizontalmargin@sub[1]{%
819   \advance\mdf@horizontal@space@of@box by -\csname mdf@#1@length\endcsname\relax%
820 }
821 \newlength\mdf@horizontal@space@of@box
822 \newrobustcmd*\mdf@horizontalmargin@equation{%
823   \setlength{\mdf@horizontal@space@of@box}{\mdf@userdefinedwidth@length}%
824   \mdf@dolist{\mdf@advance@length@horizontalmargin@sub}{%
825     leftmargin,outerlinewidth,middlelinewidth,%
826     innerlinewidth,innerleftmargin,inerrightmargin,%
827     innerlinewidth,middlelinewidth,outerlinewidth,%
828     rightmargin}%
829   \notbool{mdf@leftline}{%
830     \advance\mdf@horizontal@space@of@box by \mdf@innerlinewidth@length\relax%
831     \advance\mdf@horizontal@space@of@box by \mdf@middlelinewidth@length\relax%
832     \advance\mdf@horizontal@space@of@box by \mdf@outerlinewidth@length\relax%
833   }{}%
834   \notbool{mdf@rightline}{%
835     \advance\mdf@horizontal@space@of@box by \mdf@innerlinewidth@length\relax%
836     \advance\mdf@horizontal@space@of@box by \mdf@middlelinewidth@length\relax%
837     \advance\mdf@horizontal@space@of@box by \mdf@outerlinewidth@length\relax%
838   }{}%
839   \ifdimless{\mdf@horizontal@space@of@box}{3cm}%
840     {\mdf@PackageWarning{You have only a width of 3cm}}{}
841   \hsize=\mdf@horizontal@space@of@box%
842 }

```

```

\mdf@keeplines@single

```

horizontal space in relation of the lines.

```

843 \newrobustcmd*\mdf@keeplines@single{%
844   \notbool{mdf@topline}{%
845     \advance\mdf@verticalmarginwhole@length by -\mdf@innerlinewidth@length%
846     \advance\mdf@verticalmarginwhole@length by -\mdf@middlelinewidth@length%
847     \advance\mdf@verticalmarginwhole@length by -\mdf@outerlinewidth@length%
848   }{}%
849   \notbool{mdf@bottomline}{%
850     \advance\mdf@verticalmarginwhole@length by -\mdf@innerlinewidth@length%
851     \advance\mdf@verticalmarginwhole@length by -\mdf@middlelinewidth@length%
852     \advance\mdf@verticalmarginwhole@length by -\mdf@outerlinewidth@length%
853   }{}%
854 }

```

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

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

```
855 \newrobustcmd*\mdf@advancelength@verticalmarginwhole[1]{%
856   \advance\mdf@verticalmarginwhole@length by \csname mdf@#1@length\endcsname\relax%
857 }
858 \newrobustcmd*\mdf@advancelength@freevspace@sub[1]{%
859   \advance\dimen@ by -\csname mdf@#1@length\endcsname\relax%
860 }
861 \newrobustcmd*\mdf@advancelength@freevspace@add[1]{%
862   \advance\dimen@ by \csname mdf@#1@length\endcsname\relax%
863 }
```

```
\mdf@reset
```

Reset changes

```
864 \protected@edef\mdf@reset{\boxmaxdepth\the\boxmaxdepth
865                               \splittopskip\the\splittopskip}%
```

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

Output of `mdframed` inside a non breakable environment.

```
866 \newrobustcmd*\mdf@put@frame@standalone{\relax%
867   \ifvoid\mdf@splitbox@one\relax
868     \mdf@PackageWarning{The environment is empty\MessageBreak}%
869     \let\mdf@reserved@a\relax%
870   \else
871     %Hier berechnung Box-Inhalt+Rahmen oben und unten
872     \setlength{\mdf@verticalmarginwhole@length}{%
873       {\dimexpr\ht\mdf@splitbox@one+\dp\mdf@splitbox@one\relax}%
874     \mdf@dolist{\mdf@advancelength@verticalmarginwhole}{%
875       outerlinewidth,middlelinewidth,innerlinewidth,innertopmargin,
876       innerbottommargin,innerlinewidth,middlelinewidth,outerlinewidth}%
877     \mdf@keeplines@single%
878     \def\mdf@reserved@a{\mdf@putbox@single}%
879   \fi
880   \mdf@reserved@a%
881 }
```

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

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

```
882 \def\mdf@put@frame{\relax%
883 \ifvoid\mdf@splitbox@one\relax
884 \mdf@PackageWarning{The environment is empty\MessageBreak}%
885 \let\mdf@reserved@a\relax%
886 \else
887   \setlength\mdf@boundingboxwidth{\wd\mdf@splitbox@one}%
888   \mdf@print@space%
889   \mdf@freepagevspace@gives \mdf@freevspace@length
890   \mdf@PackageInfoSpace{\the\mdf@freevspace@length before the beginning of \MessageBreak
```



```

891             the environment ending on input line \MessageBreak}%
892 \ifdimless{\mdf@freevspace@length}{2\baselineskip}
893     {\mdf@PackageInfo{Not enough space on this page}
894     \vfill\eject%
895     \def\mdf@reserved@a{\mdf@put@frame}%
896     }{%
897     %Hier berechnung Box-Inhalt+Rahmen oben und unten
898     \setlength{\mdf@verticalmarginwhole@length}%
899         {\dimexpr\ht\mdf@splitbox@one+\dp\mdf@splitbox@one\relax}%
900     \mdf@dolist{\mdf@advancelength@verticalmarginwhole}{%
901         outerlinewidth,middlelinewidth,innerlinewidth,innertopmargin,
902         innerbottommargin,innerlinewidth,middlelinewidth,outerlinewidth}%
903     \mdf@keeplines@single%
904     \ifdimless{\mdf@verticalmarginwhole@length}{\mdf@freevspace@length}%
905         {%passt auf Seite%
906         \begingroup
907         \mdf@@setzref
908         \mdf@putbox@single%
909         \endgroup
910         \let\mdf@reserved@a\relax}%
911     {\def\mdf@reserved@a{\mdf@put@frame@i}}%passt nicht auf Seite
912     }%
913 \fi
914 \mdf@reserved@a%
915 }

```

`\mdf@put@frame@i`

Output of the first splitted box.

```

916 \def\mdf@put@frame@i{%Box muss gesplittet werden -- Ausgabe der ersten Teilbox
917 %Berechnung der Splittgroesse -- Linien und Abstand oben
918 %\vbox to 0pt{}%
919 %\rlap{\smash{\the\mdf@freevspace@length}}%\hrule \@height\z@ \@width\hsize
920 \mdf@freepagevspace@gives \mdf@freevspace@length
921 %Berechnung ob nur oberen Linien nur auf die Seite passe
922 \dimen@=\the\mdf@freevspace@length%
923 \dimen@i=\mdf@innertopmargin@length%
924 \advance\dimen@i by \mdf@innerlinewidth@length%
925 \advance\dimen@i by \mdf@middlelinewidth@length%
926 \advance\dimen@i by \mdf@outerlinewidth@length%
927 \advance\dimen@i by 2\baselineskip%
928 \ifdimless{\dimen@}{\dimen@i}%
929     {\hrule \@height\z@ \@width\hsize%
930     \vfill\eject%
931     \def\mdf@reserved@a{\mdf@put@frame}%
932     }{%
933     \mdf@freepagevspace%
934     \dimen@=\the\mdf@freevspace@length%
935     \mdf@dolist{\mdf@advancelength@freespace@sub}{%calculate with \dimen@
936         outerlinewidth,middlelinewidth,innerlinewidth,%
937         innertopmargin,splitbottomskip}%
938     \ifbool{mdf@everyline}{%
939         \ifbool{mdf@bottomline}{%
940             \advance\dimen@ by -\mdf@innerlinewidth@length%

```

```

941         \advance\dimen@ by -\mdf@middlelinewidth@length%
942         \advance\dimen@ by -\mdf@outerlinewidth@length%
943     }{}%
944 }{}%
945 \ifbool{mdf@topline}{%
946     \advance\dimen@ by \mdf@innerlinewidth@length%
947     \advance\dimen@ by \mdf@middlelinewidth@length%
948     \advance\dimen@ by \mdf@outerlinewidth@length%
949 }%
950 \advance\dimen@.8\pageshrink
951 \ifdimless{\ht\mdf@splitbox@one+\dp\mdf@splitbox@one}{\dimen@}%
952     {\mdf@PackageWarning{You got a bad break\MessageBreak
953         you have to change it manually\MessageBreak
954         by changing the text, the space\MessageBreak
955         or something else}%
956     \advance\dimen@ by -1.8\baselineskip\relax%
957 }{}%
958 % \advance\dimen@ by -1pt\relax%Box darf nicht zu Groß werden.
959 \splittmaxdepth\z@ \splittopskip\mdf@splittopskip@length%
960 \mdf@ignorevbadness%
961 \setbox\mdf@splitbox@two\vsplit\mdf@splitbox@one to \dimen@
962 \setbox\mdf@splitbox@two\vbox{\unvbox\mdf@splitbox@two}%
963 \setbox\mdf@splitbox@one\vbox{\unvbox\mdf@splitbox@one}%
964 \ifbool{mdf@repeatframetitle}{%
965     \setbox\mdf@splitbox@one\vbox{%
966         \vbox to \mdf@splittopskip@length{\hsize\z@}
967         %\par\unskip\nointerlineskip
968         \unvcopy\mdf@frametitlebox%
969         \mdf@@frametitulerule%
970         \vbox to\dimexpr
971             -\mdf@splittopskip@length+\ht\strutbox+\dp\strutbox
972             +\mdf@innertopmargin@length\relax{\hsize\z@}%
973         \unvbox\mdf@splitbox@one}%
974     }{}%
975 \ifdimgreater{\ht\mdf@splitbox@two+\dp\mdf@splitbox@two}{\dimen@}%
976     {%Falsch gesplittet
977     \mdf@PackageInfo{Box was splittet wrong\MessageBreak}%
978     \dimen@i=\dimen@
979     \advance\dimen@ by -\ht\mdf@splitbox@two
980     \advance\dimen@ by -\dp\mdf@splitbox@two
981     \advance\dimen@i by 0.5\dimen@
982     \splittopskip\z@%
983     \setbox\mdf@splitbox@one\vbox{\unvbox\mdf@splitbox@two%
984         %benoetigt um Tiefe zu haben
985         \hrule \@height\dp\strutbox \@width\z@
986         \unvbox\mdf@splitbox@one}
987     \splittopskip\mdf@splittopskip@length%
988     \mdf@ignorevbadness%
989     \setbox\mdf@splitbox@two\vsplit\mdf@splitbox@one to \dimen@i%
990     \setbox\mdf@splitbox@two\vbox{\unvbox\mdf@splitbox@two}%
991     \setbox\mdf@splitbox@one\vbox{\unvbox\mdf@splitbox@one}%
992     \ifdimgreater{\ht\mdf@splitbox@two+\dp\mdf@splitbox@two}{\dimen@}%
993         {%
994             \splittopskip\z@\mdf@ignorevbadness%
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                                     \mdf@ignorevbadness%
1000                                    \setbox\mdf@splitbox@one\vbox{\unvbox\mdf@splitbox@one}%
1001                                    }{}%
1002 \ifbool{mdf@repeatframetitle}{%
1003     \setbox\mdf@splitbox@one\vbox{%
1004         \vbox to \mdf@splittopskip@length{\hsize\z@}
1005         %\par\unskip\nointerlineskip
1006         \unvcopy\mdf@frametitlebox%
1007         \mdf@@frametitlerule%
1008         \vbox to\dimexpr
1009             -\mdf@splittopskip@length+\ht\strutbox+\dp\strutbox
1010             +\mdf@innertopmargin@length\relax{\hsize\z@}%
1011         \unvbox\mdf@splitbox@one}%
1012     }{}%
1013 }{}%
1014 \ifvoid\mdf@splitbox@one
1015     \mdf@PackageWarning{You got a bad break\MessageBreak
1016         because the splittet box is empty\MessageBreak
1017         You have to change the page settings\MessageBreak
1018         like enlargethispage or something else}%
1019     \setbox\mdf@splitbox@one\vbox{\unvbox\mdf@splitbox@two}%
1020     \setbox\mdf@splitbox@one\vbox{\unvbox\mdf@splitbox@one}%
1021     \enlargethispage{\baselineskip}%
1022     \def\mdf@reserved@a{\mdf@put@frame}%
1023 \fi%
1024 \ifvoid\mdf@splitbox@two%pruefe, ob erste Box leer ist
1025     {\hrule \@height\@size pt \@width\z@%
1026     \hrule \@height\z@ \@width\hsize}%
1027 %     \vfill\@eject%
1028 %     \vskip\baselineskip
1029 %     {\hrule \@height\z@ \@width\hsize}
1030 %
1031     \def\mdf@reserved@a{\mdf@put@frame}%
1032 \else%
1033     \ifdimequal{\ht\mdf@splitbox@two}{0pt}%
1034         {\hrule \@height\z@ \@width\hsize%
1035         \vfill\@eject%
1036         \setbox\mdf@splitbox@one\vbox{\unvbox\mdf@splitbox@two\unvbox\mdf@splitbox@one}%
1037         \def\mdf@reserved@a{\mdf@put@frame}%
1038         }%
1039         {%
1040         \begingroup%
1041             \mdf@@setzref%
1042             \mdf@putbox@first%%Groesse des Splittens passt
1043         \endgroup%
1044         \hrule \@height\z@ \@width\hsize%
1045         \vfill\@eject%
1046         \def\mdf@reserved@a{\mdf@put@frame@ii}%
1047         }%
1048     \fi%
1049 }%
1050 \mdf@reserved@a%
1051 }

```

\mdf@put@frame@ii

Output of the middle and last box.

```

1052 \def\mdf@put@frame@ii{%Ausgabe der mittleren Box(en) wenn vorhanden
1053   \setlength{\mdf@freevspace@length}{\vsize}%
1054   \setlength{\mdf@dimen@}{\dimexpr\ht\mdf@splitbox@one+\dp\mdf@splitbox@one\relax}%
1055   \mdf@dolist{\mdf@advance@length@freevspace@add}{%used \mdf@dimen@
1056     outerlinewidth,middlelinewidth,innerlinewidth,%
1057     innerbottommargin}%%Addition der Linien unten
1058   \ifbool{mdf@everyline}{%
1059     \ifbool{mdf@topline}{%
1060       \advance\mdf@dimen@ by \mdf@innerlinewidth@length%
1061       \advance\mdf@dimen@ by \mdf@middlelinewidth@length%
1062       \advance\mdf@dimen@ by \mdf@outerlinewidth@length%
1063     }{}%
1064   }{}%
1065   \ifbool{mdf@bottomline}{%
1066     \advance\mdf@dimen@ by -\mdf@innerlinewidth@length%
1067     \advance\mdf@dimen@ by -\mdf@middlelinewidth@length%
1068     \advance\mdf@dimen@ by -\mdf@outerlinewidth@length%
1069   \relax}%
1070   \ifdimgreater{\mdf@dimen@}{\mdf@freevspace@length}%
1071   {%
1072     \advance\mdf@freevspace@length by -\mdf@splitbottomskip@length\relax%
1073     \advance\mdf@freevspace@length by .5\ht\strutbox\relax%
1074     \ifbool{mdf@everyline}{%
1075       \ifbool{mdf@topline}{%
1076         \advance\mdf@freevspace@length by -\mdf@innerlinewidth@length%
1077         \advance\mdf@freevspace@length by -\mdf@middlelinewidth@length%
1078         \advance\mdf@freevspace@length by -\mdf@outerlinewidth@length%
1079       }{}%
1080       \ifbool{mdf@bottomline}{%
1081         \advance\mdf@freevspace@length by -\mdf@innerlinewidth@length%
1082         \advance\mdf@freevspace@length by -\mdf@middlelinewidth@length%
1083         \advance\mdf@freevspace@length by -\mdf@outerlinewidth@length%
1084       \relax}{}%
1085     }{}%
1086     \splittmaxdepth\z@ \splittopskip\mdf@splittopskip@length%
1087     \mdf@ignorevbadness%
1088     \setbox\mdf@splitbox@two\vsplit\mdf@splitbox@one to \mdf@freevspace@length%
1089     \setbox\mdf@splitbox@two\vbox{\unvbox\mdf@splitbox@two}%PRUEFEN!!!
1090     \setbox\mdf@splitbox@one\vbox{\unvbox\mdf@splitbox@one}%PRUEFEN!!!
1091     \ifbool{mdf@repeatframetitle}{%
1092       \setbox\mdf@splitbox@one\vbox{%
1093         \vbox to \mdf@splittopskip@length{\hsize\z@}
1094         %\par\unskip\nointerlineskip
1095         \unvcopy\mdf@frametitlebox%
1096         \mdf@@frametitlerule%
1097         \vbox to\dimexpr%
1098           -\mdf@splittopskip@length+\ht\strutbox+\dp\strutbox%
1099           +\mdf@innertopmargin@length\relax{\hsize\z@}%
1100         \unvbox\mdf@splitbox@one}%
1101       }{}%
1102     \ifvoid\mdf@splitbox@one\relax%
1103       \mdf@PackageWarning{You got a bad break\MessageBreak
1104         because the split box is empty\MessageBreak

```

```

1105             You have to change the settings}%
1106     \setbox\mdf@splitbox@one{\unvbox\mdf@splitbox@two}%
1107     \def\mdf@reserved@a{\enlargethispage{\baselineskip}\mdf@put@frame@ii}%
1108     \else
1109         \begingroup%
1110             \mdf@@setzref%
1111             \mdf@putbox@middle%
1112         \endgroup%
1113         \hrule \@height\z@ \@width\hsize%
1114         \vfill\@eject%
1115         \def\mdf@reserved@a{\mdf@put@frame@ii}%
1116     \fi
1117 }%Hier die Ausgabe der mittleren Box
1118 {\ifvoid\mdf@splitbox@one
1119     \mdf@PackageWarning{You got a bad break\MessageBreak
1120                         because the last split box is empty\MessageBreak
1121                         You have to change the settings}%%
1122     \setbox\mdf@splitbox@one\vbox{\unvbox\mdf@splitbox@one\hrule \@height\z@ \@width\mdfbounding
1123 \fi%
1124 \ifdimless{\ht\mdf@splitbox@one}{\lsp}}{%
1125     \mdf@PackageWarning{You got a bad break\MessageBreak
1126                         because the last split box is empty\MessageBreak
1127                         You have to change the settings}%
1128     %\hb@xt@\z@{\box\mdf@splitbox@one}%
1129     \let\mdf@reserved@a\relax%
1130     \setbox\mdf@splitbox@one\vbox{\unvbox\mdf@splitbox@one\hrule \@height\z@ \@width\mdfboundin
1131 }}%
1132 \begingroup%
1133     \mdf@@setzref%
1134     \mdf@putbox@second%
1135     \hrule \@height\z@ \@width\hsize%
1136 \endgroup%
1137 \let\mdf@reserved@a\relax%
1138 }%Hier kommt die Ausgabe der letzten Box
1139 \mdf@reserved@a%
1140 }
1141

```

```

\mdf@test@lrb
\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.

```

1142 %%%%      -----t-----
1143 %%%%      |               |
1144 %%%%      |               |
1145 %%%%      |               |
1146 %%%%      l|               |r
1147 %%%%      |               |
1148 %%%%      |               |
1149 %%%%      |-----|
1150 %%%%      b
1151 %%Zusammenhaenge abfragen:
1152 \newrobustcmd*{\mdf@test@ltrb}%
1153     \ifboolexpr{ (bool {mdf@topline}) and (bool {mdf@bottomline})
1154                 and (bool {mdf@leftline}) and (bool {mdf@rightline})}}
1155 %3-set
1156 \newrobustcmd*{\mdf@test@ltr}%
1157     \ifboolexpr{ (bool {mdf@topline}) and not (bool {mdf@bottomline})
1158                 and (bool {mdf@leftline}) and (bool {mdf@rightline})}}
1159 \newrobustcmd*{\mdf@test@ltb}%
1160     \ifboolexpr{ (bool {mdf@topline}) and (bool {mdf@bottomline})
1161                 and (bool {mdf@leftline}) and not (bool {mdf@rightline})}}
1162 \newrobustcmd*{\mdf@test@trb}%
1163     \ifboolexpr{ (bool {mdf@topline}) and (bool {mdf@bottomline})
1164                 and not (bool {mdf@leftline}) and (bool {mdf@rightline})}}
1165 \newrobustcmd*{\mdf@test@lrb}%
1166     \ifboolexpr{ not (bool {mdf@topline}) and (bool {mdf@bottomline})
1167                 and (bool {mdf@leftline}) and (bool {mdf@rightline})}}
1168 %2-set
1169 \newrobustcmd*{\mdf@test@lb}%
1170     \ifboolexpr{ not (bool {mdf@topline}) and (bool {mdf@bottomline})
1171                 and (bool {mdf@leftline}) and not (bool {mdf@rightline})}}
1172 \newrobustcmd*{\mdf@test@rb}%
1173     \ifboolexpr{ not (bool {mdf@topline}) and (bool {mdf@bottomline})
1174                 and not (bool {mdf@leftline}) and (bool {mdf@rightline})}}
1175 \newrobustcmd*{\mdf@test@tr}%
1176     \ifboolexpr{ (bool {mdf@topline}) and not (bool {mdf@bottomline})
1177                 and not (bool {mdf@leftline}) and (bool {mdf@rightline})}}
1178 \newrobustcmd*{\mdf@test@lt}%
1179     \ifboolexpr{ (bool {mdf@topline}) and not (bool {mdf@bottomline})
1180                 and (bool {mdf@leftline}) and not (bool {mdf@rightline})}}
1181 \newrobustcmd*{\mdf@test@lr}%
1182     \ifboolexpr{not (bool {mdf@topline}) and not (bool {mdf@bottomline})
1183                 and (bool {mdf@leftline}) and (bool {mdf@rightline})}}
1184 \newrobustcmd*{\mdf@test@tb}%
1185     \ifboolexpr{ (bool {mdf@topline}) and (bool {mdf@bottomline})
1186                 and not (bool {mdf@leftline}) and not (bool {mdf@rightline})}}
1187 %Einzellinien
1188 \newrobustcmd*{\mdf@test@l}%
1189     \ifboolexpr{ not (bool {mdf@topline}) and not (bool {mdf@bottomline})
1190                 and (bool {mdf@leftline}) and not (bool {mdf@rightline})}}
1191 \newrobustcmd*{\mdf@test@r}%
1192     \ifboolexpr{ not (bool {mdf@topline}) and not (bool {mdf@bottomline})
1193                 and not (bool {mdf@leftline}) and (bool {mdf@rightline})}}
1194 \newrobustcmd*{\mdf@test@t}%
1195     \ifboolexpr{ (bool {mdf@topline}) and not (bool {mdf@bottomline})
1196                 and not (bool {mdf@leftline}) and not (bool {mdf@rightline})}}
1197 \newrobustcmd*{\mdf@test@b}%

```

```

1198 \ifbool{expr{ not (bool {mdf@topline}) and (bool {mdf@bottomline})
1199             and not (bool {mdf@leftline}) and not (bool {mdf@rightline})}}
1200 %keine Linien
1201 \newrobustcmd*{\mdf@test@noline}%
1202 \ifbool{expr{ not (bool {mdf@topline}) and not (bool {mdf@bottomline})
1203             and not (bool {mdf@leftline}) and not (bool {mdf@rightline})}}
1204 \newrobustcmd*{\mdf@test@single}%
1205 \ifbool{expr{ not (test {\mdf@test@lrb} or test {\mdf@test@ltr} or
1206                       test {\mdf@test@ltb} or test {\mdf@test@trb} or
1207                       test {\mdf@test@lrb} or test {\mdf@test@lb} or
1208                       test {\mdf@test@rb} or test {\mdf@test@tr} or
1209                       test {\mdf@test@lt} ) }}
1210 %
1211 \DisableKeyvalOption[action=warning,package=mdframed]{mdf}{framemethod}%
1212 \DisableKeyvalOption[action=warning,package=mdframed]{mdf}{xcolor}%
1213
1214 \endinput

```

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

```

1215 %% Style file for mdframed for package option 'framemethod=default'
1216 %%
1217 %% This package may be distributed under the terms of the LaTeX Project
1218 %% Public License, as described in lppl.txt in the base LaTeX distribution.
1219 %% Either version 1.0 or, at your option, any later version.
1220 %%
1221 %%
1222 %%$Id: mdframed.dtx 382 2012-04-17 14:35:02Z marco $
1223 %

```

```

\mdframed0packagename
\mdf@frame0date@svn

```

local settings

```

1224 \def\mdframed0packagename{md-frame-0}
1225 \def\mdf@frame0date@svn$#1: #2 #3 #4-#5-#6 #7 #8$#4/#5/#6\space }
1226 \ProvidesFile{md-frame-0.mdf}%
1227     [\mdf@frame0date@svn$Id: mdframed.dtx 382 2012-04-17 14:35:02Z marco $]
1228     \mdversion: \mdframed0packagename]

```

```

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

```

short command

```

1229 \def\mdf@background@default{\color{\mdf@backgroundcolor}}
1230 \def\mdf@frametitlebackground@default{\color{\mdf@frametitlebackgroundcolor}}
1231 \def\mdf@shadow@default{\color{\mdf@shadowcolor}}
1232 \def\mdf@innerlinecolor@default{\color{\mdf@innerlinecolor}}
1233 \def\mdf@middlelinecolor@default{\color{\mdf@middlelinecolor}}
1234 \def\mdf@outerlinecolor@default{\color{\mdf@outerlinecolor}}
1235 \def\mdf@frametitlerulecolor@default{\color{\mdf@frametitlerulecolor}}
1236 \let\mdf@linecolor@default\mdf@middlelinecolor@default
1237 \def\mdf@@frametitlerule{%

```



```

1238 \ifbool{mdf@frametitulerule}{%
1239 \vbox to \mdf@frametitulerulewidth@length {\hsize\mdfframetitleboxwidth%
1240 \par\unskip\vskip\mdf@frametitlebelowskip@length%
1241 \rlap{\noindent\hspace*{-\mdf@innerleftmargin@length}%
1242 \mdf@frametitulerulecolor@default%
1243 \rule{\dimexpr\mdfframetitleboxwidth%
1244 +\mdf@innerleftmargin@length
1245 +\mdf@innerrightmargin@length\relax
1246 }\mdf@frametitulerulewidth@length}%
1247 }}%
1248 }{}
1249 \par\unskip\vskip\mdf@innertopmargin@length%
1250 }%
1251

```

```

\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

```

1252 \def\mdf@frame@background@single{%
1253 \ifbool{mdf@shadow}{%
1254 \rlap{\smash{\mdf@shadow@default%
1255 \rule{\dimexpr-\mdfboundingboxdepth
1256 -\mdf@shadowsize@length
1257 \ifbool{mdf@bottomline}{-\mdf@middlelinewidth@length}{\relax}%
1258 {\dimexpr\mdfboundingboxtotalwidth
1259 +\mdf@shadowsize@length
1260 \ifbool{mdf@rightline}{+\mdf@middlelinewidth@length}{\relax}%
1261 {\dimexpr\mdfboundingboxtotalheight
1262 +\mdf@shadowsize@length
1263 \ifbool{mdf@bottomline}{+\mdf@middlelinewidth@length}{\relax}%
1264 }%
1265 }}}%
1266 \rlap{\mdf@background@default%
1267 \rule[-\mdfboundingboxdepth]%
1268 {\mdfboundingboxtotalwidth}%
1269 {\mdfboundingboxtotalheight}%
1270 }%
1271 }%
1272 \def\mdf@frame@frametitlebackground@single{%
1273 \rlap{\mdf@frametitlebackground@default%
1274 \rule{\dimexpr-\mdfboundingboxdepth+\mdfboundingboxtotalheight-\mdfframetitleboxtotalheight\relax}%
1275 {\mdfboundingboxtotalwidth}%
1276 {\mdfframetitleboxtotalheight}%
1277 }%
1278 }%
1279
1280 \def\mdf@frame@topline@single{%
1281 \rlap{\mdf@linecolor@default%
1282 \ifbool{mdf@topline}{%
1283 \rule{\dimexpr\mdfboundingboxheight-\mdfboundingboxdepth%
1284 +\mdf@innerbottommargin@length+\mdf@innertopmargin@length\relax}%

```



```

1285         {\mdfboundingboxtotalwidth}%
1286         {\mdf@middlelinewidth@length}}}%
1287     {}%
1288 }%
1289 }%
1290 \def\mdf@frame@bottomline@single{%
1291   \rlap{\ifbool{mdf@leftline}{\hspace*{-\mdf@middlelinewidth@length}}{\mdf@linecolor@default%
1292     \ifbool{mdf@bottomline}{%
1293       \rule[\dimexpr-\mdfboundingboxdepth-\mdf@middlelinewidth@length\relax]{%
1294         {\dimexpr\mdfboundingboxtotalwidth
1295           \ifbool{mdf@rightline}{+\mdf@middlelinewidth@length}}}%
1296         \ifbool{mdf@leftline}{+\mdf@middlelinewidth@length}}{\relax}%
1297         {\mdf@middlelinewidth@length}}}%
1298     {}%
1299 }%
1300 }%
1301 \def\mdf@frame@leftline@single{%
1302   \llap{\mdf@linecolor@default%
1303     \rule[-\mdfboundingboxdepth]{%
1304       {\mdf@middlelinewidth@length}%
1305       {\dimexpr\mdfboundingboxtotalheight%
1306         \ifbool{mdf@topline}{+\mdf@middlelinewidth@length}}{\relax}%
1307     }%
1308 }%
1309 }%
1310 \def\mdf@frame@rightline@single{%
1311   \rlap{\mdf@linecolor@default%
1312     \hspace*{\mdfboundingboxwidth}%
1313     \hspace*{\mdf@innerrightmargin@length}%
1314     \rule[\dimexpr-\mdfboundingboxdepth%
1315       \relax]{%
1316       {\mdf@middlelinewidth@length}%
1317       {\dimexpr\mdfboundingboxtotalheight%
1318         +\ifbool{mdf@topline}{\mdf@middlelinewidth@length}{0pt}}\relax}%
1319   }%
1320 }%
1321 \def\mdf@putbox@single{%%%% Ausgabe der ungesplitteten Gesamtbox
1322   \ifvoid\mdf@splitbox@one
1323   \else%
1324     \mdf@makebox@out{%
1325       \mdf@makeboxalign@left%
1326       \setlength{\mdfboundingboxwidth}%
1327         {\wd\mdf@splitbox@one}%
1328       \setlength{\mdfboundingboxtotalwidth}%
1329         {\dimexpr\mdfboundingboxwidth+\mdf@innerleftmargin@length%
1330           +\mdf@innerrightmargin@length\relax}%
1331       \setlength{\mdfboundingboxheight}%
1332         {\dimexpr\ht\mdf@splitbox@one+\dp\mdf@splitbox@one\relax}%
1333       \setlength{\mdfboundingboxdepth}%
1334         {\dimexpr\dp\mdf@splitbox@one+\mdf@innerbottommargin@length\relax}%
1335       \setlength{\mdfboundingboxtotalheight}%
1336         {\dimexpr\mdfboundingboxheight+\mdf@innertopmargin@length%
1337           +\mdf@innerbottommargin@length\relax}%
1338       \setlength{\mdftotallinewidth}{%
1339         \dimexpr\mdf@innerlinewidth@length+\mdf@middlelinewidth@length%
1340         +\mdf@outerlinewidth@length}%
1341     }%

```

```

1341 \setlength{\@tempdima}{\dimexpr\mdfboundingboxtotalwidth%
1342 \ifbool{mdf@leftline}%
1343 {\mdf@middlelinewidth@length}{\z@}%
1344 +\ifbool{mdf@rightline}%
1345 {\mdf@middlelinewidth@length}{\z@}\relax}%
1346 \mdf@makebox@in[\@tempdima]{%
1347 \null%
1348 \ifbool{mdf@leftline}{%
1349 \hspace*{\mdftotalllinewidth}%
1350 \mdf@frame@leftline@single%
1351 }{}%
1352 \mdf@frame@topline@single%
1353 \mdf@frame@background@single%
1354 \mdf@frame@bottomline@single%
1355 \ifdefempty{\mdf@frametitle}{\mdf@frame@frametitlebackground@single}%
1356 \hspace*{\mdf@innerleftmargin@length}%
1357 \ifbool{mdf@rightline}{%
1358 \mdf@frame@rightline@single%
1359 }{}%
1360 {\box\mdf@splitbox@one}%
1361 }%
1362 \mdf@makeboxalign@right%
1363 }%
1364 \fi%
1365 }

```

```

\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

```

1366 \def\mdf@frame@background@first{%
1367 \ifbool{mdf@shadow}{%
1368 \rlap{\smash{\mdf@shadow@default%
1369 \rule[\dimexpr-\mdfboundingboxdepth
1370 -\mdf@shadowsize@length\relax}%
1371 {\dimexpr\mdfboundingboxtotalwidth
1372 +\mdf@shadowsize@length
1373 \ifbool{mdf@rightline}{+\mdf@middlelinewidth@length}}{\relax}%
1374 {\dimexpr\mdfboundingboxtotalheight
1375 +\mdf@shadowsize@length\relax}%
1376 }%
1377 }}{}%
1378 \rlap{\mdf@background@default%
1379 \rule[-\mdfboundingboxdepth]%
1380 {\mdfboundingboxtotalwidth}%
1381 {\mdfboundingboxtotalheight}%
1382 }%
1383 }%
1384 \def\mdf@frame@frametitlebackground@first{%
1385 \ifdimless{\mdfframetitleboxtotalheight}{\mdfboundingboxtotalheight}%
1386 {%
1387 \rlap{\mdf@frametitlebackground@default%

```

```

1388     \rule[\dimexpr-\mdfboundingboxdepth+\mdfboundingboxtotalheight-\mdfframetitleboxtotalheight\relax]
1389         {\mdfboundingboxtotalwidth}%
1390         {\mdfframetitleboxtotalheight}%
1391     }%
1392     \global\mdfframetitleboxtotalheight=-\p@relax%
1393     \ifmdf@PackageWarning{You got a page break inside the frame title\MessageBreak
1394         Current this isn't well supported}%
1395     \rlap{\mdf@frametitlebackground@default%
1396         \rule[-\mdfboundingboxdepth]%
1397             {\mdfboundingboxtotalwidth}%
1398             {\mdfboundingboxtotalheight}%
1399     }%
1400     \global\mdfframetitleboxtotalheight=\dimexpr\mdfframetitleboxtotalheight
1401         -\mdfboundingboxheight
1402         +\mdf@frametitlebelowskip@length
1403         +.5\baselineskip-1pt
1404     %
1405         +\dp\strutbox
1406     \relax%
1407 }%
1408 \def\mdf@frame@leftline@first{%
1409     \llap{\mdf@linecolor@default%
1410         \rule[-\mdfboundingboxdepth]%
1411             {\mdf@middlelinewidth@length}%
1412             {\dimexpr\mdfboundingboxtotalheight%
1413                 +\ifbool{mdf@topline}{\mdf@middlelinewidth@length}{0pt}\relax}%
1414     }%
1415 }%
1416 \def\mdf@frame@topline@first{%
1417     \rlap{\mdf@linecolor@default%
1418         \rule[\dimexpr\mdfboundingboxheight-\mdfboundingboxdepth+%
1419             \mdf@splitbottomskip@length+\mdf@innertopmargin@length\relax]%
1420             {\mdfboundingboxtotalwidth}%
1421             {\mdf@middlelinewidth@length}%
1422     }%
1423 }
1424 \def\mdf@frame@rightline@first{%
1425     \rlap{\mdf@linecolor@default\hspace*{\mdfboundingboxwidth}%
1426         \hspace*{\mdf@innerrightmargin@length}%
1427         \rule[-\mdfboundingboxdepth]%
1428             {\mdf@middlelinewidth@length}%
1429             {\dimexpr\mdfboundingboxtotalheight%
1430                 +\ifbool{mdf@topline}{\mdf@middlelinewidth@length}{0pt}\relax}%
1431     }%
1432 }%
1433 \def\mdf@frame@bottomline@first{%
1434     \rlap{\ifbool{mdf@leftline}{\hspace*{-\mdf@middlelinewidth@length}}{\mdf@linecolor@default%
1435         \ifbool{mdf@bottomline}{%
1436             \rule[\dimexpr-\mdfboundingboxdepth-\mdf@middlelinewidth@length\relax]%
1437                 {\dimexpr\mdfboundingboxtotalwidth
1438                     \ifbool{mdf@rightline}{+\mdf@middlelinewidth@length}{}}%
1439                     \ifbool{mdf@leftline}{+\mdf@middlelinewidth@length}{}}\relax}%
1440             {\mdf@middlelinewidth@length}}%
1441     }%
1442 }%
1443 }%

```

```

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

```

```

\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

```

1484 \def\mdf@frame@background@second{%
1485 \ifbool{mdf@shadow}{%
1486 \rlap{\smash{\mdf@shadow@default%
1487 \rule[\dimexpr-\mdfboundingboxdepth
1488 -\mdf@shadowsize@length
1489 \ifbool{mdf@bottomline}{-\mdf@middlelinewidth@length}{\relax}%
1490 {\dimexpr\mdfboundingboxtotalwidth

```

```

1491          +\mdf@shadowsize@length
1492          \ifbool{mdf@rightline}{+\mdf@middlelinewidth@length}{\relax}%
1493      {\dimexpr\mdfboundingboxtotalheight
1494          +\mdf@shadowsize@length\relax}%
1495  }%
1496  }}}%
1497  \rlap{\mdf@background@default%
1498      \rule[-\mdfboundingboxdepth]%
1499          {\mdfboundingboxtotalwidth}%
1500          {\mdfboundingboxtotalheight}%
1501  }%
1502 }%
1503 \def\mdf@frame@frametitlebackground@second{%
1504 \ifdimless{\mdfframetitleboxtotalheight}{\z@}%
1505 {}%
1506 {\rlap{\mdf@frametitlebackground@default%
1507     \rule[\dimexpr-\mdfboundingboxdepth+\mdfboundingboxtotalheight-\mdfframetitleboxtotalheight\relax]
1508         {\mdfboundingboxtotalwidth}%
1509         {\mdfframetitleboxtotalheight}%
1510     }%
1511 }%
1512 }%
1513 \def\mdf@frame@leftline@second{%
1514 \llap{\mdf@linecolor@default%
1515     \rule[-\mdfboundingboxdepth]%
1516         {\mdf@middlelinewidth@length}%
1517         {\dimexpr\mdfboundingboxtotalheight}%
1518 }%
1519 }%
1520 \def\mdf@frame@bottomline@second{%
1521 \rlap{\ifbool{mdf@leftline}{\hspace*{-\mdf@middlelinewidth@length}}{\mdf@linecolor@default%
1522     \rule[\dimexpr-\mdfboundingboxdepth-\mdf@middlelinewidth@length\relax]%
1523         {\dimexpr\mdfboundingboxtotalwidth
1524             \ifbool{mdf@rightline}{+\mdf@middlelinewidth@length}{\relax}%
1525             \ifbool{mdf@leftline}{+\mdf@middlelinewidth@length}{\relax}%
1526         {\mdf@middlelinewidth@length}%
1527     }%
1528 }%
1529 \def\mdf@frame@rightline@second{%
1530 \rlap{\mdf@linecolor@default\hspace*{\mdfboundingboxwidth}%
1531     \hspace*{\mdf@innerrightmargin@length}%
1532     \rule[-\mdfboundingboxdepth]%
1533         {\mdf@middlelinewidth@length}%
1534         {\mdfboundingboxtotalheight}%
1535 }%
1536 }%
1537 \def\mdf@frame@topline@second{%
1538 \rlap{\ifbool{mdf@leftline}{\hspace*{-\mdf@middlelinewidth@length}}{\mdf@linecolor@default%
1539     \ifbool{mdf@topline}{%
1540         \rule[\dimexpr\mdfboundingboxheight-\mdfboundingboxdepth%
1541             +\mdf@innerbottommargin@length\relax]%
1542             {\dimexpr\mdfboundingboxtotalwidth
1543                 \ifbool{mdf@rightline}{+\mdf@middlelinewidth@length}{\relax}%
1544                 \ifbool{mdf@leftline}{+\mdf@middlelinewidth@length}{\relax}%
1545             }%
1546             {\mdf@middlelinewidth@length}}%

```

```

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

```

```

\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

```

1589 \def\mdf@frame@leftline@middle{%
1590   \llap{\mdf@linecolor@default%
1591     \rule[-\mdfboundingboxdepth]%
1592       {\mdf@middlelinewidth@length}%
1593       {\mdfboundingboxtotalheight}%
1594   }%

```

```

1595 }%
1596 \def\mdf@frame@background@middle{%
1597   \ifbool{mdf@shadow}{%
1598     \rlap{\smash{\mdf@shadow@default%
1599       \rule[\dimexpr-\mdfboundingboxdepth
1600         -\mdf@shadowsize@length\relax]%
1601         {\dimexpr\mdfboundingboxtotalwidth
1602           +\mdf@shadowsize@length
1603             \ifbool{mdf@rightline}{+\mdf@middlelinewidth@length}{}}\relax}%
1604         {\dimexpr\mdfboundingboxtotalheight\relax}%
1605       }%
1606     }}{%
1607     \rlap{\mdf@background@default%
1608       \rule[-\mdfboundingboxdepth]%
1609         {\mdfboundingboxtotalwidth}%
1610         {\mdfboundingboxtotalheight}%
1611     }%
1612 }%
1613 \def\mdf@frame@frametitlebackground@middle{%
1614   \ifdimless{\mdfframetitleboxtotalheight}{\z@}%
1615   {%
1616     {\rlap{\mdf@frametitlebackground@default%
1617       \rule[\dimexpr-\mdfboundingboxdepth+\mdfboundingboxtotalheight-\mdfframetitleboxtotalheight\relax]
1618         {\mdfboundingboxtotalwidth}%
1619         {\mdfframetitleboxtotalheight}%
1620     }%
1621     \global\mdfframetitleboxtotalheight=-\p@ \relax%
1622   }%
1623 }%
1624 \def\mdf@frame@rightline@middle{%
1625   \rlap{\mdf@linecolor@default\hspace*{\mdfboundingboxwidth}%
1626     \hspace*{\mdf@innerrightmargin@length}%
1627     \rule[-\mdfboundingboxdepth]%
1628       {\mdf@middlelinewidth@length}%
1629       {\mdfboundingboxtotalheight}%
1630   }%
1631 }%
1632 \def\mdf@frame@topline@middle{%
1633   \rlap{\ifbool{mdf@leftline}{\hspace*{-\mdf@middlelinewidth@length}}{\mdf@linecolor@default%
1634     \ifbool{mdf@topline}{%
1635       \rule[\dimexpr\mdfboundingboxtotalheight-\mdfboundingboxdepth\relax]%
1636         {\dimexpr\mdfboundingboxtotalwidth
1637           \ifbool{mdf@rightline}{+\mdf@middlelinewidth@length}{}}%
1638           \ifbool{mdf@leftline}{+\mdf@middlelinewidth@length}{}}\relax
1639       }%
1640       {\mdf@middlelinewidth@length}}%
1641     }%
1642   }%
1643 }%
1644 \def\mdf@frame@bottomline@middle{%
1645   \rlap{\ifbool{mdf@leftline}{\hspace*{-\mdf@middlelinewidth@length}}{\mdf@linecolor@default%
1646     \ifbool{mdf@bottomline}{%
1647       \rule[\dimexpr-\mdfboundingboxdepth-\mdf@middlelinewidth@length\relax]%
1648         {\dimexpr\mdfboundingboxtotalwidth
1649           \ifbool{mdf@rightline}{+\mdf@middlelinewidth@length}{}}%
1650           \ifbool{mdf@leftline}{+\mdf@middlelinewidth@length}{}}\relax}%

```

```

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

```

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

```

1695 %% Style file for mdframed for package option 'framemethod=default'
1696 %%
1697 %% This package may be distributed under the terms of the LaTeX Project
1698 %% Public License, as described in lppl.txt in the base LaTeX distribution.
1699 %% Either version 1.0 or, at your option, any later version.
1700 %%
1701 %%
1702 %%$Id: mdframed.dtx 382 2012-04-17 14:35:02Z marco $

```



1703 %

\mdframedIpackagename  
 \mdf@frameIdate@svn

local settings

```

1704 \def\mdframedIpackagename{md-frame-1}
1705 \def\mdf@frameIdate@svn$#1: #2 #3 #4-#5-#6 #7 #8${#4/#5/#6\space }
1706 \ProvidesFile{md-frame-1.mdf}%
1707      [\mdf@frameIdate@svn$Id: mdframed.dtx 382 2012-04-17 14:35:02Z marco $ %
1708      \mdversion: \mdframedIpackagename]
1709 %

```

\mdf@tikz@settings

Define settings for tikz

```

1710 %Allgemeine Einstellungen fuer tikz
1711 \def\mdf@tikz@settings{%
1712 %
1713   \tikzset{mdfbox/.style={anchor=south west,%
1714                           inner sep=0pt,%
1715                           outer sep=0pt,%
1716                           \mdf@fontcolor,}}% anchor der Ausgabebox ist unten links
1717   \tikzset{mdfcorners/.style={rounded corners=\mdf@roundcorner@length}}%
1718   \tikzset{mdfbackground/.style={fill=\mdf@backgroundcolor,%
1719                                   draw=\mdf@backgroundcolor}}%
1720   \tikzset{mdfframetitlebackground/.style={fill=\mdf@frametitlebackgroundcolor,%
1721                                               draw=none,%
1722                                               rounded corners={max(\mdf@roundcorner@length%
1723                               -\mdf@innerlinewidth@length%
1724                               -.5\mdf@middlelinewidth@length,0)}}}%
1725 %
1726   \tikzset{mdfouterline/.style={}}%
1727 % nur wenn outerlinewidth>0 wird aussere Linie gezeichnet
1728   \ifdimgreater{\mdf@outerlinewidth@length}{\z@}
1729     {\tikzset{mdfouterline/.append style={%
1730         draw=\mdf@outerlinecolor,%
1731         line width=2\mdf@outerlinewidth@length+\mdf@middlelinewidth@length}}}%
1732 %
1733   \tikzset{mdfinnerline/.style={}}%
1734 % nur wenn innerlinewidth>0 wird innere Linie gezeichnet
1735   \ifdimgreater{\mdf@innerlinewidth@length}{\z@}
1736     {\tikzset{mdfinnerline/.append style={%
1737         draw=\mdf@innerlinecolor,%
1738         line width=2\mdf@innerlinewidth@length+\mdf@middlelinewidth@length}}}%
1739 %
1740   \tikzset{mdfshadow/.style={drop shadow={%
1741       shadow xshift=\mdf@shadowsize@length-2pt,
1742       shadow yshift=-\mdf@shadowsize@length+2pt,
1743       fill=\mdf@shadowcolor,
1744       every shadow }}}%
1745 %
1746   \mdf@tikzset@local
1747   \tikzset{mdfmiddleline/.style={}}%
1748 % nur wenn middlelinewidth>0 wird mittlere Linie gezeichnet
1749   \ifdimgreater{\mdf@middlelinewidth@length}{\z@}

```

```

1750     {\tikzset{mdfmiddleline/.append style={%
1751         preaction={draw=\mdf@middlelinecolor,%
1752             line width=\mdf@middlelinewidth@length},%
1753         line width=\mdf@middlelinewidth@length,%
1754         tikzsetting}}}%
1755     }{}%
1756 }%

```

```

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

```

Befehle fuer Ausgabe von Rahmen und Hintergrund

```

1757 \newrobustcmd*\mdf@tikzbox@tfl[1]{%three or four borders
1758     \clip(0,0)rectangle(\mdf@boundingboxwidth,\mdf@boundingboxheight);%
1759     \begin{scope}[mdfcorners]%
1760         \clip[preaction=mdfouterline]%
1761             [postaction=mdfbackground]%
1762             [postaction=mdfinnerline]#1;%
1763     \end{scope}%
1764     \path[mdfmiddleline,mdfcorners]#1;
1765 }%
1766
1767
1768
1769 \newrobustcmd*\mdf@tikzbox@otl[2]{%one or two borders
1770     \clip(0,0)rectangle(\mdf@boundingboxwidth,\mdf@boundingboxheight);%
1771     \begin{scope}
1772         \path[mdfouterline,mdfcorners]#1;%
1773         \clip[postaction=mdfbackground]#2;%
1774         \path[mdfinnerline,mdfcorners]#1;%
1775     \end{scope}%
1776     \path[mdfmiddleline,mdfcorners]#1;%

```

```

\mdf@put@frametitlerule

```

frametitlerule with tikz

```

1777 \tikzset{mdfframetitlerule/.style={%
1778     draw=none,
1779     fill=\mdf@frametitlerulecolor,
1780 }%
1781 }
1782 \def\mdf@@frametitlerule{%
1783     \ifbool{mdf@frametitlerule}{%
1784         \vbox{\hsize0pt
1785             \par\unskip\vskip\mdf@frametitlebelowskip@length
1786             \noindent\rlap{\hspace*{-\mdf@innerleftmargin@length}%
1787             \begingroup%
1788             \pgfmathsetlength{\dimen@}{\mdfframetitleboxwidth+\mdf@innerleftmargin@length+\mdf@innerrightmargin@length}%
1789             \tikz\draw[mdfframetitlerule] (0,0)%
1790                 rectangle (\dimen@,\mdf@frametitlerulewidth@length);
1791             \endgroup}
1792         }%
1793     }{}
1794     \par\unskip\vskip\mdf@innertopmargin@length%
1795 }%

```

1796

\mdf@putbox@single

Output of the non breakable contents.

```

1797 % Info zu den verwendeten Punkten:
1798 % O ist die untere linke Ecke der Mitte der middleline
1799 % P ist die obere rechte Ecke der Mitte der middleline
1800 % A ist der Punkt fuer den anchor (d.h. die untere linke Ecke) der Ausgabebox
1801 %
1802 \def\mdf@putbox@single{%
1803   \ifvoid\mdf@splitbox@one
1804   \else%
1805     \mdf@makebox@out{%
1806       \mdf@makeboxalign@left%
1807       \mdf@tikz@settings%
1808     %
1809     \setlength\mdfboundingboxwidth{\wd\mdf@splitbox@one}%
1810     \advance\mdfboundingboxwidth by \mdf@innerleftmargin@length\relax%
1811     \advance\mdfboundingboxwidth by \mdf@innerrightmargin@length\relax%
1812     \ifbool{mdf@leftline}{%
1813       \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
1814       \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
1815       \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}}{%
1816     \ifbool{mdf@rightline}{%
1817       \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
1818       \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
1819       \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}}}%
1820 %
1821     \setlength\mdfboundingboxheight{\dimexpr\ht\mdf@splitbox@one+\dp\mdf@splitbox@one\relax}%
1822     \advance\mdfboundingboxheight by \mdf@innertopmargin@length\relax%
1823     \advance\mdfboundingboxheight by \mdf@innerbottommargin@length\relax%
1824     \ifbool{mdf@topline}{%
1825       \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
1826       \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
1827       \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}}{%
1828     \ifbool{mdf@bottomline}{%
1829       \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
1830       \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
1831       \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}}}%
1832     \mdf@makebox@in[\mdfboundingboxwidth]{%
1833     \null%
1834     \begin{tikzpicture}[remember picture]%
1835       \pgfmithsetlengthmacro\mdf@Ax{+\mdf@innerleftmargin@length}%
1836       \pgfmithsetlengthmacro\mdf@Ay{+\mdf@innerbottommargin@length}%
1837       \pgfmithsetlengthmacro\mdf@Ox{+0pt}%
1838       \pgfmithsetlengthmacro\mdf@Oy{+0pt}%
1839       \pgfmithsetlengthmacro\mdf@Px{+\mdfboundingboxwidth}%
1840       \pgfmithsetlengthmacro\mdf@Py{+\mdfboundingboxheight}%
1841       \ifbool{mdf@leftline}{%
1842         {%
1843           \pgfmithsetlengthmacro\mdf@Ax%
1844             {\mdf@Ax+\mdf@outerlinewidth@length+
1845              \mdf@middlelinewidth@length+\mdf@innerlinewidth@length}%
1846           \pgfmithsetlengthmacro\mdf@Ox%

```

```

1847         {\mdf@0x+\mdf@outerlinewidth@length+0.5\mdf@middlelinewidth@length}%
1848     }{}%
1849 \ifbool{mdf@rightline}%
1850 {%
1851     \pgfmathsetlengthmacro\mdf@Px%
1852         {\mdf@Px-\mdf@outerlinewidth@length-0.5\mdf@middlelinewidth@length}%
1853     }{}%
1854 \ifbool{mdf@bottomline}%
1855 {%
1856     \pgfmathsetlengthmacro\mdf@Ay%
1857         {\mdf@Ay+\mdf@outerlinewidth@length+\mdf@middlelinewidth@length%
1858         +\mdf@innerlinewidth@length}%
1859     \pgfmathsetlengthmacro\mdf@0y%
1860         {\mdf@0y+\mdf@outerlinewidth@length+0.5\mdf@middlelinewidth@length}%
1861     }{}%
1862 \ifbool{mdf@topline}%
1863 {%
1864     \pgfmathsetlengthmacro\mdf@Py%
1865         {\mdf@Py-\mdf@outerlinewidth@length-0.5\mdf@middlelinewidth@length}%
1866     }{}%
1867 %
1868 \coordinate(0)at(\mdf@0x,\mdf@0y);%
1869 \coordinate(P)at(\mdf@Px,\mdf@Py);%
1870 %
1871 \ifbool{mdf@shadow}
1872     {\path[mdfshadow,mdfcorners](0) rectangle (P);}{}%
1873 %
1874 \begin{scope}[use as bounding box]
1875     \mdf@test@lrb{\mdf@tikzbox@tfl{(0)--(0|-P)--(P)--(P|-0)--cycle)}}{}%
1876 %
1877     \mdf@test@ltb{\mdf@tikzbox@tfl{(P|-0)--(0)--(0|-P)--(P)}}{}%
1878     \mdf@test@trb{\mdf@tikzbox@tfl{(0|-P)--(P)--(P|-0)--(0)}}{}%
1879     \mdf@test@lrb{\mdf@tikzbox@tfl{(0)--(0|-P)--(P)--(P|-0)}}{}%
1880     \mdf@test@lrb{\mdf@tikzbox@tfl{(P|-0)--(0)--(0|-P)--(P)}}{}%
1881 %
1882     \mdf@test@lb{\mdf@tikzbox@otl{(P|-0)--(0)--(0|-P)}}%
1883         {(P)--(P|-0)[mdfcorners]--(0)--(0|-P)}%
1884     }{}%
1885     \mdf@test@rb{\mdf@tikzbox@otl{(P)--(P|-0)--(0)}}%
1886         {(0|-P)--(P)[mdfcorners]--(P|-0)--(0)}%
1887     }{}%
1888     \mdf@test@tr{\mdf@tikzbox@otl{(0|-P)--(P)--(P|-0)}}%
1889         {(0)--(0|-P)[mdfcorners]--(P)--(P|-0)}%
1890     }{}%
1891     \mdf@test@lt{\mdf@tikzbox@otl{(0)--(0|-P)--(P)}}%
1892         {(P|-0)--(0)[mdfcorners]--(0|-P)--(P)}%
1893     }{}%
1894     \mdf@test@lr{\mdf@tikzbox@otl{(0)--(0|-P)(P)--(P|-0)}}%
1895         {(0)rectangle(P)}%
1896     }{}%
1897     \mdf@test@tb{\mdf@tikzbox@otl{(0)--(0|-P)(0|-P)--(P)}}%
1898         {(0)rectangle(P)}%
1899     }{}%
1900 %
1901     \mdf@test@l{\mdf@tikzbox@otl{(0)--(0|-P)}}%
1902         {(0)rectangle(P)}%

```

```

1903         }{}%
1904     \mdf@test@r{\mdf@tikzbox@otl{(0|P)--(P)}%
1905                 {(0)rectangle(P)}%
1906         }{}%
1907     \mdf@test@t{\mdf@tikzbox@otl{(0|P)--(P)}%
1908                 {(0)rectangle(P)}%
1909         }{}%
1910     \mdf@test@b{\mdf@tikzbox@otl{(0)--(0|P)}%
1911                 {(0)rectangle(P)}%
1912         }{}%
1913 %
1914     \mdf@test@noline{\path[mdfbackground,mdfcorners](0)rectangle(P);}{}%
1915 %
1916     %Frametitlebackground
1917     \drawbackgroundframetitle@single
1918 %
1919     \node[mdfbox]at(\mdf@Ax,\mdf@Ay){\box\mdf@splitbox@one};% Ausgabebox einfuegen
1920 \end{scope}
1921 %HIER KOMMT EIN WEITERES MAKRO
1922 \mdf@singleextra
1923 \mdfcreateextratikz
1924 \end{tikzpicture}%
1925 }%
1926 \mdf@makeboxalign@right%
1927 }%
1928 \fi
1929 }%
1930 \def\drawbackgroundframetitle@single{%
1931 \ifdefempty{\mdf@frametitle}{}{}%
1932 \drawbackgroundframetitle@@single%
1933 }%
1934 }%
1935 \def\drawbackgroundframetitle@@single{%
1936 \begin{scope}%background frame title
1937 \ifbool{mdf@leftline}{
1938 \pgfmathsetlengthmacro\mdf@0x%
1939 {\mdf@0x+\mdf@innerlinewidth@length+0.5\mdf@middlelinewidth@length}
1940 }{}%
1941 \ifbool{mdf@rightline}{%
1942 \pgfmathsetlengthmacro\mdf@Px%
1943 {\mdf@Px-\mdf@innerlinewidth@length-0.5\mdf@middlelinewidth@length}
1944 }{}%
1945 \ifbool{mdf@topline}{%
1946 \pgfmathsetlengthmacro\mdf@Py%
1947 {\mdf@Py-\mdf@innerlinewidth@length-0.5\mdf@middlelinewidth@length}
1948 }{}%
1949 \pgfmathsetlengthmacro\mdf@Fy
1950 {\mdf@Py-\mdfframetitleboxtotalheight}
1951 \path[mdfframetitlebackground]
1952 (\mdf@0x,\mdf@Fy) -- (\mdf@0x,\mdf@Py)%
1953 --(\mdf@Px,\mdf@Py) --(\mdf@Px,\mdf@Fy);
1954 \end{scope}
1955 }

```

\mdf@putbox@first

Output of the first breakable contents.

```

1956 \def\drawbrackgroundframetitle@first{%
1957 \ifdefempty{\mdf@frametitle}}{%
1958 \ifdimgreater{\mdfboundingboxheight}{\mdfframetitleboxtotalheight}%
1959 {%
1960 \drawbrackgroundframetitle@@first
1961 \pgfmathsetlength{\global\mdfframetitleboxtotalheight}{-\p@}%
1962 }\mdf@PackageWarning{You got a page break inside the frame title\MessageBreak
1963 Currently this isn't well supported}%
1964 \drawbrackgroundframetitle@@first
1965 \pgfmathsetlength{\global\mdfframetitleboxtotalheight}%
1966 {\mdfframetitleboxtotalheight-\mdfboundingboxheight-
1967 \mdf@innerlinewidth@length-0.5\mdf@middlelinewidth@length%
1968 +\mdf@frametitlebelowskip@length+\mdf@splitbottomskip@length+\mdf@splittopskip@length%
1969 +\dp\strutbox%
1970 }%
1971 }%
1972 }%
1973 }%
1974 %
1975 \def\drawbrackgroundframetitle@@first{%
1976 \begin{scope}%background frame title
1977 \ifbool{\mdf@leftline}{%
1978 \pgfmathsetlengthmacro\mdf@0x%
1979 {\mdf@0x+\mdf@innerlinewidth@length+0.5\mdf@middlelinewidth@length}
1980 }{%
1981 \ifbool{\mdf@rightline}{%
1982 \pgfmathsetlengthmacro\mdf@Px%
1983 {\mdf@Px-\mdf@innerlinewidth@length-0.5\mdf@middlelinewidth@length}
1984 }{%
1985 \ifbool{\mdf@topline}{%
1986 \pgfmathsetlengthmacro\mdf@Py%
1987 {\mdf@Py-\mdf@innerlinewidth@length-0.5\mdf@middlelinewidth@length}
1988 }{%
1989 \pgfmathsetlengthmacro\mdf@Fy
1990 {\max(0,\mdf@Py-\mdfframetitleboxtotalheight)}
1991 \path[mdfframetitlebackground]
1992 (\mdf@0x,\mdf@Fy) -- (\mdf@0x,\mdf@Py)%
1993 -- (\mdf@Px,\mdf@Py) -- (\mdf@Px,\mdf@Fy);
1994 \end{scope}%
1995 }%
1996 %
1997 \def\mdf@putbox@first{%
1998 \ifvoid\mdf@splitbox@two
1999 \else%
2000 \mdf@makebox@out{%
2001 \mdf@makeboxalign@left%
2002 \mdf@tikz@settings%
2003 \setlength\mdfboundingboxwidth{\wd\mdf@splitbox@two}%
2004 \advance\mdfboundingboxwidth by \mdf@innerleftmargin@length\relax%
2005 \advance\mdfboundingboxwidth by \mdf@innerrightmargin@length\relax%
2006 \ifbool{\mdf@leftline}{%
2007 \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
2008 \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
2009 \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}%
2010 \ifbool{\mdf@rightline}{%

```

```

2011 \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
2012 \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
2013 \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}}}%
2014 \setlength\mdfboundingboxheight{\dimexpr\ht\mdf@splitbox@two+\dp\mdf@splitbox@two\relax}%
2015 \advance\mdfboundingboxheight by \mdf@innertopmargin@length\relax%
2016 \advance\mdfboundingboxheight by \mdf@splitbottomskip@length\relax%
2017 \ifbool{mdf@topline}{%
2018 \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
2019 \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
2020 \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}}}%
2021 %%%%%%%%%
2022 \ifbool{mdf@everyline}{%
2023 \ifbool{mdf@bottomline}{%
2024 \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
2025 \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
2026 \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}}}%
2027 }}}%
2028 %%%%%%%%%
2029 %\ifdimequal{\pagegoal}{\maxdimen}{\enlargethispage{\baselineskip}}}% ???
2030 \ifdimgreater{\pagegoal-\maxdimen}{0pt}}{\enlargethispage{\baselineskip}}}%
2031 \mdf@makebox@in[\mdfboundingboxwidth]{%
2032 \null%
2033 \begin{tikzpicture}[remember picture]
2034 \pgfmathsetlengthmacro\mdf@Ax{+\mdf@innerleftmargin@length}%
2035 \pgfmathsetlengthmacro\mdf@Ay{+\mdf@splitbottomskip@length}%
2036 \pgfmathsetlengthmacro\mdf@Ox{+0pt}%
2037 \pgfmathsetlengthmacro\mdf@Oy{+0pt}%
2038 \pgfmathsetlengthmacro\mdf@Px{+\mdfboundingboxwidth}%
2039 \pgfmathsetlengthmacro\mdf@Py{+\mdfboundingboxheight}%
2040 \ifbool{mdf@leftline}{%
2041 {%
2042 \pgfmathsetlengthmacro\mdf@Ax%
2043 {\mdf@Ax+\mdf@outerlinewidth@length+%
2044 \mdf@middlelinewidth@length+\mdf@innerlinewidth@length}%
2045 \pgfmathsetlengthmacro\mdf@Ox%
2046 {\mdf@Ox+\mdf@outerlinewidth@length+0.5\mdf@middlelinewidth@length}%
2047 }}}%
2048 \ifbool{mdf@rightline}{%
2049 \pgfmathsetlengthmacro\mdf@Px%
2050 {\mdf@Px-\mdf@outerlinewidth@length-0.5\mdf@middlelinewidth@length}%
2051 }}}%
2052 \ifbool{mdf@topline}{%
2053 \pgfmathsetlengthmacro\mdf@Py%
2054 {\mdf@Py-\mdf@outerlinewidth@length-0.5\mdf@middlelinewidth@length}%
2055 }}}%
2056 %%
2057 \ifbool{mdf@everyline}{%
2058 \ifbool{mdf@bottomline}{%
2059 {%
2060 \pgfmathsetlengthmacro\mdf@Ay%
2061 {\mdf@Ay+\mdf@outerlinewidth@length+\mdf@middlelinewidth@length%
2062 +\mdf@innerlinewidth@length}%
2063 \pgfmathsetlengthmacro\mdf@Oy%
2064 {\mdf@Oy+\mdf@outerlinewidth@length+0.5\mdf@middlelinewidth@length}%
2065 }}}%
2066 \ifbool{mdf@topline}{%

```



```

2067      {%
2068      \pgfmathsetlengthmacro\mdf@Py%
2069      {\mdf@Py-\mdf@outerlinewidth@length-0.5\mdf@middlelinewidth@length}%
2070      }{}%
2071      }{}%
2072  %%
2073      \coordinate(0)at(\mdf@0x,\mdf@0y);%
2074      \coordinate(P)at(\mdf@Px,\mdf@Py);%
2075      \ifbool{mdf@shadow}
2076      {\path[mdfshadow] (0) -- (0|-P) to[mdfcorners] (P) -- (P|-0) -- (0);}{}%
2077      \begin{scope}[use as bounding box]
2078  %%%%%%%%%%
2079      \ifbool{mdf@everyline}{%
2080      \mdf@test@lrb{\mdf@tikzbox@tfl{(0)--(0|-P)--(P)--(P|-0)--cycle)}}{}%
2081      \mdf@test@ltb{\mdf@tikzbox@tfl{(P|-0)--(0)--(0|-P)--(P)}}{}%
2082      \mdf@test@trb{\mdf@tikzbox@tfl{(0|-P)--(P)--(P|-0)--(0)}}{}%
2083      \mdf@test@ltr{\mdf@tikzbox@tfl{(0)--(0|-P)--(P)--(P|-0)}}{}%
2084      \mdf@test@lrb{\mdf@tikzbox@tfl{(P|-0)--(0)--(0|-P)--(P)}}{}%
2085      \mdf@test@lb{\mdf@tikzbox@otl{(P|-0)--(0)--(0|-P)}}%
2086      {(P)--(P|-0)[mdfcorners]--(0)--(0|-P)}%
2087      }{}%
2088      \mdf@test@rb{\mdf@tikzbox@otl{(P)--(P|-0)--(0)}}%
2089      {(0|-P)--(P)[mdfcorners]--(P|-0)--(0)}%
2090      }{}%
2091      \mdf@test@tr{\mdf@tikzbox@otl{(0|-P)--(P)--(P|-0)}}%
2092      {(0)--(0|-P)[mdfcorners]--(P)--(P|-0)}%
2093      }{}%
2094      \mdf@test@lt{\mdf@tikzbox@otl{(0)--(0|-P)--(P)}}%
2095      {(P|-0)--(0)[mdfcorners]--(0|-P)--(P)}%
2096      }{}%
2097      \mdf@test@lr{\mdf@tikzbox@otl{(0)--(0|-P)(P)--(P|-0)}}%
2098      {(0)rectangle(P)}%
2099      }{}%
2100      \mdf@test@tb{\mdf@tikzbox@otl{(0)--(0|-P)(0|-P)--(P)}}%
2101      {(0)rectangle(P)}%
2102      }{}%
2103      \mdf@test@l{\mdf@tikzbox@otl{(0)--(0|-P)}}%
2104      {(0)rectangle(P)}%
2105      }{}%
2106      \mdf@test@r{\mdf@tikzbox@otl{(0|-P)--(P)}}%
2107      {(0)rectangle(P)}%
2108      }{}%
2109      \mdf@test@t{\mdf@tikzbox@otl{(0|-P)--(P)}}%
2110      {(0)rectangle(P)}%
2111      }{}%
2112      \mdf@test@b{\mdf@tikzbox@otl{(0)--(0|-P)}}%
2113      {(0)rectangle(P)}%
2114      }{}%
2115      \mdf@test@noline{\path[mdfbackground,mdfcorners](0)rectangle(P);}{}%
2116  }{
2117      \ifboolexpr{test {\mdf@test@lrb} or test {\mdf@test@ltr}}%
2118      {\mdf@tikzbox@tfl{(0)--(0|-P)--(P)--(P|-0)}}%
2119      {}%
2120      \ifboolexpr{test {\mdf@test@ltb} or test {\mdf@test@ltr}}%
2121      {\mdf@tikzbox@otl{(0)--(0|-P)--(P)}}{(P|-0)--(0)[mdfcorners]--(0|-P)--(P)}%
2122      {}%

```



```

2123 \ifbool{test {\mdf@test@trb} or test {\mdf@test@tr}}{%
2124   {\mdf@tikzbox@otl{(0|-P)--(P)--(P|-0)}{(0)--(0|-P)[mdfcorners]--(P)--(P|-0)}}%
2125   }%
2126 \ifbool{test {\mdf@test@lrb} or test {\mdf@test@lr}}{%
2127   {\mdf@tikzbox@otl{(0)--(0|-P)(P)--(P|-0)}{(0)rectangle(P)}}%
2128   }%
2129 \ifbool{test {\mdf@test@tb} or test {\mdf@test@t}}{%
2130   {\mdf@tikzbox@otl{(0|-P)--(P)}{(0)rectangle(P)}}%
2131   }%
2132 \ifbool{test {\mdf@test@lb} or test {\mdf@test@l}}{%
2133   {\mdf@tikzbox@otl{(0)--(0|-P)}{(0)rectangle(P)}}%
2134   }%
2135 \ifbool{test {\mdf@test@rb} or test {\mdf@test@r}}{%
2136   {\mdf@tikzbox@otl{(0|-P)--(P)}{(0)rectangle(P)}}%
2137   }%
2138 \mdf@test@b{\path[mdfbackground](0)rectangle(P);}%
2139 \mdf@test@online{\path[mdfbackground,mdfcorners](0)--(0|-P)--(P)--(P|-0);}%
2140 }
2141 %%%%%%%%%%
2142 \drawbackgroundframetitle@first
2143 \node[mdfbox]at(\mdf@Ax,\mdf@Ay){\box\mdf@splitbox@two};% Ausgabebox einfügen
2144 \end{scope}
2145 %HIER KOMMT EIN WEITERES MAKRO
2146 \mdf@firstextra
2147 \mdfcreateextratikz%
2148 \end{tikzpicture}%
2149 }%
2150 \mdf@makeboxalign@right%
2151 }%
2152 \fi
2153 }%

```

\mdf@putbox@middle

Output of the middle breakable contents.

```

2154 \def\drawbackgroundframetitle@middle{%
2155   \ifempty{\mdf@frametitle}{}%
2156   \ifdimless{\mdfframetitleboxtotalheight}{\z@}
2157   {}%
2158   \drawbackgroundframetitle@@middle%
2159   \pgfmathsetlength{\global\mdfframetitleboxtotalheight}{-\p@}%
2160   }%
2161 }%
2162 }%
2163 %
2164 \def\drawbackgroundframetitle@@middle{%
2165   \begin{scope}%background frame title
2166     \ifbool{mdf@leftline}{
2167       \pgfmathsetlengthmacro\mdf@0x%
2168       {\mdf@0x+\mdf@innerlinewidth@length+0.5\mdf@middlelinewidth@length}
2169     }{}%
2170     \ifbool{mdf@rightline}{%
2171       \pgfmathsetlengthmacro\mdf@Px%
2172       {\mdf@Px-\mdf@innerlinewidth@length-0.5\mdf@middlelinewidth@length}
2173     }{}%

```

```

2174     \pgfmathsetlengthmacro\mdf@Fy
2175         {\mdf@Py-\mdfframetitleboxtotalheight}
2176     \path[mdfframetitlebackground,rounded corners=\z@]
2177         (\mdf@0x,\mdf@Fy) -- (\mdf@0x,\mdf@Py)%
2178         --(\mdf@Px,\mdf@Py) --(\mdf@Px,\mdf@Fy);
2179     \end{scope}
2180 }%
2181 %
2182 \def\drawbackgroundframetitle@middle{%
2183     \begin{scope}%background frame title
2184     \ifbool{mdf@leftline}{
2185         \pgfmathsetlengthmacro\mdf@0x%
2186             {\mdf@0x+\mdf@innerlinewidth@length+0.5\mdf@middlelinewidth@length}
2187         }{}%
2188     \ifbool{mdf@rightline}{%
2189         \pgfmathsetlengthmacro\mdf@Px%
2190             {\mdf@Px-\mdf@innerlinewidth@length-0.5\mdf@middlelinewidth@length}
2191         }{}%
2192     \pgfmathsetlengthmacro\mdf@Fy
2193         {\mdf@Py-\mdfframetitleboxtotalheight}
2194     \path[mdfframetitlebackground,rounded corners=\z@]
2195         (\mdf@0x,\mdf@Fy) -- (\mdf@0x,\mdf@Py)%
2196         --(\mdf@Px,\mdf@Py) --(\mdf@Px,\mdf@Fy);
2197     \end{scope}
2198 }%
2199 \def\mdf@putbox@middle{%
2200     \ifvoid\mdf@splitbox@two
2201     \else%
2202         \mdf@makebox@out{%
2203             \mdf@makeboxalign@left%
2204             \mdf@tikz@settings%
2205             \setlength\mdfboundingboxwidth{\wd\mdf@splitbox@two}%
2206             \advance\mdfboundingboxwidth by \mdf@innerleftmargin@length\relax%
2207             \advance\mdfboundingboxwidth by \mdf@innerrightmargin@length\relax%
2208             \ifbool{mdf@leftline}{%
2209                 \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
2210                 \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
2211                 \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}{}%
2212             \ifbool{mdf@rightline}{%
2213                 \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
2214                 \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
2215                 \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}{}%
2216             \setlength\mdfboundingboxheight{\dimexpr\ht\mdf@splitbox@two+\dp\mdf@splitbox@two\relax}%
2217             \advance\mdfboundingboxheight by \mdf@splitbottomskip@length\relax%
2218             %%%%%%%%%
2219             \ifbool{mdf@everyline}{%
2220                 \ifbool{mdf@topline}{%
2221                     \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
2222                     \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
2223                     \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}{}%
2224                 \ifbool{mdf@bottomline}{%
2225                     \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
2226                     \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
2227                     \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}{}%
2228                 }{}%
2229             %%%%%%%%%

```

```

2230 \mdf@makebox@in[\mdfboundingboxwidth]{%
2231 \null%
2232 \begin{tikzpicture}[remember picture]
2233 \pgfmathsetlengthmacro\mdf@Ax{+\mdf@innerleftmargin@length}%
2234 \pgfmathsetlengthmacro\mdf@Ay{+\mdf@splitbottomskip@length}%
2235 \pgfmathsetlengthmacro\mdf@Ox{+0pt}%
2236 \pgfmathsetlengthmacro\mdf@Oy{+0pt}%
2237 \pgfmathsetlengthmacro\mdf@Px{+\mdfboundingboxwidth}%
2238 \pgfmathsetlengthmacro\mdf@Py{+\mdfboundingboxheight}%
2239 \ifbool{mdf@leftline}%
2240 {%
2241 \pgfmathsetlengthmacro\mdf@Ax%
2242 {\mdf@Ax+\mdf@outerlinewidth@length+
2243 \mdf@middlelinewidth@length+\mdf@innerlinewidth@length}%
2244 \pgfmathsetlengthmacro\mdf@Ox%
2245 {\mdf@Ox+\mdf@outerlinewidth@length+0.5\mdf@middlelinewidth@length}%
2246 }{}%
2247 \ifbool{mdf@rightline}%
2248 {%
2249 \pgfmathsetlengthmacro\mdf@Px%
2250 {\mdf@Px-\mdf@outerlinewidth@length-0.5\mdf@middlelinewidth@length}%
2251 }{}%
2252 %%
2253 \ifbool{mdf@everyline}{%
2254 \ifbool{mdf@bottomline}%
2255 {%
2256 \pgfmathsetlengthmacro\mdf@Ay%
2257 {\mdf@Ay+\mdf@outerlinewidth@length+\mdf@middlelinewidth@length
2258 +\mdf@innerlinewidth@length}%
2259 \pgfmathsetlengthmacro\mdf@Oy%
2260 {\mdf@Oy+\mdf@outerlinewidth@length+0.5\mdf@middlelinewidth@length}%
2261 }{}%
2262 \ifbool{mdf@topline}%
2263 {%
2264 \pgfmathsetlengthmacro\mdf@Py%
2265 {\mdf@Py-\mdf@outerlinewidth@length-0.5\mdf@middlelinewidth@length}%
2266 }{}%
2267 }{}%
2268 %%
2269 \coordinate(0)at(\mdf@Ox,\mdf@Oy);%
2270 \coordinate(P)at(\mdf@Px,\mdf@Py);%
2271 \ifbool{mdf@shadow}
2272 {\path[mdfshadow](0) rectangle (P);}%
2273 \begin{scope}[use as bounding box]
2274 %%%%%%%%%%
2275 \ifbool{mdf@everyline}{%
2276 \mdf@test@lrb{\mdf@tikzbox@tfl{(0)--(0|-P)--(P)--(P|-0)--cycle)}}{}%
2277 \mdf@test@ltb{\mdf@tikzbox@tfl{(P|-0)--(0)--(0|-P)--(P)}}{}%
2278 \mdf@test@trb{\mdf@tikzbox@tfl{(0|-P)--(P)--(P|-0)--(0)}}{}%
2279 \mdf@test@ltr{\mdf@tikzbox@tfl{(0)--(0|-P)--(P)--(P|-0)}}{}%
2280 \mdf@test@lrb{\mdf@tikzbox@tfl{(P|-0)--(0)--(0|-P)--(P)}}{}%
2281 \mdf@test@lb{\mdf@tikzbox@otl{(P|-0)--(0)--(0|-P)}%
2282 {(P)--(P|-0)[mdfcorners]--(0)--(0|-P)}}%
2283 }{}%
2284 \mdf@test@rb{\mdf@tikzbox@otl{(P)--(P|-0)--(0)}%
2285 {(0|-P)--(P)[mdfcorners]--(P|-0)--(0)}}%

```

```

2286         }{}%
2287     \mdf@test@tr{\mdf@tikzbox@otl{(0|P)--(P)--(P|0)}%
2288                 {(0)--(0|P)[mdfcorners]--(P)--(P|0)}%
2289         }{}%
2290     \mdf@test@lt{\mdf@tikzbox@otl{(0)--(0|P)--(P)}%
2291                 {(P|0)--(0)[mdfcorners]--(0|P)--(P)}%
2292     }{}%
2293     \mdf@test@lr{\mdf@tikzbox@otl{(0)--(0|P)(P)--(P|0)}%
2294                 {(0)rectangle(P)}%
2295     }{}%
2296     \mdf@test@tb{\mdf@tikzbox@otl{(0)--(0|P)(0|P)--(P)}%
2297                 {(0)rectangle(P)}%
2298     }{}%
2299     \mdf@test@l{\mdf@tikzbox@otl{(0)--(0|P)}%
2300                 {(0)rectangle(P)}%
2301     }{}%
2302     \mdf@test@r{\mdf@tikzbox@otl{(0|P)--(P)}%
2303                 {(0)rectangle(P)}%
2304     }{}%
2305     \mdf@test@t{\mdf@tikzbox@otl{(0|P)--(P)}%
2306                 {(0)rectangle(P)}%
2307     }{}%
2308     \mdf@test@b{\mdf@tikzbox@otl{(0)--(0|P)}%
2309                 {(0)rectangle(P)}%
2310     }{}%
2311     \mdf@test@online{\path[mdfbackground,mdfcorners](0)rectangle(P);}{}%
2312 }{
2313     \ifboolexpr{bool {mdf@leftline} and bool {mdf@rightline}}%
2314         {\mdf@tikzbox@otl{(0)--(0|P)(P)--(P|0)}{(0)rectangle(P)}}{}%
2315     \ifboolexpr{bool {mdf@leftline} and not (bool {mdf@rightline})}%
2316         {\mdf@tikzbox@otl{(0)--(0|P)}{(0)rectangle(P)}}{}%
2317     \ifboolexpr{not (bool {mdf@leftline}) and bool {mdf@rightline}}%
2318         {\mdf@tikzbox@otl{(P)--(P|0)}{(0)rectangle(P)}}{}%
2319     \ifboolexpr{not (bool {mdf@leftline}) and not (bool {mdf@rightline})}%
2320         {\path[mdfbackground](0)rectangle(P);}{}%
2321 }
2322 %%%%%%%%%
2323     \drawbrackgroundframetitle@middle
2324     \node[mdfbox]at(\mdf@Ax,\mdf@Ay){\box\mdf@splitbox@two};% Ausgabebox einfüegen
2325     \end{scope}
2326     \mdf@middleextra
2327     %HIER KOMMT EIN WEITERES MAKRO
2328     \mdfcreateextratikz
2329     \end{tikzpicture}%
2330 }%
2331     \mdf@makeboxalign@right%
2332 }%
2333 \fi
2334 }%

```

\mdf@putbox@second

Output of the last breakable contents.

```

2335 \def\drawbrackgroundframetitle@second{%
2336     \ifdefempty{\mdf@frametitle}{}{}%

```

```

2337 \ifdimless{\mdfframetitleboxtotalheight}{\z@}
2338 {}{}%
2339 \drawbackgroundframetitle@@second%
2340 }%
2341 }%
2342 }%
2343 %
2344 \def\drawbackgroundframetitle@@second{%
2345     \begin{scope}%background frame title
2346     \ifbool{mdf@leftline}{
2347         \pgfmathsetlengthmacro\mdf@0x%
2348             {\mdf@0x+\mdf@innerlinewidth@length+0.5\mdf@middlelinewidth@length}
2349         {}{}%
2350     \ifbool{mdf@rightline}{%
2351         \pgfmathsetlengthmacro\mdf@Px%
2352             {\mdf@Px-\mdf@innerlinewidth@length-0.5\mdf@middlelinewidth@length}
2353         {}{}%
2354         \pgfmathsetlengthmacro\mdf@Fy
2355             {\mdf@Py-\mdfframetitleboxtotalheight}
2356         \path[mdfframetitlebackground,rounded corners=\z@]
2357             (\mdf@0x,\mdf@Fy) -- (\mdf@0x,\mdf@Py)%
2358             --(\mdf@Px,\mdf@Py) --(\mdf@Px,\mdf@Fy);
2359     \end{scope}
2360 }%
2361 \def\mdf@putbox@second{%
2362     \ifvoid\mdf@splitbox@one
2363     \else%
2364         \mdf@makebox@out{%
2365             \mdf@makeboxalign@left%
2366             \mdf@tikz@settings%
2367             \setlength\mdfboundingboxwidth{\wd\mdf@splitbox@one}%
2368             \advance\mdfboundingboxwidth by \mdf@innerleftmargin@length\relax%
2369             \advance\mdfboundingboxwidth by \mdf@innerrightmargin@length\relax%
2370             \ifbool{mdf@leftline}{%
2371                 \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
2372                 \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
2373                 \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}{}%
2374             \ifbool{mdf@rightline}{%
2375                 \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
2376                 \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
2377                 \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}{}%
2378             \setlength\mdfboundingboxheight{\dimexpr\ht\mdf@splitbox@one+\dp\mdf@splitbox@one\relax}%
2379             \advance\mdfboundingboxheight by \mdf@innerbottommargin@length\relax%
2380             \ifbool{mdf@bottomline}{%
2381                 \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
2382                 \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
2383                 \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}{}%
2384             %%%%%%%%%
2385             \ifbool{mdf@everyline}{%
2386                 \ifbool{mdf@topline}{%
2387                     \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
2388                     \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
2389                     \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}{}%
2390                 }{}%
2391             %%%%%%%%%
2392             \mdf@makebox@in[\mdfboundingboxwidth]{%

```

```

2393 \null%
2394 \begin{tikzpicture}[remember picture]
2395 \pgfmathsetlengthmacro\mdf@Ax{+\mdf@innerleftmargin@length}%
2396 \pgfmathsetlengthmacro\mdf@Ay{+\mdf@innerbottommargin@length}%
2397 \pgfmathsetlengthmacro\mdf@Ox{+0pt}%
2398 \pgfmathsetlengthmacro\mdf@Oy{+0pt}%
2399 \pgfmathsetlengthmacro\mdf@Px{+\mdf@boundingboxwidth}%
2400 \pgfmathsetlengthmacro\mdf@Py{+\mdf@boundingboxheight}%
2401 \ifbool{mdf@leftline}%
2402 {%
2403 \pgfmathsetlengthmacro\mdf@Ax%
2404 {\mdf@Ax+\mdf@outerlinewidth@length+
2405 \mdf@middlelinewidth@length+\mdf@innerlinewidth@length}%
2406 \pgfmathsetlengthmacro\mdf@Ox%
2407 {\mdf@Ox+\mdf@outerlinewidth@length+0.5\mdf@middlelinewidth@length}%
2408 }{}%
2409 \ifbool{mdf@rightline}%
2410 {%
2411 \pgfmathsetlengthmacro\mdf@Px%
2412 {\mdf@Px-\mdf@outerlinewidth@length-0.5\mdf@middlelinewidth@length}%
2413 }{}%
2414 \ifbool{mdf@bottomline}%
2415 {%
2416 \pgfmathsetlengthmacro\mdf@Ay%
2417 {\mdf@Ay+\mdf@outerlinewidth@length+
2418 \mdf@middlelinewidth@length+\mdf@innerlinewidth@length}%
2419 \pgfmathsetlengthmacro\mdf@Oy%
2420 {\mdf@Oy+\mdf@outerlinewidth@length+0.5\mdf@middlelinewidth@length}%
2421 }{}%
2422 %%
2423 \ifbool{mdf@everyline}{%
2424 \ifbool{mdf@topline}%
2425 {%
2426 \pgfmathsetlengthmacro\mdf@Py%
2427 {\mdf@Py-\mdf@outerlinewidth@length-0.5\mdf@middlelinewidth@length}%
2428 }{}%
2429 }{}%
2430 %%
2431 \coordinate(0)at(\mdf@Ox,\mdf@Oy);%
2432 \coordinate(P)at(\mdf@Px,\mdf@Py);%
2433 \ifbool{mdf@shadow}
2434 {\path[mdfshadow] (0|-P) to[mdfcorners] (0) to[mdfcorners] (P|-0) -- (P) -- (0|-P);}%
2435 \begin{scope}[use as bounding box]
2436 %%%%%%%%%%
2437 \ifbool{mdf@everyline}{%
2438 \mdf@test@lrb{\mdf@tikzbox@tfl{(0)--(0|-P)--(P)--(P|-0)--cycle)}}{}%
2439 \mdf@test@ltb{\mdf@tikzbox@tfl{(P|-0)--(0)--(0|-P)--(P)}}{}%
2440 \mdf@test@trb{\mdf@tikzbox@tfl{(0|-P)--(P)--(P|-0)--(0)}}{}%
2441 \mdf@test@ltr{\mdf@tikzbox@tfl{(0)--(0|-P)--(P)--(P|-0)}}{}%
2442 \mdf@test@lrb{\mdf@tikzbox@tfl{(P|-0)--(0)--(0|-P)--(P)}}{}%
2443 \mdf@test@lb{\mdf@tikzbox@otl{(P|-0)--(0)--(0|-P)}}%
2444 {\(P)--(P|-0)[mdfcorners]--(0)--(0|-P)}%
2445 }{}%
2446 \mdf@test@rb{\mdf@tikzbox@otl{(P)--(P|-0)--(0)}}%
2447 {(0|-P)--(P)[mdfcorners]--(P|-0)--(0)}%
2448 }{}%

```

```

2449 \mdf@test@tr{\mdf@tikzbox@otl{(0|P)--(P)--(P|0)}%
2450             {(0)--(0|P)[mdfcorners]--(P)--(P|0)}%
2451             }{}%
2452 \mdf@test@lt{\mdf@tikzbox@otl{(0)--(0|P)--(P)}%
2453             {(P|0)--(0)[mdfcorners]--(0|P)--(P)}%
2454             }{}%
2455 \mdf@test@lr{\mdf@tikzbox@otl{(0)--(0|P)(P)--(P|0)}%
2456             {(0)rectangle(P)}%
2457             }{}%
2458 \mdf@test@tb{\mdf@tikzbox@otl{(0)--(0|P)(0|P)--(P)}%
2459             {(0)rectangle(P)}%
2460             }{}%
2461 \mdf@test@l{\mdf@tikzbox@otl{(0)--(0|P)}%
2462             {(0)rectangle(P)}%
2463             }{}%
2464 \mdf@test@r{\mdf@tikzbox@otl{(0|P)--(P)}%
2465             {(0)rectangle(P)}%
2466             }{}%
2467 \mdf@test@t{\mdf@tikzbox@otl{(0|P)--(P)}%
2468             {(0)rectangle(P)}%
2469             }{}%
2470 \mdf@test@b{\mdf@tikzbox@otl{(0)--(0|P)}%
2471             {(0)rectangle(P)}%
2472             }{}%
2473 \mdf@test@noline{\path[mdfbackground,mdfcorners](0)rectangle(P);}{}%
2474 }{%
2475 \ifboolexpr{test {\mdf@test@ltrb} or test {\mdf@test@lr}}%
2476   {\mdf@tikzbox@otl{(P|0)--(0)--(0|P)--(P)}%
2477   }{}%
2478 \ifboolexpr{test {\mdf@test@ltb} or test {\mdf@test@lb}}%
2479   {\mdf@tikzbox@otl{(P|0)--(0)--(0|P)}{(P)--(P|0)[mdfcorners]--(0)--(0|P)}%
2480   }{}%
2481 \ifboolexpr{test {\mdf@test@trb} or test {\mdf@test@rb}}%
2482   {\mdf@tikzbox@otl{(P)--(P|0)--(0)}{(0|P)--(P)[mdfcorners]--(P|0)--(0)}%
2483   }{}%
2484 \ifboolexpr{test {\mdf@test@ltr} or test {\mdf@test@lr}}%
2485   {\mdf@tikzbox@otl{(0)--(0|P)(P)--(P|0)}{(0)rectangle(P)}%
2486   }{}%
2487 \ifboolexpr{test {\mdf@test@tb} or test {\mdf@test@b}}%
2488   {\mdf@tikzbox@otl{(0)--(0|P)}{(0)rectangle(P)}%
2489   }{}%
2490 \ifboolexpr{test {\mdf@test@lt} or test {\mdf@test@l}}%
2491   {\mdf@tikzbox@otl{(0)--(0|P)}{(0)rectangle(P)}%
2492   }{}%
2493 \ifboolexpr{test {\mdf@test@tr} or test {\mdf@test@r}}%
2494   {\mdf@tikzbox@otl{(0|P)--(P)}{(0)rectangle(P)}%
2495   }{}%
2496 \mdf@test@t{\path[mdfbackground,mdfcorners](0|P)--(0)--(0|P)--(P);}{}%
2497 \mdf@test@noline{\path[mdfbackground,mdfcorners](0|P)--(0)--(0|P)--(P);}{}%
2498 }%
2499 \drawbackgroundframetitle@second
2500 \node[mdfbox] at (\mdf@Ax,\mdf@Ay){\box\mdf@splitbox@one};% Ausgabebox einfuegen
2501 \end{scope}
2502 \mdf@secondextra
2503 %HIER KOMMT EIN WEITERES MAKRO
2504 \mdfcreateextratikz

```



```

2505 \end{tikzpicture}%
2506 }%
2507 \mdf@makeboxalign@right%
2508 }%
2509 \fi
2510 }%

```

```

2511 \endinput

```

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

```

2512 %% Style file for mdframed for package option 'framemethod=default'
2513 %%
2514 %% This package may be distributed under the terms of the LaTeX Project
2515 %% Public License, as described in lppl.txt in the base LaTeX distribution.
2516 %% Either version 1.0 or, at your option, any later version.
2517 %%
2518 %%
2519 %%$Id: mdframed.dtx 382 2012-04-17 14:35:02Z marco $
2520 %

```

```

\mdframedIIPackagename
\mdf@frameIIDate@svn

```

local settings

```

2521 \def\mdframedIIPackagename{md-frame-2}
2522 \def\mdf@frameIIDate@svn$#1: #2 #3 #4-#5-#6 #7 #8${#4/#5/#6\space }
2523 \ProvidesFile{md-frame-2.mdf}%
2524 [\mdf@frameIIDate@svn$Id: mdframed.dtx 382 2012-04-17 14:35:02Z marco $ %
2525 \mdversion: \mdframedIIPackagename]

```

```

\mdf@ptlength@to@pscode
\ptTps

```

Command to calculate a latex length to postscript

```

2526 \def\mdf@ptlength@to@pscode#1{\pst@number{#1} \pst@number\psxunit div }
2527 \def\mdf@ptlength@to@pscode@length#1{\pst@number{\csname mdf@#1@length\endcsname} \pst@number\psxunit c
2528 \let\ptTps\mdf@ptlength@to@pscode\relax
2529 \let\ptTpsL\mdf@ptlength@to@pscode@length\relax

```

```

\mdfbackgroundstyle
\mdflinestyle
\mdfframetitlerule
\mdfframetitlebackground

```

background and line settings for pstricks

```

2530 \def\mdf@pstricks@settings{%expand by \addtopsstyle
2531 \newpsstyle{mdfbackgroundstyle}%
2532 {linecolor=\mdf@backgroundcolor,fillstyle=solid,%
2533 fillcolor=\mdf@backgroundcolor,linestyle=none,%
2534 ,dimen=middle,%
2535 }%
2536 %
2537 \newpsstyle{mdfframetitlebackgroundstyle}{%

```



```

2538     linecolor=\mdf@frametitlebackgroundcolor,
2539     fillcolor=\mdf@frametitlebackgroundcolor,
2540     fillstyle=solid,linestyle=none,
2541     linearc=\ifdimgreater{\mdf@roundcorner@length%
2542               -\mdf@innerlinewidth@length%
2543               -.5\mdf@middlelinewidth@length}
2544     {\z@}{\dimexpr\mdf@roundcorner@length%
2545             -\mdf@innerlinewidth@length%
2546             -.5\mdf@middlelinewidth@length}{\z@},
2547   }
2548 %
2549 \newsstyle{mdfouterlinestyle}{linestyle=none}%
2550 \ifdimgreater{\mdf@outerlinewidth@length}{\z@}%
2551   {\newsstyle{mdfouterlinestyle}{%
2552     linecolor=\mdf@outerlinecolor,%
2553     linewidth=\dimexpr2\mdf@outerlinewidth@length+\mdf@middlelinewidth@length\relax,
2554     dimen=middle,
2555   }}}%
2556 %
2557 \newsstyle{mdfinnerlinestyle}{linestyle=none}%
2558 \ifdimgreater{\mdf@innerlinewidth@length}{\z@}%
2559   {\newsstyle{mdfinnerlinestyle}{%
2560     linecolor=\mdf@innerlinecolor,%
2561     linewidth=\dimexpr2\mdf@innerlinewidth@length+\mdf@middlelinewidth@length\relax,
2562     dimen=middle,
2563   }}}%
2564 %
2565 \newsstyle{mdfmiddlelinestyle}{linestyle=none}%
2566 \newsstyle{mdfshadow}{shadow=true,shadowcolor=\mdf@shadowcolor,shadowsize=\mdf@shadowsize@length}%
2567 \ifdimgreater{\mdf@middlelinewidth@length}{\z@}%
2568   {\newsstyle{mdfmiddlelinestyle}{%
2569     linewidth=\mdf@middlelinewidth@length,%
2570     linecolor=\mdf@middlelinecolor,dimen=middle
2571   }}}%
2572 \mdfpstricks@appendsettings
2573 }%
2574 %
2575 \newrobustcmd*\mdf@pstricksbox@fl[2]{%four lines
2576   \psframe[style=mdfouterlinestyle](#1)(#2)%aussen=3mm
2577   \psframe[style=mdfbackgroundstyle](#1)(#2)%Hintergrund
2578   \psclip{\psframe[style=mdfmiddlelinestyle](#1)(#2)}
2579   \psframe[style=mdfinnerlinestyle](#1)(#2)%innere=3mm
2580   \endpsclip
2581   \psframe[style=mdfmiddlelinestyle](#1)(#2)%mittlere=2mm
2582 }%
2583 \newrobustcmd*\mdf@pstricksbox@tl[1]{%three lines
2584   \psline[style=mdfouterlinestyle]#1%aussen=3mm
2585   \psline[style=mdfbackgroundstyle]#1%Hintergrund
2586   \psclip{\psline[style=mdfmiddlelinestyle]#1}
2587   \psline[style=mdfinnerlinestyle]#1%innere=3mm
2588   \endpsclip
2589   \psline[style=mdfmiddlelinestyle]#1%mittlere=2mm
2590 }%
2591 \newrobustcmd*\mdf@pstricksbox@tcl[2]{%two combined lines
2592 %%#1 background comple
2593 %%#2 line path

```

```

2594 \psline[style=mdfouterlinestyle]#2%ausсен=3mm
2595 \psline[style=mdfbackgroundstyle]#2%Hintergrund
2596 \psclip{\pscustom[linestyle=none]{
2597     \psline[style=mdfmiddlelinestyle]#2
2598     \psline[linestyle=none,linearc=0pt]#1}
2599 }
2600 \psframe[style=mdfbackgroundstyle,linearc=0pt](mdf@0)(mdf@P)%Hintergrund
2601 \psline[style=mdfinnerlinestyle]#2%innere=3mm
2602 \endpsclip
2603 \psline[style=mdfmiddlelinestyle]#2%mittlere=2mm
2604 }%
2605 \newrobustcmd*\mdf@pstricksbox@tncl[2]{%two not combined lines
2606 \beginngroup
2607 \psset{linearc=0pt}
2608 \psline[style=mdfouterlinestyle](mdf@0)#1%ausсен=3mm
2609 \psline[style=mdfouterlinestyle](mdf@P)#2%ausсен=3mm
2610 \psclip{
2611     \pscustom[linestyle=none]{%
2612         \psline[style=mdfmiddlelinestyle](mdf@0)#1%mittlere=2mm
2613         \psline[linestyle=none](mdf@0)#2
2614         \psline[style=mdfmiddlelinestyle](mdf@P)#2%mittlere=2mm
2615         \psline[linestyle=none](mdf@P)#1
2616     }%
2617 }%
2618 \psframe[style=mdfbackgroundstyle,linearc=0pt](mdf@0)(mdf@P)%Hintergrund
2619 \psline[style=mdfinnerlinestyle](mdf@0)#1%innere=3mm
2620 \psline[style=mdfinnerlinestyle](mdf@P)#2%innere=3mm
2621 \endpsclip
2622 \psline[style=mdfmiddlelinestyle](mdf@0)#1%mittlere=2mm
2623 \psline[style=mdfmiddlelinestyle](mdf@P)#2%mittlere=2mm
2624 \endgroup
2625 }%
2626 \newrobustcmd*\mdf@pstricksbox@ol[1]{%one line
2627 \beginngroup
2628 \psset{linearc=0pt}
2629 \psline[style=mdfouterlinestyle]#1%ausсен=3mm
2630 \psline[style=mdfbackgroundstyle]#1%Hintergrund
2631 \psclip{\pscustom[linestyle=none]{
2632     \psline[style=mdfmiddlelinestyle]#1
2633     \psframe[linestyle=none,fillstyle=none,dimen=inner](mdf@0)(mdf@P)
2634 }}
2635 \psframe[style=mdfbackgroundstyle](mdf@0)(mdf@P)
2636 \psline[style=mdfinnerlinestyle]#1%innere=3mm
2637 \endpsclip
2638 \psline[style=mdfmiddlelinestyle]#1%mittlere=2mm
2639 \endgroup%
2640 }%
2641
2642 %
2643 \newpsstyle{mdfframetitlerule}{%
2644     linecolor=\mdf@frametitlerulecolor,%
2645     fillcolor=\mdf@frametitlerulecolor,%
2646     fillstyle=solid,dimen=outer,%
2647 }
2648 %

```

\mdf@put@frametitulerule

frametitulerule with pstricks

```

2649 \def\mdf@@frametitulerule{%
2650   \ifbool{mdf@frametitulerule}{%
2651     \vbox{\hsize0pt
2652       \par\unskip\vskip\mdf@frametitlebelowskip@length
2653       \noindent\rlap{%
2654         \begin{group}%
2655         \begin{pspicture}(0,0)(0,\mdf@frametitulerulewidth@length)
2656           \psframe[style=mdfframetitulerule](!\ptTpsL{innerleftmargin} neg 0)%
2657             (! \ptTpsL{innerrightmargin}
2658               \ptTps{\mdfframetitleboxwidth} add \ptTpsL{frametitulerulewidth})
2659         \end{pspicture}
2660         \endgroup}
2661       }%
2662     }{}
2663   \par\unskip\vskip\mdf@innertopmargin@length%
2664 }%
2665 %
2666 % \begin{macro}{mdf@putbox@single}
2667 % Single output
2668 %   \begin{macrocode}
2669 % Info zu den verwendeten Punkten:
2670 % 0 ist die untere linke Ecke der Mitte der middleline
2671 % P ist die obere rechte Ecke der Mitte der middleline
2672 % A ist der Punkt fuer den anchor (d.h. die untere linke Ecke) der Ausgabebox
2673 \def\mdf@putbox@single{%
2674   \ifvoid\mdf@splitbox@one
2675   \else%
2676     \mdf@makebox@out{%
2677       \mdf@makeboxalign@left%
2678       \setlength\mdfboundingboxwidth{\wd\mdf@splitbox@one}%
2679       \advance\mdfboundingboxwidth by \mdf@innerleftmargin@length\relax%
2680       \advance\mdfboundingboxwidth by \mdf@innerrightmargin@length\relax%
2681       \ifbool{mdf@leftline}{%
2682         \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
2683         \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
2684         \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}{}%
2685       \ifbool{mdf@rightline}{%
2686         \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
2687         \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
2688         \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}{}%
2689     }%
2690     \setlength\mdfboundingboxheight{\dimexpr\ht\mdf@splitbox@one+\dp\mdf@splitbox@one\relax}%
2691     \advance\mdfboundingboxheight by \mdf@innerbottommargin@length\relax%
2692     \advance\mdfboundingboxheight by \mdf@innertopmargin@length\relax%
2693     \ifbool{mdf@topline}{%
2694       \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
2695       \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
2696       \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}{}%
2697     \ifbool{mdf@bottomline}{%
2698       \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
2699       \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
2700       \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}{}%
2701   }%

```

```

2702 \setlength\mdftotalllinewidth{\dimexpr\mdf@innerlinewidth@length%
2703                                     +\mdf@middlelinewidth@length
2704                                     +\mdf@outerlinewidth@length\relax}%
2705 \psset{unit=1truecm}%
2706 \mdf@makebox@in[\mdf@boundingboxwidth]{%
2707     \null%
2708     \begin{pspicture}(0,0)(\mdf@boundingboxwidth,\mdf@boundingboxheight)
2709         \mdfpstricks@settings%
2710         \psset{lineararc=\mdf@roundcorner@length, cornersize=absolut,}%
2711         \expandafter\psset\expandafter{\mdf@psset@local}%
2712         \pnode(\mdf@innerleftmargin@length,\mdf@innerbottommargin@length){mdf@A}
2713         \pnode(0,0){mdf@0}
2714         \pnode(\mdf@boundingboxwidth,\mdf@boundingboxheight){mdf@P}
2715         \ifbool{mdf@leftline}%
2716             {%
2717                 \nodexn{(mdf@A)+(\mdf@outerlinewidth@length,0)
2718                         +(\mdf@middlelinewidth@length,0)
2719                         +(\mdf@innerlinewidth@length,0)}{mdf@A}%
2720                 \nodexn{(mdf@0)+(\mdf@outerlinewidth@length,0)
2721                         +0.5(\mdf@middlelinewidth@length,0)}{mdf@0}%
2722             }{}%
2723         \ifbool{mdf@rightline}%
2724             {%
2725                 \nodexn{(mdf@P)-(\mdf@outerlinewidth@length,0)
2726                         -0.5(\mdf@middlelinewidth@length,0)}{mdf@P}%
2727             }{}%
2728         \ifbool{mdf@bottomline}%
2729             {%
2730                 \nodexn{(mdf@A)+(0,\mdf@outerlinewidth@length)
2731                         +(0,\mdf@middlelinewidth@length)
2732                         +(0,\mdf@innerlinewidth@length)}{mdf@A}%
2733                 \nodexn{(mdf@0)+(0,\mdf@outerlinewidth@length)
2734                         +0.5(0,\mdf@middlelinewidth@length)}{mdf@0}%
2735             }{}%
2736         \ifbool{mdf@topline}%
2737             {%
2738                 \nodexn{(mdf@P)-(0,\mdf@outerlinewidth@length)
2739                         -0.5(0,\mdf@middlelinewidth@length)}{mdf@P}
2740             }{}%
2741         \ifbool{mdf@shadow}
2742             {\psframe[style=mdfshadow](mdf@0)(mdf@P)}{}
2743 % \psclip{%
2744 %Four lines
2745     \mdf@test@lrb{\mdf@pstricksbox@fl{mdf@0}{mdf@P}}{}
2746 %three lines
2747     \mdf@test@ltb{\mdf@pstricksbox@tl{(mdf@P|mdf@0)(mdf@0)(mdf@0|mdf@P)(mdf@P)}}{}
2748     \mdf@test@trb{\mdf@pstricksbox@tl{(mdf@0)(mdf@P|mdf@0)(mdf@P)(mdf@0|mdf@P)}}{}
2749     \mdf@test@ltr{\mdf@pstricksbox@tl{(mdf@0)(mdf@0|mdf@P)(mdf@P)(mdf@P|mdf@0)}}{}
2750     \mdf@test@lrb{\mdf@pstricksbox@tl{(mdf@0|mdf@P)(mdf@0)(mdf@P|mdf@0)(mdf@P)}}{}
2751 %two lines combined
2752     \mdf@test@lb{\mdf@pstricksbox@tcl{(mdf@P|mdf@0)(mdf@P)(mdf@0|mdf@P)}%
2753                 {(mdf@0|mdf@P)(mdf@0)(mdf@P|mdf@0)}}{}
2754     \mdf@test@rb{\mdf@pstricksbox@tcl{(mdf@P)(mdf@0|mdf@P)(mdf@0)}%
2755                 {(mdf@0)(mdf@P|mdf@0)(mdf@P)}}{}
2756     \mdf@test@tr{\mdf@pstricksbox@tcl{(mdf@P|mdf@0)(mdf@0)(mdf@0|mdf@P)}%
2757                 {(mdf@0|mdf@P)(mdf@P)(mdf@P|mdf@0)}}{}

```

```

2758      \mdf@test@lt{\mdf@pstricksbox@tcl{(mdf@0)(mdf@P|mdf@0)(mdf@P)}%
2759                      {(mdf@0)(mdf@0|mdf@P)(mdf@P)}}{}
2760      %two lines not combinded combinded
2761      \mdf@test@lr{\mdf@pstricksbox@tnc{(mdf@0|mdf@P)}{(mdf@P|mdf@0)}
2762                      {}{}
2763      \mdf@test@tb{\mdf@pstricksbox@tnc{(mdf@P|mdf@0)}{(mdf@0|mdf@P)}
2764                      {}{}
2765      %single line
2766      \mdf@test@l{\mdf@pstricksbox@ol{(mdf@0)(mdf@0|mdf@P)}}{}
2767      \mdf@test@r{\mdf@pstricksbox@ol{(mdf@P)(mdf@P|mdf@0)}}{}
2768      \mdf@test@t{\mdf@pstricksbox@ol{(mdf@P)(mdf@0|mdf@P)}}{}
2769      \mdf@test@b{\mdf@pstricksbox@ol{(mdf@0)(mdf@P|mdf@0)}}{}
2770      %no line
2771      \mdf@test@noline{\psframe[style=mdfbackgroundstyle](mdf@0)(mdf@P)}{}
2772      }
2773      %Frametitlebackground
2774      \drawbackgroundframetitle@single
2775      %output%
2776      \rput[bl](mdf@A){\box\mdf@splitbox@one}
2777      \psdot(mdf@A)\uput[90](mdf@A){mdf at A}
2778      \psdot(mdf@P)\uput[90](mdf@P){mdf at P}
2779      \psdot(mdf@0)\uput[90](mdf@0){mdf at 0}
2780      %
2781      \endpsclip
2782      \mdf@singleextra
2783      \end{pspicture}%
2784      }%
2785      \mdf@makeboxalign@right%
2786      }%
2787      \fi
2788      }%
2789      \def\drawbackgroundframetitle@single{%
2790      \ifdefempty{\mdf@frametitle}}{}{}%
2791      \drawbackgroundframetitle@@single%
2792      }%
2793      }%
2794      \def\drawbackgroundframetitle@@single{%
2795      \begingroup%
2796      \ifbool{mdf@leftline}{%
2797          \nodexn{(mdf@0)+(\mdf@innerlinewidth@length,0)
2798                  +0.5(\mdf@middlelinewidth@length,0)}{mdf@0}%
2799          }{}%
2800      \ifbool{mdf@rightline}{%
2801          \nodexn{(mdf@P)-(\mdf@innerlinewidth@length,0)
2802                  -0.5(\mdf@middlelinewidth@length,0)}{mdf@P}%
2803          }{}%
2804      \ifbool{mdf@topline}{%
2805          \nodexn{(mdf@P)-(0,\mdf@innerlinewidth@length)
2806                  -0.5(0,\mdf@middlelinewidth@length)}{mdf@P}%
2807          }{}%
2808      \nodexn{(mdf@P)-(0,\mdfframetitleboxtotalheight)}{mdf@F}%
2809      \psline[style=mdfframetitlebackgroundstyle](mdf@0|mdf@F)(mdf@0|mdf@P)
2810                      (mdf@P)(mdf@P|mdf@F)%
2811      \endgroup
2812      }

```

\mdf@putbox@first

First output

```

2813 \def\mdf@putbox@first{%
2814   \ifvoid\mdf@splitbox@two
2815   \else%
2816     \mdf@makebox@out{%
2817       \mdf@makeboxalign@left%
2818       %\ifbool{mdf@leftline}{\hspace*{\mdf@middlelinewidth@length}}{%
2819       \setlength\mdfboundingboxwidth{\wd\mdf@splitbox@two}%
2820       \advance\mdfboundingboxwidth by \mdf@innerleftmargin@length\relax%
2821       \advance\mdfboundingboxwidth by \mdf@innerrightmargin@length\relax%
2822       \ifbool{mdf@leftline}{%
2823         \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
2824         \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
2825         \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}}{%
2826       \ifbool{mdf@rightline}{%
2827         \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
2828         \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
2829         \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}}{%
2830       \setlength\mdfboundingboxheight{\dimexpr\ht\mdf@splitbox@two+\dp\mdf@splitbox@two\relax}%
2831       \advance\mdfboundingboxheight by \mdf@innertopmargin@length\relax%
2832       \advance\mdfboundingboxheight by \mdf@splitbottomskip@length\relax%
2833       \ifbool{mdf@topline}{%
2834         \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
2835         \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
2836         \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}}{%
2837       %%%%%%%%%%
2838       \ifbool{mdf@everyline}{%
2839       \ifbool{mdf@bottomline}{%
2840         \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
2841         \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
2842         \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}}{%
2843       }}%
2844       %%%%%%%%%%
2845       \psset{linear=\mdf@roundcorner@length, cornersize=absolute}%
2846       \expandafter\psset\expandafter{\mdf@psset@local}%
2847       \mdf@makebox@in[\mdfboundingboxwidth]{%
2848         \null%
2849         \psset{unit=1truecm}%
2850         \ifdimgreater{\mdfboundingboxheight}{\vsize}
2851           {\begin{pspicture}(0,0)(\mdfboundingboxwidth,\vsize)}
2852           {\begin{pspicture}(0,0)(\mdfboundingboxwidth,\mdfboundingboxheight)}
2853             \mdfpstricks@settings%
2854             \psset{linear=\mdf@roundcorner@length, cornersize=absolut,%
2855             \expandafter\psset\expandafter{\mdf@psset@local}%
2856             \pnode(\mdf@innerleftmargin@length,\mdf@splitbottomskip@length){mdf@A}
2857             \pnode(0,0){mdf@0}
2858             \pnode(\mdfboundingboxwidth,\mdfboundingboxheight){mdf@P}
2859             \ifbool{mdf@leftline}%
2860             {%
2861               \nodexn{(mdf@A)+(\mdf@outerlinewidth@length,0)
2862               +(\mdf@middlelinewidth@length,0)
2863               +(\mdf@innerlinewidth@length,0)}{mdf@A}
2864               \nodexn{(mdf@0)+(\mdf@outerlinewidth@length,0)
2865               +0.5(\mdf@middlelinewidth@length,0)}{mdf@0}

```

```

2866     }{}%
2867 \ifbool{mdf@rightline}%
2868 {%
2869     \nodexn{(mdf@P) - (\mdf@outerlinewidth@length,0)
2870             -0.5(\mdf@middlelinewidth@length,0)}{mdf@P}
2871 }{}%
2872 \ifbool{mdf@topline}%
2873 {%
2874     \nodexn{(mdf@P) - (0,\mdf@outerlinewidth@length)
2875             -0.5(0,\mdf@middlelinewidth@length)}{mdf@P}
2876 }{}%
2877 %%%%%%%%%%
2878 \ifbool{mdf@everyline}{%
2879 \ifbool{mdf@bottomline}%
2880 {%
2881     \nodexn{(mdf@A)+(0,\mdf@outerlinewidth@length)
2882             +(0,\mdf@middlelinewidth@length)
2883             +(0,\mdf@innerlinewidth@length)}{mdf@A}%
2884     \nodexn{(mdf@0)+(0,\mdf@outerlinewidth@length)
2885             +0.5(0,\mdf@middlelinewidth@length)}{mdf@0}%
2886 }{}%
2887 }{}%
2888 %%%%%%%%%%
2889 \ifbool{mdf@shadow}
2890 {\pscustom[style=mdfshadow,linestyle=none]{%
2891     \psline[linejoin=2,linecap=1,](mdf@P|mdf@0)(mdf@P)(mdf@0|mdf@P)%
2892     \psline[linejoin=2,linecap=1,lineararc=\z@](mdf@0|mdf@P)(mdf@0)(mdf@P|mdf@0)
2893     \closedshadow
2894 }
2895 }{}
2896 % \psclip{
2897 %%%%%%%%%%
2898 \ifbool{mdf@everyline}{%
2899     %Four lines
2900     \mdf@test@lrb{\mdf@pstricksbox@fl{mdf@0}{mdf@P}}{}
2901     %three lines
2902     \mdf@test@ltb{\mdf@pstricksbox@tl{(mdf@P|mdf@0)(mdf@0)(mdf@0|mdf@P)(mdf@P)}}{}
2903     \mdf@test@trb{\mdf@pstricksbox@tl{(mdf@0)(mdf@P|mdf@0)(mdf@P)(mdf@0|mdf@P)}}{}
2904     \mdf@test@ltr{\mdf@pstricksbox@tl{(mdf@0)(mdf@0|mdf@P)(mdf@P)(mdf@P|mdf@0)}}{}%
2905     \mdf@test@lrb{\mdf@pstricksbox@tl{(mdf@0|mdf@P)(mdf@0)(mdf@P|mdf@0)(mdf@P)}}{}%
2906     %two lines combined
2907     \mdf@test@lb{\mdf@pstricksbox@tcl{(mdf@P|mdf@0)(mdf@P)(mdf@0|mdf@P)}%
2908                 {(mdf@0|mdf@P)(mdf@0)(mdf@P|mdf@0)}}{}
2909     \mdf@test@rb{\mdf@pstricksbox@tcl{(mdf@P)(mdf@0|mdf@P)(mdf@0)}%
2910                 {(mdf@0)(mdf@P|mdf@0)(mdf@P)}}{}
2911     \mdf@test@tr{\mdf@pstricksbox@tcl{(mdf@P|mdf@0)(mdf@0)(mdf@0|mdf@P)}%
2912                 {(mdf@0|mdf@P)(mdf@P)(mdf@P|mdf@0)}}{}
2913     \mdf@test@lt{\mdf@pstricksbox@tcl{(mdf@0)(mdf@P|mdf@0)(mdf@P)}%
2914                 {(mdf@0)(mdf@0|mdf@P)(mdf@P)}}{}
2915     %two lines not combined
2916     \mdf@test@lr{\mdf@pstricksbox@tncl{(mdf@0|mdf@P)}{(mdf@P|mdf@0)}}
2917     {}
2918     \mdf@test@tb{\mdf@pstricksbox@tncl{(mdf@P|mdf@0)}{(mdf@0|mdf@P)}}
2919     {}
2920     %single line
2921     \mdf@test@l{\mdf@pstricksbox@ol{(mdf@0)(mdf@0|mdf@P)}}{}

```



```

2922 \mdf@test@r{\mdf@pstricksbox@ol{(mdf@P)(mdf@P|mdf@O)}}{}
2923 \mdf@test@t{\mdf@pstricksbox@ol{(mdf@P)(mdf@O|mdf@P)}}{}
2924 \mdf@test@b{\mdf@pstricksbox@ol{(mdf@O)(mdf@P|mdf@O)}}{}
2925 %no line
2926 \mdf@test@noline{\psframe[style=mdfbackgroundstyle](mdf@O)(mdf@P)}}{}%
2927 }{%
2928 %Four or Three lines
2929 \ifboolexpr{test {\mdf@test@lrb} or test {\mdf@test@lrb}}%
2930 {\mdf@pstricksbox@tl{(mdf@O)(mdf@O|mdf@P)(mdf@P)(mdf@P|mdf@O)}}%
2931 {}%
2932 %two combined lines
2933 \ifboolexpr{test {\mdf@test@ltb} or test {\mdf@test@lt}}%
2934 {\mdf@pstricksbox@tcl{(mdf@O)(mdf@P|mdf@O)(mdf@P)}%
2935 {(mdf@O)(mdf@O|mdf@P)(mdf@P)}}{}
2936 \ifboolexpr{test {\mdf@test@trb} or test {\mdf@test@tr}}%
2937 {\mdf@pstricksbox@tcl{(mdf@P|mdf@O)(mdf@O)(mdf@O|mdf@P)}%
2938 {(mdf@O|mdf@P)(mdf@P)(mdf@P|mdf@O)}}{}
2939 %two not combined lines
2940 \ifboolexpr{test {\mdf@test@lrb} or test {\mdf@test@lrb}}%
2941 {\mdf@pstricksbox@tncl{(mdf@O|mdf@P)}{(mdf@P|mdf@O)}}{}
2942 %single line
2943 \ifboolexpr{test {\mdf@test@tb} or test {\mdf@test@t}}%
2944 {\mdf@pstricksbox@ol{(mdf@P)(mdf@O|mdf@P)}}{}
2945 \ifboolexpr{test {\mdf@test@lb} or test {\mdf@test@l}}%
2946 {\mdf@pstricksbox@ol{(mdf@O)(mdf@O|mdf@P)}}{}
2947 \ifboolexpr{test {\mdf@test@rb} or test {\mdf@test@r}}%
2948 {\mdf@pstricksbox@ol{(mdf@P)(mdf@P|mdf@O)}}{}
2949 %no line
2950 \mdf@test@b{\psframe[style=mdfbackgroundstyle](mdf@O)(mdf@P)}}{}%
2951 \mdf@test@noline{\psframe[style=mdfbackgroundstyle](mdf@O)(mdf@P)}}{}%
2952 }%
2953 %
2954 %Frame title background
2955 \drawbackgroundframetitle@first
2956 %output%
2957 \rput[bl](mdf@A){\box\mdf@splitbox@two}
2958 % \psdot(mdf@A)\uput[90](mdf@A){mdf at A}
2959 % \psdot(mdf@P)\uput[90](mdf@P){mdf at P}
2960 % \psdot(mdf@O)\uput[90](mdf@O){mdf at O}
2961 % \endpsclip
2962 \mdf@firstextra
2963 \end{pspicture}
2964 }%
2965 \mdf@makeboxalign@right%
2966 }%
2967 \fi
2968 }%
2969 \def\drawbackgroundframetitle@first{%
2970 \ifdefempty{\mdf@frametitle}}{}%
2971 \ifdimgreater{\mdf@boundingboxheight}{\mdf@frametitleboxtotalheight}%
2972 {%
2973 \drawbackgroundframetitle@first
2974 \global\mdf@frametitleboxtotalheight=-\p@%
2975 }\mdf@PackageWarning{You got a page break inside the frame title\MessageBreak
2976 Currently this isn't well supported}%
2977 \drawbackgroundframetitle@first

```



```

2978 \global\mdfframetitleboxtotalheight=\dimexpr\mdfframetitleboxtotalheight
2979         -\mdfboundingboxheight
2980         -\mdf@innerlinewidth@length-0.5\mdf@middlelinewidth@length%
2981         +\mdf@frametitlebelowskip@length+\mdf@splitbottomskip@length
2982         +\mdf@splittopskip@length
2983         +\dp\strutbox\relax%
2984 }%
2985 }%
2986 }%
2987 \def\drawbackgroundframetitle@@first{%
2988 \begingroup%
2989 \ifbool{mdf@leftline}{%
2990     \nodexn{(mdf@0)+(\mdf@innerlinewidth@length,0)
2991             +0.5(\mdf@middlelinewidth@length,0)}{mdf@0}%
2992     }{}%
2993 \ifbool{mdf@rightline}{%
2994     \nodexn{(mdf@P)-(\mdf@innerlinewidth@length,0)
2995             -0.5(\mdf@middlelinewidth@length,0)}{mdf@P}%
2996     }{}%
2997 \ifbool{mdf@topline}{%
2998     \nodexn{(mdf@P)-(0,\mdf@innerlinewidth@length)
2999             -0.5(0,\mdf@middlelinewidth@length)}{mdf@P}%
3000     }{}%
3001 \ifdimgreater{\mdfboundingboxheight}{\mdfframetitleboxtotalheight}
3002     {\nodexn{(mdf@P)-(0,\mdfframetitleboxtotalheight)}{mdf@F}}%
3003     {\nodexn{(mdf@0)}{mdf@F}}%
3004 \psline[style=mdfframetitlebackgroundstyle](mdf@0|mdf@F)(mdf@0|mdf@P)
3005         (mdf@P)(mdf@P|mdf@F)%
3006 \endgroup
3007 }

```

\mdf@putbox@middle

Middle output

```

3008 \def\mdf@putbox@middle{%
3009 \ifvoid\mdf@splitbox@two
3010 \else%
3011 \mdf@makebox@out{%
3012 \mdf@makeboxalign@left%
3013 % \ifbool{mdf@leftline}{\hspace*{\mdf@middlelinewidth@length}}{}%
3014 \setlength\mdfboundingboxwidth{\wd\mdf@splitbox@two}%
3015 \advance\mdfboundingboxwidth by \mdf@innerleftmargin@length\relax%
3016 \advance\mdfboundingboxwidth by \mdf@innerrightmargin@length\relax%
3017 \ifbool{mdf@leftline}{%
3018 \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
3019 \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
3020 \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}%{}%
3021 \ifbool{mdf@rightline}{%
3022 \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
3023 \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
3024 \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}%{}%
3025 \setlength\mdfboundingboxheight{\dimexpr\ht\mdf@splitbox@two+\dp\mdf@splitbox@two\relax}%
3026 \advance\mdfboundingboxheight by \mdf@splitbottomskip@length\relax%
3027 %%%%%%%%%%
3028 \ifbool{mdf@everyline}{%

```

```

3029 \ifbool{mdf@topline}{%
3030 \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
3031 \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
3032 \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}{}%
3033 \ifbool{mdf@bottomline}{%
3034 \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
3035 \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
3036 \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}{}%
3037 }{}%
3038 %%%%%%%%%%
3039 \psset{unit=1truecm}%
3040 \mdf@makebox@in[\mdfboundingboxwidth]{%
3041 \null%
3042 \ifdimgreater{\mdfboundingboxheight}{\vsize}
3043 {\begin{pspicture}(0,0)(\mdfboundingboxwidth,\vsize)}
3044 {\begin{pspicture}(0,0)(\mdfboundingboxwidth,\mdfboundingboxheight)}
3045 \mdfpstricks@settings%
3046 \psset{lineararc=0pt, cornersize=absolut,}%
3047 \expandafter\psset\expandafter{\mdf@psset@local}%
3048 %%%
3049 \pnode(\mdf@innerleftmargin@length,\mdf@splitbottomskip@length){mdf@A}
3050 \pnode(0,0){mdf@0}
3051 \pnode(\mdfboundingboxwidth,\mdfboundingboxheight){mdf@P}
3052 \ifbool{mdf@leftline}{%
3053 {%
3054 \nodexn{(\mdf@A)+(\mdf@outerlinewidth@length,0)
3055 +(\mdf@middlelinewidth@length,0)
3056 +(\mdf@innerlinewidth@length,0)}{mdf@A}
3057 \nodexn{(\mdf@0)+(\mdf@outerlinewidth@length,0)
3058 +0.5(\mdf@middlelinewidth@length,0)}{mdf@0}
3059 }{}%
3060 \ifbool{mdf@rightline}{%
3061 {%
3062 \nodexn{(\mdf@P)-(\mdf@outerlinewidth@length,0)
3063 -0.5(\mdf@middlelinewidth@length,0)}{mdf@P}
3064 }{}%
3065 %%
3066 %%%%%%%%%%
3067 \ifbool{mdf@everyline}{%
3068 \ifbool{mdf@bottomline}{%
3069 {%
3070 \nodexn{(\mdf@A)+(0,\mdf@outerlinewidth@length)
3071 +(0,\mdf@middlelinewidth@length)
3072 +(0,\mdf@innerlinewidth@length)}{mdf@A}%
3073 \nodexn{(\mdf@0)+(0,\mdf@outerlinewidth@length)
3074 +0.5(0,\mdf@middlelinewidth@length)}{mdf@0}%
3075 }{}%
3076 \ifbool{mdf@topline}{%
3077 {%
3078 \nodexn{(\mdf@P)-(0,\mdf@outerlinewidth@length)
3079 -0.5(0,\mdf@middlelinewidth@length)}{mdf@P}
3080 }{}%
3081 }{}%
3082 %%%%%%%%%%
3083 %%
3084 \ifbool{mdf@shadow}

```

```

3085      {\psframe[style=mdfshadow](mdf@0)(mdf@P)}{ }
3086 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
3087      \ifbool{mdf@everyline}{%
3088          %Four lines
3089          \mdf@test@ltrb{\mdf@pstricksbox@fl{mdf@0}{mdf@P}}{ }
3090          %three lines
3091          \mdf@test@ltb{\mdf@pstricksbox@tl{(mdf@P|mdf@0)(mdf@0)(mdf@0|mdf@P)(mdf@P)}{ }
3092          \mdf@test@trb{\mdf@pstricksbox@tl{(mdf@0)(mdf@P|mdf@0)(mdf@P)(mdf@0|mdf@P)}{ }
3093          \mdf@test@ltr{\mdf@pstricksbox@tl{(mdf@0)(mdf@0|mdf@P)(mdf@P)(mdf@P|mdf@0)}{ }%
3094          \mdf@test@lrb{\mdf@pstricksbox@tl{(mdf@0|mdf@P)(mdf@0)(mdf@P|mdf@0)(mdf@P)}{ }%
3095          %two lines combined
3096          \mdf@test@lb{\mdf@pstricksbox@tcl{(mdf@P|mdf@0)(mdf@P)(mdf@0|mdf@P)}%
3097                      {(mdf@0|mdf@P)(mdf@0)(mdf@P|mdf@0)}{ }
3098          \mdf@test@rb{\mdf@pstricksbox@tcl{(mdf@P)(mdf@0|mdf@P)(mdf@0)}%
3099                      {(mdf@0)(mdf@P|mdf@0)(mdf@P)}{ }
3100          \mdf@test@tr{\mdf@pstricksbox@tcl{(mdf@P|mdf@0)(mdf@0)(mdf@0|mdf@P)}%
3101                      {(mdf@0|mdf@P)(mdf@P)(mdf@P|mdf@0)}{ }
3102          \mdf@test@lt{\mdf@pstricksbox@tcl{(mdf@0)(mdf@P|mdf@0)(mdf@P)}%
3103                      {(mdf@0)(mdf@0|mdf@P)(mdf@P)}{ }
3104          %two lines not combined combined
3105          \mdf@test@lr{\mdf@pstricksbox@tncl{(mdf@0|mdf@P)}{(mdf@P|mdf@0)}
3106                      }{ }
3107          \mdf@test@tb{\mdf@pstricksbox@tncl{(mdf@P|mdf@0)}{(mdf@0|mdf@P)}
3108                      }{ }
3109          %single line
3110          \mdf@test@l{\mdf@pstricksbox@ol{(mdf@0)(mdf@0|mdf@P)}{ }
3111          \mdf@test@r{\mdf@pstricksbox@ol{(mdf@P)(mdf@P|mdf@0)}{ }
3112          \mdf@test@t{\mdf@pstricksbox@ol{(mdf@P)(mdf@0|mdf@P)}{ }
3113          \mdf@test@b{\mdf@pstricksbox@ol{(mdf@0)(mdf@P|mdf@0)}{ }
3114          %no line
3115          \mdf@test@noline{\psframe[style=mdfbackgroundstyle](mdf@0)(mdf@P)}{ }%
3116      }{%
3117          \ifboolexpr{bool {mdf@leftline} and bool {mdf@rightline}}%
3118              {\mdf@pstricksbox@tncl{(mdf@0|mdf@P)}{(mdf@P|mdf@0)}{ }}%
3119          \ifboolexpr{bool {mdf@leftline} and not (bool {mdf@rightline})}%
3120              {\mdf@pstricksbox@ol{(mdf@0)(mdf@0|mdf@P)}{ }}%
3121          \ifboolexpr{not (bool {mdf@leftline}) and bool {mdf@rightline}}%
3122              {\mdf@pstricksbox@ol{(mdf@P)(mdf@P|mdf@0)}{ }}%
3123          \ifboolexpr{not (bool {mdf@leftline}) and not (bool {mdf@rightline})}%
3124              {\psframe[style=mdfbackgroundstyle](mdf@0)(mdf@P)}{ }%
3125      }%
3126      %Frametitlebackground
3127      \drawbackgroundframetitle@middle
3128      %output%
3129      \rput[bl](mdf@A){\box\mdf@splitbox@two}
3130 %      \psdot(mdf@A)\uput[90](mdf@A){mdf at A}
3131 %      \psdot(mdf@P)\uput[90](mdf@P){mdf at P}
3132 %      \psdot(mdf@0)\uput[90](mdf@0){mdf at 0}
3133      \mdf@middleextra
3134      \end{pspicture}%
3135      }%
3136      \mdf@makeboxalign@right%
3137      }%
3138      \fi
3139      }%
3140      \def\drawbackgroundframetitle@middle{%

```

```

3141 \ifdefempty{\mdf@frametitle}{\}%
3142   \ifdimless{\mdfframetitleboxtotalheight}{\z@}
3143   {\}%
3144   \drawbrackgroundframetitle@@middle
3145   \global\mdfframetitleboxtotalheight=-\p@\relax%
3146 }%
3147}%
3148}%
3149 \def\drawbrackgroundframetitle@@middle{%
3150 \begingroup%
3151 \ifbool{mdf@leftline}{%
3152   \nodexn{(\mdf@0)+(\mdf@innerlinewidth@length,0)
3153     +0.5(\mdf@middlelinewidth@length,0)}{\mdf@0}%
3154   }{\}%
3155 \ifbool{mdf@rightline}{%
3156   \nodexn{(\mdf@P)-(\mdf@innerlinewidth@length,0)
3157     -0.5(\mdf@middlelinewidth@length,0)}{\mdf@P}%
3158   }{\}%
3159 \nodexn{(\mdf@P)-(0,\mdfframetitleboxtotalheight)}{\mdf@F}%
3160 \psline[style=mdfframetitlebackgroundstyle,linearc=\z@](\mdf@0|\mdf@F)(\mdf@0|\mdf@P)
3161   (\mdf@P)(\mdf@P|\mdf@F)%
3162 \endgroup
3163 }

```

\mdf@putbox@second

Last output

```

3164 \def\mdf@putbox@second{
3165   \ifvoid\mdf@splitbox@one
3166   \else%
3167     \mdf@makebox@out{%
3168       \mdf@makeboxalign@left%
3169 %     \ifbool{mdf@leftline}{\hspace*{\mdf@middlelinewidth@length}}{\}%
3170     \setlength\mdfboundingboxwidth{\wd\mdf@splitbox@one}%
3171     \advance\mdfboundingboxwidth by \mdf@innerleftmargin@length\relax%
3172     \advance\mdfboundingboxwidth by \mdf@innerrightmargin@length\relax%
3173     \ifbool{mdf@leftline}{%
3174       \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
3175       \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
3176       \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}{\}%
3177     \ifbool{mdf@rightline}{%
3178       \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
3179       \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
3180       \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}{\}%
3181     \setlength\mdfboundingboxheight{\dimexpr\ht\mdf@splitbox@one+\dp\mdf@splitbox@one\relax}%
3182     \advance\mdfboundingboxheight by \mdf@innerbottommargin@length\relax%
3183     \ifbool{mdf@bottomline}{%
3184       \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
3185       \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
3186       \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}{\}%
3187 %%%%%%%%%%
3188     \ifbool{mdf@everyline}{%
3189       \ifbool{mdf@topline}{%
3190         \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
3191         \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%

```

```

3192      \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}{}%
3193    }{}%
3194    %%%%%%%%%%
3195    \psset{unit=1truecm}%
3196    \mdf@makebox@in[\mdfboundingboxwidth]{%
3197      \null%
3198      \begin{pspicture}(0,0)(\mdfboundingboxwidth,\mdfboundingboxheight)
3199        \mdfpstricks@settings%
3200        \psset{lineararc=\mdf@roundcorner@length, cornersize=absolut,}%
3201        \expandafter\psset\expandafter{\mdf@psset@local}%
3202        \pnode(\mdf@innerleftmargin@length,\mdf@innerbottommargin@length){mdf@A}
3203        \pnode(0,0){mdf@0}
3204        \pnode(\mdfboundingboxwidth,\mdfboundingboxheight){mdf@P}
3205        \ifbool{mdf@leftline}%
3206          {%
3207            \nodexn{(\mdf@A)+(\mdf@outerlinewidth@length,0)
3208                  +(\mdf@middlelinewidth@length,0)
3209                  +(\mdf@innerlinewidth@length,0)}{mdf@A}
3210            \nodexn{(\mdf@0)+(\mdf@outerlinewidth@length,0)
3211                  +0.5(\mdf@middlelinewidth@length,0)}{mdf@0}
3212          }{}%
3213        \ifbool{mdf@rightline}%
3214          {%
3215            \nodexn{(\mdf@P)-(\mdf@outerlinewidth@length,0)
3216                  -0.5(\mdf@middlelinewidth@length,0)}{mdf@P}
3217          }{}%
3218        \ifbool{mdf@bottomline}%
3219          {%
3220            \nodexn{(\mdf@A)+(0,\mdf@outerlinewidth@length)
3221                  +(0,\mdf@middlelinewidth@length)
3222                  +(0,\mdf@innerlinewidth@length)}{mdf@A}
3223            \nodexn{(\mdf@0)+(0,\mdf@outerlinewidth@length)
3224                  +0.5(0,\mdf@middlelinewidth@length)}{mdf@0}
3225          }{}%
3226        %%%%%%%%%%
3227        \ifbool{mdf@everyline}{%
3228          \ifbool{mdf@topline}%
3229            {%
3230              \nodexn{(\mdf@P)-(0,\mdf@outerlinewidth@length)
3231                    -0.5(0,\mdf@middlelinewidth@length)}{mdf@P}
3232            }{}%
3233          }{}%
3234        %%%%%%%%%%
3235        %%
3236        \ifbool{mdf@shadow}
3237          {\pscustom[style=mdfshadow,linestyle=none]{%
3238            \psline[linejoin=2,linecap=1,](\mdf@0|\mdf@P)(\mdf@0)(\mdf@P|\mdf@0)(\mdf@P)%
3239            \psline[linejoin=2,linecap=1,lineararc=\z@](\mdf@0|\mdf@P)(\mdf@P)
3240            \closedshadow
3241          }
3242        }{}
3243        %%%%%%%%%%
3244        \ifbool{mdf@everyline}{%
3245          %Four lines
3246          \mdf@test@ltrb{\mdf@pstricksbox@fl{\mdf@0}{\mdf@P}}{}
3247          %three lines

```

```

3248 \mdf@test@ltb{\mdf@pstricksbox@tcl{(mdf@P|mdf@O)(mdf@O)(mdf@O|mdf@P)(mdf@P)}}{}
3249 \mdf@test@trb{\mdf@pstricksbox@tcl{(mdf@O)(mdf@P|mdf@O)(mdf@P)(mdf@O|mdf@P)}}{}
3250 \mdf@test@ltr{\mdf@pstricksbox@tcl{(mdf@O)(mdf@O|mdf@P)(mdf@P)(mdf@P|mdf@O)}}{}%
3251 \mdf@test@lrb{\mdf@pstricksbox@tcl{(mdf@O|mdf@P)(mdf@O)(mdf@P|mdf@O)(mdf@P)}}{}%
3252 %two lines combined
3253 \mdf@test@lb{\mdf@pstricksbox@tcl{(mdf@P|mdf@O)(mdf@P)(mdf@O|mdf@P)}%
3254 { (mdf@O|mdf@P)(mdf@O)(mdf@P|mdf@O)}}{}
3255 \mdf@test@rb{\mdf@pstricksbox@tcl{(mdf@P)(mdf@O|mdf@P)(mdf@O)}%
3256 { (mdf@O)(mdf@P|mdf@O)(mdf@P)}}{}
3257 \mdf@test@tr{\mdf@pstricksbox@tcl{(mdf@P|mdf@O)(mdf@O)(mdf@O|mdf@P)}%
3258 { (mdf@O|mdf@P)(mdf@P)(mdf@P|mdf@O)}}{}
3259 \mdf@test@lt{\mdf@pstricksbox@tcl{(mdf@O)(mdf@P|mdf@O)(mdf@P)}%
3260 { (mdf@O)(mdf@O|mdf@P)(mdf@P)}}{}
3261 %two lines not combined combined
3262 \mdf@test@lr{\mdf@pstricksbox@tnccl{(mdf@O|mdf@P)}{(mdf@P|mdf@O)}
3263 {}{}
3264 \mdf@test@tb{\mdf@pstricksbox@tnccl{(mdf@P|mdf@O)}{(mdf@O|mdf@P)}
3265 {}{}
3266 %single line
3267 \mdf@test@l{\mdf@pstricksbox@ol{(mdf@O)(mdf@O|mdf@P)}}{}
3268 \mdf@test@r{\mdf@pstricksbox@ol{(mdf@P)(mdf@P|mdf@O)}}{}
3269 \mdf@test@t{\mdf@pstricksbox@ol{(mdf@P)(mdf@O|mdf@P)}}{}
3270 \mdf@test@b{\mdf@pstricksbox@ol{(mdf@O)(mdf@P|mdf@O)}}{}
3271 %no line
3272 \mdf@test@noline{\psframe[style=mdfbackgroundstyle](mdf@O)(mdf@P)}{}%
3273 }{}%
3274 %Four + Three
3275 \ifboolexpr{test {\mdf@test@ltrb} or test {\mdf@test@lrb}}%
3276 {\mdf@pstricksbox@tcl{(mdf@O|mdf@P)(mdf@O)(mdf@P|mdf@O)(mdf@P)}}{}%
3277 %Two combined
3278 \ifboolexpr{test {\mdf@test@ltb} or test {\mdf@test@lb}}%
3279 {\mdf@pstricksbox@tcl{(mdf@P|mdf@O)(mdf@P)(mdf@O|mdf@P)}%
3280 { (mdf@O|mdf@P)(mdf@O)(mdf@P|mdf@O)}}{}
3281 \ifboolexpr{test {\mdf@test@trb} or test {\mdf@test@rb}}%
3282 {\mdf@pstricksbox@tcl{(mdf@P)(mdf@O|mdf@P)(mdf@O)}%
3283 { (mdf@O)(mdf@P|mdf@O)(mdf@P)}}{}
3284 %Two not combined
3285 \ifboolexpr{test {\mdf@test@ltr} or test {\mdf@test@lr}}%
3286 {\mdf@pstricksbox@tnccl{(mdf@O|mdf@P)}{(mdf@P|mdf@O)}}{}%
3287 %one line
3288 \ifboolexpr{test {\mdf@test@tb} or test {\mdf@test@b}}%
3289 {\mdf@pstricksbox@ol{(mdf@O)(mdf@P|mdf@O)}}{}
3290 \ifboolexpr{test {\mdf@test@lt} or test {\mdf@test@l}}%
3291 {\mdf@pstricksbox@ol{(mdf@O)(mdf@O|mdf@P)}}{}
3292 \ifboolexpr{test {\mdf@test@tr} or test {\mdf@test@r}}%
3293 {\mdf@pstricksbox@ol{(mdf@P)(mdf@P|mdf@O)}}{}
3294 %no line
3295 \mdf@test@t{\psframe[style=mdfbackgroundstyle](mdf@O)(mdf@P)}{}%
3296 \mdf@test@noline{\psframe[style=mdfbackgroundstyle](mdf@O)(mdf@P)}{}%
3297 }{}%
3298 %Frametitlebackground
3299 \drawbackgroundframetitle@second
3300 %output%
3301 \rput[bl](mdf@A){\box\mdf@splitbox@one}
3302 \mdf@secondextra
3303 % \psdot(mdf@A)\uput[90](mdf@A){mdf at A}

```

```

3304 %      \psdot(mdf@P)\uput[90](mdf@P){mdf at P}
3305 %      \psdot(mdf@0)\uput[90](mdf@0){mdf at 0}
3306      \end{pspicture}%
3307      }%
3308      \mdf@makeboxalign@right%
3309      }%
3310 \fi
3311 }%
3312 \def\drawbackgroundframetitle@second{%
3313 \ifdefempty{\mdf@frametitle}{\}%
3314 \ifdimless{\mdfframetitleboxtotalheight}{\z@}
3315 {\}%
3316 \drawbackgroundframetitle@@second
3317 }%
3318 }%
3319 }%
3320 \def\drawbackgroundframetitle@@second{%
3321 \begingroup%
3322 \ifbool{mdf@leftline}{%
3323 \nodexn{(mdf@0)+(\mdf@innerlinewidth@length,0)
3324 +0.5(\mdf@middlelinewidth@length,0)}{mdf@0}%
3325 }{\}%
3326 \ifbool{mdf@rightline}{%
3327 \nodexn{(mdf@P)-(\mdf@innerlinewidth@length,0)
3328 -0.5(\mdf@middlelinewidth@length,0)}{mdf@P}%
3329 }{\}%
3330 \nodexn{(mdf@P)-(0,\mdfframetitleboxtotalheight)}{mdf@F}%
3331 \psline[style=mdfframetitlebackgroundstyle,linearcs=\z@](mdf@0|mdf@F)(mdf@0|mdf@P)
3332 (mdf@P)(mdf@P|mdf@F)%
3333 \endgroup
3334 }

3335 \endinput
3336 %eof

```

## C. The file *mdframed-example-default*

```

3337 %Documentation of the package mdframed
3338 %$Id: mdframed.dtx 382 2012-04-17 14:35:02Z marco $
3339 \setcounter{errorcontextlines}{999}
3340 \documentclass[parskip=false,english,11pt]{ltxmdf}
3341 \ltxmdfsetifoot $Id: mdframed.dtx 382 2012-04-17 14:35:02Z marco $
3342
3343 \usepackage{showexpl}
3344 \lstset{style=lstltxmdf,explpreset={pos=b,rframe={}},}
3345
3346 \newcommand\Loadedframemethod{default}
3347 \usepackage[framemethod=\Loadedframemethod]{mdframed}
3348
3349 \title{The \Pack{mdframed} package}
3350 \subtitle{Examples for \Opt{framemethod=\Loadedframemethod}}
3351 \author{\href{mailto:marco.daniel@mada-nada.de}{Marco Daniel}}
3352 \date{\mdfdateID$Id: mdframed.dtx 382 2012-04-17 14:35:02Z marco $}
3353 \version{\mdversion}
3354 \introduction{In this document I collect various examples for \Opt{framemethod=\Loadedframemethod}.

```



```

3355 Some presented examples are more or less exorbitant.}
3356
3357 \mdfsetup{skipabove=\topskip,skipbelow=\topskip}
3358 \newrobustcmd\ExampleText{%
3359     An \textit{inhomogeneous linear} differential equation has the form
3360     \begin{align}
3361         L[v] = f,
3362     \end{align}
3363     where  $L$  is a linear differential operator,  $v$  is
3364     the dependent variable, and  $f$  is a given non-zero
3365     function of the independent variables alone.
3366 }
3367
3368 \newcounter{examplecount}
3369 \setcounter{examplecount}{0}
3370 \renewcommand\thesubsection{}
3371 \newcommand\Examplesec[1]{%
3372 \stepcounter{examplecount}%
3373 \subsection{Example~\arabic{examplecount}~---~#1\relax}%
3374 }
3375
3376 \begin{document}
3377 \maketitle
3378 \section{Loading}
3379 In the preamble only the package \Pack{mdframed} with the option \Opt{framemethod=\Loadedframemethod}
3380
3381 {\large\color{red!50!black}
3382 \NOTE Every \Cmd{global} inside the examples is necessary to work with the package \Pack{showexpl}.}
3383
3384 \section{Examples}
3385 All examples have the following settings:
3386
3387 \begin{tltxmdfexample}
3388 \mdfsetup{skipabove=\topskip,skipbelow=\topskip}
3389 \newrobustcmd\ExampleText{%
3390 An \textit{inhomogeneous linear} differential equation
3391 has the form
3392 \begin{align}
3393 L[v] = f,
3394 \end{align}
3395 where  $L$  is a linear differential operator,  $v$  is
3396 the dependent variable, and  $f$  is a given non-zero
3397 function of the independent variables alone.
3398 }
3399 \end{tltxmdfexample}
3400 \clearpage
3401 \Examplesec{very simple}
3402 \begin{LTExample}
3403 \global\mdfdefinestyle{exampledefault}{%
3404     linecolor=red,linewidth=3pt,%
3405     leftmargin=1cm,rightmargin=1cm
3406 }
3407 \begin{mdframed}[style=exampledefault]
3408 \ExampleText
3409 \end{mdframed}
3410 \end{LTExample}

```



```

3411
3412 \Examplesec{hidden line + frame title}
3413 \begin{LTExample}
3414 \global\mdfapptodefinestyle{exampledefault}{%
3415   topline=false,rightline=true,bottomline=false}
3416 \begin{mdframed}[style=exampledefault,frametitle={Inhomogeneous linear}]
3417 \ExampleText
3418 \end{mdframed}
3419 \end{LTExample}
3420 \clearpage
3421
3422 \Examplesec{colored frame title}
3423 \begin{LTExample}
3424
3425 \global\mdfapptodefinestyle{exampledefault}{%
3426   rightline=true,innerleftmargin=10,innerrightmargin=10,
3427   frametitle=rule=true,frametitle=rulecolor=green,
3428   frametitlebackgroundcolor=yellow,
3429   frametitle=rulewidth=2pt}
3430 \begin{mdframed}[style=exampledefault,frametitle={Inhomogeneous linear}]
3431 \ExampleText
3432 \end{mdframed}
3433 \end{LTExample}
3434
3435 \Examplesec{framed picture which is centered}
3436 \begin{LTExample}
3437 \begin{mdframed}[userdefinedwidth=6cm,align=center,
3438   linecolor=blue,linewidth=4pt]
3439 \includegraphics[width=\linewidth]{donald-duck}
3440 \end{mdframed}
3441 \end{LTExample}
3442
3443 \clearpage
3444 \Examplesec{Theorem environments}
3445 \begin{LTExample}
3446 \mdfdefinestyle{theoremstyle}{%
3447   linecolor=red,linewidth=2pt,%
3448   frametitle=rule=true,%
3449   frametitlebackgroundcolor=gray!20,
3450   innertopmargin=\topskip,
3451 }
3452 \mdtheorem[style=theoremstyle]{definition}{Definition}
3453 \begin{definition}
3454 \ExampleText
3455 \end{definition}
3456 \begin{definition}[Inhomogeneous linear]
3457 \ExampleText
3458 \end{definition}
3459 \begin{definition*}[Inhomogeneous linear]
3460 \ExampleText
3461 \end{definition*}
3462 \end{LTExample}
3463
3464
3465 \clearpage
3466 \Examplesec{theorem with separate header and the help of TikZ (complex)}

```

```

3467 \begin{LTExample}
3468 \newcounter{theo}[section]
3469 \newenvironment{theo}[1][]{%
3470 \stepcounter{theo}%
3471 \ifstrempy{#1}%
3472 {\mdfsetup{%
3473   frametitle={%
3474     \tikz[baseline=(current bounding box.east),outer sep=0pt]
3475     \node[anchor=east,rectangle,fill=blue!20]
3476     {\strut Theorem~\thetheo};}}
3477 }%
3478 {\mdfsetup{%
3479   frametitle={%
3480     \tikz[baseline=(current bounding box.east),outer sep=0pt]
3481     \node[anchor=east,rectangle,fill=blue!20]
3482     {\strut Theorem~\thetheo:~#1};}}%
3483 }%
3484 \mdfsetup{innertopmargin=10pt,linecolor=blue!20,%
3485   linewidth=2pt,topline=true,
3486   frametitleaboveskip=\dimexpr-\ht\strutbox\relax,}
3487 \begin{mdframed}[]\relax%
3488 }{\end{mdframed}}
3489 \begin{theo}[Inhomogeneous Linear]
3490 \ExampleText
3491 \end{theo}
3492
3493 \begin{theo}
3494 \ExampleText
3495 \end{theo}
3496 \end{LTExample}
3497
3498 \clearpage
3499 \Examplesec{hide only a part of a line}
3500 The example below is inspired by the following post on StackExchange \href{http://tex.stackexchange.com}
3501 \begin{LTExample}
3502 \makeatletter
3503 \newlength{\interruptlength}
3504 \setlength{\interruptlength}{2.5ex}
3505 \newrobustcmd\overlaplines{%
3506 \appto\mdf@frame@leftline@single{%
3507   \llap{\color{white}%
3508     \rule[\dimexpr-\mdfboundingboxdepth+\interruptlength\relax]{%
3509       {\mdf@middlelinewidth@length}%
3510       {\dimexpr\mdfboundingboxtotalheight%
3511         \ifbool{mdf@topline}{+\mdf@middlelinewidth@length}{}}
3512       -2\interruptlength\relax}%
3513   }%
3514 }%
3515 \appto\mdf@frame@rightline@single{%
3516   \rlap{\color{white}%
3517     \hspace*{\mdfboundingboxwidth}%
3518     \hspace*{\mdf@innerrightmargin@length}%
3519     \rule[\dimexpr-\mdfboundingboxdepth%
3520       +\interruptlength\relax]{%
3521       {\mdf@middlelinewidth@length}%
3522       {\dimexpr\mdfboundingboxtotalheight%

```

```

3523         +\ifbool{mdf@topline}{\mdf@middlelinewidth@length}{0pt}
3524         -2\interruptlength\relax}%
3525     }%
3526 }%
3527 }
3528 \makeatother
3529 \overlapiines
3530
3531 \begin{mdframed}[linecolor=blue,linewidth=8pt]
3532 \ExampleText
3533 \end{mdframed}
3534 \end{LTXexample}
3535 \end{document}
3536 \endinput

```

## D. The file mdframed-example-tikz

```

3537 %Documenation of the package mdframed
3538 %$Id: mdframed.dtx 382 2012-04-17 14:35:02Z marco $
3539 \setcounter{errorcontextlines}{999}
3540 \documentclass[parskip=false,english,11pt]{ltxmdf}
3541 \ltxmdfsetifoot $Id: mdframed.dtx 382 2012-04-17 14:35:02Z marco $
3542
3543
3544 \usepackage{showexpl}
3545 \lstset{style=lstltxmdf,explpreset={pos=b,rframe={}},}
3546
3547 \newcommand\Loadedframemethod{TikZ}
3548 \usepackage[framemethod=\Loadedframemethod]{mdframed}
3549
3550 \title{The \Pack{mdframed} package}
3551 \subtitle{Examples for \Opt{framemethod=\Loadedframemethod}}
3552 \author{\href{mailto:marco.daniel@mada-nada.de}{Marco Daniel}}
3553 \date{\mdfdateID$Id: mdframed.dtx 382 2012-04-17 14:35:02Z marco $}
3554 \version{\mdversion}
3555 \introduction{In this document I collect various examples for \Opt{framemethod=\Loadedframemethod}.
3556 Some presented examples are more or less exorbitant.}
3557
3558 \mdfsetup{skipabove=\topskip,skipbelow=\topskip}
3559 \newrobustcmd\ExampleText{%
3560     An \textit{inhomogeneous linear} differential equation has the form
3561     \begin{align}
3562         L[v] &= f,
3563     \end{align}
3564     where  $L$  is a linear differential operator,  $v$  is
3565     the dependent variable, and  $f$  is a given non-zero
3566     function of the independent variables alone.
3567 }
3568
3569 \newcounter{examplecount}
3570 \setcounter{examplecount}{0}
3571 \renewcommand\thesubsection{}
3572 \newcommand\Examplesec[1]{%
3573 \stepcounter{examplecount}%
3574 \subsection{Example~\arabic{examplecount}~---~\relax}%
3575 }

```

```

3576
3577 \begin{document}
3578 \maketitle
3579 \section{Loading}
3580 In the preamble only the package \Pack{mdfamed} with the option \Opt{framemethod=\Loadedframemethod}
3581
3582 {\large\color{red!50!black}
3583 \NOTE Every \Cmd{global} inside the examples is necessary to work with the package \Pack{showexpl}.}
3584
3585 \section{Examples}
3586 All examples have the following settings:
3587
3588 \begin{tltxmdfexample}
3589 \mdfsetup{skipabove=\topskip,skipbelow=\topskip}
3590 \newrobustcmd\ExampleText{%
3591 An \textit{inhomogeneous linear} differential equation
3592 has the form
3593 \begin{align}
3594 L[v] = f,
3595 \end{align}
3596 where  $L$  is a linear differential operator,  $v$  is
3597 the dependent variable, and  $f$  is a given non-zero
3598 function of the independent variables alone.
3599 }
3600 \end{tltxmdfexample}
3601 \clearpage
3602 \ExampleText{round corner}
3603 \begin{LTExample}
3604 \global\mdfdefinestyle{exampledefault}{%
3605     outerlinewidth=5pt,innerlinewidth=0pt,
3606     outerlinecolor=red,roundcorner=5pt
3607 }
3608 \begin{mdfamed}[style=exampledefault]
3609 \ExampleText
3610 \end{mdfamed}
3611 \end{LTExample}
3612
3613 \Examplesec{hidden line + frame title}
3614 \begin{LTExample}
3615 \global\mdfapptodefinestyle{exampledefault}{%
3616     topline=false,leftline=false,}
3617 \begin{mdfamed}[style=exampledefault,frametitle={Inhomogeneous linear}]
3618 \ExampleText
3619 \end{mdfamed}
3620 \end{LTExample}
3621 \clearpage
3622 \Examplesec{framed picture which is centered}
3623 \begin{LTExample}
3624 \begin{mdfamed}[userdefinedwidth=6cm,align=center,
3625     linecolor=blue,middlelinewidth=4pt,roundcorner=5pt]
3626 \includegraphics[width=\linewidth]{donald-duck}
3627 \end{mdfamed}
3628 \end{LTExample}
3629
3630 \Examplesec{Gimmick}
3631 \begin{LTExample}

```

```

3632 \mdfsetup{splitbottomskip=0.8cm, splittopskip=0cm,
3633             innerrightmargin=2cm, innertopmargin=1cm,%
3634             innerlinewidth=2pt, outerlinewidth=2pt,
3635             middlelinewidth=10pt, backgroundcolor=red,
3636             linecolor=blue, middlelinecolor=gray,
3637             tikzsetting={draw=yellow, line width=3pt,%
3638                         dashed,%
3639                         dash pattern= on 10pt off 3pt},
3640             rightline=false, bottomline=false}
3641 \begin{mdframed}
3642 \ExampleText
3643 \end{mdframed}
3644 \end{LTXexample}
3645
3646 \Examplesec{complex example with TikZ}
3647
3648 \begin{tltxmdfexample}
3649 \tikzstyle{titregris} =
3650     [draw=gray, thick, fill=white, shading = exersicetitle, %
3651     text=gray, rectangle, rounded corners, right, minimum height=.7cm]
3652
3653 \pgfdeclarehorizontalshading{exersicebackground}{100bp}
3654     {color(0bp)=(green!40); color(100bp)=(black!5)}
3655
3656 \pgfdeclarehorizontalshading{exersicetitle}{100bp}
3657     {color(0bp)=(red!40); color(100bp)=(black!5)}
3658
3659 \newcounter{exercise}
3660 \renewcommand*{\theexercise}{Exercise~n\arabic{exercise}}
3661 \makeatletter
3662 \def\mdf@@exercisepoints{}%new mdframed key:
3663 \define@key{mdf}{exercisepoints}{%
3664     \def\mdf@@exercisepoints{#1}
3665 }
3666 \makeatother
3667
3668 \mdfdefinestyle{exercisestyle}{%
3669     outerlinewidth=1pt, innerlinewidth=0pt,
3670     roundcorner=2pt, linecolor=gray,
3671     tikzsetting={shading = exersicebackground},
3672     innertopmargin=1.2\baselineskip,
3673     skipabove={\dimexpr0.5\baselineskip+\topskip\relax},
3674     needspace=3\baselineskip,
3675     frametitlefont=\sffamily\bfseries,
3676     settings={\global\stepcounter{exercise}},
3677     singleextra={%
3678         \node[titregris,xshift=1cm] at (P-|0) %
3679             {\~\mdf@frametitlefont{\theexercise}\~};
3680         \ifdefempty{\mdf@@exercisepoints}%
3681             {}%
3682             {\node[titregris,left,xshift=-1cm] at (P)%
3683                 {\~\mdf@frametitlefont{\mdf@@exercisepoints points}\~};}%
3684     },
3685     firstextra={%
3686         \node[titregris,xshift=1cm] at (P-|0) %
3687             {\~\mdf@frametitlefont{\theexercise}\~};

```

```

3688 \ifdefempty{\mdf@@exercisepoints}%
3689 {}%
3690 {\node[titregris,left,xshift=-1cm] at (P)%
3691   {\mdf@frametitlefont{\mdf@@exercisepoints points}~};}%
3692 },
3693 }
3694 \begin{mdframed}[style=exercisestyle,]
3695 \ExampleText
3696 \end{mdframed}
3697
3698 \begin{mdframed}[style=exercisestyle,exercisepoints=10]
3699 \ExampleText
3700 \end{mdframed}
3701 \end{tltxmdfexample}
3702 \clearpage
3703 \Examplesec{Theorem environments}
3704 \begin{LTXexample}
3705 \mdfdefinestyle{theoremstyle}{%
3706   linecolor=red,linewidth=2pt,%
3707   frametitlerule=true,%
3708   apptotikzsetting={\tikzset{mdfframetitlebackground/.append style={%
3709     shade,left color=white, right color=blue!20}}},
3710   frametitlerulecolor=green!60,
3711   frametitlerulewidth=1pt,
3712   innertopmargin=\topskip,
3713 }
3714 \mdtheorem[style=theoremstyle]{definition}{Definition}
3715 \begin{definition}[Inhomogeneous linear]
3716 \ExampleText
3717 \end{definition}
3718 \begin{definition*}[Inhomogeneous linear]
3719 \ExampleText
3720 \end{definition*}
3721 \end{LTXexample}
3722
3723 \end{document}
3724 \endinput

```

## E. The file *mdframed-example-pstricks*

```

3725 %Documenation of the package mdframed
3726 %$Id: mdframed.dtx 382 2012-04-17 14:35:02Z marco $
3727 \setcounter{errorcontextlines}{999}
3728 \documentclass[parskip=false,english,11pt]{ltxmdf}
3729 \ltxmdfsetifoot$Id: mdframed.dtx 382 2012-04-17 14:35:02Z marco $
3730
3731 \lstDeleteShortInline{[]}
3732 \newcommand\Loadedframemethod{PSTricks}
3733 \usepackage[framemethod=\Loadedframemethod]{mdframed}
3734
3735 \usepackage{showexpl}
3736 \lstset{style=lstltxmdf,explpreset={pos=b,rframe={}},}
3737
3738 \title{The \Pack{mdframed} package}
3739 \subtitle{Examples for \Opt{framemethod=\Loadedframemethod}}
3740 \author{\href{mailto:marco.daniel@mada-nada.de}{Marco Daniel}}

```

```

3741 \date{\mdfdateID$Id: mdframed.dtx 382 2012-04-17 14:35:02Z marco $}
3742 \version{\mdversion}
3743 \introduction{In this document I collect various examples for \Opt{framemethod=\Loadedframemethod}.
3744 Some presented examples are more or less exorbitant.}
3745
3746 \mdfsetup{skipabove=\topskip,skipbelow=\topskip}
3747 \newrobustcmd\ExampleText{%
3748     An \textit{inhomogeneous linear} differential equation has the form
3749     \begin{align}
3750         L[v] = f,
3751     \end{align}
3752     where  $L$  is a linear differential operator,  $v$  is
3753     the dependent variable, and  $f$  is a given non-zero
3754     function of the independent variables alone.
3755 }
3756
3757 \newcounter{examplecount}
3758 \setcounter{examplecount}{0}
3759 \renewcommand\thesubsection{}
3760 \newcommand\Examplesec[1]{%
3761 \stepcounter{examplecount}%
3762 \subsection{Example~\arabic{examplecount}~---~#1\relax}%
3763 }
3764
3765 \begin{document}
3766 \maketitle
3767 \section{Loading}
3768 In the preamble only the package \Pack{mdframed} with the option \Opt{framemethod=\Loadedframemethod}
3769
3770 {\large\color{red!50!black}
3771 \NOTE Every \Cmd{global} inside the examples is necessary to work with the package \Pack{showexpl}.}
3772 X
3773 \section{Examples}
3774 All examples have the following settings:
3775
3776 \begin{tltxmdfexample}
3777 \mdfsetup{skipabove=\topskip,skipbelow=\topskip}
3778 \newrobustcmd\ExampleText{%
3779 An \textit{inhomogeneous linear} differential equation
3780 has the form
3781 \begin{align}
3782 L[v] = f,
3783 \end{align}
3784 where  $L$  is a linear differential operator,  $v$  is
3785 the dependent variable, and  $f$  is a given non-zero
3786 function of the independent variables alone.
3787 }
3788 \end{tltxmdfexample}
3789 \clearpage
3790
3791 \Examplesec{very simple}
3792 \begin{LTXexample}
3793 \global\mdfdefinestyle{exampledefault}{%
3794     linecolor=red,middlelinewidth=3pt,%
3795     leftmargin=1cm,rightmargin=1cm
3796 }

```

```

3797 \begin{mdframed}[style=exampledefault,roundcorner=5]
3798 \ExampleText
3799 \end{mdframed}
3800 \end{LTXexample}
3801
3802 \Examplesec{hidden line + frame title}
3803 \begin{LTXexample}
3804 \global\mdfapptodefinestyle{exampledefault}{%
3805   topline=false,rightline=false,bottomline=false,
3806   frametitlerule=true,innertopmargin=6pt,
3807   outerlinewidth=6pt,outerlinecolor=blue,
3808   pstricksappsetting={\addtopsstyle{mdfouterlinestyle}{linestyle=dashed}},
3809   innerlinecolor=yellow,innerlinewidth=5pt}%
3810 \begin{mdframed}[style=exampledefault,frametitle={Inhomogeneous linear}]
3811 \ExampleText
3812 \end{mdframed}
3813 \end{LTXexample}
3814
3815 \clearpage
3816
3817 \Examplesec{Dash Lines}
3818 \begin{LTXexample}
3819 \global\mdfdefinestyle{exampledefault}{%
3820   pstrickssetting={linestyle=dashed,},linecolor=red,linewidth=5pt}
3821 \begin{mdframed}[style=exampledefault,]
3822 \ExampleText
3823 \end{mdframed}
3824 \end{LTXexample}
3825
3826 \Examplesec{Double Lines}
3827 \begin{LTXexample}
3828 \global\mdfdefinestyle{exampledefault}{%
3829   pstrickssetting={doubleline=true,doublesep=6pt},
3830   linecolor=red,linewidth=5pt,middlelinewidth=4pt}
3831 \begin{mdframed}[style=exampledefault,]
3832 \ExampleText
3833 \end{mdframed}
3834 \end{LTXexample}
3835
3836 \Examplesec{Shadow frame}
3837 \begin{LTXexample}
3838 \newmdenv[shadow=true,
3839   shadowsize=11pt,
3840   linewidth=8pt,
3841   frametitlerule=true,
3842   roundcorner=10pt,
3843   ]{myshadowbox}
3844 \begin{myshadowbox}[frametitle={Inhomogeneous linear}]
3845 \ExampleText
3846 \end{myshadowbox}
3847 \end{LTXexample}
3848 \end{document}
3849 \endinput

```

## F. The file *mdframed-example-texsx*



```

3850 %Documentation of the package mdframed
3851 %$Id: mdframed.dtx 382 2012-04-17 14:35:02Z marco $
3852 \setcounter{errorcontextlines}{999}
3853 \documentclass[parskip=false,english,11pt,ltxlipsum]{ltxmdf}
3854 \ltxmdfsetifoot $Id: mdframed.dtx 382 2012-04-17 14:35:02Z marco $
3855
3856
3857 \usepackage{showexpl}
3858 \lstset{style=lstltxmdf,explpreset={pos=b,rframe={}},}
3859 \usepackage{tikz}
3860 \usetikzlibrary{calc,arrows}
3861 \newcommand\Loadedframemethod{tikz}
3862 \usepackage[framemethod=\Loadedframemethod]{mdframed}
3863
3864 \title{The \Pack{mdframed} package}
3865 \subtitle{Examples for \Opt{framemethod=\Loadedframemethod}}
3866 \author{\href{mailto:marco.daniel@mada-nada.de}{Marco Daniel}}
3867 \date{\mdfdateID$Id: mdframed.dtx 382 2012-04-17 14:35:02Z marco $}
3868 \version{\mdversion}
3869 \introduction{In this document I collect various examples for \Opt{framemethod=\Loadedframemethod}.
3870 Some presented examples are more or less exorbitant.}
3871
3872 \mdfsetup{skipabove=\topskip,skipbelow=\topskip}
3873 \newrobustcmd\ExampleText{%
3874     An \textit{inhomogeneous linear} differential equation has the form
3875     \begin{align}
3876         L[v] &= f,
3877     \end{align}
3878     where  $L$  is a linear differential operator,  $v$  is
3879     the dependent variable, and  $f$  is a given non-zero
3880     function of the independent variables alone.
3881 }
3882
3883 \newcounter{examplecount}
3884 \setcounter{examplecount}{0}
3885 \renewcommand\thesubsection{}
3886 \newcommand\Examplesec[1]{%
3887 \stepcounter{examplecount}%
3888 \subsection{Example~\arabic{examplecount}~---~\relax}%
3889 }
3890
3891 \begin{document}
3892 \maketitle
3893 \section{Loading}
3894 In the preamble only the package \Pack{mdframed} with the option \Opt{framemethod=\Loadedframemethod}
3895
3896 {\large\color{red!50!black}
3897 \NOTE Every \Cmd{global} inside the examples is necessary to work with the package \Pack{showexpl}.}
3898
3899 \section{Examples}
3900 All examples have the following settings:
3901
3902 \begin{tltxmdfexample}
3903 \mdfsetup{skipabove=\topskip,skipbelow=\topskip}
3904 \newrobustcmd\ExampleText{%
3905 An \textit{inhomogeneous linear} differential equation

```

```

3906 has the form
3907 \begin{align}
3908 L[v] = f,
3909 \end{align}
3910 where  $L$  is a linear differential operator,  $v$  is
3911 the dependent variable, and  $f$  is a given non-zero
3912 function of the independent variables alone.
3913 }
3914 \end{tltxmdfexample}
3915 \clearpage
3916 \Examplesec{Package listings}
3917 The example below is inspired by the following post on StackExchange \href{http://tex.stackexchange.com}
3918
3919 Here the solution which can be decorate as usual.
3920
3921 \begin{tltxmdfexample}[moretexcs={BeforeBeginEnvironment,AfterEndEnvironment},morekeywords={lstlisting}]
3922 \BeforeBeginEnvironment{lstlisting}{%
3923     \begin{mdframed}[<modification>%
3924         \vspace{-0.7em}}
3925 \AfterEndEnvironment{lstlisting}{%
3926     \vspace{-0.5em}%
3927     \end{mdframed}}
3928 \end{tltxmdfexample}
3929
3930 With the new command \Cmd{surroundwithmdframed} you can use
3931 \begin{tltxmdfexample}[moretexcs={BeforeBeginEnvironment,AfterEndEnvironment},morekeywords={lstlisting}]
3932 \surroundwithmdframed{listings}
3933 \end{tltxmdfexample}
3934
3935 \Examplesec{Package multicol}
3936 How I wrote in \enquote{Known Problems} you can't combine \Pack{multicol} with \Pack{mdframed}. In a s
3937 \begin{LTExample}
3938 \begin{multicols}{2}
3939 \lipsum[1]
3940 \begin{mdframed}
3941 \ExampleText
3942 \end{mdframed}
3943 \lipsum[2]
3944 \end{multicols}
3945 \end{LTExample}
3946 \clearpage
3947 \twocolumn[\Examplesec{Working in twocolumn mode}]
3948 \begin{tltxmdfexample}
3949 \twocolumn[%
3950     \Examplesec{Working in
3951         twocolumn mode}]
3952 \lipsum[1]\lipsum[2]
3953 \begin{mdframed}[%
3954     leftmargin=10pt,%
3955     rightmargin=10pt,%
3956     linecolor=red,
3957     backgroundcolor=yellow]
3958 \ExampleText
3959 \end{mdframed}
3960 \lipsum[2]
3961 \end{tltxmdfexample}

```

```

3962 \lipsum[1]\lipsum[2]
3963 \begin{mdframed}[leftmargin=10pt,%
3964                 rightmargin=10pt,%
3965                 linecolor=red,
3966                 backgroundcolor=yellow]
3967 \ExampleText
3968 \end{mdframed}
3969 \lipsum[2]
3970 \clearpage
3971 \onecolumn
3972 \Examplesec{Working inside enumerate}
3973 \begin{LTXexample}
3974 Text Text Text Text Text Text Text Text
3975 \begin{enumerate}
3976 \item in the following \ldots
3977     \begin{mdframed}[linecolor=blue,linewidth=2]
3978         \ExampleText
3979     \end{mdframed}
3980 \item \lipsum[2]
3981 \end{enumerate}
3982 Text Text Text Text Text Text
3983 \end{LTXexample}
3984 \clearpage
3985 \Examplesec{Position a specific symbol at a line}
3986 \begin{LTXexample}
3987 \tikzset{
3988     warningsymbol/.style={
3989         rectangle,draw=red,
3990         fill=white,scale=1,
3991         overlay}}
3992 \mdfdefinestyle{warning}{%
3993     hidealllines=true,leftline=true,
3994     skipabove=12,skipbelow=12pt,
3995     innertopmargin=0.4em,%
3996     innerbottommargin=0.4em,%
3997     innerrightmargin=0.7em,%
3998     rightmargin=0.7em,%
3999     innerleftmargin=1.7em,%
4000     leftmargin=0.7em,%
4001     middlelinewidth=.2em,%
4002     linecolor=red,%
4003     fontcolor=red,%
4004     firstextra={\path let \p1=(P), \p2=(0) in ($(\x2,0)+0.5*(0,\y1)$)
4005                 node[warningsymbol] {\$};},%
4006     secondextra={\path let \p1=(P), \p2=(0) in ($(\x2,0)+0.5*(0,\y1)$)
4007                 node[warningsymbol] {\$};},%
4008     middleextra={\path let \p1=(P), \p2=(0) in ($(\x2,0)+0.5*(0,\y1)$)
4009                 node[warningsymbol] {\$};},%
4010     singleextra={\path let \p1=(P), \p2=(0) in ($(\x2,0)+0.5*(0,\y1)$)
4011                 node[warningsymbol] {\$};},%
4012 }
4013 \begin{mdframed}[style=warning]
4014 \ExampleText
4015 \end{mdframed}
4016 \end{LTXexample}
4017

```

```

4018 \clearpage
4019 \Examplesec{digression-environement inspired by Tobias Weh}
4020 \begin{lstlisting}
4021 \usetikzlibrary{calc,arrows}
4022 \tikzset{
4023   excursus arrow/.style={%
4024     line width=2pt,
4025     draw=gray!40,
4026     rounded corners=2ex,
4027   },
4028   excursus head/.style={
4029     fill=white,
4030     font=\bfseries\sffamily,
4031     text=gray!80,
4032     anchor=base west,
4033   },
4034 }
4035 \mdfdefinestyle{digressionarrows}{%
4036   singleextra={%
4037     \path let \p1=(P), \p2=(O) in (\x2,\y1) coordinate (Q);
4038     \path let \p1=(Q), \p2=(O) in (\x1,{(\y1-\y2)/2}) coordinate (M);
4039     \path [excursus arrow, round cap-to]
4040       ($ (O)+(5em,0ex)$) -| (M) |- %
4041       ($ (Q)+(12em,0ex)$) .. controls +(0:16em) and +(185:6em) .. %
4042       ++(23em,2ex);
4043     \node [excursus head] at ($ (Q)+(2.5em,-0.75pt)$) {Digression};},
4044   firstextra={%
4045     \path let \p1=(P), \p2=(O) in (\x2,\y1) coordinate (Q);
4046     \path [excursus arrow,-to]
4047       (O) |- %
4048       ($ (Q)+(12em,0ex)$) .. controls +(0:16em) and +(185:6em) .. %
4049       ++(23em,2ex);
4050     \node [excursus head] at ($ (Q)+(2.5em,-2pt)$) {Digression};},
4051   secondextra={%
4052     \path let \p1=(P), \p2=(O) in (\x2,\y1) coordinate (Q);
4053     \path [excursus arrow,round cap-]
4054       ($ (O)+(5em,0ex)$) -| (Q);},
4055   middleextra={%
4056     \path let \p1=(P), \p2=(O) in (\x2,\y1) coordinate (Q);
4057     \path [excursus arrow]
4058       (O) -- (Q);},
4059   middlelinewidth=2.5em,middlelinecolor=white,
4060   hidealllines=true,topline=true,
4061   innertopmargin=0.5ex,
4062   innerbottommargin=2.5ex,
4063   innerrightmargin=2pt,
4064   innerleftmargin=2ex,
4065   skipabove=0.87\baselineskip,
4066   skipbelow=0.62\baselineskip,
4067 }
4068
4069 \begin{mdframed}[style=digressionarrows]
4070   \ExampleText
4071 \end{mdframed}
4072 \end{lstlisting}
4073

```

```

4074 \tikzset{
4075   excursus arrow/.style={%
4076     line width=2pt,
4077     draw=gray!40,
4078     rounded corners=2ex,
4079   },
4080   excursus head/.style={
4081     fill=white,
4082     font=\bfseries\sffamily,
4083     text=gray!80,
4084     anchor=base west,
4085   },
4086 }
4087 \mdfdefinestyle{digressionarrows}{%
4088   singleextra={%
4089     \path let \p1=(P), \p2=(O) in (\x2,\y1) coordinate (Q);
4090     \path let \p1=(Q), \p2=(O) in (\x1,{(\y1-\y2)/2}) coordinate (M);
4091     \path [excursus arrow, round cap-to]
4092       ($ (O)+(5em,0ex)$) -| (M) |- %
4093       ($ (Q)+(12em,0ex)$) .. controls +(0:16em) and +(185:6em) .. %
4094       ++(23em,2ex);
4095     \node [excursus head] at ($ (Q)+(2.5em,-0.75pt)$) {Digression}};
4096   firstextra={%
4097     \path let \p1=(P), \p2=(O) in (\x2,\y1) coordinate (Q);
4098     \path [excursus arrow,-to]
4099       (O) |- %
4100       ($ (Q)+(12em,0ex)$) .. controls +(0:16em) and +(185:6em) .. %
4101       ++(23em,2ex);
4102     \node [excursus head] at ($ (Q)+(2.5em,-2pt)$) {Digression}};
4103   secondextra={%
4104     \path let \p1=(P), \p2=(O) in (\x2,\y1) coordinate (Q);
4105     \path [excursus arrow,round cap-]
4106       ($ (O)+(5em,0ex)$) -| (Q)};
4107   middleextra={%
4108     \path let \p1=(P), \p2=(O) in (\x2,\y1) coordinate (Q);
4109     \path [excursus arrow]
4110       (O) -- (Q)};
4111   middlelinewidth=2.5em,middlelinecolor=white,
4112   hidealllines=true,topline=true,
4113   innertopmargin=0.5ex,
4114   innerbottommargin=2.5ex,
4115   innerrightmargin=2pt,
4116   innerleftmargin=2ex,
4117   skipabove=0.87\baselineskip,
4118   skipbelow=0.62\baselineskip,
4119 }
4120
4121 \begin{mdframed}[style=digressionarrows]
4122   \ExampleText
4123 \end{mdframed}
4124 \end{document}
4125 \endinput

```

## G. Change History

|  |    |  |    |
|--|----|--|----|
| v1.0a  |    | <code>\item\mbox\relax</code> – Need for amsthm  | 29 |
| General: Created dtx and fixes bugs  | 1  | changed definition of <code>\mdf@lrbox</code> (Thanks Lars Madsen)   | 28 |
| v1.0b  |    | Changed the enddefinition of <code>mdframed</code> . Uses now <code>\@doendpe</code> instead of <code>\endparenv</code>  | 37 |
| General: added command <code>\@parboxrestore</code> to <code>\mdf@lrbox</code>                             | 28 | Edit algorithm to combine the saveboxes <code>\mdf@frametitlebox</code> and <code>\mdf@splitboxone</code> by the predefined settings: <code>\parskip\z@</code> , <code>\parindent\z@</code> and <code>\offinterlineskip</code> | 33 |
| removed <code>\setbox\mdf@splitbox@two</code> <code>\vbox\unvbox\mdf@splitbox@two</code>                   | 41 | v1.2a  |    |
| v1.1beta   |    | General: take account of <code>\parskip</code> for the vertical calculation  | 38 |
| General: added command to avoid overfull box warning by <code>vsplit</code>                                | 29 | v1.3   |    |
| Added frametitle detection to <code>\detected@mdf@put@frame</code>   | 36 | General: Added option <code>shadow</code>  | 25 |
| added lost semicolons  | 57 | Use now <code>\item\mbox\relax</code>  | 29 |
| Added method frame title via <code>\savebox</code>   | 33 | v1.3a  |    |
| Added option <code>frametitlerulecolor</code> , <code>frametitlebackgroundcolor</code> , <code>font</code> | 24 | General: fixes bug with <code>\@doendpe</code> (Thanks Dietrich Grau)  | 28 |
| Added option <code>titleaboveskip</code> , <code>titlebelowskip</code> , <code>frametitlerulewidth</code>  | 23 | v1.4   |    |
| Added option <code>usetwoside</code>   | 25 | General: Changed the detecting of float environments. Now <code>mdframed</code> uses only <code>\@capttype</code> instead of <code>\@floatpenalty</code>   | 36 |
| Changed the definition of <code>\mdf@trivlist</code>   | 37 | Changed the enddefinition of <code>mdframed</code> . Uses now a line to provide the defined width  | 37 |
| Create new <code>\savebox</code> and renamed <code>\@tempboxa</code>                                       | 27 | v1.4a  |    |
| Defining <code>mdframed</code> with <code>\newenvironment</code>   | 37 | General: added extra test for a wrong splitted box   | 41 |
| Joining all new definitions  | 27 |  |    |
| Redefinition of <code>\newmdtheoremenv</code> . – Now check of theorem definition.                         | 30 |  |    |
| Removing <code>\@arrayparboxrestore</code>   | 39 |  |    |
| Renamed some commands so that every command have the same prefix <code>\mdf@</code>                        | 1  |  |    |
| v1.1release  |    |  |    |
| General: Added <code>\mbox</code> to the definition.   |    |  |    |

## H. Index

The index only collect package relevant words.

| Symbols   |   |
|---|---|
| <code>\\$</code> .....                                | 4005, 4007, 4009, 4011  |
| <code>\@definecounter</code> .....                    | 470, 491  |
| <code>\@doendpe</code> .....                          | 364, 766  |
| <code>\@itemlabel</code> .....                        | 395   |
| <code>\@namedef</code> .....                          | 524   |
| <code>\@nameuse</code> .....                          | 524   |
| <code>\@newctr</code> .....                           | 491   |
| <code>\@nmbrlistfalse</code> .....                    | 390   |
| <code>\@parboxrestore</code> .....                    | 358   |
| <code>\@temptitle</code> .....                        | 475, 477, 483, 486, 487, 499, 501,<br>507, 511, 513, 519, 528, 530, 536, 539, 540   |
| <code>\@thmcounter</code> .....                       | 471, 492, 495   |
| <code>\@thmcountersep</code> .....                    | 494   |
| <code>\@trivlist</code> .....                         | 391   |
| <code>\_</code> .....                                 | 483, 486, 507, 536, 539   |
| A   |   |
| <code>\addtolength</code> .....                       | 815   |
| <code>\addtopsstyle</code> .....                      | 2530, 3808  |
| <code>align (option)</code> .....                     | 9   |
| <code>apptotikzsetting (option)</code> .....          | 10  |
| <code>\arabic</code> .....                            | 3373, 3574, 3660, 3762, 3888  |
| <code>\AtBeginDocument</code> .....                   | 457   |
| <code>\author</code> .....                            | 3351, 3552, 3740, 3866  |
| B   |   |
| <code>backgroundcolor (option)</code> .....           | 7   |
| <code>\booltrue</code> .....                          | 548   |
| <code>bottomline (option)</code> .....                | 10  |
| C   |   |
| <code>\clearpage</code> .....                         | 3400,<br>3420, 3443, 3465, 3498, 3601, 3621, 3702,<br>3789, 3815, 3915, 3946, 3970, 3984, 4018  |
| <code>\closedshadow</code> .....                      | 2893, 3240  |
| <code>\Cmd</code> .....                               | 3379, 3382,<br>3580, 3583, 3768, 3771, 3894, 3897, 3930   |
| <code>\csappto</code> .....                           | 420   |
| <code>\CurrentOption</code> .....                     | 277   |
| D   |   |
| <code>\date</code> .....                              | 3352, 3553, 3741, 3867  |
| <code>\DeclareDocumentCommand</code> .....            | 443, 462  |
| <code>defaultunit (option)</code> .....               | 5   |
| <code>\deferred@thm@head</code> .....                 | 376, 377  |
| <code>\detected@mdf@put@frame</code> .....            | 584, 682, 683, 755, 760   |
| <code>\DisableKeyvalOption</code> .....               | 1211, 1212  |
| <code>\documentclass</code> .....                     | 3340, 3540, 3728, 3853  |
| <code>\draw</code> .....                              | 1789  |
| <code>\drawbrackgroundframetitle@@first</code> .....  | 1960, 1964, 1975, 2973, 2977, 2987  |
| <code>\drawbrackgroundframetitle@@middle</code> ..... | 2158, 2164, 2182, 3144, 3149  |
| <code>\drawbrackgroundframetitle@@second</code> ..... | 2339, 2344, 3316, 3320  |
| <code>\drawbrackgroundframetitle@@single</code> ..... | 1932, 1935, 2791, 2794  |
| <code>\drawbrackgroundframetitle@first</code> .....   | 1956, 2142, 2955, 2969  |
| <code>\drawbrackgroundframetitle@middle</code> .....  | 2154, 2323, 3127, 3140  |
| <code>\drawbrackgroundframetitle@second</code> .....  | 2335, 2499, 3299, 3312  |
| <code>\drawbrackgroundframetitle@single</code> .....  | 1917, 1930, 2774, 2789  |
| E   |   |
| <code>\endgroup</code> .....                          | 30, 274,<br>586, 623, 909, 1043, 1112, 1136, 1791,<br>2624, 2639, 2660, 2811, 3006, 3162, 3333  |
| <code>\endmdf@lrbox</code> ....                       | 346, 367, 579, 594, 753, 758  |
| <code>\endmdf@trivlist</code> .....                   | 386, 401, 402, 765  |
| <code>\endpsclip</code> .....                         | 2580, 2588, 2602, 2621, 2637, 2781, 2961  |
| <code>\enquote</code> .....                           | 3936  |
| <code>everyline (option)</code> .....                 | 8   |
| <code>\Examplesec</code> .....                        | 3371, 3401, 3412, 3422, 3435, 3444, 3466,<br>3499, 3572, 3613, 3622, 3630, 3646, 3703,<br>3760, 3791, 3802, 3817, 3826, 3836, 3886,<br>3916, 3935, 3947, 3950, 3972, 3985, 4019   |
| <code>\ExampleText</code> .....                       | 3358, 3389,<br>3408, 3417, 3431, 3454, 3457, 3460, 3490,<br>3494, 3532, 3559, 3590, 3602, 3609, 3618,<br>3642, 3695, 3699, 3716, 3719, 3747, 3778,<br>3798, 3811, 3822, 3832, 3845, 3873, 3904,<br>3941, 3958, 3967, 3978, 4014, 4070, 4122 |
| F   |   |
| <code>\f@size</code> .....                            | 1025  |
| <code>firstextra (option)</code> .....                | 10  |
| <code>font (option)</code> .....                      | 8   |
| <code>fontcolor (option)</code> .....                 | 8   |
| <code>footnotedistance (option)</code> .....          | 13  |
| <code>footnoteinside (option)</code> .....            | 13  |
| <code>framemethod (option)</code> .....               | 5   |
| <code>frametitle (option)</code> .....                | 11  |
| <code>frametitleaboveskip (option)</code> .....       | 11  |
| <code>frametitlealignment (option)</code> .....       | 11  |
| <code>frametitlebackgroundcolor (option)</code> ..... | 11  |
| <code>frametitlebelowskip (option)</code> .....       | 11  |
| <code>frametitlefont (option)</code> .....            | 11  |
| <code>frametitlerule (option)</code> .....            | 11  |

frametitlerulewidth (option) ..... 11

## G

\global 524, 581, 583, 596, 597, 598, 599, 600,  
615, 621, 1392, 1400, 1621, 1961, 1965,  
2159, 2974, 2978, 3145, 3403, 3414, 3425,  
3604, 3615, 3676, 3793, 3804, 3819, 3828

## H

hidealllines (option) ..... 11  
\href ..... 3351, 3500, 3552, 3740, 3866, 3917

## I

\if@mdf@pageodd ..... 770, 794, 805  
\ifcsdef ..... 463  
\ifdefempty ..... 745, 754, 759,  
1355, 1474, 1579, 1682, 1931, 1957, 2155,  
2336, 2790, 2970, 3141, 3313, 3680, 3688  
\ifmdf@bottomline ..... 552  
\ifmdf@footnoteinside ..... 750  
\ifmdf@frametitlebottomline ..... 552  
\ifmdf@frametitleleftline ..... 549  
\ifmdf@frametitlerightline ..... 551  
\ifmdf@frametitletopline ..... 550  
\ifmdf@leftline ..... 549  
\ifmdf@nobreak ..... 684  
\ifmdf@rightline ..... 551  
\ifmdf@topline ..... 550  
\IfNoValueTF ..... 444, 466, 468  
\ifstrempty .. 474, 486, 498, 510, 527, 539, 3471  
\IfValueTF ..... 446, 447  
\ifvmode ..... 743, 749  
\includegraphics ..... 3439, 3626  
\indent ..... 377  
innerbottommargin (option) ..... 7  
innerleftmargin (option) ..... 6  
innerlinecolor (option) ..... 8  
innerlinewidth (option) ..... 7  
innermargin (option) ..... 7  
innerrightmargin (option) ..... 6  
innertopmargin (option) ..... 6  
\interruptlength .....  
..... 3503, 3504, 3508, 3512, 3520, 3524  
\introduction ..... 3354, 3555, 3743, 3869  
\itemindent ..... 394

## L

\labelwidth ..... 392  
\ldots ..... 3976  
\leavevmode ..... 397  
leftline (option) ..... 11  
\leftmargin ..... 393  
leftmargin (option) ..... 6  
linecolor (option) ..... 7  
linewidth (option) ..... 7  
\lipsum 3939, 3943, 3952, 3960, 3962, 3969, 3980

\Loadedframemethod .....  
... 3346, 3347, 3350, 3354, 3379, 3547,  
3548, 3551, 3555, 3580, 3732, 3733, 3739,  
3743, 3768, 3861, 3862, 3865, 3869, 3894  
\lstDeleteShortInline ..... 3731  
\lstset ..... 3344, 3545, 3736, 3858  
\ltxmdfsetifoot ..... 3341, 3541, 3729, 3854

## M

\makeatletter ..... 3502, 3661  
\makeatother ..... 3528, 3666  
\makelabel ..... 396  
\maketitle ..... 3377, 3578, 3766, 3892  
margin (option) ..... 6  
\mbox ..... 398  
\mdf@@exercisepoints .....  
..... 3662, 3664, 3680, 3683, 3688, 3691  
\mdf@@framemethod ..... 116, 118, 120  
\mdf@@frametitle ..... 546, 605, 745  
\mdf@@frametitle@use ..... 609, 754, 759  
\mdf@@frametitlerule .....  
... 617, 969, 1007, 1096, 1237, 1782, 2649  
\mdf@@setzref .. 770, 804, 907, 1041, 1110, 1133  
\mdf@advancelength@freevspace@add .....  
..... 855, 861, 1055  
\mdf@advancelength@freevspace@sub 855, 858, 935  
\mdf@advancelength@horizontalmargin@add . 818  
\mdf@advancelength@horizontalmargin@sub .  
..... 818, 824  
\mdf@advancelength@verticalmargin@whole ..  
..... 855, 855, 874, 900  
\mdf@align ..... 224, 224  
\mdf@alignoption@triple do ..... 81, 82, 84  
\mdf@Ax ..... 1835, 1843,  
1844, 1919, 2034, 2042, 2043, 2143, 2233,  
2241, 2242, 2324, 2395, 2403, 2404, 2500  
\mdf@Ay ..... 1836, 1856,  
1857, 1919, 2035, 2060, 2061, 2143, 2234,  
2256, 2257, 2324, 2396, 2416, 2417, 2500  
\mdf@background@default .....  
..... 1229, 1229, 1266, 1378, 1497, 1607  
\mdf@backgroundcolor .....  
... 170, 172, 1229, 1718, 1719, 2532, 2533  
\mdf@booloption@doubledo ..... 72, 73, 75  
\mdf@checknththeorem ..... 626, 627, 738  
\mdf@currentvbadness ..... 370, 373  
\mdf@defaultunit ..... 29  
\mdf@deferred@thm@head ..... 376  
\mdf@define@key@length ..... 43, 47, 61  
\mdf@do@alignoption ..... 81, 81, 217, 217  
\mdf@do@booloption ..... 72, 72, 190, 190  
\mdf@do@lengthoption .... 56, 56, 133, 133, 160  
\mdf@do@stringoption ..... 63, 63, 160  
\mdf@dolist ..... 42, 42,  
133, 160, 190, 217, 824, 874, 900, 935, 1055  
\mdf@endparenv ..... 402, 403



|   |  |   |  |
|---|--|---|--|
| \mdf@firstextra .....                     | 2146, 2962                               | \mdf@frametitlebelowskip@length .....   | ...  |
| \mdf@font .....                           | 742                                      | ...                                     | 601, 1240, 1402, 1785, 1968, 2652, 2981        |
| \mdf@fontcolor .....                      | 741, 1716                                | \mdf@frametitlebottomrulecolor .....    | 562  |
| \mdf@footnotedistance@length .....        | 642                                      | \mdf@frametitlebox ....                 | 310, 581, 583, 590,                            |
| \mdf@footnotebox .....                    | 311                                      | ...                                     | 596, 597, 598, 599, 600, 616, 968, 1006, 1095  |
| \mdf@footnoteinput .....                  | 636, 648, 740                            | \mdf@frametitlefont .....               | ...  |
| \mdf@footnoteoutput .....                 | 636, 639, 752, 761                       | ...                                     | 575, 593, 3679, 3683, 3687, 3691               |
| \mdf@footnoterule .....                   | 636, 636, 644                            | \mdf@frametitlefontcolor .....          | 592  |
| \mdf@frame@background@first ..            | 1366, 1366, 1473                         | \mdf@frametitleleftmargin@length .....  | 558  |
| \mdf@frame@background@middle ..           | 1589, 1596, 1679                         | \mdf@frametitlerightmargin@length ..... | 559  |
| \mdf@frame@background@second ..           | 1484, 1484, 1576                         | \mdf@frametitlerulecolor .....          | ...  |
| \mdf@frame@background@single ..           | 1252, 1252, 1353                         | ...                                     | 555, 1235, 1779, 2644, 2645                    |
| \mdf@frame@bottomline@first ....          | 1433, 1470                               | \mdf@frametitlerulecolor@default ..     | 1235, 1242                                     |
| \mdf@frame@bottomline@middle ....         | 1644, 1684                               | \mdf@frametitlerulewidth@length .....   | ...  |
| \mdf@frame@bottomline@second ..           | 1484, 1520, 1578                         | ...                                     | 557, 1239, 1246, 1790, 2655                    |
| \mdf@frame@bottomline@single ....         | 1290, 1354                               | \mdf@frametitlesettings .....           | 563  |
| \mdf@frame@frametitlebackground@first ..  | ...                                      | \mdf@freepagevspace ...                 | 807, 807, 889, 920, 933                        |
| ...                                       | 1384, 1474                               | \mdf@freevspace@length .....            | 339, 812,                                      |
| \mdf@frame@frametitlebackground@middle .. | ...                                      | ...                                     | 813, 814, 815, 889, 890, 892, 904, 919,        |
| ...                                       | 1613, 1682                               | ...                                     | 920, 922, 934, 1053, 1070, 1072, 1073,         |
| \mdf@frame@frametitlebackground@second .. | ...                                      | ...                                     | 1076, 1077, 1078, 1081, 1082, 1083, 1088       |
| ...                                       | 1503, 1579                               | \mdf@Fy .....                           | 1949,  |
| \mdf@frame@frametitlebackground@single .. | ...                                      | ...                                     | 1952, 1953, 1989, 1992, 1993, 2174, 2177,      |
| ...                                       | 1272, 1355                               | ...                                     | 2178, 2192, 2195, 2196, 2354, 2357, 2358       |
| \mdf@frame@leftline@first ..              | 1366, 1408, 1468                         | \mdf@hidealllines@check .....           | 723, 723, 734                                  |
| \mdf@frame@leftline@middle ..             | 1589, 1589, 1678                         | \mdf@horizontalmargin@equation ..       | 355, 818, 822                                  |
| \mdf@frame@leftline@second ..             | 1484, 1513, 1573                         | \mdf@horizontalsofbox ..                | 818, 819, 821,                                 |
| \mdf@frame@leftline@single .....          | ...                                      | ...                                     | 823, 830, 831, 832, 835, 836, 837, 839, 841    |
| ...                                       | 1252, 1301, 1350, 3506                   | \mdf@horizontalwidthofbox@length .....  | 340  |
| \mdf@frame@rightline@first ..             | 1366, 1424, 1477                         | \mdf@iflength .....                     | 26, 27, 50                                     |
| \mdf@frame@rightline@middle ..            | 1589, 1624, 1687                         | \mdf@iflength@check .....               | 26, 28, 32                                     |
| \mdf@frame@rightline@second ..            | 1484, 1529, 1582                         | \mdf@iflength@cleanup .....             | 38, 41   |
| \mdf@frame@rightline@single .....         | ...                                      | \mdf@ifstrequal@expand ....             | 291, 296, 298, 300                             |
| ...                                       | 1252, 1309, 1358, 3515                   | \mdf@ignorevbadness .....               | 369, 369, 580,                                 |
| \mdf@frame@topandbottomline@single ....   | 1252                                     | ...                                     | 582, 595, 614, 620, 960, 988, 994, 999, 1087   |
| \mdf@frame@topline@first ...              | 1366, 1416, 1472                         | \mdf@innerbottommargin@length .....     | ...  |
| \mdf@frame@topline@middle .....           | 1632, 1681                               | ...                                     | 1284, 1333, 1336, 1541, 1562, 1564,            |
| \mdf@frame@topline@second .....           | 1537, 1575                               | ...                                     | 1823, 1836, 2379, 2396, 2691, 2712, 3182, 3202 |
| \mdf@frame@topline@single .....           | 1280, 1352                               | \mdf@innerleftmargin@length .....       | ...  |
| \mdf@frameIdate@svn .....                 | 1704, 1705, 1707                         | ...                                     | 1241, 1244, 1328, 1356, 1451, 1475, 1558,      |
| \mdf@frameIIdate@svn .....                | 2521, 2522, 2524                         | ...                                     | 1580, 1663, 1685, 1786, 1788, 1810, 1835,      |
| \mdf@framemethod .....                    | 106, 106                                 | ...                                     | 2004, 2034, 2206, 2233, 2368, 2395, 2679,      |
| \mdf@framemethod@i .....                  | 107, 112, 115                            | ...                                     | 2712, 2820, 2856, 3015, 3049, 3171, 3202       |
| \mdf@framemethod@ii .....                 | 108, 113, 117                            | \mdf@innerlinecolor ....                | 677, 1232, 1737, 2560                          |
| \mdf@framemethod@iii .....                | 109, 114, 119                            | \mdf@innerlinecolor@default .....       | 1232   |
| \mdf@frameOdate@svn .....                 | 1224, 1225, 1227                         | \mdf@innerlinewidth@length .....        | 674,   |
| \mdf@frametitle .....                     | 606, 745,                                | ...                                     | 830, 835, 845, 850, 924, 940, 946, 1060,       |
| ...                                       | 754, 759, 1355, 1474, 1579, 1682, 1931,  | ...                                     | 1066, 1076, 1081, 1338, 1723, 1735, 1738,      |
| ...                                       | 1957, 2155, 2336, 2790, 2970, 3141, 3313 | ...                                     | 1813, 1817, 1825, 1829, 1845, 1858, 1939,      |
| \mdf@frametitleaboveskip@length ....      | 601, 624                                 | ...                                     | 1943, 1947, 1967, 1979, 1983, 1987, 2007,      |
| \mdf@frametitlealignment .....            | 560, 577, 591                            | ...                                     | 2011, 2018, 2024, 2044, 2062, 2168, 2172,      |
| \mdf@frametitlebackground@default .....   | ...                                      | ...                                     | 2186, 2190, 2209, 2213, 2221, 2225, 2243,      |
| ...                                       | 1230, 1273, 1387, 1395, 1506, 1616       | ...                                     | 2258, 2348, 2352, 2371, 2375, 2381, 2387,      |
| \mdf@frametitlebackgroundcolor .....      | ...                                      | ...                                     | 2405, 2418, 2542, 2545, 2558, 2561, 2682,      |
| ...                                       | 556, 1230, 1720, 2538, 2539              | ...                                     | 2686, 2694, 2698, 2702, 2719, 2732, 2797,      |
|   |  | ...                                     | 2801, 2805, 2823, 2827, 2834, 2840, 2863,      |

|   |   |
|---|---|
| 2883, 2980, 2990, 2994, 2998, 3018, 3022,<br>3030, 3034, 3056, 3072, 3152, 3156, 3174,<br>3178, 3184, 3190, 3209, 3222, 3323, 3327  | 2044, 2046, 2050, 2054, 2061, 2064, 2069,<br>2168, 2172, 2186, 2190, 2210, 2214, 2222,<br>2226, 2243, 2245, 2250, 2257, 2260, 2265,<br>2348, 2352, 2372, 2376, 2382, 2388, 2405,<br>2407, 2412, 2418, 2420, 2427, 2543, 2546,<br>2553, 2561, 2567, 2569, 2683, 2687, 2695,<br>2699, 2703, 2718, 2721, 2726, 2731, 2734,<br>2739, 2798, 2802, 2806, 2818, 2824, 2828,<br>2835, 2841, 2862, 2865, 2870, 2875, 2882,<br>2885, 2980, 2991, 2995, 2999, 3013, 3019,<br>3023, 3031, 3035, 3055, 3058, 3063, 3071,<br>3074, 3079, 3153, 3157, 3169, 3175, 3179,<br>3185, 3191, 3208, 3211, 3216, 3221, 3224,<br>3231, 3324, 3328, 3509, 3511, 3521, 3523                                     |
| \mdf@innermargin@length ..... 778, 798, 800   | \mdf@needspace ..... 265  |
| \mdf@innerrightmargin@length .....<br>..... 1245, 1312, 1329, 1426, 1452,<br>1531, 1559, 1626, 1664, 1788, 1811, 2005,<br>2207, 2369, 2680, 2821, 3016, 3172, 3518  | \mdf@option@length ..... 43, 43, 60   |
| \mdf@innertopmargin@length ..... 923,<br>972, 1010, 1099, 1249, 1284, 1335, 1419,<br>1457, 1794, 1822, 2015, 2663, 2692, 2831   | \mdf@outerlinecolor .... 679, 1234, 1730, 2552  |
| \mdf@keep@lines@single ..... 843, 843, 877, 903   | \mdf@outerlinecolor@default ..... 1234  |
| \mdf@leftmargin@length .....<br>..... 218, 222, 225, 778, 798, 801  | \mdf@outerlinewidth@length .....<br>. 676, 832, 837, 847, 852, 926, 942, 948,<br>1062, 1068, 1078, 1083, 1339, 1728, 1731,<br>1815, 1819, 1827, 1831, 1844, 1847, 1852,<br>1857, 1860, 1865, 2009, 2013, 2020, 2026,<br>2043, 2046, 2050, 2054, 2061, 2064, 2069,<br>2211, 2215, 2223, 2227, 2242, 2245, 2250,<br>2257, 2260, 2265, 2373, 2377, 2383, 2389,<br>2404, 2407, 2412, 2417, 2420, 2427, 2550,<br>2553, 2684, 2688, 2696, 2700, 2704, 2717,<br>2720, 2725, 2730, 2733, 2738, 2825, 2829,<br>2836, 2842, 2861, 2864, 2869, 2874, 2881,<br>2884, 3020, 3024, 3032, 3036, 3054, 3057,<br>3062, 3070, 3073, 3078, 3176, 3180, 3186,<br>3192, 3207, 3210, 3215, 3220, 3223, 3230 |
| \mdf@lengthoption@doubledo ..... 56, 57, 59   | \mdf@outermargin@length ..... 777, 797, 801   |
| \mdf@linecolor 167, 168, 169, 171, 677, 678, 679  | \mdf@Ox ..... 1837, 1846, 1847,<br>1868, 1938, 1939, 1952, 1978, 1979, 1992,<br>2036, 2045, 2046, 2073, 2167, 2168, 2177,<br>2185, 2186, 2195, 2235, 2244, 2245, 2269,<br>2347, 2348, 2357, 2397, 2406, 2407, 2431  |
| \mdf@linecolor@bottom ..... 562, 1229   | \mdf@Oy ..... 1838, 1859,<br>1860, 1868, 2037, 2063, 2064, 2073, 2236,<br>2259, 2260, 2269, 2398, 2419, 2420, 2431  |
| \mdf@linecolor@default .. 1229, 1236, 1281,<br>1291, 1302, 1310, 1409, 1417, 1425, 1434,<br>1514, 1521, 1530, 1538, 1590, 1625, 1633, 1645  | \mdf@PackageInfo ..... 8, 9, 378, 381,<br>691, 700, 705, 711, 716, 775, 780, 893, 977   |
| \mdf@linewidth@length ..... 148, 675  | \mdf@PackageInfoSpace ..... 308, 890  |
| \mdf@load@style ..... 654, 654, 670   | \mdf@PackageNoInfo ..... 290  |
| \mdf@LoadFile@IfExist ..... 8,<br>10, 98, 99, 101, 102, 122, 128, 129, 130  | \mdf@PackageWarning 8, 8, 14, 92, 103, 229, 277,<br>282, 302, 419, 464, 630, 665, 840, 868, 884,<br>952, 1015, 1103, 1119, 1125, 1393, 1962, 2975   |
| \mdf@lrbbox ..... 346, 347, 576, 590, 747   | \mdf@pageiseven ..... 770   |
| \mdf@maindate@svn ..... 1, 3, 6   | \mdf@pageisodd ..... 770  |
| \mdf@makebox@in .....<br>..... 406, 411, 1346, 1464, 1569, 1674,<br>1832, 2031, 2230, 2392, 2706, 2847, 3040, 3196  | \mdf@patchamsth ..... 374   |
| \mdf@makebox@out .....<br>..... 406, 406, 1323, 1447, 1554, 1659,<br>1805, 2000, 2202, 2364, 2676, 2816, 3011, 3167   | \mdf@patchamsthm ..... 349, 375, 385  |
| \mdf@makeboxalign@left ..... 224, 225,<br>230, 233, 1324, 1448, 1555, 1660, 1806,<br>2001, 2203, 2365, 2677, 2817, 3012, 3168   | \mdf@print@space ..... 290, 294, 888  |
| \mdf@makeboxalign@right ..... 224, 226,<br>231, 234, 1362, 1480, 1585, 1690, 1926,<br>2150, 2331, 2507, 2785, 2965, 3136, 3308  | \mdf@printheight ..... 292, 302   |
| \mdf@middleextra ..... 2326, 3133   |   |
| \mdf@middlelinecolor .... 678, 1233, 1751, 2570   |   |
| \mdf@middlelinecolor@default .... 1233, 1236  |   |
| \mdf@middlelinewidth@length ..... 675,<br>831, 836, 846, 851, 925, 941, 947, 1061,<br>1067, 1077, 1082, 1257, 1260, 1263, 1286,<br>1291, 1293, 1295, 1296, 1297, 1304, 1306,<br>1315, 1317, 1338, 1343, 1345, 1373, 1411,<br>1413, 1421, 1428, 1430, 1434, 1436, 1438,<br>1439, 1440, 1461, 1462, 1467, 1489, 1492,<br>1516, 1521, 1522, 1524, 1525, 1526, 1533,<br>1538, 1543, 1544, 1546, 1566, 1567, 1572,<br>1592, 1603, 1628, 1633, 1637, 1638, 1640,<br>1645, 1647, 1649, 1650, 1651, 1671, 1672,<br>1677, 1724, 1731, 1738, 1749, 1752, 1753,<br>1814, 1818, 1826, 1830, 1845, 1847, 1852,<br>1857, 1860, 1865, 1939, 1943, 1947, 1967,<br>1979, 1983, 1987, 2008, 2012, 2019, 2025, |   |

|   |  |
|---|--|
| \mdf@psset@local .....                              | \mdf@roundcorner@length .....                    |
| 237, 244, 246, 2711, 2846, 2855, 3047, 3201         | 1717, 1722, 2541, 2544, 2710, 2845, 2854, 3200   |
| \mdf@pstricksbox@fl 2575, 2745, 2900, 3089, 3246    | \mdf@seconddextra .....                          |
| \mdf@pstricksbox@ol 2626, 2766, 2767, 2768,         | 2502, 3302                                       |
| 2769, 2921, 2922, 2923, 2924, 2944, 2946,           | \mdf@setopt@body .....                           |
| 2948, 3110, 3111, 3112, 3113, 3120, 3122,           | 546, 566   |
| 3267, 3268, 3269, 3270, 3289, 3291, 3293            | \mdf@setopt@title .....                          |
| \mdf@pstricksbox@tcl .....                          | 546, 547, 573                                    |
| 2591, 2752, 2754, 2756, 2758, 2907, 2909,           | \mdf@settings .....                              |
| 2911, 2913, 2934, 2937, 3096, 3098, 3100,           | 746  |
| 3102, 3253, 3255, 3257, 3259, 3279, 3282            | \mdf@shadow@default 1231, 1254, 1368, 1486, 1598 |
| \mdf@pstricksbox@tl .....                           | \mdf@shadowcolor .....                           |
| 2583, 2747, 2748, 2749, 2750,                       | 1231, 1743, 2566                                 |
| 2902, 2903, 2904, 2905, 2930, 3091, 3092,           | \mdf@shadowsize@length .....                     |
| 3093, 3094, 3248, 3249, 3250, 3251, 3276            | ... 1256, 1259, 1262, 1370, 1372, 1375,          |
| \mdf@pstricksbox@tncl .....                         | 1488, 1491, 1494, 1600, 1602, 1741, 1742, 2566   |
| 2605, 2761, 2763, 2916, 2918,                       | \mdf@singleextra .....                           |
| 2941, 3105, 3107, 3118, 3262, 3264, 3286            | 1922, 2782                                       |
| \mdf@ptlength@to@pscode .... 2526, 2528             | \mdf@skipabove@length .....                      |
| \mdf@ptlength@to@pscode@length .. 2527, 2529        | 744  |
| \mdf@put@frame .....                                | \mdf@skipbelow@length .....                      |
| 687, 689, 698, 882, 882, 895, 931, 1022, 1031, 1037 | 404  |
| \mdf@put@frame@i .....                              | \mdf@splitbottomskip@length ... 1072, 1419,      |
| 911, 916, 916                                       | 1455, 1458, 1667, 1669, 1968, 2016, 2035,        |
| \mdf@put@frame@ii 1046, 1052, 1052, 1107, 1115      | 2217, 2234, 2832, 2856, 2981, 3026, 3049         |
| \mdf@put@frame@standalone .....                     | \mdf@splitbox@one .....                          |
| 685, 693, 702, 707, 713, 718, 866, 866              | 312, 576,  |
| \mdf@put@frametitrerule .....                       | 581, 583, 615, 618, 621, 622, 747, 867, 873,     |
| 1777, 2649  | 883, 887, 899, 951, 961, 963, 965, 973, 983,     |
| \mdf@putbox@first .....                             | 986, 989, 991, 995, 998, 1000, 1003, 1011,       |
| 1042, 1366, 1444, 1956, 1997, 2813, 2813            | 1014, 1019, 1020, 1036, 1054, 1088, 1090,        |
| \mdf@putbox@middle .....                            | 1092, 1100, 1102, 1106, 1118, 1122, 1124,        |
| 1111, 1589, 1656, 2154, 2199, 3008, 3008            | 1128, 1130, 1321, 1326, 1331, 1333, 1360,        |
| \mdf@putbox@second .....                            | 1552, 1556, 1560, 1562, 1583, 1803, 1809,        |
| 1134, 1484, 1551, 2335, 2361, 3164, 3164            | 1821, 1919, 2362, 2367, 2378, 2500, 2674,        |
| \mdf@putbox@single .....                            | 2678, 2690, 2776, 3165, 3170, 3181, 3301         |
| 878, 908, 1252, 1320, 1797, 1802, 2673              | \mdf@splitbox@two .....                          |
| \mdf@Px .....                                       | 313,   |
| 1839, 1851, 1852,                                   | 961, 962, 975, 979, 980, 983, 989, 990,          |
| 1869, 1942, 1943, 1953, 1982, 1983, 1993,           | 992, 995, 1019, 1024, 1033, 1036, 1088,          |
| 2038, 2049, 2050, 2074, 2171, 2172, 2178,           | 1089, 1106, 1445, 1449, 1453, 1455, 1478,        |
| 2189, 2190, 2196, 2237, 2249, 2250, 2270,           | 1657, 1661, 1665, 1667, 1688, 1998, 2003,        |
| 2351, 2352, 2358, 2399, 2411, 2412, 2432            | 2014, 2143, 2200, 2205, 2216, 2324, 2814,        |
| \mdf@Py .....                                       | 2819, 2830, 2957, 3009, 3014, 3025, 3129         |
| 1840, 1864,   | \mdf@splittopskip@length ... 959, 966, 971,      |
| 1865, 1869, 1946, 1947, 1950, 1952, 1953,           | 987, 1004, 1009, 1086, 1093, 1098, 1968, 2982    |
| 1986, 1987, 1990, 1992, 1993, 2039, 2053,           | \mdf@stringoption@doubledo .....                 |
| 2054, 2068, 2069, 2074, 2175, 2177, 2178,           | 63, 64, 66                                       |
| 2193, 2195, 2196, 2238, 2264, 2265, 2270,           | \mdf@style .....                                 |
| 2355, 2357, 2358, 2400, 2426, 2427, 2432            | 280  |
| \mdf@reserved@a .... 682, 685, 687, 689, 693,       | \mdf@styledefinition .....                       |
| 698, 702, 707, 713, 718, 721, 869, 878, 880,        | 654, 672, 739                                    |
| 885, 895, 910, 911, 914, 931, 1022, 1031,           | \mdf@tempa .....                                 |
| 1037, 1046, 1050, 1107, 1115, 1129, 1137, 1139      | 111, 115, 117, 119, 296, 298, 300, 304, 308      |
| \mdf@reserveda .....                                | \mdf@templength .....                            |
| 751, 757, 764                                       | 26, 29, 51, 52                                   |
| \mdf@reset .....                                    | \mdf@test@b .....                                |
| 864, 864  | 1142, 1197, 1910, 2112, 2138, 2308, 2470,        |
| \mdf@restoreparams .....                            | 2487, 2769, 2924, 2950, 3113, 3270, 3288         |
| 351, 359  | \mdf@test@l .....                                |
| \mdf@restorevbadness .....                          | 1142, 1188, 1901, 2103, 2132, 2299, 2461,        |
| 369, 372, 373                                       | 2490, 2766, 2921, 2945, 3110, 3267, 3290         |
| \mdf@rightmargin@length 220, 221, 777, 797, 800     | \mdf@test@lb .....                               |
|   | 1142,  |
|   | 1169, 1207, 1882, 2085, 2132, 2281, 2443,        |
|   | 2478, 2752, 2907, 2945, 3096, 3253, 3278         |
|   | \mdf@test@lr .....                               |
|   | 1142, 1181, 1894, 2097, 2126, 2293, 2455,        |
|   | 2484, 2761, 2916, 2940, 3105, 3262, 3285         |
|   | \mdf@test@lrb .....                              |
|   | 1142,  |
|   | 1165, 1207, 1880, 2084, 2126, 2280, 2442,        |

|  |  |
|--|--|
| 2475, 2750, 2905, 2940, 3094, 3251, 3275           | \mdf@titlebelowskip@length . . . . . 553         |
| \mdf@test@lt . . . . . 1142,                       | \mdf@trivlist . . . . . 386, 386, 744            |
| 1178, 1209, 1891, 2094, 2120, 2290, 2452,          | \mdf@twoside@checklength . . . . . 735, 770, 772 |
| 2490, 2758, 2913, 2933, 3102, 3259, 3290           | \mdf@userdefinedwidth@length . . . . . 411, 823  |
| \mdf@test@ltb . . . . . 1142,                      | \mdf@verticalmarginwhole@length . 341, 845,      |
| 1159, 1206, 1877, 2081, 2120, 2277, 2439,          | 846, 847, 850, 851, 852, 856, 872, 898, 904      |
| 2478, 2747, 2902, 2933, 3091, 3248, 3278           | \mdf@xcolor . . . . . 253, 253, 257, 261         |
| \mdf@test@ltr . . . . . 1142,                      | \mdf@zref@label . . . . . 770, 790, 805          |
| 1156, 1205, 1879, 2083, 2117, 2279, 2441,          | \mdfapptodefinestyle . . . . .                   |
| 2484, 2749, 2904, 2929, 3093, 3250, 3285           | . . . . . 4, 414, 417, 3414, 3425, 3615, 3804    |
| \mdf@test@ltrb . . . . . 1142,                     | \mdfbackgroundstyle . . . . . 2530               |
| 1152, 1205, 1875, 2080, 2117, 2276, 2438,          | \mdfboundingboxdepth . . . . . 336,              |
| 2475, 2745, 2900, 2929, 3089, 3246, 3275           | 1255, 1267, 1274, 1283, 1293, 1303, 1313,        |
| \mdf@test@noline . . . . .                         | 1332, 1369, 1379, 1388, 1396, 1410, 1418,        |
| 1142, 1201, 1914, 2115, 2139, 2311, 2473,          | 1427, 1436, 1454, 1487, 1498, 1507, 1515,        |
| 2497, 2771, 2926, 2951, 3115, 3272, 3296           | 1522, 1532, 1540, 1561, 1591, 1599, 1608,        |
| \mdf@test@r . . . . .                              | 1617, 1627, 1635, 1647, 1666, 3508, 3519         |
| 1142, 1191, 1904, 2106, 2135, 2302, 2464,          | \mdfboundingboxheight 335, 1283, 1330, 1335,     |
| 2493, 2767, 2922, 2947, 3111, 3268, 3292           | 1401, 1418, 1453, 1457, 1540, 1560, 1564,        |
| \mdf@test@rb . . . . . 1142,                       | 1665, 1669, 1758, 1770, 1821, 1822, 1823,        |
| 1172, 1208, 1885, 2088, 2135, 2284, 2446,          | 1825, 1826, 1827, 1829, 1830, 1831, 1840,        |
| 2481, 2754, 2909, 2947, 3098, 3255, 3281           | 1958, 1966, 2014, 2015, 2016, 2018, 2019,        |
| \mdf@test@single . . . . . 1204                    | 2020, 2024, 2025, 2026, 2039, 2216, 2217,        |
| \mdf@test@t . . . . .                              | 2221, 2222, 2223, 2225, 2226, 2227, 2238,        |
| 1142, 1194, 1907, 2109, 2129, 2305, 2467,          | 2378, 2379, 2381, 2382, 2383, 2387, 2388,        |
| 2496, 2768, 2923, 2943, 3112, 3269, 3295           | 2389, 2400, 2690, 2691, 2692, 2694, 2695,        |
| \mdf@test@tb . . . . .                             | 2696, 2698, 2699, 2700, 2708, 2714, 2830,        |
| 1142, 1184, 1897, 2100, 2129, 2296, 2458,          | 2831, 2832, 2834, 2835, 2836, 2840, 2841,        |
| 2487, 2763, 2918, 2943, 3107, 3264, 3288           | 2842, 2850, 2852, 2858, 2971, 2979, 3001,        |
| \mdf@test@tr . . . . . 1142,                       | 3025, 3026, 3030, 3031, 3032, 3034, 3035,        |
| 1175, 1208, 1888, 2091, 2123, 2287, 2449,          | 3036, 3042, 3044, 3051, 3181, 3182, 3184,        |
| 2493, 2756, 2911, 2936, 3100, 3257, 3292           | 3185, 3186, 3190, 3191, 3192, 3198, 3204         |
| \mdf@test@trb . . . . . 1142,                      | \mdfboundingboxtotalheight . . . . . 337,        |
| 1162, 1206, 1878, 2082, 2123, 2278, 2440,          | 1261, 1269, 1274, 1305, 1316, 1334, 1374,        |
| 2481, 2748, 2903, 2936, 3092, 3249, 3281           | 1381, 1385, 1388, 1398, 1412, 1429, 1456,        |
| \mdf@theoremseparator . . . . . 477, 501, 513, 530 | 1493, 1500, 1507, 1517, 1534, 1563, 1593,        |
| \mdf@theoremspace . . . . . 478, 502, 514, 531     | 1604, 1610, 1617, 1629, 1635, 1668, 3510, 3522   |
| \mdf@theoremtitlefont . . . . . 479, 503, 515, 532 | \mdfboundingboxtotalwidth . . . . . 333,         |
| \mdf@thm@caption . . 456, 459, 481, 505, 517, 534  | 1258, 1268, 1275, 1285, 1294, 1327, 1341,        |
| \mdf@tikz@settings . . . . .                       | 1371, 1380, 1389, 1397, 1420, 1437, 1450,        |
| . . . . . 1710, 1711, 1807, 2002, 2204, 2366       | 1460, 1490, 1499, 1508, 1523, 1542, 1557,        |
| \mdf@tikzbox@otl . . . . . 1757,                   | 1565, 1601, 1609, 1618, 1636, 1648, 1662, 1670   |
| 1769, 1882, 1885, 1888, 1891, 1894, 1897,          | \mdfboundingboxwidth . . . . . 332,              |
| 1901, 1904, 1907, 1910, 2085, 2088, 2091,          | 887, 1122, 1130, 1311, 1325, 1328, 1425,         |
| 2094, 2097, 2100, 2103, 2106, 2109, 2112,          | 1449, 1451, 1530, 1556, 1558, 1625, 1661,        |
| 2121, 2124, 2127, 2130, 2133, 2136, 2281,          | 1663, 1758, 1770, 1809, 1810, 1811, 1813,        |
| 2284, 2287, 2290, 2293, 2296, 2299, 2302,          | 1814, 1815, 1817, 1818, 1819, 1832, 1839,        |
| 2305, 2308, 2314, 2316, 2318, 2443, 2446,          | 2003, 2004, 2005, 2007, 2008, 2009, 2011,        |
| 2449, 2452, 2455, 2458, 2461, 2464, 2467,          | 2012, 2013, 2031, 2038, 2205, 2206, 2207,        |
| 2470, 2479, 2482, 2485, 2488, 2491, 2494           | 2209, 2210, 2211, 2213, 2214, 2215, 2230,        |
| \mdf@tikzbox@tfl . . . . . 1757, 1757, 1875,       | 2237, 2367, 2368, 2369, 2371, 2372, 2373,        |
| 1877, 1878, 1879, 1880, 2080, 2081, 2082,          | 2375, 2376, 2377, 2392, 2399, 2678, 2679,        |
| 2083, 2084, 2118, 2276, 2277, 2278, 2279,          | 2680, 2682, 2683, 2684, 2686, 2687, 2688,        |
| 2280, 2438, 2439, 2440, 2441, 2442, 2476           | 2706, 2708, 2714, 2819, 2820, 2821, 2823,        |
| \mdf@tikzset@local . . . 237, 237, 239, 242, 1746  | 2824, 2825, 2827, 2828, 2829, 2847, 2851,        |
| \mdf@titleaboveskip@length . . . . . 554           | 2852, 2858, 3014, 3015, 3016, 3018, 3019,        |



3020, 3022, 3023, 3024, 3040, 3043, 3044,  
3051, 3170, 3171, 3172, 3174, 3175, 3176,  
3178, 3179, 3180, 3196, 3198, 3204, 3517  
`\mdfcreateextratikz` 344, 1923, 2147, 2328, 2504  
`\mdfdateID` ..... 3352, 3553, 3741, 3867  
`\mdfdefinedstyle` ..... 284  
`\mdfdefinestyle` .....  
     ... 4, 414, 414, 3403, 3446, 3604, 3668,  
     3705, 3793, 3819, 3828, 3992, 4035, 4087  
`\mdffootnoteboxdepth` ..... 327  
`\mdffootnoteboxheight` ..... 326  
`\mdffootnoteboxtotalheight` ..... 328  
`\mdffootnoteboxtotalwidth` ..... 325  
`\mdffootnoteboxwidth` ..... 324  
`\mdfframedtitleenv` ..... 546, 571, 588, 606  
`\mdfframetitlebackground` ..... 2530  
`\mdfframetitleboxdepth` ..... 322, 599  
`\mdfframetitleboxheight` ..... 321, 598  
`\mdfframetitleboxtotalheight` .....  
     ..... 323, 600, 1274, 1276,  
     1385, 1388, 1390, 1392, 1400, 1504, 1507,  
     1509, 1614, 1617, 1619, 1621, 1950, 1958,  
     1961, 1965, 1966, 1990, 2156, 2159, 2175,  
     2193, 2337, 2355, 2808, 2971, 2974, 2978,  
     3001, 3002, 3142, 3145, 3159, 3314, 3330  
`\mdfframetitleboxtotalwidth` ..... 320  
`\mdfframetitleboxwidth` .....  
     ..... 319, 597, 1239, 1243, 1788, 2658  
`\mdfframetitlerule` ..... 2530  
`\mdfglobal@style` ..... 90, 94  
`\mdflength` ..... 4, 422, 422  
`\mdflinestyle` ..... 2530  
`\mdfpstricks@appendsettings` ... 248, 250, 2572  
`\mdfpstricks@settings` .....  
     ..... 2530, 2709, 2853, 3045, 3199  
`\mdframed` ..... 731  
`\mdframed@i` ..... 731  
`\mdframed@ii` ..... 731  
`\mdframedIIpackagename` ..... 2521, 2521, 2525  
`\mdframedIpackagename` ..... 1704, 1704, 1708  
`\mdframedOpackagename` ..... 1224, 1224, 1228  
`\mdframedpackagename` ..... 1,  
     2, 7, 8, 9, 15, 666, 692, 701, 706, 712, 717  
`\mdfsetup` ... 4, 279, 279, 287, 430, 553, 567,  
     624, 733, 3357, 3388, 3472, 3478, 3484,  
     3558, 3589, 3632, 3746, 3777, 3872, 3903  
`\mdfsplitboxdepth` ..... 317  
`\mdfsplitboxheight` ..... 316  
`\mdfsplitboxtotalheight` ..... 318  
`\mdfsplitboxtotalwidth` ..... 315  
`\mdfsplitboxwidth` ..... 314  
`\mdftotalllinewidth` ..... 330, 1337, 1349, 2702  
`\mdtheorem` ..... 12, 428, 462, 3452, 3714  
`\mdversion` ..... 1, 1,  
     7, 1228, 1708, 2525, 3353, 3554, 3742, 3868  
`middleextra` (option) ..... 10

`middlelinecolor` (option) ..... 8  
`middlelinewidth` (option) ..... 7

## N

`needspace` (option) ..... 8  
`\new\protect_.\kern_.\fontdimen_3\font_.\kern_.\fontdimen_3\font_.`  
     ..... 310  
`\newmdenv` ..... 3, 428, 428, 439, 3838  
`\newmdtheoremenv` ..... 12, 428, 443  
`\newsavebox` ..... 310, 311, 312, 313  
`nobreak` (option) ..... 8  
`\nodexn` ..... 2717, 2720, 2725, 2730,  
     2733, 2738, 2797, 2801, 2805, 2808, 2861,  
     2864, 2869, 2874, 2881, 2884, 2990, 2994,  
     2998, 3002, 3003, 3054, 3057, 3062, 3070,  
     3073, 3078, 3152, 3156, 3159, 3207, 3210,  
     3215, 3220, 3223, 3230, 3323, 3327, 3330  
`\noexpand` ..... 494  
`\nointerlineskip` 568, 743, 749, 967, 1005, 1094  
`\normalfont` ..... 177, 593  
`\NOTE` ..... 3382, 3583, 3771, 3897  
`ntheorem` (option) ..... 8

## O

`\offinterlineskip` ..... 613  
`\onecolumn` ..... 3971  
`\Opt` ..... 3350, 3354, 3379, 3551, 3555,  
     3580, 3739, 3743, 3768, 3865, 3869, 3894  
options:  
     `align` ..... 9  
     `apptotikzsetting` ..... 10  
     `backgroundcolor` ..... 7  
     `bottomline` ..... 10  
     `defaultunit` ..... 5  
     `everyline` ..... 8  
     `firstextra` ..... 10  
     `font` ..... 8  
     `fontcolor` ..... 8  
     `footnotedistance` ..... 13  
     `footnoteinside` ..... 13  
     `framemethod` ..... 5  
     `frametitle` ..... 11  
     `frametitleaboveskip` ..... 11  
     `frametitlealignment` ..... 11  
     `frametitlebackgroundcolor` ..... 11  
     `frametitlebelowskip` ..... 11  
     `frametitlefont` ..... 11  
     `frametitlerule` ..... 11  
     `frametitlerulewidth` ..... 11  
     `hidealllines` ..... 11  
     `innerbottommargin` ..... 7  
     `innerleftmargin` ..... 6  
     `innerlinecolor` ..... 8  
     `innerlinewidth` ..... 7  
     `innermargin` ..... 7  
     `innerrightmargin` ..... 6

|                              |   |                             |   |
|------------------------------|---|-----------------------------|---|
| innertopmargin               | 6   | \node                       | 2712, 2713, 2714, 2856, 2857,<br>2858, 3049, 3050, 3051, 3202, 3203, 3204 |
| leftline                     | 11  | \psclip                     | 2578, 2586, 2596, 2610, 2631, 2743, 2896                                  |
| leftmargin                   | 6   | \pscustom                   | 2596, 2611, 2631, 2890, 3237  |
| linecolor                    | 7   | \psdot                      | 2777, 2778, 2779, 2958, 2959,<br>2960, 3130, 3131, 3132, 3303, 3304, 3305 |
| linewidth                    | 7   | pstricksappsetting (option) | 9   |
| margin                       | 6   | pstrickssetting (option)    | 9   |
| middleextra                  | 10  | \ptTps                      | 2526, 2528, 2658  |
| middlelinecolor              | 8   | \ptTpsL                     | 2529, 2656, 2657, 2658  |
| middlelinewidht              | 7   |                             |   |
| needspace                    | 8   | R                           |   |
| nobreak                      | 8   | \refstepcounter             | 473, 497, 526   |
| ntheorem                     | 8   | \renewmdenv                 | 3, 428, 436   |
| outerlinecolor               | 8   | \renewrobustcmd             | 459   |
| outerlinewidth               | 7   | repeatframetitle (option)   | 11  |
| outermargin                  | 7   | rightline (option)          | 11  |
| pstricksappsetting           | 9   | rightmargin (option)        | 6   |
| pstrickssetting              | 9   | roundcorner (option)        | 7   |
| repeatframetitle             | 11  | S                           |   |
| rightline                    | 11  | secondextra (option)        | 10  |
| rightmargin                  | 6   | \section                    | 3378,<br>3384, 3579, 3585, 3767, 3773, 3893, 3899                         |
| roundcorner                  | 7   | \setcounter                 | 3339,<br>3369, 3539, 3570, 3727, 3758, 3852, 3884                         |
| secondextra                  | 10  | settings (option)           | 8   |
| settings                     | 8   | \sffamily                   | 3675, 4030, 4082  |
| shadow                       | 9   | shadow (option)             | 9   |
| shadowcolor                  | 9   | shadowcolor (option)        | 9   |
| shadowsize                   | 9   | shadowsize (option)         | 9   |
| singleextra                  | 10  | singleextra (option)        | 10  |
| skipabove                    | 6   | skipabove (option)          | 6   |
| skipbelow                    | 6   | skipbelow (option)          | 6   |
| splitbottomskip              | 7   | \smash                      | 919, 1254, 1368, 1486, 1598   |
| splittopskip                 | 7   | splitbottomskip (option)    | 7   |
| style                        | 8   | splittopskip (option)       | 7   |
| theoremseparator             | 12  | \strut                      | 483, 487, 507, 519, 536, 540, 3476, 3482                                  |
| theoremspace                 | 13  | style (option)              | 8   |
| theoremtitlefont             | 13  | \subsection                 | 3373, 3574, 3762, 3888  |
| tikzsetting                  | 9   | \subtitle                   | 3350, 3551, 3739, 3865  |
| topline                      | 10  | \surroundwithmdframed       | 4, 422, 424, 3932   |
| userdefinedwidth             | 7   | T                           |   |
| usetwoside                   | 8   | \textit                     | 3359,<br>3390, 3560, 3591, 3748, 3779, 3874, 3905                         |
| xcolor                       | 5   | \theexercise                | 3660, 3679, 3687  |
| outerlinecolor (option)      | 8   | \theorempostskipamount      | 632   |
| outerlinewidth (option)      | 7   | \theorempreskipamount       | 629, 631  |
| outermargin (option)         | 7   | theoremseparator (option)   | 12  |
| \overlappines                | 3505, 3529  | theoremspace (option)       | 13  |
| P                            |   | theoremtitlefont (option)   | 13  |
| \p                           | 4004, 4006, 4008, 4010, 4037, 4038,<br>4045, 4052, 4056, 4089, 4090, 4097, 4104, 4108 | \thesubsection              | 3370, 3571, 3759, 3885  |
| \Pack                        | 3349, 3379, 3382, 3550, 3580, 3583,<br>3738, 3768, 3771, 3864, 3894, 3897, 3936       | \thetheo                    | 3476, 3482  |
| \pageshrink                  | 950   | \thm@thmcaption             | 459   |
| \parsep                      | 389   | \tikz                       | 1789, 3474, 3480  |
| \parskip                     | 352, 611, 815   |                             |   |
| \pgfdeclarehorizontalshading | 3653, 3656  |                             |   |
| \pgfmatformlength            | 1788, 1961, 1965, 2159  |                             |   |

