

# 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 . . . . .	11
2. Syntax	2	5.6. Footnotes . . . . .	12
3. The frames	3	6. Examples	13
4. Commands	3	7. Errors, Warnings and Messages	13
5. Options	4	8. Known Problems	14
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 . . . . .	10		

## 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.

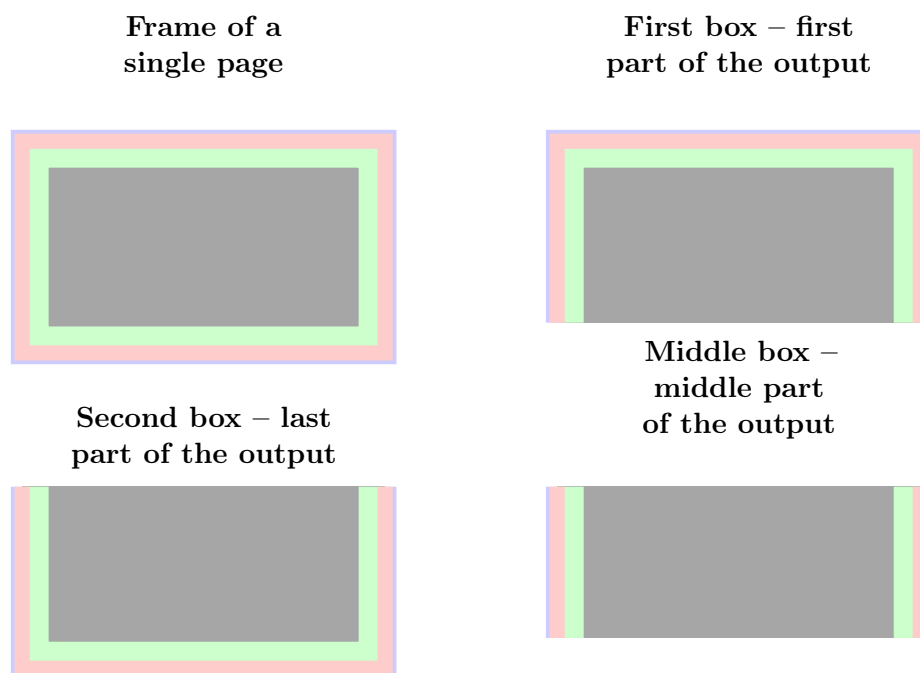


Figure 1: The basic frames

## 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.

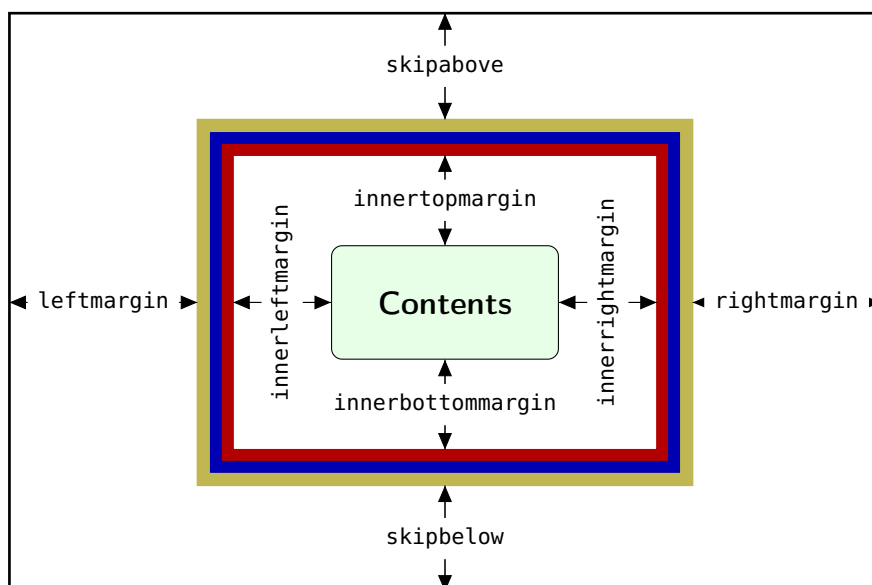


Figure 2: adjustable lengths of mdframed

`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.

`rightmargin` default=0pt

Sets the length of the right margin of the environment.

`innerleftmargin` default=10pt

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

`innerrightmargin` default=10pt

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

`innertopmargin` default=.4\baselineskip

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

`innerbottommargin` default=.4\baselineskip

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

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

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

### 5.2.2. Colored Options

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

Sets the color of the contents of the environment.

`innerlinecolor` default=`linecolor`

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

`middlelinecolor` default=`linecolor`

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

`outerlinecolor` default=`linecolor`

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

### 5.2.3. General options

`font` default=`{}`

Sets the font of the environment.

`ntheorem` default=`false`

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

`nobreak` default=`false`

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

`usetwoside` default=`true`

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

`needspace` default=`0pt`

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

`style`

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

`settings` default=`none`

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

`align` default=`left`

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



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

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

`shadow` default=`false`

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

`shadowsize` default=`8pt`

Specify the size of the shadow.

`shadowcolor` default=`black!50`

Specify the color of the shadow.

`pstrickssetting` default=`none`

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

This works only with `framemethod=PSTricks`.

`pstricksappsetting` default=`none`

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

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

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

`tikzsetting` default=`none`

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

This works only with `framemethod=TikZ`.

`apptotikzsetting` default=`none`

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

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

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

### 5.3. Hidden Lines

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

### 5.4. Frametitle

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

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

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

`frametitlerule` default=false

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

`frametitlerulewidth` default=.2pt

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

`frametitleaboveskip` default=5pt

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

`frametitlebelowskip` default=5pt

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

`frametitlebackgroundcolor` default=white

Sets the color of the background of the frametitle

### FYI and Note

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

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

`repeatframetitle` default=false

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

## 5.5. Theorems

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

`\newmdtheoremenv`

Since the package is often used to highlight theorem environments, I have created a 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}
```

---

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

So far there is no `\renewmdtheoremenv`!

#### `\mdtheorem`

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

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

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

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

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

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

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

`theoremseparator` default={:}

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

`theoremtitlefont` default={}

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

`theoremspace` `\space`

Sets the space after `theoremseparator`.

Examples can be found in the attached files.

## 5.6. Footnotes

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

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

`footnotedistance` default= `\bigskipamount`

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

`footnoteinside` default=true

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

**Note**

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

## 6. Examples

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

**mdframed-example-default**

Demonstration of examples created with `framemethod=default`.

**mdframed-example-tikz**

Demonstration of examples created with `framemethod=TikZ`.

**mdframed-example-pstricks**

Demonstration of examples created with `framemethod=pstricks`.

**mdframed-example-texsx**

Demonstration of examples like interaction with `listings`

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

The Korean T<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 L<sup>A</sup>T<sub>E</sub>X-editors like T<sub>E</sub>XMaker or T<sub>E</sub>XStudio have a special tab for errors and warnings but not for messages. So you should look in the `log-File` itself.

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

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

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

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

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

Unknown **framemethod** .... **mdframed**

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

You have not loaded **ntheorem** yet

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

You have only a width of 3cm

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

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

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

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

See the explanation above.

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

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

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

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

## 8. Known Problems

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

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

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

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

## 9. ToDo

**It is important to update the documentation**

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

## 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.

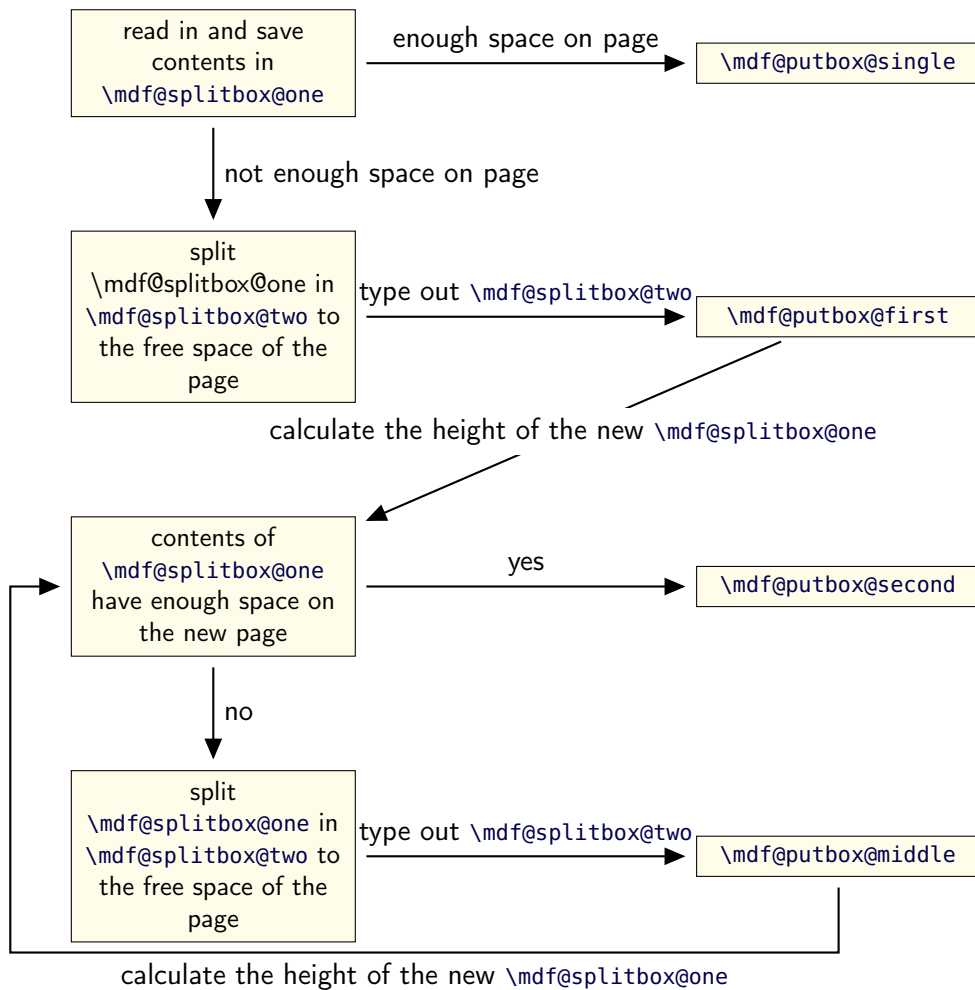


Figure 3: Setting the contents of `mdframed`

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 1.4b submitted XX 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 Schwan)

### Version 1.4 submitted 4 Mar 2012

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

### Version 1.3a submitted 5 Feb 2012

- fixed bug (Thanks to Dietrich Grau)

### Version 1.3 submitted 4 Feb 2012

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

### Version 1.2 submitted 8 Jan 2012

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

### Version 1.0b submitted 9 Dec 2011

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

### Version 1.0 submitted 13 Nov 2011

- add option `userdefinedwidth` • add option `align` • add option `apptotikzsetting` • create new command `\mdfapptodefinestyle` • changed internal algorithm • removed `calc` instead using  $\varepsilon$ -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.dtx3522012-03-12 19:53:51Zmarco Rev : 352 Author : marco*

*Date : 2012-03-12 19:53:51 +0100(Mo, 12.Mr2012)*

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

Set package information

```
1 \def\mdversion{v1.4b}
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 352 2012-03-12 19:53:51Z 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{<Laengenbezeichnung>}{<Defaultwert>}
43 \newrobustcmd*{\mdf@option@length}[2]{%
44   \expandafter\newlength\csname mdfl@#1@length\endcsname%
45   \expandafter\setlength\csname mdfl@#1@length\endcsname{#2}%
46 }
```

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

```

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

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

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

```

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

```

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

```

```

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

```

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

```

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

```

```

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

```

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

```

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

```

```

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

```

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

```

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

```

Start declaration of options

```

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

```

Only provide to be backward compatible

```

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

```

```

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

```

\mdf@framemethod

```

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

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

```

\mdf@do@lengthoption

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

```

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

```

```

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

```

`\mdf@do@lengthoption`

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

```

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

```

`\mdf@do@booloption`



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

```

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

\mdf@do@alignoption

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

```

212 \mdf@dolist{\mdf@do@alignoption}{%
213     {left==\mdf@leftmargin@length==\z@},%
214     {center==\fill==\fill},%
215     {right==\fill==\mdf@rightmargin@length},%
216     {outer==\fill==\mdf@rightmargin@length},%not supported yet
217     {outer==\mdf@leftmargin@length==\fill},%not supported yet
218 }
```

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

Set the alignment.

```

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

```

228     \def\mdf@makeboxalign@left{\csuse{mdf@align@#1@left}}%
229     \def\mdf@makeboxalign@right{\csuse{mdf@align@#1@right}}%
230 }%
231 }

```

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

Option to pass options to tikz or pstricks

```

232 \def\mdf@tikzset@local{\tikzset{tikzsetting/.style={}}}
233 \define@key{mdf}{tikzsetting}{%
234   \def\mdf@tikzset@local{\tikzset{tikzsetting/.style={#1}}}%
235 }
236 \define@key{mdf}{apptotikzsetting}{%
237   \appto\mdf@tikzset@local{#1}%
238 }
239 \def\mdf@psset@local{}
240 \define@key{mdf}{pstrickssetting}{%
241   \def\mdf@psset@local{#1}%
242 }
243 \def\mdfpstricks@appendsettings{}
244 \define@key{mdf}{pstricksappsetting}{%
245   \def\mdfpstricks@appendsettings{#1}%
246 }
247

```

`\mdf@xcolor`

**Problem with xcolor. This part must be reworked!**

```

248 \def\mdf@xcolor{}
249 \define@key{mdf}{xcolor}[none]{%
250   \def\@tempa{#1}%
251   \@ifpackageloaded{xcolor}{%
252     \let\mdf@xcolor\@empty %ignoriere die Eingabe der Optionen
253     \def\@tempa{}%
254   }{}%
255   \ifx\relax\@tempa\relax\else
256     \PassOptionsToPackage{\mdf@xcolor}{xcolor}%
257     \RequirePackage{xcolor}%
258   \fi%
259 }%

```

`\mdf@needspace`

Defining the option needspace

```

260 \define@key{mdf}{needspace}[\z@]{%
261   \begingroup%
262     \setlength{\dimen@}{#1}%
263     \vskip\z@\@plus\dimen@%
264     \penalty -100\vskip\z@\@plus -\dimen@%
265     \vskip\dimen@%
266     \penalty 9999%
267     \vskip -\dimen@%
268     \vskip\z@skip % hide the previous |\vskip| from |\addvspace|

```

```

269     \endgroup%
270 }

271 \DeclareDefaultOption{%
272     \mdf@PackageWarning{Unknown Option '\CurrentOption' for mdframed}}
273 \ProcessKeyvalOptions*\relax

```

\mdfsetup

Short form of `\setkeys{mdf}`

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

\mdf@style

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

```

275 \define@key{mdf}{style}{%
276     \ifcsundef{mdf@definestyle@#1}{%
277         \mdf@PackageWarning{Unknown definedstyle #1^^J
278             You have to define a style ^^J
279             via \string\mdfdefinedstyle\MessageBreak
280         }%
281     }%
282     {\expandafter\expandafter\expandafter\mdfsetup%
283         \expandafter\expandafter\expandafter{\csname mdf@definestyle@#1\endcsname}}%
284 }%

```

\mdf@print@space

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

```

285 \let\mdf@PackageNoInfo\@gobble
286 \newrobustcmd*\mdf@ifstrequal@expand{%
287     \expandafter\ifstrequal\expandafter{\mdf@printheight}%
288 }
289 \newrobustcmd*\mdf@print@space{%
290     %case "none"
291     \mdf@ifstrequal@expand{none}{\def\mdf@tempa{NoInfo}}{%
292         %case "info"
293         \mdf@ifstrequal@expand{info}{\def\mdf@tempa{Info}}{%
294             %case "warning"
295             \mdf@ifstrequal@expand{warning}{\def\mdf@tempa{Warning}}{%
296                 %case "unknown"
297                 \mdf@PackageWarning{Unknown key for printheight=\mdf@printheight^^J
298                     use none, info or warning}%
299                 \def\mdf@tempa{none}%
300             }%
301         }%
302     }%
303 \def\mdf@PackageInfoSpace{\csname mdf@Package\mdf@tempa\endcsname}%
304 }

```

\new...

Initialize all commands and length which will we used later

```

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

```

```

\mdf@lrbox
\endmdf@lrbox

```

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

```

341
342 \def\mdf@lrbox#1{%
343 %%patch to work with amsthm
344 \mdf@patchamsthm
345 %%end patch
346 \edef\mdf@restoreparams{%
347 \parindent=\the\parindent \parskip=\the\parskip}
348 \setbox#1\vbox\bgroup
349 \color@begingroup%
350 \mdf@horizontalmargin@equation%
351 \columnwidth=\hspace%
352 \textwidth=\hspace%

```

```

353 \parboxrestore%
354 \mdf@restoreparams%
355 %SETZE
356 \afterindentfalse%
357 \afterheading%
358 %STREICHE
359 %\doendpe
360 }
361
362 \def\endmdf@lrbox{\color@endgroup\egroup}
363

```

```

\mdf@ignorevbadness
\mdf@restorevbadness

```

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

```

364 \newrobustcmd*\mdf@ignorevbadness{%
365 \edef\mdf@currentvbadness{\the\vbadness}%
366 \vbadness=\@M%
367 \afterassignment\mdf@restorevbadness}
368 \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`.

```

369 \ifpackageloaded{amsthm}{%
370 \newrobustcmd\mdf@patchamsth{%
371 \let\mdf@deferred@thm@head\deferred@thm@head
372 \patchcmd{\deferred@thm@head}{\indent}{\relax}{}{}
373 }%
374 }\let\mdf@patchamsth\relax}%

```

```

\mdf@trivlist
\endmdf@trivlist

```

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

```

375 \def\mdf@trivlist#1{%
376 \setlength{\topsep}{#1}%
377 \partopsep\z@%
378 \parsep\z@%
379 \nomblistfalse%
380 \@trivlist%
381 \labelwidth\z@%
382 \leftmargin\z@%
383 \itemindent\z@%
384 \let\@itemlabel\@empty%
385 \def\makelabel##1{##1}%
386 %% \item\leavevmode\hrule \@height\z@ \@width\linewidth\relax%
387 %% \item\mbox{}\relax% second version
388 \item\relax% first Version
389 }

```

```

390 \let\endmdf@trivlist\endtrivlist
391 \patchcmd\endmdf@trivlist\@endparenv\mdf@endparenv{}}{}
392 \def\mdf@endparenv{%
393   \addpenalty\@endparpenalty\addvspace\mdf@skipbelow@length\@endpetrue}
394

```

```

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

```

```

395 \newrobustcmd*\mdf@makebox@out[2][\linewidth]{%
396   \noindent\hb@xt@\z@{%
397     \noindent\makebox[\dimexpr #1\relax][l]{#2}%
398   \hss}%
399 }%
400 \newrobustcmd*\mdf@makebox@in[2][\mdf@userdefinedwidth@length]{%
401   \noindent\makebox[\dimexpr #1\relax][l]{#2}%
402 }

```

```

\mdfdefinestyle
\mdfapptodefinestyle

```

See explanation of this commands above.

```

403 \newrobustcmd*\mdfdefinestyle[2]{%
404   \csdef{mdf@definestyle@#1}{#2}%
405 }
406 \newrobustcmd*\mdfapptodefinestyle[2]{%
407   \ifcsundef{mdf@definestyle@#1}%
408     {\mdf@PackageWarning{Unknown style #1}}%
409     {\csappto{mdf@definestyle@#1}{, #2}}%
410 }

```

```

\mdflength
\surroundwithmdframed

```

Helper macros to work with *mdframed*

```

411 \newrobustcmd*\mdflength[1]{\csuse{mdf@#1@length}}
412
413 \newrobustcmd*\surroundwithmdframed[2][]{%
414   \BeforeBeginEnvironment{#2}{\begin{mdframed}[#1]}%
415   \AfterEndEnvironment{#2}{\end{mdframed}}%
416 }

```

```

\newmdenv
\renewmdenv
\newmdtheoremenv
\mdtheorem

```

Defining of the new environment definitions.

```

417 \newrobustcmd*\newmdenv[2][]{%
418   \newenvironment{#2}{%
419     \mdfsetup{#1}%
420     \begin{mdframed}%

```

```

421   }{%
422   \end{mdframed}%
423 }%
424 }
425 \newrobustcmd*\renewmdenv[2][ ]{%
426   \expandafter\let\csname #2\endcsname\relax%
427   \expandafter\let\csname end#2\endcsname\relax%
428   \newmdenv[#1]{#2}%
429 }%
430
431
432 \DeclareDocumentCommand\newmdtheoremenv{0}{ m o m o }{%
433   \ifboolexpr{ test {\IfNoValueTF {#3}} and test {\IfNoValueTF {#5}} }{%
434     {\newtheorem{#2}{#4}}{%
435       \IfValueTF{#3}{\newtheorem{#2}[#3]{#4}}{%
436         \IfValueTF{#5}{\newtheorem{#2}{#4}[#5]}{%
437           }%
438         \BeforeBeginEnvironment{#2}{%
439           \begin{mdframed}[#1]}%
440         \AfterEndEnvironment{#2}{%
441           \end{mdframed}}%
442       }%
443     }%
444   \DeclareDocumentCommand{\mdtheorem}{ 0{ } m o m o }%
445   {\ifcsdef{#2}%
446     {\mdf@PackageWarning{Environment #2 already exists\MessageBreak}}%
447     {%
448       \IfNoValueTF {#3}%
449       {%#3 not given -- number relationship
450         \IfNoValueTF {#5}
451         {%#3+#5 not given
452           \@definecounter{#2}%
453           \expandafter\xdef\csname the#2\endcsname{\@thmcounter{#2}}
454           \newenvironment{#2}[1][ ]{%
455             \refstepcounter{#2}
456             \ifstrempy{##1}%
457             {\let\@temptitle\relax}%
458             {%
459               \def\@temptitle{\mdf@theoremseparator%
460                 \mdf@theoremspace%
461                 \mdf@theoremtitlefont%
462                 ##1}%
463             }
464             \begin{mdframed}[#1,frametitle={\strut#4 \csname the#2\endcsname\@temptitle}]}%
465             {\end{mdframed}}%
466           \newenvironment{#2*}[1][ ]{%
467             \ifstrempy{##1}{\let\@temptitle\relax}{\def\@temptitle{: \ ##1}}
468             \begin{mdframed}[#1,frametitle={\strut#4\@temptitle}]}%
469             {\end{mdframed}}%
470           }%
471           {%#5 given -- reset counter
472             \@definecounter{#2}\@newctr{#2}[#5]%
473             \expandafter\xdef\csname the#2\endcsname{\@thmcounter{#2}}
474             \expandafter\xdef\csname the#2\endcsname{%
475               \expandafter\noexpand\csname the#5\endcsname \@thmcountersep
476               \@thmcounter{#2}}%

```

```

477     \newenvironment{#2}[1][]{%
478         \refstepcounter{#2}
479         \ifstrempy{##1}%
480             {\let\@temptitle\relax}%
481             {%
482                 \def\@temptitle{\mdf@theoremseparator%
483                     \mdf@theoremspace%
484                     \mdf@theoremtitlefont%
485                     ##1}%
486             }
487     \begin{mdframed}[#1,frametitle={\strut#4\ \cname the#2\endcname\@temptitle}]]%
488     {\end{mdframed}}}%
489 \newenvironment{#2*}[1][]{%
490     \ifstrempy{##1}%
491         {\let\@temptitle\relax}%
492         {%
493             \def\@temptitle{\mdf@theoremseparator%
494                 \mdf@theoremspace%
495                 \mdf@theoremtitlefont%
496                 ##1}%
497         }
498     \begin{mdframed}[#1,frametitle={\strut#4\@temptitle}]]%
499     {\end{mdframed}}}%
500 }%
501 }%
502 {%#3 given -- number relationship
503     \global\@namedef{the#2}{\@nameuse{the#3}}%
504     \newenvironment{#2}[1][]{%
505         \refstepcounter{#3}
506         \ifstrempy{##1}%
507             {\let\@temptitle\relax}%
508             {%
509                 \def\@temptitle{\mdf@theoremseparator%
510                     \mdf@theoremspace%
511                     \mdf@theoremtitlefont%
512                     ##1}%
513             }
514     \begin{mdframed}[#1,frametitle={\strut#4\ \cname the#2\endcname\@temptitle}]]%
515     {\end{mdframed}}}%
516 \newenvironment{#2*}[1][]{%
517     \ifstrempy{##1}{\let\@temptitle\relax}{\def\@temptitle{: \ ##1}}
518     \begin{mdframed}[#1,frametitle={\strut#4\@temptitle}]]%
519     {\end{mdframed}}}%
520 }%
521 }%
522 }
523

```

<code>\mdfframedtitleenv</code> <code>\mdf@frametitle</code> <code>\mdf@setopt@body</code> <code>\mdf@setopt@title</code>
--

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



```

524 %TESTVERSION
525 % \newrobustcmd*\mdf@setopt@title{%
526 %   \ifbool{mdf@frametitulerule}{\booltrue{mdf@bottomline}}{\boolfalse{mdf@bottomline}}%
527 %   \let\ifmdf@leftline\ifmdf@frametitleleftline%
528 %   \let\ifmdf@topline\ifmdf@frametitletopline%
529 %   \let\ifmdf@rightline\ifmdf@frametitlerightline%
530 %   \let\ifmdf@bottomline\ifmdf@frametitlebottomline%
531 %   \mdfsetup{innerbottommargin=\mdf@titlebelowskip@length,%
532 %             innertopmargin=\mdf@titleaboveskip@length,%
533 %             middlelinecolor=\mdf@frametitulerulecolor,%
534 %             backgroundcolor=\mdf@frametitlebackgroundcolor,%
535 %             middlelinewidth=\mdf@frametitulerulewidth@length,%
536 %             innerleftmargin=\mdf@frametitleleftmargin@length,%
537 %             innerrightmargin=\mdf@frametitlerightmargin@length,%
538 %             alignment=\mdf@frametitlealignment,%
539 %             skipbelow=\z@}%
540 % \def\mdf@linecolor@bottom{\color{\mdf@frametitlebottomrulecolor}}%
541 % \mdf@frametitlesettings%
542 % }
543 %
544 % \newrobustcmd*\mdf@setopt@body{%
545 %   \mdfsetup{topline=false,skipabove=\z@}%
546 %   \unskip\nointerlineskip%
547 % }
548 %
549 % \newrobustcmd\mdfframedtitleenv[1]{%
550 %   \begingroup
551 %     \mdf@setopt@title
552 %     \color@setgroup
553 %     \mdf@frametitlefont
554 %     \mdf@lrbox{\mdf@splitbox@one}%
555 %     \mdf@frametitlealignment
556 %     #1\par\unskip
557 %   \endmdf@lrbox
558 %   \mdf@ignorevbadness
559 %   \global\setbox\mdf@frametitlebox\vbox{\unvbox\mdf@splitbox@one}%
560 %   \mdf@ignorevbadness
561 %   \global\setbox\mdf@splitbox@one\vbox{\unvcopy\mdf@frametitlebox}%
562 %   \detected@mdf@put@frame%
563 %   \color@endgroup%
564 %   \endgroup
565 % }
566 % \newrobustcmd\mdfframedtitleenv[1]{%
567 %   \color@begingroup%
568 %     \mdf@lrbox{\mdf@frametitlebox}%
569 %     \mdf@frametitlealignment%
570 %     \color{\mdf@frametitlefontcolor}%
571 %     \normalfont\mdf@frametitlefont{#1}\par\unskip
572 %   \endmdf@lrbox%
573 %   \mdf@ignorevbadness%
574 %   \global\setbox\mdf@frametitlebox\vbox{\unvbox\mdf@frametitlebox}%
575 %   \global\mdfframetitleboxwidth=\wd\mdf@frametitlebox\relax%
576 %   \global\mdfframetitleboxheight=\ht\mdf@frametitlebox\relax%
577 %   \global\mdfframetitleboxdepth=\dp\mdf@frametitlebox\relax%
578 %   \global\mdfframetitleboxtotalheight=\dimexpr\ht\mdf@frametitlebox+\dp\mdf@frametitlebox
579 %     +\mdf@frametitleaboveskip@length+\mdf@frametitlebelowskip@length\relax%

```

```

580   \color@endgroup%
581 }
582
583 \newrobustcmd*\mdf@@frametitle{%
584   \mdfframedtitleenv{\mdf@frametitle}%
585 }
586
587 \newrobustcmd*\mdf@@frametitle@use{%
588   \begingroup
589   \parskip\z@
590   \parindent\z@
591   \offinterlineskip
592   \mdf@ignorevbadness%
593   \global\setbox\mdf@splitbox@one\vbox{%
594     \unvcopy\mdf@frametitlebox%
595     \mdf@@frametitlerule%
596     \unvbox\mdf@splitbox@one
597   }%
598   \mdf@ignorevbadness%
599   \global\setbox\mdf@splitbox@one\vbox{%
600     \unvbox\mdf@splitbox@one}%
601   \endgroup
602   \mdfsetup{innertopmargin=\mdf@frametitleaboveskip@length}%
603 }

```

`\mdf@checkntheorem`

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

```

604
605 \newrobustcmd*\mdf@checkntheorem{%
606   \ifbool{mdf@ntheorem}%
607     {\ifundef{\theorempreskipamount}%
608       {\mdf@PackageWarning{You have not loaded ntheorem yet}}%
609       {\setlength{\theorempreskipamount}{\z@}%
610        \setlength{\theorempostskipamount}{\z@}%
611       }%
612     }{}%
613 }

```

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

Support for footnotes.

```

614 \newrobustcmd*\mdf@footnoterule{%
615   \kern0\p@
616   \hrule \@width 1in \kern 2.6\p@
617 \newrobustcmd*\mdf@footnoteoutput{%
618   \ifvoid\@mpfootins\else
619     \nobreak%
620     \vskip\mdf@footnotedistance@length%
621     \normalcolor%
622     \mdf@footnoterule
623     \unvbox\@mpfootins
624   \fi%

```

```

625 }
626 \newrobustcmd*\mdf@footnoteinput{%
627   \def\@mpfn{mpfootnote}%
628   \def\thempfn{\thempfootnote}%
629   \c@mpfootnote\z@%
630   \let\@footnotetext\@mpfootnotetext%
631 }

```

```

\mdf@load@style
\mdf@styledefinition

```

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

```

632 \newrobustcmd*\mdf@load@style{%
633   \ifcase\value{mdf@globalstyle@cnt}\relax%
634     \input{md-frame-0.mdf}%
635   \or\input{md-frame-1.mdf}%
636   \or\input{md-frame-2.mdf}%
637   \or\input{md-frame-3.mdf}%
638   \else%
639     \IfFileExists{md-frame-\value{mdf@globalstyle@cnt}.mdf}%
640     {\input{md-frame-\value{mdf@globalstyle@cnt}.mdf}}%
641     {%
642       \input{md-frame-0.mdf}%
643       \mdf@PackageWarning{The style number \value{mdf@globalstyle@cnt} does not exist^^J
644                           mdframed ues instead style=0 \mdframedpackagename}%
645     }%
646 \fi%
647 }%
648 \mdf@load@style
649
650 \newrobustcmd*\mdf@styledefinition{%AVOID!!!
651   \ifnumequal{\value{mdf@globalstyle@cnt}}{0}%
652   {\deflength{\mdf@innerlinewidth@length}{\z@}%
653    \deflength{\mdf@middlelinewidth@length}{\mdf@linewidth@length}%
654    \deflength{\mdf@outerlinewidth@length}{\z@}%
655    \let\mdf@innerlinecolor\mdf@linecolor%
656    \let\mdf@middlelinecolor\mdf@linecolor%
657    \let\mdf@outerlinecolor\mdf@linecolor%
658   }{}%
659 % \ifnumequal{\value{mdf@globalstyle@cnt}}{2}%
660 % {\deflength{\mdf@innerlinewidth@length}{\z@}%
661 %  \deflength{\mdf@middlelinewidth@length}{\mdf@linewidth@length}%
662 %  \deflength{\mdf@outerlinewidth@length}{\z@}%
663 %  \let\mdf@innerlinecolor\mdf@linecolor%
664 %  }{}%
665 % \ifnumequal{\value{mdf@globalstyle@cnt}}{3}%
666 % {\deflength{\mdf@innerlinewidth@length}{\z@}%
667 %  \deflength{\mdf@middlelinewidth@length}{\mdf@linewidth@length}%
668 %  \deflength{\mdf@outerlinewidth@length}{\z@}%
669 %  \let\mdf@innerlinecolor\mdf@linecolor%
670 %  }{}%
671 }

```

```

\detected@mdf@put@frame

```

Detect whether inside a non breakable environment.

```

672 \let\mdf@reserved@a\@empty
673 \newrobustcmd*\detected@mdf@put@frame{%
674   \ifmdf@nobreak%Option nobreak=true?
675   \def\mdf@reserved@a{\mdf@put@frame@standalone}%
676   \else
677     \def\mdf@reserved@a{\mdf@put@frame}%
678     \ifx\@cuptype\@undefined
679       \def\mdf@reserved@a{\mdf@put@frame}%
680     \else
681       \mdf@PackageInfo{mdframed inside float ^^J
682         mdframed uses option nobreak \mdframedpackagename}%
683       \def\mdf@reserved@a{\mdf@put@frame@standalone}%
684     \fi
685   %% \ifnum\@floatpenalty<0\relax%Detecting float
686   %% \if@twocolumn%
687   %% \ifx\@cuptype\@undefined
688   %% \def\mdf@reserved@a{\mdf@put@frame}%
689   %% \else
690   %% \mdf@PackageInfo{mdframed inside float ^^J
691   %%   mdframed uses option nobreak \mdframedpackagename}%
692   %% \def\mdf@reserved@a{\mdf@put@frame@standalone}%
693   %% \fi
694   %% \else
695   %% \mdf@PackageInfo{mdframed inside float ^^J
696   %%   mdframed uses option nobreak \mdframedpackagename}%
697   %% \def\mdf@reserved@a{\mdf@put@frame@standalone}%
698   %% \fi%
699   %% \fi%
700   \if@minipage%
701     \mdf@PackageInfo{mdframed inside minipage ^^J
702       mdframed uses option nobreak \mdframedpackagename}%
703     \def\mdf@reserved@a{\mdf@put@frame@standalone}%
704   \fi%
705   \ifinner%
706     \mdf@PackageInfo{mdframed inside a box ^^J
707       mdframed uses option nobreak \mdframedpackagename}%
708     \def\mdf@reserved@a{\mdf@put@frame@standalone}%
709   \fi%
710 \fi%
711 \mdf@reserved@a%
712 }

```

`\mdf@hidealllines@check`

```

713 \newrobustcmd*\mdf@hidealllines@check{%
714   \ifbool{mdf@hidealllines}{%
715     \boolfalse{mdf@leftline}\boolfalse{mdf@rightline}%
716     \boolfalse{mdf@topline}\boolfalse{mdf@bottomline}%
717     \boolfalse{mdf@frametitleleftline}\boolfalse{mdf@frametitlerightline}%
718     \boolfalse{mdf@frametitletopline}\boolfalse{mdf@frametitlebottomline}%
719   }{}%
720 }

```

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

That the user environment.

```
721 \newenvironment{mdframed}[1][{}]{%
722 \color@begingroup%
723 \mdfsetup{userdefinedwidth=\linewidth,#1}%
724 %%% \mdf@hidealllines@check%
725 \mdf@twoside@checklength%
726 \let\width\z@%
727 \let\height\z@%
728 \mdf@checktheorem%
729 \mdf@styledefinition%
730 \mdf@footnoteinput%
731 \color{\mdf@fontcolor}%
732 \mdf@font%
733 \ifvmode\nointerlineskip\fi%
734 \mdf@trivlist{\mdf@skipabove@length}%
735 \ifdefempty{\mdf@frametitle}{\mdf@@frametitle}%
736 \mdf@settings%
737 \mdf@lrbox{\mdf@splitbox@one}%
738 }%
739 {\par\unskip\nointerlineskip\hrule \@height\z@ \@width\hsize%
740 \ifmdf@footnoteinside%
741 \def\mdf@reserveda{%
742 \mdf@footnoteoutput%
743 \endmdf@lrbox%
744 \ifdefempty{\mdf@frametitle}{\mdf@@frametitle@use}%
745 \detected@mdf@put@frame}%
746 \else%
747 \def\mdf@reserveda{%
748 \endmdf@lrbox%
749 \ifdefempty{\mdf@frametitle}{\mdf@@frametitle@use}%
750 \detected@mdf@put@frame%
751 \mdf@footnoteoutput%
752 }%
753 \fi%
754 \mdf@reserveda%
755 \endmdf@trivlist%
756 \color@endgroup\@doendpe%
757 }
758
759
```

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

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

```
760 \newtoggle{md:checktwoside}
761 \settoggle{md:checktwoside}{false}
```

```

762 \newrobustcmd*\mdf@twoside@checklength{%
763   \if@twoside
764     \ifbool{mdf@usetwoside}%
765       {\mdf@PackageInfo{mdframed works in twoside mode}%
766         \settoggle{md:checktwoside}{true}%
767         \setlength\mdf@rightmargin@length{\mdf@outermargin@length}%
768         \setlength\mdf@leftmargin@length{\mdf@innermargin@length}%
769         }%
770       {\mdf@PackageInfo{mdframed inside twoside mode but\MessageBreak
771         works with oneside mode}%
772         \settoggle{md:checktwoside}{false}%
773         }%
774   \fi%
775 }
776
777 \newcounter{mdf@zref@counter}%keine doppelten laebes
778 \zref@newprop*\mdf@pagevalue}[0]{\number\value{page}}
779 \zref@addprop{\ZREF@mainlist}{mdf@pagevalue}
780 \newrobustcmd*\mdf@zref@label{%
781   \stepcounter{mdf@zref@counter}
782   \zref@label{mdf@pagelabel-\number\value{mdf@zref@counter}}%
783 }
784 \newrobustcmd*\if@mdf@pageodd{%
785   \zref@refused{mdf@pagelabel-\the\value{mdf@zref@counter}}%
786   \ifodd\zref@extract{mdf@pagelabel-\the\value{mdf@zref@counter}}{mdf@pagevalue}%
787     \setlength\mdf@rightmargin@length{\mdf@outermargin@length}%
788     \setlength\mdf@leftmargin@length{\mdf@innermargin@length}%
789   \else
790     \setlength\mdf@rightmargin@length{\mdf@innermargin@length}%
791     \setlength\mdf@leftmargin@length{\mdf@outermargin@length}%
792   \fi%
793 }
794 \newrobustcmd*\mdf@@setzref{%
795   \iftoggle{md:checktwoside}{\mdf@zref@label\if@mdf@pageodd}{}%
796 }

```

`\mdf@freepagevspace`

```

797 \newrobustcmd*\mdf@freepagevspace{%
798   \penalty\@M \vskip 2\baselineskip
799   \penalty9999 \vskip -2\baselineskip
800   \penalty9999
801   \ifdimequal{\pagegoal}{\maxdimen}%
802     {\mdf@freevspace@length\vsiz}%
803     {\mdf@freevspace@length=\pagegoal\relax%
804       \advance\mdf@freevspace@length by -\pagetotal\relax%
805       \addtolength\mdf@freevspace@length{\dimexpr-\parskip\relax}\relax%
806     }%
807 }

```

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

Width of the box

```
808 \newrobustcmd*\mdf@advancelength@horizontalmargin@sub[1]{%
809   \advance\mdf@horizontalsofbox by -\csname mdf@#1@length\endcsname\relax%
810 }
811 \newlength\mdf@horizontalsofbox
812 \newrobustcmd*\mdf@horizontalmargin@equation{%
813   \setlength{\mdf@horizontalsofbox}{\mdf@userdefinedwidth@length}%
814   \mdf@dolist{\mdf@advancelength@horizontalmargin@sub}{%
815     leftmargin,outerlinewidth,middlelinewidth,%
816     innerlinewidth,innerleftmargin,innerrightmargin,%
817     innerlinewidth,middlelinewidth,outerlinewidth,%
818     rightmargin}%
819   \notbool{mdf@leftline}{%
820     \advance\mdf@horizontalsofbox by \mdf@innerlinewidth@length\relax%
821     \advance\mdf@horizontalsofbox by \mdf@middlelinewidth@length\relax%
822     \advance\mdf@horizontalsofbox by \mdf@outerlinewidth@length\relax%
823   }{}%
824   \notbool{mdf@rightline}{%
825     \advance\mdf@horizontalsofbox by \mdf@innerlinewidth@length\relax%
826     \advance\mdf@horizontalsofbox by \mdf@middlelinewidth@length\relax%
827     \advance\mdf@horizontalsofbox by \mdf@outerlinewidth@length\relax%
828   }{}%
829   \ifdimless{\mdf@horizontalsofbox}{3cm}%
830     {\mdf@PackageWarning{You have only a width of 3cm}}{}
831   \hsize=\mdf@horizontalsofbox%
832 }
```

```
\mdf@keeplines@single
```

horizontal space in relation of the lines.

```
833 \newrobustcmd*\mdf@keeplines@single{%
834   \notbool{mdf@topline}{%
835     \advance\mdf@verticalmarginwhole@length by -\mdf@innerlinewidth@length%
836     \advance\mdf@verticalmarginwhole@length by -\mdf@middlelinewidth@length%
837     \advance\mdf@verticalmarginwhole@length by -\mdf@outerlinewidth@length%
838   }{}%
839   \notbool{mdf@bottomline}{%
840     \advance\mdf@verticalmarginwhole@length by -\mdf@innerlinewidth@length%
841     \advance\mdf@verticalmarginwhole@length by -\mdf@middlelinewidth@length%
842     \advance\mdf@verticalmarginwhole@length by -\mdf@outerlinewidth@length%
843   }{}%
844 }
```

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

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

```
845 \newrobustcmd*\mdf@advancelength@verticalmarginwhole[1]{%
846   \advance\mdf@verticalmarginwhole@length by \csname mdf@#1@length\endcsname\relax%
```

```

847 }
848 \newrobustcmd*\mdf@advancelength@freevspace@sub[1]{%
849   \advance\dimen@ by -\csname mdf@#1@length\endcsname\relax%
850 }
851 \newrobustcmd*\mdf@advancelength@freevspace@add[1]{%
852   \advance\dimen@ by \csname mdf@#1@length\endcsname\relax%
853 }

```

`\mdf@reset`

Reset changes

```

854 \protected@edef\mdf@reset{\boxmaxdepth\the\boxmaxdepth
855   \splittopskip\the\splittopskip}%

```

`\mdf@put@frame@standalone`

Output of `mdframed` inside a non breakable environment.

```

856 \newrobustcmd*\mdf@put@frame@standalone{\relax%
857   \ifvoid\mdf@splitbox@one\relax
858     \mdf@PackageWarning{The environment is empty\MessageBreak}%
859     \let\mdf@reserved@a\relax%
860   \else
861     %Hier berechnung Box-Inhalt+Rahmen oben und unten
862     \setlength{\mdf@verticalmarginwhole@length}{%
863       {\dimexpr\ht\mdf@splitbox@one+\dp\mdf@splitbox@one\relax}%
864     \mdf@dolist{\mdf@advancelength@verticalmarginwhole}{%
865       outerlinewidth,middlelinewidth,innerlinewidth,innertopmargin,
866       innerbottommargin,innerlinewidth,middlelinewidth,outerlinewidth}%
867     \mdf@keep@lines@single%
868     \def\mdf@reserved@a{\mdf@putbox@single}%
869   \fi
870   \mdf@reserved@a%
871 }

```

`\mdf@put@frame`

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

```

872 \def\mdf@put@frame{\relax%
873 \ifvoid\mdf@splitbox@one\relax
874 \mdf@PackageWarning{The environment is empty\MessageBreak}%
875 \let\mdf@reserved@a\relax%
876 \else
877   \setlength\mdf@boundingboxwidth{\wd\mdf@splitbox@one}%
878   \mdf@print@space%
879   \mdf@freepagevspace@gives \mdf@freevspace@length
880   \mdf@PackageInfoSpace{\the\mdf@freevspace@length before the beginning of \MessageBreak
881     the environment ending on input line \MessageBreak}%
882   \ifdimless{\mdf@freevspace@length}{2\baselineskip}
883     {\mdf@PackageInfo{Not enough space on this page}
884       \vfill\eject%
885       \def\mdf@reserved@a{\mdf@put@frame}%
886     }{%
887       %Hier berechnung Box-Inhalt+Rahmen oben und unten

```



```

888         \setlength{\mdf@verticalmarginwhole@length}%
889             {\dimexpr\ht\mdf@splitbox@one+\dp\mdf@splitbox@one\relax}%
890         \mdf@dolist{\mdf@advancelength@verticalmarginwhole}{%
891             outerlinewidth,middlelinewidth,innerlinewidth,innertopmargin,
892             innerbottommargin,innerlinewidth,middlelinewidth,outerlinewidth}%
893         \mdf@keeplines@single%
894         \ifdimless{\mdf@verticalmarginwhole@length}{\mdf@freevspace@length}%
895             {%passt auf Seite%
896                 \begingroup
897                 \mdf@setzref
898                 \mdf@putbox@single%
899                 \endgroup
900                 \let\mdf@reserved@a\relax}%
901             {\def\mdf@reserved@a{\mdf@put@frame@i}}%passt nicht auf Seite
902         }%
903 \fi
904 \mdf@reserved@a%
905 }

```

`\mdf@put@frame@i`

Output of the first splitted box.

```

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

```

```

938             or something else}%
939     \advance\dimen@ by -1.8\baselineskip\relax%
940 }{}%
941 %     \advance\dimen@ by -1pt\relax%Box darf nicht zu Groß werden.
942 \splittmaxdepth\z@ \splittopskip\mdf@splittopskip@length%
943 \mdf@ignorevbadness%
944 \setbox\mdf@splitbox@two\vsplit\mdf@splitbox@one to \dimen@
945 \setbox\mdf@splitbox@two\vbox{\unvbox\mdf@splitbox@two}%
946 \setbox\mdf@splitbox@one\vbox{\unvbox\mdf@splitbox@one}%
947 \ifbool{mdf@repeatframetitle}{%
948     \setbox\mdf@splitbox@one\vbox{%
949         \vbox to \mdf@splittopskip@length{\hsize\z@}
950         %\par\unskip\nointerlineskip
951         \unvcopy\mdf@frametitlebox%
952         \mdf@@frametitlerule%
953         \vbox to\dimexpr
954             -\mdf@splittopskip@length+\ht\strutbox+\dp\strutbox
955             +\mdf@innertopmargin@length\relax{\hsize\z@}%
956         \unvbox\mdf@splitbox@one}%
957     }{}%
958 \ifdimgreater{\ht\mdf@splitbox@two+\dp\mdf@splitbox@two}{\dimen@}%
959 {%Falsch gesplittet
960     \mdf@PackageInfo{Box was splittet wrong\MessageBreak}%
961     \dimen@i=\dimen@
962     \advance\dimen@ by -\ht\mdf@splitbox@two
963     \advance\dimen@ by -\dp\mdf@splitbox@two
964     \advance\dimen@i by 0.5\dimen@
965     \splittopskip\z@%
966     \setbox\mdf@splitbox@one\vbox{\unvbox\mdf@splitbox@two%
967         %benoetigt um Tiefe zu haben
968         \hrule \@height\dp\strutbox \@width\z@
969         \unvbox\mdf@splitbox@one}
970     \splittopskip\mdf@splittopskip@length%
971     \mdf@ignorevbadness%
972     \setbox\mdf@splitbox@two\vsplit\mdf@splitbox@one to \dimen@i
973     \setbox\mdf@splitbox@two\vbox{\unvbox\mdf@splitbox@two}%
974     \setbox\mdf@splitbox@one\vbox{\unvbox\mdf@splitbox@one}%
975     \ifdimgreater{\ht\mdf@splitbox@two+\dp\mdf@splitbox@two}{\dimen@}%
976     {%
977         \splittopskip\z@\mdf@ignorevbadness%
978         \setbox\mdf@splitbox@one\vbox{\unvbox\mdf@splitbox@two%
979             %benoetigt um Tiefe zu haben
980             \hrule \@height\dp\strutbox \@width\z@
981             \unvbox\mdf@splitbox@one}%
982         \mdf@ignorevbadness%
983         \setbox\mdf@splitbox@one\vbox{\unvbox\mdf@splitbox@one}%
984     }{}%
985 \ifbool{mdf@repeatframetitle}{%
986     \setbox\mdf@splitbox@one\vbox{%
987         \vbox to \mdf@splittopskip@length{\hsize\z@}
988         %\par\unskip\nointerlineskip
989         \unvcopy\mdf@frametitlebox%
990         \mdf@@frametitlerule%
991         \vbox to\dimexpr
992             -\mdf@splittopskip@length+\ht\strutbox+\dp\strutbox
993             +\mdf@innertopmargin@length\relax{\hsize\z@}%

```

```

994          \unvbox\mdf@splitbox@one}%
995      }{}%
996  }{}%
997  \ifvoid\mdf@splitbox@one
998      \mdf@PackageWarning{You got a bad break\MessageBreak
999          because the splittet box is empty\MessageBreak
1000          You have to change the page settings\MessageBreak
1001          like enlargethispage or something else}%
1002      \setbox\mdf@splitbox@one\vbox{\unvbox\mdf@splitbox@two%
1003          %benoetigt um Tiefe zu haben
1004          \hrule \@height\dp\strutbox \@width\z@
1005          \unvbox\mdf@splitbox@one}%
1006      \setbox\mdf@splitbox@one\vbox{\unvbox\mdf@splitbox@one}%
1007      \enlargethispage{\baselineskip}%
1008      \def\mdf@reserved@a{\mdf@put@frame}%
1009  \fi
1010  \ifvoid\mdf@splitbox@two%pruefe, ob erste Box leer ist
1011      \hrule \@height\z@ \@width\hsize
1012      \vfill\eject%
1013      \def\mdf@reserved@a{\mdf@put@frame}%
1014  \else
1015      \ifdimequal{\ht\mdf@splitbox@two}{0pt}%
1016          {\hrule \@height\z@ \@width\hsize%
1017              \vfill\eject%
1018              \setbox\mdf@splitbox@one\vbox{\unvbox\mdf@splitbox@two\unvbox\mdf@splitbox@one}
1019              \def\mdf@reserved@a{\mdf@put@frame}%
1020              }%
1021          {%
1022              \begingroup%
1023                  \mdf@setzref
1024                  \mdf@putbox@first%%Groesse des Splittens passt
1025              \endgroup%
1026              \hrule \@height\z@ \@width\hsize%
1027              \vfill\eject%
1028              \def\mdf@reserved@a{\mdf@put@frame@ii}%
1029              }%
1030      \fi%
1031  }%
1032  \mdf@reserved@a%
1033  }

```

`\mdf@put@frame@ii`

Output of the middle and last box.

```

1034 \def\mdf@put@frame@ii{%Ausgabe der mittleren Box(en) wenn vorhanden
1035     \setlength{\mdf@freevspace@length}{\vsize}%
1036     \setlength{\dimen@}{\dimexpr\ht\mdf@splitbox@one+\dp\mdf@splitbox@one\relax}%
1037     \mdf@dolist{\mdf@advance@length@freevspace@add}{%used \dimen@
1038         outerlinewidth,middlelinewidth,innerlinewidth,%
1039         innerbottommargin}%%Addition der Linien unten
1040     \ifbool{mdf@bottomline}{}%
1041         \advance\dimen@i by \mdf@innerlinewidth@length%
1042         \advance\dimen@i by \mdf@middlelinewidth@length%
1043         \advance\dimen@i by \mdf@outerlinewidth@length%
1044     \relax}%

```

```

1045 \ifdimgreater{\dimen@}{\mdf@freevspace@length}%
1046 {%
1047 \advance\mdf@freevspace@length by -\mdf@splitbottomskip@length\relax%
1048 \ifbool{mdf@bottomline}{}%
1049     \advance\dimen@i by -\mdf@innerlinewidth@length%
1050     \advance\dimen@i by -\mdf@middlelinewidth@length%
1051     \advance\dimen@i by -\mdf@outerlinewidth@length%
1052 \relax}%
1053 \splitmaxdepth\z@ \splittopskip\mdf@splittopskip@length%
1054 \mdf@ignorevbadness%
1055 \setbox\mdf@splitbox@two\vsplit\mdf@splitbox@one to \mdf@freevspace@length%
1056 \setbox\mdf@splitbox@two\vbox{\unvbox\mdf@splitbox@two}%PRUEFEN!!!
1057 \setbox\mdf@splitbox@one\vbox{\unvbox\mdf@splitbox@one}%PRUEFEN!!!
1058 \ifbool{mdf@repeatframetitle}{%
1059     \setbox\mdf@splitbox@one\vbox{%
1060         \vbox to \mdf@splittopskip@length{\hsize\z@}
1061         %\par\unskip\nointerlineskip
1062         \unvcopy\mdf@frametitlebox%
1063         \mdf@@frametitlerule%
1064         \vbox to\dimexpr
1065             -\mdf@splittopskip@length+\ht\strutbox+\dp\strutbox
1066             +\mdf@innertopmargin@length\relax{\hsize\z@}%
1067         \unvbox\mdf@splitbox@one}%
1068     }{}%
1069 \ifvoid\mdf@splitbox@one\relax%
1070     \mdf@PackageWarning{You got a bad break\MessageBreak
1071         because the split box is empty\MessageBreak
1072         You have to change the settings}%
1073     \setbox\mdf@splitbox@one{\unvbox\mdf@splitbox@two}%
1074     \def\mdf@reserved@a{\enlargethispage{\baselineskip}\mdf@put@frame@ii}%
1075 \else
1076     \begingroup
1077     \mdf@@setzref
1078     \mdf@putbox@middle%
1079 \endgroup
1080 \hrule \@height\z@ \@width\hsize
1081 \vfill\eject
1082 \def\mdf@reserved@a{\mdf@put@frame@ii}%
1083 \fi
1084 }%Hier die Ausgabe der mittleren Box
1085 {\ifvoid\mdf@splitbox@one
1086     \mdf@PackageWarning{You got a bad break\MessageBreak
1087         because the last split box is empty\MessageBreak
1088         You have to change the settings}%
1089     \setbox\mdf@splitbox@one\vbox{\unvbox\mdf@splitbox@one\hrule \@height\z@ \@width\mdfbounding
1090 \fi%
1091 \ifdimless{\ht\mdf@splitbox@one}{1sp}{%
1092     \mdf@PackageWarning{You got a bad break\MessageBreak
1093         because the last split box is empty\MessageBreak
1094         You have to change the settings}%
1095     %\hb@xt@\z@{\box\mdf@splitbox@one}%
1096     \let\mdf@reserved@a\relax%
1097     \setbox\mdf@splitbox@one\vbox{\unvbox\mdf@splitbox@one\hrule \@height\z@ \@width\mdfboundin
1098 }{}%
1099 \begingroup%
1100 \mdf@@setzref

```

```

1101         \mdf@putbox@second%
1102         \hrule \@height\z@ \@width\hsize%
1103         \endgroup%
1104         \let\mdf@reserved@a\relax%
1105     }%Hier kommt die Ausgabe der letzten Box
1106 \mdf@reserved@a%
1107 }
1108

```

```

\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.

```

1109 %%%      -----t-----
1110 %%%      |               |
1111 %%%      |               |
1112 %%%      |               |
1113 %%%      l|               |r
1114 %%%      |               |
1115 %%%      |               |
1116 %%%      |-----|
1117 %%%      b
1118 %%Zusammenhaenge abfragen:
1119 \newrobustcmd*\mdf@test@lrb{%
1120     \ifboolexpr{ (bool {mdf@topline}) and (bool {mdf@bottomline})
1121                 and (bool {mdf@leftline}) and (bool {mdf@rightline})}}
1122 %3-set
1123 \newrobustcmd*\mdf@test@ltr{%
1124     \ifboolexpr{ (bool {mdf@topline}) and not (bool {mdf@bottomline})
1125                 and (bool {mdf@leftline}) and (bool {mdf@rightline})}}
1126 \newrobustcmd*\mdf@test@ltb{%
1127     \ifboolexpr{ (bool {mdf@topline}) and (bool {mdf@bottomline})
1128                 and (bool {mdf@leftline}) and not (bool {mdf@rightline})}}
1129 \newrobustcmd*\mdf@test@trb{%
1130     \ifboolexpr{ (bool {mdf@topline}) and (bool {mdf@bottomline})
1131                 and not (bool {mdf@leftline}) and (bool {mdf@rightline})}}
1132 \newrobustcmd*\mdf@test@lrb{%
1133     \ifboolexpr{ not (bool {mdf@topline}) and (bool {mdf@bottomline})
1134                 and (bool {mdf@leftline}) and (bool {mdf@rightline})}}
1135 %2-set
1136 \newrobustcmd*\mdf@test@lb{%
1137     \ifboolexpr{ not (bool {mdf@topline}) and (bool {mdf@bottomline})

```

```

1138         and (bool {mdf@leftline}) and not (bool {mdf@rightline}}})
1139 \newrobustcmd*{mdf@test@rb}%
1140     \ifboolexpr{ not (bool {mdf@topline}) and (bool {mdf@bottomline})
1141         and not (bool {mdf@leftline}) and (bool {mdf@rightline}}})
1142 \newrobustcmd*{mdf@test@tr}%
1143     \ifboolexpr{ (bool {mdf@topline}) and not (bool {mdf@bottomline})
1144         and not (bool {mdf@leftline}) and (bool {mdf@rightline}}})
1145 \newrobustcmd*{mdf@test@lt}%
1146     \ifboolexpr{ (bool {mdf@topline}) and not (bool {mdf@bottomline})
1147         and (bool {mdf@leftline}) and not (bool {mdf@rightline}}})
1148 \newrobustcmd*{mdf@test@lr}%
1149     \ifboolexpr{not (bool {mdf@topline}) and not (bool {mdf@bottomline})
1150         and (bool {mdf@leftline}) and (bool {mdf@rightline}}})
1151 \newrobustcmd*{mdf@test@tb}%
1152     \ifboolexpr{ (bool {mdf@topline}) and (bool {mdf@bottomline})
1153         and not (bool {mdf@leftline}) and not (bool {mdf@rightline}}})
1154 %Einzellinien
1155 \newrobustcmd*{mdf@test@l}%
1156     \ifboolexpr{ not (bool {mdf@topline}) and not (bool {mdf@bottomline})
1157         and (bool {mdf@leftline}) and not (bool {mdf@rightline}}})
1158 \newrobustcmd*{mdf@test@r}%
1159     \ifboolexpr{ not (bool {mdf@topline}) and not (bool {mdf@bottomline})
1160         and not (bool {mdf@leftline}) and (bool {mdf@rightline}}})
1161 \newrobustcmd*{mdf@test@t}%
1162     \ifboolexpr{ (bool {mdf@topline}) and not (bool {mdf@bottomline})
1163         and not (bool {mdf@leftline}) and not (bool {mdf@rightline}}})
1164 \newrobustcmd*{mdf@test@b}%
1165     \ifboolexpr{ not (bool {mdf@topline}) and (bool {mdf@bottomline})
1166         and not (bool {mdf@leftline}) and not (bool {mdf@rightline}}})
1167 %keine Linien
1168 \newrobustcmd*{mdf@test@noline}%
1169     \ifboolexpr{ not (bool {mdf@topline}) and not (bool {mdf@bottomline})
1170         and not (bool {mdf@leftline}) and not (bool {mdf@rightline}}})
1171 \newrobustcmd*{mdf@test@single}%
1172     \ifboolexpr{ not (test {\mdf@test@ltrb} or test {\mdf@test@ltr} or
1173         test {\mdf@test@ltb} or test {\mdf@test@trb} or
1174         test {\mdf@test@lrb} or test {\mdf@test@lb} or
1175         test {\mdf@test@rb} or test {\mdf@test@tr} or
1176         test {\mdf@test@lt} ) }}
1177 %

1178 \DisableKeyvalOption[action=warning,package=mdframed]{mdf}{framemethod}%
1179 \DisableKeyvalOption[action=warning,package=mdframed]{mdf}{xcolor}%
1180
1181 \endinput

```

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

```

1182 %% Style file for mdframed for package option 'framemethod=default'
1183 %%
1184 %% This package may be distributed under the terms of the LaTeX Project
1185 %% Public License, as described in lppl.txt in the base LaTeX distribution.
1186 %% Either version 1.0 or, at your option, any later version.
1187 %%
1188 %%
1189 %%$Id: mdframed.dtx 352 2012-03-12 19:53:51Z marco $

```

1190 %

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

local settings

```
1191 \def\mdframed0packagename{md-frame-0}
1192 \def\mdf@frame0date@svn$#1: #2 #3 #4-#5-#6 #7 #8$#{#4/#5/#6\space }
1193 \ProvidesFile{md-frame-0.mdf}%
1194 [\mdf@frame0date@svn$Id: mdframed.dtx 352 2012-03-12 19:53:51Z marco $%
1195 \mdversion: \mdframed0packagename]
```

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

short command

```
1196 \def\mdf@background@default{\color{\mdf@backgroundcolor}}
1197 \def\mdf@frametitlebackground@default{\color{\mdf@frametitlebackgroundcolor}}
1198 \def\mdf@shadow@default{\color{\mdf@shadowcolor}}
1199 \def\mdf@innerlinecolor@default{\color{\mdf@innerlinecolor}}
1200 \def\mdf@middlelinecolor@default{\color{\mdf@middlelinecolor}}
1201 \def\mdf@outerlinecolor@default{\color{\mdf@outerlinecolor}}
1202 \def\mdf@frametitlerulecolor@default{\color{\mdf@frametitlerulecolor}}
1203 \let\mdf@linecolor@default\mdf@middlelinecolor@default
1204 \def\mdf@@frametitlerule{%
1205   \ifbool{mdf@frametitlerule}{%
1206     \vbox to \mdf@frametitlerulewidth@length {\hsize\mdfframetitleboxwidth%
1207       \par\unskip\vskip\mdf@frametitlebelowskip@length%
1208       \rlap{\noindent\hspace*{-\mdf@innerleftmargin@length}%
1209         \mdf@frametitlerulecolor@default%
1210         \rule{\dimexpr\mdfframetitleboxwidth%
1211           +\mdf@innerleftmargin@length
1212           +\mdf@innerrightmargin@length\relax
1213           }{\mdf@frametitlerulewidth@length}%
1214         }}%
1215   }{}
1216   \par\unskip\vskip\mdf@innertopmargin@length%
1217 }%
1218
```

```
\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

```
1219 \def\mdf@frame@background@single{%
1220   \ifbool{mdf@shadow}{%
1221     \rlap{\smash{\mdf@shadow@default%
1222       \rule{\dimexpr-\mdf@boundingboxdepth
1223         -\mdf@shadowsize@length
1224         \ifbool{mdf@bottomline}{-\mdf@middlelinewidth@length}{}}\relax}%
1225   }
```

```

1225         {\dimexpr\mdfboundingboxtotalwidth
1226             +\mdf@shadowsize@length
1227             \ifbool{mdf@rightline}{+\mdf@middlelinewidth@length}}{\relax}%
1228         {\dimexpr\mdfboundingboxtotalheight
1229             +\mdf@shadowsize@length
1230             \ifbool{mdf@bottomline}{+\mdf@middlelinewidth@length}}{\relax}%
1231     }%
1232 }}{%
1233 \rlap{\mdf@background@default%
1234     \rule[-\mdfboundingboxdepth]%
1235         {\mdfboundingboxtotalwidth}%
1236         {\mdfboundingboxtotalheight}%
1237     }%
1238 }%
1239 \def\mdf@frame@frametitlebackground@single{%
1240 \rlap{\mdf@frametitlebackground@default%
1241     \rule[\dimexpr-\mdfboundingboxdepth+\mdfboundingboxtotalheight-\mdfframetitleboxtotalheight\relax]
1242         {\mdfboundingboxtotalwidth}%
1243         {\mdfframetitleboxtotalheight}%
1244     }%
1245 }%
1246
1247 \def\mdf@frame@topline@single{%
1248 \rlap{\mdf@linecolor@default%
1249     \ifbool{mdf@topline}{%
1250         \rule[\dimexpr\mdfboundingboxheight-\mdfboundingboxdepth%
1251             +\mdf@innerbottommargin@length+\mdf@innertopmargin@length\relax]%
1252             {\mdfboundingboxtotalwidth}%
1253             {\mdf@middlelinewidth@length}}%
1254     }%
1255 }%
1256 }%
1257 \def\mdf@frame@bottomline@single{%
1258 \rlap{\ifbool{mdf@leftline}{\hspace*{-\mdf@middlelinewidth@length}}{\mdf@linecolor@default%
1259     \ifbool{mdf@bottomline}{%
1260         \rule[\dimexpr-\mdfboundingboxdepth-\mdf@middlelinewidth@length\relax]%
1261             {\dimexpr\mdfboundingboxtotalwidth
1262                 \ifbool{mdf@rightline}{+\mdf@middlelinewidth@length}}%
1263                 \ifbool{mdf@leftline}{+\mdf@middlelinewidth@length}}{\relax}%
1264             {\mdf@middlelinewidth@length}}%
1265     }%
1266 }%
1267 }%
1268 \def\mdf@frame@leftline@single{%
1269 \llap{\mdf@linecolor@default%
1270     \rule[-\mdfboundingboxdepth]%
1271         {\mdf@middlelinewidth@length}%
1272         {\dimexpr\mdfboundingboxtotalheight%
1273             \ifbool{mdf@topline}{+\mdf@middlelinewidth@length}}{\relax}%
1274     }%
1275 }%
1276 \def\mdf@frame@rightline@single{%
1277 \rlap{\mdf@linecolor@default%
1278     \hspace*{\mdfboundingboxwidth}%
1279     \hspace*{\mdf@innerrightmargin@length}%
1280     \rule[\dimexpr-\mdfboundingboxdepth%

```



```

1281         \relax}%
1282         {\mdf@middlelinewidth@length}%
1283         {\dimexpr\mdfboundingboxtotalheight%
1284          +\ifbool{mdf@topline}{\mdf@middlelinewidth@length}{0pt}\relax}%
1285     }%
1286 }%
1287 \def\mdf@putbox@single{%%%% Ausgabe der ungesplitteten Gesamtbox
1288 \ifvoid\mdf@splitbox@one
1289 \else%
1290     \mdf@makebox@out{%
1291         \mdf@makeboxalign@left%
1292         \setlength{\mdfboundingboxwidth}%
1293             {\wd\mdf@splitbox@one}%
1294         \setlength{\mdfboundingboxtotalwidth}%
1295             {\dimexpr\mdfboundingboxwidth+\mdf@innerleftmargin@length%
1296              +\mdf@innerrightmargin@length\relax}%
1297         \setlength{\mdfboundingboxheight}%
1298             {\dimexpr\ht\mdf@splitbox@one+\dp\mdf@splitbox@one\relax}%
1299         \setlength{\mdfboundingboxdepth}%
1300             {\dimexpr\dp\mdf@splitbox@one+\mdf@innerbottommargin@length\relax}%
1301         \setlength{\mdfboundingboxtotalheight}%
1302             {\dimexpr\mdfboundingboxheight+\mdf@innertopmargin@length%
1303              +\mdf@innerbottommargin@length\relax}%
1304         \setlength{\mdftotalllinewidth}{%
1305             \dimexpr\mdf@innerlinewidth@length+\mdf@middlelinewidth@length%
1306             +\mdf@outerlinewidth@length}%
1307         \noindent%
1308         \setlength{\@tempdima}{\dimexpr\mdfboundingboxtotalwidth%
1309             +\ifbool{mdf@leftline}%
1310                 {\mdf@middlelinewidth@length}{\z@}%
1311             +\ifbool{mdf@rightline}%
1312                 {\mdf@middlelinewidth@length}{\z@}\relax}%
1313         \mdf@makebox@in[\@tempdima]{%
1314             \null%
1315             \ifbool{mdf@leftline}{%
1316                 \hspace*{\mdftotalllinewidth}%
1317                 \mdf@frame@leftline@single%
1318             }{}%
1319             \mdf@frame@topline@single%
1320             \mdf@frame@background@single%
1321             \mdf@frame@bottomline@single%
1322             \ifdefempty{\mdf@frametitle}{\mdf@frame@frametitlebackground@single}%
1323             \hspace*{\mdf@innerleftmargin@length}%
1324             \ifbool{mdf@rightline}{%
1325                 \mdf@frame@rightline@single%
1326             }{}%
1327             {\box\mdf@splitbox@one}%
1328         }%
1329         \mdf@makeboxalign@right%
1330     }%
1331 \fi%
1332 }

```

```

\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

```

1333 \def\mdf@frame@background@first{%
1334   \ifbool{mdf@shadow}{%
1335     \rlap{\smash{\mdf@shadow@default%
1336       \rule[\dimexpr-\mdfboundingboxdepth
1337         -\mdf@shadowsize@length\relax]%
1338         {\dimexpr\mdfboundingboxtotalwidth
1339           +\mdf@shadowsize@length
1340             \ifbool{mdf@rightline}{+\mdf@middlelinewidth@length}{}\relax}%
1341         {\dimexpr\mdfboundingboxtotalheight
1342           +\mdf@shadowsize@length\relax}%
1343       }}}%
1344   }}}%
1345   \rlap{\mdf@background@default%
1346     \rule[-\mdfboundingboxdepth]%
1347       {\mdfboundingboxtotalwidth}%
1348       {\mdfboundingboxtotalheight}%
1349   }%
1350 }%
1351 \def\mdf@frame@frametitlebackground@first{%
1352   \ifdimless{\mdfframetitleboxtotalheight}{\mdfboundingboxtotalheight}%
1353   {%
1354     \rlap{\mdf@frametitlebackground@default%
1355       \rule[\dimexpr-\mdfboundingboxdepth+\mdfboundingboxtotalheight-\mdfframetitleboxtotalheight\relax]
1356         {\mdfboundingboxtotalwidth}%
1357         {\mdfframetitleboxtotalheight}%
1358       }%
1359     \global\mdfframetitleboxtotalheight=-\p@\relax%
1360   }\mdf@PackageWarning{You got a page break inside the frame title\MessageBreak
1361     Current this isn't well supported}%
1362   \rlap{\mdf@frametitlebackground@default%
1363     \rule[-\mdfboundingboxdepth]%
1364       {\mdfboundingboxtotalwidth}%
1365       {\mdfboundingboxtotalheight}%
1366   }%
1367   \global\mdfframetitleboxtotalheight=\dimexpr\mdfframetitleboxtotalheight
1368     -\mdfboundingboxheight
1369     +\mdf@frametitlebelowskip@length
1370     +.5\baselineskip-1pt
1371   %
1372     +\dp\strutbox
1373   \relax%
1374 }%
1375 \def\mdf@frame@leftline@first{%
1376   \llap{\mdf@linecolor@default%
1377     \rule[-\mdfboundingboxdepth]%
1378       {\mdf@middlelinewidth@length}%
1379       {\dimexpr\mdfboundingboxtotalheight%
1380         +\ifbool{mdf@topline}{\mdf@middlelinewidth@length}{0pt}\relax}%
1381   }%

```

```

1382 }%
1383 \def\mdf@frame@topline@first{%
1384   \rlap{\mdf@linecolor@default%
1385     \rule[\dimexpr\mdfboundingboxheight-\mdfboundingboxdepth+
1386       \mdf@splitbottomskip@length+\mdf@innertopmargin@length\relax]{%
1387         {\mdfboundingboxtotalwidth}%
1388         {\mdf@middlelinewidth@length}%
1389   }%
1390 }
1391 \def\mdf@frame@rightline@first{%
1392   \rlap{\mdf@linecolor@default\hspace*{\mdfboundingboxwidth}%
1393     \hspace*{\mdf@innerrightmargin@length}%
1394     \rule[-\mdfboundingboxdepth]{%
1395       {\mdf@middlelinewidth@length}%
1396       {\dimexpr\mdfboundingboxtotalheight%
1397         +\ifbool{mdf@topline}{\mdf@middlelinewidth@length}{0pt}\relax}%
1398   }%
1399 }%
1400 \def\mdf@putbox@first{%% %% Ausgabe der Teilbox 1
1401   \ifvoid\mdf@splitbox@two
1402   \else%
1403     \mdf@makebox@out[\linewidth]{%
1404       \mdf@makeboxalign@left%
1405       \setlength{\mdfboundingboxwidth}{\wd\mdf@splitbox@two}%
1406       \setlength{\mdfboundingboxtotalwidth}%
1407         {\dimexpr\mdfboundingboxwidth+\mdf@innerleftmargin@length%
1408           +\mdf@innerrightmargin@length\relax}%
1409       \setlength{\mdfboundingboxheight}{\dimexpr\ht\mdf@splitbox@two+\dp\mdf@splitbox@two\relax}%
1410       \setlength{\mdfboundingboxdepth}%
1411         {\dimexpr\dp\mdf@splitbox@two+\mdf@splitbottomskip@length\relax}%
1412       \setlength{\mdfboundingboxtotalheight}%
1413         {\dimexpr\mdfboundingboxheight+\mdf@innertopmargin@length%
1414           +\mdf@splitbottomskip@length\relax}%
1415       \setlength{\@tempdima}%
1416         {\dimexpr\mdfboundingboxtotalwidth%
1417           +\ifbool{mdf@leftline}{\mdf@middlelinewidth@length}{\z@}%
1418           +\ifbool{mdf@rightline}{\mdf@middlelinewidth@length}{\z@}%
1419           \relax}%
1420       \mdf@makebox@in[\@tempdima]{%
1421         \null%
1422         \ifbool{mdf@leftline}{%
1423           \hspace*{\mdf@middlelinewidth@length}%
1424           \mdf@frame@leftline@first}{}%
1425         \ifbool{mdf@topline}{%
1426           \mdf@frame@topline@first}{}%
1427         \mdf@frame@background@first%
1428         \ifdefempty{\mdf@frametitle}{\mdf@frame@frametitlebackground@first}%
1429         \hspace*{\mdf@innerleftmargin@length}%
1430         \ifbool{mdf@rightline}{%
1431           \mdf@frame@rightline@first}{}%
1432         {\box\mdf@splitbox@two}%
1433       }%
1434       \mdf@makeboxalign@right%
1435     }%
1436   \fi%
1437 }

```

```

\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

```

1438 \def\mdf@frame@background@second{%
1439   \ifbool{mdf@shadow}{%
1440     \rlap{\smash{\mdf@shadow@default%
1441       \rule[\dimexpr-\mdfboundingboxdepth
1442         -\mdf@shadowsize@length
1443           \ifbool{mdf@bottomline}{-\mdf@middlelinewidth@length}{}\relax}%
1444         {\dimexpr\mdfboundingboxtotalwidth
1445           +\mdf@shadowsize@length
1446             \ifbool{mdf@rightline}{+\mdf@middlelinewidth@length}{}\relax}%
1447         {\dimexpr\mdfboundingboxtotalheight
1448           +\mdf@shadowsize@length\relax}%
1449     }%
1450   }{}%
1451   \rlap{\mdf@background@default%
1452     \rule[-\mdfboundingboxdepth]%
1453       {\mdfboundingboxtotalwidth}%
1454       {\mdfboundingboxtotalheight}%
1455   }%
1456 }%
1457 \def\mdf@frame@frametitlebackground@second{%
1458   \ifdimless{\mdfframetitleboxtotalheight}{\z@}%
1459   {%
1460     \rlap{\mdf@frametitlebackground@default%
1461       \rule[\dimexpr-\mdfboundingboxdepth+\mdfboundingboxtotalheight-\mdfframetitleboxtotalheight\relax]%
1462         {\mdfboundingboxtotalwidth}%
1463         {\mdfframetitleboxtotalheight}%
1464     }%
1465   }%
1466 }%
1467 \def\mdf@frame@leftline@second{%
1468   \llap{\mdf@linecolor@default%
1469     \rule[-\mdfboundingboxdepth]%
1470       {\mdf@middlelinewidth@length}%
1471       {\dimexpr\mdfboundingboxtotalheight}%
1472   }%
1473 }%
1474 \def\mdf@frame@bottomline@second{%
1475   \rlap{\ifbool{mdf@leftline}{\hspace*{-\mdf@middlelinewidth@length}}{\mdf@linecolor@default%
1476     \rule[\dimexpr-\mdfboundingboxdepth-\mdf@middlelinewidth@length\relax]%
1477       {\dimexpr\mdfboundingboxtotalwidth
1478         \ifbool{mdf@rightline}{+\mdf@middlelinewidth@length}{%
1479           \ifbool{mdf@leftline}{+\mdf@middlelinewidth@length}{}\relax}%
1480       {\mdf@middlelinewidth@length}%
1481   }%
1482 }%
1483 \def\mdf@frame@rightline@second{%
1484   \rlap{\mdf@linecolor@default\hspace*{\mdfboundingboxwidth}%
1485     \hspace*{\mdf@innerrightmargin@length}%
1486     \rule[-\mdfboundingboxdepth]%

```

```

1487         {\mdf@middlelinewidth@length}%
1488         {\mdfboundingboxtotalheight}%
1489     }%
1490 }%
1491 \def\mdf@putbox@second{%
1492     \ifvoid\mdf@splitbox@one%
1493     \else
1494         \mdf@makebox@out{%
1495             \mdf@makeboxalign@left%
1496             \setlength{\mdfboundingboxwidth}{\wd\mdf@splitbox@one}%
1497             \setlength{\mdfboundingboxtotalwidth}%
1498                 {\dimexpr\mdfboundingboxwidth+\mdf@innerleftmargin@length%
1499                     +\mdf@innerrightmargin@length\relax}%
1500             \setlength{\mdfboundingboxheight}{\dimexpr\ht\mdf@splitbox@one+\dp\mdf@splitbox@one\relax}%
1501             \setlength{\mdfboundingboxdepth}%
1502                 {\dimexpr\dp\mdf@splitbox@one+\mdf@innerbottommargin@length\relax}%
1503             \setlength{\mdfboundingboxtotalheight}%
1504                 {\dimexpr\mdfboundingboxheight+\mdf@innerbottommargin@length\relax}%
1505             \setlength{\@tempdima}{\dimexpr\mdfboundingboxtotalwidth%
1506                 +\ifbool{mdf@leftline}{\mdf@middlelinewidth@length}{\z@}%
1507                 +\ifbool{mdf@rightline}{\mdf@middlelinewidth@length}{\z@}%
1508                 \relax}%
1509             \mdf@makebox@in[\@tempdima]{%
1510                 \null%
1511                 \ifbool{mdf@leftline}{%
1512                     \hspace*{\mdf@middlelinewidth@length}%
1513                     \mdf@frame@leftline@second}{}%
1514                 \mdf@frame@background@second%
1515                 \ifbool{mdf@bottomline}{%
1516                     \mdf@frame@bottomline@second}{}%
1517                 \ifdefempty{\mdf@frametitle}{\mdf@frame@frametitlebackground@second}%
1518                 \hspace*{\mdf@innerleftmargin@length}%
1519                 \ifbool{mdf@rightline}{%
1520                     \mdf@frame@rightline@second}{}%
1521                 {\box\mdf@splitbox@one}%
1522             }%
1523             \mdf@makeboxalign@right%
1524         }%
1525     \fi%
1526 }%

```

```

\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

```

1527 \def\mdf@frame@leftline@middle{%
1528     \llap{\mdf@linecolor@default%
1529         \rule[-\mdfboundingboxdepth]%
1530             {\mdf@middlelinewidth@length}%
1531             {\mdfboundingboxtotalheight}%
1532     }%
1533 }%
1534 \def\mdf@frame@background@middle{%

```

```

1535 \ifbool{mdf@shadow}{%
1536   \rlap{\smash{\mdf@shadow@default%
1537     \rule[\dimexpr-\mdfboundingboxdepth
1538       -\mdf@shadowsize@length\relax]%
1539       {\dimexpr\mdfboundingboxtotalwidth
1540         +\mdf@shadowsize@length
1541         \ifbool{mdf@rightline}{+\mdf@middlelinewidth@length}{}\relax}%
1542       {\dimexpr\mdfboundingboxtotalheight\relax}%
1543     }%
1544   }}{%
1545   \rlap{\mdf@background@default%
1546     \rule[-\mdfboundingboxdepth]%
1547       {\mdfboundingboxtotalwidth}%
1548       {\mdfboundingboxtotalheight}%
1549   }%
1550 }%
1551 \def\mdf@frame@frametitlebackground@middle{%
1552 \ifdimless{\mdfframetitleboxtotalheight}{\z@}%
1553   {%
1554   {\rlap{\mdf@frametitlebackground@default%
1555     \rule[\dimexpr-\mdfboundingboxdepth+\mdfboundingboxtotalheight-\mdfframetitleboxtotalheight\relax]
1556       {\mdfboundingboxtotalwidth}%
1557       {\mdfframetitleboxtotalheight}%
1558     }%
1559     \global\mdfframetitleboxtotalheight=-\p@ \relax%
1560   }%
1561 }%
1562 \def\mdf@frame@rightline@middle{%
1563 \rlap{\mdf@linecolor@default\hspace*{\mdfboundingboxwidth}%
1564   \hspace*{\mdf@innerrightmargin@length}%
1565   \rule[-\mdfboundingboxdepth]%
1566     {\mdf@middlelinewidth@length}%
1567     {\mdfboundingboxtotalheight}%
1568 }%
1569 }%
1570 \def\mdf@putbox@middle{%
1571 \ifvoid\mdf@splitbox@two%
1572 \else
1573   \mdf@makebox@out{%
1574     \mdf@makeboxalign@left%
1575     \setlength{\mdfboundingboxwidth}{\wd\mdf@splitbox@two}%
1576     \setlength{\mdfboundingboxtotalwidth}%
1577       {\dimexpr\mdfboundingboxwidth+\mdf@innerleftmargin@length%
1578         +\mdf@innerrightmargin@length\relax}%
1579     \setlength{\mdfboundingboxheight}{\dimexpr\ht\mdf@splitbox@two+\dp\mdf@splitbox@two\relax}%
1580     \setlength{\mdfboundingboxdepth}%
1581       {\dimexpr\dp\mdf@splitbox@two+\mdf@splitbottomskip@length\relax}%
1582     \setlength{\mdfboundingboxtotalheight}%
1583       {\dimexpr\mdfboundingboxheight+\mdf@splitbottomskip@length\relax}%
1584     \setlength{\@tempdima}{\dimexpr\mdfboundingboxtotalwidth%
1585       +\ifbool{mdf@leftline}{\mdf@middlelinewidth@length}{\z@}%
1586       +\ifbool{mdf@rightline}{\mdf@middlelinewidth@length}{\z@}%
1587     \relax}%
1588     \mdf@makebox@in[\@tempdima]{%
1589       \null%
1590       \ifbool{mdf@leftline}{%

```

```

1591         \hspace*{\mdf@middlelinewidth@length}%
1592         \mdf@frame@leftline@middle}{}%
1593         \mdf@frame@background@middle%
1594         \ifdefempty{\mdf@frametitle}{\mdf@frame@frametitlebackground@middle}%
1595         \hspace*{\mdf@innerleftmargin@length}%
1596         \ifbool{mdf@rightline}{%
1597             \mdf@frame@rightline@middle}{}%
1598             {\box\mdf@splitbox@two}%
1599     }%
1600     \mdf@makeboxalign@right%
1601 }
1602 \fi%
1603 }

1604 \endinput

```

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

```

1605 %% Style file for mdframed for package option 'framemethod=default'
1606 %%
1607 %% This package may be distributed under the terms of the LaTeX Project
1608 %% Public License, as described in lppl.txt in the base LaTeX distribution.
1609 %% Either version 1.0 or, at your option, any later version.
1610 %%
1611 %%
1612 %%$Id: mdframed.dtx 352 2012-03-12 19:53:51Z marco $
1613 %

```

```

\mdframedIpackagename
\mdf@frameIdate@svn

```

local settings

```

1614 \def\mdframedIpackagename{md-frame-1}
1615 \def\mdf@frameIdate@svn$#1: #2 #3 #4-#5-#6 #7 #8${#4/#5/#6\space }
1616 \ProvidesFile{md-frame-1.mdf}%
1617     [\mdf@frameIdate@svn$Id: mdframed.dtx 352 2012-03-12 19:53:51Z marco $ %
1618         \mdversion: \mdframedIpackagename]
1619 %

```

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

Define settings for tikz

```

1620 %Allgemeine Einstellungen fuer tikz
1621 \def\mdf@tikz@settings{%
1622 %
1623     \tikzset{mdfbox/.style={anchor=south west,%
1624                             inner sep=0pt,%
1625                             outer sep=0pt,%
1626                             \mdf@fontcolor,}}% anchor der Ausgabebox ist unten links
1627     \tikzset{mdfcorners/.style={rounded corners=\mdf@roundcorner@length}}%
1628     \tikzset{mdfbackground/.style={fill=\mdf@backgroundcolor,%
1629                                     draw=\mdf@backgroundcolor}}%
1630     \tikzset{mdfframetitlebackground/.style={fill=\mdf@frametitlebackgroundcolor,%
1631                                                draw=none,%
1632                                                rounded corners={max(\mdf@roundcorner@length%

```

```

1633                                     -\mdf@innerlinewidth@length%
1634                                     -.5\mdf@middlelinewidth@length,0)}}}%
1635 %
1636 \tikzset{mdfouterline/.style={}}%
1637 % nur wenn outerlinewidth>0 wird aussere Linie gezeichnet
1638 \ifdimgreater{\mdf@outerlinewidth@length}{\z@}
1639     {\tikzset{mdfouterline/.append style={%
1640         draw=\mdf@outerlinecolor,%
1641         line width=2\mdf@outerlinewidth@length+\mdf@middlelinewidth@length}}}%
1642 %
1643 \tikzset{mdfinnerline/.style={}}%
1644 % nur wenn innerlinewidth>0 wird innere Linie gezeichnet
1645 \ifdimgreater{\mdf@innerlinewidth@length}{\z@}
1646     {\tikzset{mdfinnerline/.append style={%
1647         draw=\mdf@innerlinecolor,%
1648         line width=2\mdf@innerlinewidth@length+\mdf@middlelinewidth@length}}}%
1649 %
1650 \tikzset{mdfshadow/.style={drop shadow={%
1651                                     shadow xshift=\mdf@shadowsize@length-2pt,
1652                                     shadow yshift=-\mdf@shadowsize@length+2pt,
1653                                     fill=\mdf@shadowcolor,
1654                                     every shadow }}}%
1655 %
1656 \mdf@tikzset@local
1657 \tikzset{mdfmiddleline/.style={}}%
1658 % nur wenn middlelinewidth>0 wird mittlere Linie gezeichnet
1659 \ifdimgreater{\mdf@middlelinewidth@length}{\z@}
1660     {\tikzset{mdfmiddleline/.append style={%
1661         preaction={draw=\mdf@middlelinecolor,%
1662                     line width=\mdf@middlelinewidth@length},%
1663         line width=\mdf@middlelinewidth@length,%
1664         tikzsetting}}}%
1665     }{}%
1666 }%

```

```

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

```

Befehle fuer Ausgabe von Rahmen und Hintergrund

```

1667 \newrobustcmd*\mdf@tikzbox@tfl[1]{%three or four borders
1668     \clip(0,0)rectangle(\mdfboundingboxwidth,\mdfboundingboxheight);%
1669     \begin{scope}[mdfcorners]%
1670         \clip[preaction=mdfouterline]%
1671             [postaction=mdfbackground]%
1672             [postaction=mdfinnerline]#1;%
1673     \end{scope}%
1674     \path[mdfmiddleline,mdfcorners]#1;
1675 }%
1676
1677
1678
1679 \newrobustcmd*\mdf@tikzbox@otl[2]{%one or two borders
1680     \clip(0,0)rectangle(\mdfboundingboxwidth,\mdfboundingboxheight);%
1681     \begin{scope}
1682         \path[mdfouterline,mdfcorners]#1;%

```



```

1683      \clip[postaction=mdfbackground]#2;%
1684      \path[mdfinnerline,mdfcorners]#1;%
1685  \end{scope}%
1686  \path[mdfmiddleline,mdfcorners]#1;%

```

\mdf@put@frametitlerule

frametitlerule with tikz

```

1687 \tikzset{mdfframetitlerule/.style={%
1688   draw=none,
1689   fill=\mdf@frametitlerulecolor,
1690 }%
1691 }
1692 \def\mdf@@@frametitlerule{%
1693   \ifbool{mdf@frametitlerule}{%
1694     \vbox{\hsize0pt
1695       \par\unskip\vskip\mdf@frametitlebelowskip@length
1696       \noindent\rlap{\hspace*{-\mdf@innerleftmargin@length}%
1697       \begingroup%
1698       \pgfmathsetlength{\dimen@}{\mdfframetitleboxwidth+\mdf@innerleftmargin@length+\mdf@innerrightmargin@length}%
1699       \tikz\draw[mdfframetitlerule] (0,0)%
1700         rectangle (\dimen@,\mdf@frametitlerulewidth@length);
1701       \endgroup}
1702     }%
1703   }{}
1704   \par\unskip\vskip\mdf@innertopmargin@length%
1705 }%
1706

```

\mdf@putbox@single

Output of the non breakable contents.

```

1707 % Info zu den verwendeten Punkten:
1708 % O ist die untere linke Ecke der Mitte der middleline
1709 % P ist die obere rechte Ecke der Mitte der middleline
1710 % A ist der Punkt fuer den anchor (d.h. die untere linke Ecke) der Ausgabebox
1711 %
1712 \def\mdf@putbox@single{%
1713   \ifvoid\mdf@splitbox@one
1714   \else%
1715     \mdf@makebox@out{%
1716       \mdf@makeboxalign@left%
1717       \mdf@tikz@settings%
1718     }%
1719     \setlength\mdfboundingboxwidth{\wd\mdf@splitbox@one}%
1720     \advance\mdfboundingboxwidth by \mdf@innerleftmargin@length\relax%
1721     \advance\mdfboundingboxwidth by \mdf@innerrightmargin@length\relax%
1722     \ifbool{mdf@leftline}{%
1723       \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
1724       \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
1725       \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}{}%
1726     \ifbool{mdf@rightline}{%
1727       \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
1728       \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
1729       \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}{}%

```

```

1730 %
1731 \setlength\mdfboundingboxheight{\dimexpr\ht\mdf@splitbox@one+\dp\mdf@splitbox@one\relax}%
1732 \advance\mdfboundingboxheight by \mdf@innertopmargin@length\relax%
1733 \advance\mdfboundingboxheight by \mdf@innerbottommargin@length\relax%
1734 \ifbool{mdf@topline}{%
1735   \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
1736   \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
1737   \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}{}%
1738 \ifbool{mdf@bottomline}{%
1739   \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
1740   \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
1741   \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}{}%
1742 \mdf@makebox@in[\mdfboundingboxwidth]{%
1743 \null%
1744 \begin{tikzpicture}[remember picture]%
1745   \pgfmathsetlengthmacro\mdf@Ax{+\mdf@innerleftmargin@length}%
1746   \pgfmathsetlengthmacro\mdf@Ay{+\mdf@innerbottommargin@length}%
1747   \pgfmathsetlengthmacro\mdf@Ox{+0pt}%
1748   \pgfmathsetlengthmacro\mdf@Oy{+0pt}%
1749   \pgfmathsetlengthmacro\mdf@Px{+\mdfboundingboxwidth}%
1750   \pgfmathsetlengthmacro\mdf@Py{+\mdfboundingboxheight}%
1751   \ifbool{mdf@leftline}{%
1752     {%
1753       \pgfmathsetlengthmacro\mdf@Ax%
1754         {\mdf@Ax+\mdf@outerlinewidth@length+
1755          \mdf@middlelinewidth@length+\mdf@innerlinewidth@length}%
1756       \pgfmathsetlengthmacro\mdf@Ox%
1757         {\mdf@Ox+\mdf@outerlinewidth@length+0.5\mdf@middlelinewidth@length}%
1758     }%
1759   \ifbool{mdf@rightline}{%
1760     {%
1761       \pgfmathsetlengthmacro\mdf@Px%
1762         {\mdf@Px-\mdf@outerlinewidth@length-0.5\mdf@middlelinewidth@length}%
1763     }%
1764   \ifbool{mdf@bottomline}{%
1765     {%
1766       \pgfmathsetlengthmacro\mdf@Ay%
1767         {\mdf@Ay+\mdf@outerlinewidth@length+\mdf@middlelinewidth@length
1768          +\mdf@innerlinewidth@length}%
1769       \pgfmathsetlengthmacro\mdf@Oy%
1770         {\mdf@Oy+\mdf@outerlinewidth@length+0.5\mdf@middlelinewidth@length}%
1771     }%
1772   \ifbool{mdf@topline}{%
1773     {%
1774       \pgfmathsetlengthmacro\mdf@Py%
1775         {\mdf@Py-\mdf@outerlinewidth@length-0.5\mdf@middlelinewidth@length}%
1776     }%
1777 %
1778 \coordinate(0)at(\mdf@Ox,\mdf@Oy);%
1779 \coordinate(P)at(\mdf@Px,\mdf@Py);%
1780 %
1781 \ifbool{mdf@shadow}
1782   {\path[mdfshadow,mdfcorners](0) rectangle (P);}%
1783 %
1784 \begin{scope}[use as bounding box]
1785   \mdf@test@ltrb{\mdf@tikzbox@tfl{(0)--(0|-P)--(P)--(P|-0)--cycle)}}%

```

```

1786 %
1787 \mdf@test@ltb{\mdf@tikzbox@tfl{(P|-0)--(0)--(0|-P)--(P)}}{}%
1788 \mdf@test@trb{\mdf@tikzbox@tfl{(0|-P)--(P)--(P|-0)--(0)}}{}%
1789 \mdf@test@ltr{\mdf@tikzbox@tfl{(0)--(0|-P)--(P)--(P|-0)}}{}%
1790 \mdf@test@lrb{\mdf@tikzbox@tfl{(P|-0)--(0)--(0|-P)--(P)}}{}%
1791 %
1792 \mdf@test@lb{\mdf@tikzbox@otl{(P|-0)--(0)--(0|-P)}}%
1793 {(P)--(P|-0)[mdfcorners]--(0)--(0|-P)}%
1794 {}{}%
1795 \mdf@test@rb{\mdf@tikzbox@otl{(P)--(P|-0)--(0)}}%
1796 {(0|-P)--(P)[mdfcorners]--(P|-0)--(0)}%
1797 {}{}%
1798 \mdf@test@tr{\mdf@tikzbox@otl{(0|-P)--(P)--(P|-0)}}%
1799 {(0)--(0|-P)[mdfcorners]--(P)--(P|-0)}%
1800 {}{}%
1801 \mdf@test@lt{\mdf@tikzbox@otl{(0)--(0|-P)--(P)}}%
1802 {(P|-0)--(0)[mdfcorners]--(0|-P)--(P)}%
1803 {}{}%
1804 \mdf@test@lr{\mdf@tikzbox@otl{(0)--(0|-P)(P)--(P|-0)}}%
1805 {(0)rectangle(P)}%
1806 {}{}%
1807 \mdf@test@tb{\mdf@tikzbox@otl{(0)--(0|-P)(0|-P)--(P)}}%
1808 {(0)rectangle(P)}%
1809 {}{}%
1810 %
1811 \mdf@test@l{\mdf@tikzbox@otl{(0)--(0|-P)}}%
1812 {(0)rectangle(P)}%
1813 {}{}%
1814 \mdf@test@r{\mdf@tikzbox@otl{(0|-P)--(P)}}%
1815 {(0)rectangle(P)}%
1816 {}{}%
1817 \mdf@test@t{\mdf@tikzbox@otl{(0|-P)--(P)}}%
1818 {(0)rectangle(P)}%
1819 {}{}%
1820 \mdf@test@b{\mdf@tikzbox@otl{(0)--(0|-P)}}%
1821 {(0)rectangle(P)}%
1822 {}{}%
1823 %
1824 \mdf@test@noline{\path[mdfbackground,mdfcorners](0)rectangle(P);}{}%
1825 %
1826 %Frametitlebackground
1827 \drawbackgroundframetitle@single
1828 %
1829 \node[mdfbox]at(\mdf@Ax,\mdf@Ay){\box\mdf@splitbox@one};% Ausgabebox einfuegen
1830 \end{scope}
1831 %HIER KOMMT EIN WEITERES MAKRO
1832 \mdfcreateextratikz
1833 \end{tikzpicture}%
1834 }%
1835 \mdf@makeboxalign@right%
1836 }%
1837 \fi
1838 }%
1839 \def\drawbackgroundframetitle@single{%
1840 \ifdefempty{\mdf@frametitle}{}{}%
1841 \drawbackgroundframetitle@single%

```

```

1842 }%
1843 }%
1844 \def\drawbackgroundframetitle@@single{%
1845     \begin{scope}%background frame title
1846     \ifbool{mdf@leftline}{
1847         \pgfmathsetlengthmacro\mdf@0x%
1848             {\mdf@0x+\mdf@innerlinewidth@length+0.5\mdf@middlelinewidth@length}
1849     }{}%
1850     \ifbool{mdf@rightline}{%
1851         \pgfmathsetlengthmacro\mdf@Px%
1852             {\mdf@Px-\mdf@innerlinewidth@length-0.5\mdf@middlelinewidth@length}
1853     }{}%
1854     \ifbool{mdf@topline}{%
1855         \pgfmathsetlengthmacro\mdf@Py%
1856             {\mdf@Py-\mdf@innerlinewidth@length-0.5\mdf@middlelinewidth@length}
1857     }{}%
1858     \pgfmathsetlengthmacro\mdf@Fy
1859         {\mdf@Py-\mdfframetitleboxtotalheight}
1860     \path[mdfframetitlebackground]
1861         (\mdf@0x,\mdf@Fy) -- (\mdf@0x,\mdf@Py)%
1862         --(\mdf@Px,\mdf@Py) --(\mdf@Px,\mdf@Fy);
1863     \end{scope}
1864 }

```

`\mdf@putbox@first`

Output of the first breakable contents.

```

1865 \def\drawbackgroundframetitle@first{%
1866     \ifdefempty{\mdf@frametitle}{}{}%
1867     \ifdimgreater{\mdf@boundingboxheight}{\mdfframetitleboxtotalheight}%
1868     {%
1869         \drawbackgroundframetitle@@first
1870         \pgfmathsetlength{\global\mdfframetitleboxtotalheight}{-\p@}%
1871     }\mdf@PackageWarning{You got a page break inside the frame title\MessageBreak
1872         Currently this isn't well supported}%
1873     \drawbackgroundframetitle@@first
1874     \pgfmathsetlength{\global\mdfframetitleboxtotalheight}%
1875         {\mdfframetitleboxtotalheight-\mdf@boundingboxheight-
1876             \mdf@innerlinewidth@length-0.5\mdf@middlelinewidth@length%
1877             +\mdf@frametitlebelowskip@length+\mdf@splitbottomskip@length+\mdf@splittopskip@length%
1878             +\dp\strutbox%
1879         }%
1880 }%
1881 }%
1882 }%
1883 %
1884 \def\drawbackgroundframetitle@@first{%
1885     \begin{scope}%background frame title
1886     \ifbool{mdf@leftline}{%
1887         \pgfmathsetlengthmacro\mdf@0x%
1888             {\mdf@0x+\mdf@innerlinewidth@length+0.5\mdf@middlelinewidth@length}
1889     }{}%
1890     \ifbool{mdf@rightline}{%
1891         \pgfmathsetlengthmacro\mdf@Px%
1892             {\mdf@Px-\mdf@innerlinewidth@length-0.5\mdf@middlelinewidth@length}

```

```

1893     }{}%
1894     \ifbool{mdf@topline}{%
1895         \pgfmathsetlengthmacro\mdf@Py%
1896             {\mdf@Py-\mdf@innerlinewidth@length-0.5\mdf@middlelinewidth@length}
1897     }{}%
1898     \pgfmathsetlengthmacro\mdf@Fy
1899         {max(0,\mdf@Py-\mdfframetitleboxtotalheight)}
1900     \path[mdfframetitlebackground]
1901         (\mdf@0x,\mdf@Fy) -- (\mdf@0x,\mdf@Py)%
1902         --(\mdf@Px,\mdf@Py) --(\mdf@Px,\mdf@Fy);
1903     \end{scope}%
1904 }%
1905 %
1906 \def\mdf@putbox@first{%
1907     \ifvoid\mdf@splitbox@two
1908     \else%
1909         \mdf@makebox@out{%
1910             \mdf@makeboxalign@left%
1911             \mdf@tikz@settings%
1912             \setlength\mdfboundingboxwidth{\wd\mdf@splitbox@two}%
1913             \advance\mdfboundingboxwidth by \mdf@innerleftmargin@length\relax%
1914             \advance\mdfboundingboxwidth by \mdf@innerrightmargin@length\relax%
1915             \ifbool{mdf@leftline}{%
1916                 \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
1917                 \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
1918                 \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}%{}%
1919             \ifbool{mdf@rightline}{%
1920                 \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
1921                 \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
1922                 \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}%{}%
1923         }%
1924         \setlength\mdfboundingboxheight{\dimexpr\ht\mdf@splitbox@two+\dp\mdf@splitbox@two\relax}%
1925         \advance\mdfboundingboxheight by \mdf@innertopmargin@length\relax%
1926         \advance\mdfboundingboxheight by \mdf@splitbottomskip@length\relax%
1927         \ifbool{mdf@topline}{%
1928             \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
1929             \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
1930             \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}%{}%
1931     }%
1932     %\ifdimequal{\pagegoal}{\maxdimen}{\enlargethispage{\baselineskip}}{} ???
1933     \ifdimgreater{\pagegoal-\maxdimen}{0pt}{}{\enlargethispage{\baselineskip}}%
1934     \mdf@makebox@in[\mdfboundingboxwidth]{%
1935         \null%
1936         \begin{tikzpicture}[remember picture]
1937     %
1938         \pgfmathsetlengthmacro\mdf@Ax{+\mdf@innerleftmargin@length}%
1939         \pgfmathsetlengthmacro\mdf@Ay{+\mdf@splitbottomskip@length}%
1940         \pgfmathsetlengthmacro\mdf@0x{+0pt}%
1941         \pgfmathsetlengthmacro\mdf@0y{+0pt}%
1942         \pgfmathsetlengthmacro\mdf@Px{+\mdfboundingboxwidth}%
1943         \pgfmathsetlengthmacro\mdf@Py{+\mdfboundingboxheight}%
1944         \ifbool{mdf@leftline}
1945             {%
1946                 \pgfmathsetlengthmacro\mdf@Ax%
1947                     {\mdf@Ax+\mdf@outerlinewidth@length+%
1948                     \mdf@middlelinewidth@length+\mdf@innerlinewidth@length}%

```

```

1949     \pgfmathsetlengthmacro\mdf@0x%
1950         {\mdf@0x+\mdf@outerlinewidth@length+0.5\mdf@middlelinewidth@length}%
1951     }{}%
1952     \ifbool{mdf@rightline}{%
1953         \pgfmathsetlengthmacro\mdf@Px%
1954             {\mdf@Px-\mdf@outerlinewidth@length-0.5\mdf@middlelinewidth@length}%
1955         }{}%
1956     \ifbool{mdf@topline}{%
1957         \pgfmathsetlengthmacro\mdf@Py%
1958             {\mdf@Py-\mdf@outerlinewidth@length-0.5\mdf@middlelinewidth@length}%
1959         }{}%
1960 %
1961     \coordinate(0)at(\mdf@0x,\mdf@0y);%
1962     \coordinate(P)at(\mdf@Px,\mdf@Py);%
1963 %
1964     \ifbool{mdf@shadow}
1965         {\path[mdfshadow] (0) -- (0|-P) to[mdfcorners] (P) -- (P|-0) -- (0);}%
1966 %
1967     \begin{scope}[use as bounding box]
1968         \ifbool{test {\mdf@test@lrb} or test {\mdf@test@lrb}}%
1969             {\mdf@tikzbox@otl{(0) -- (0|-P) -- (P) -- (P|-0)}}%
1970         {}%
1971         \ifbool{test {\mdf@test@ltb} or test {\mdf@test@ltb}}%
1972             {\mdf@tikzbox@otl{(0) -- (0|-P) -- (P)}{(P|-0) -- (0)[mdfcorners] -- (0|-P) -- (P)}}%
1973         {}%
1974         \ifbool{test {\mdf@test@trb} or test {\mdf@test@trb}}%
1975             {\mdf@tikzbox@otl{(0|-P) -- (P) -- (P|-0)}{(0) -- (0|-P)[mdfcorners] -- (P) -- (P|-0)}}%
1976         {}%
1977         \ifbool{test {\mdf@test@lrb} or test {\mdf@test@lrb}}%
1978             {\mdf@tikzbox@otl{(0) -- (0|-P)(P) -- (P|-0)}{(0)rectangle(P)}}%
1979         {}%
1980         \ifbool{test {\mdf@test@tb} or test {\mdf@test@tb}}%
1981             {\mdf@tikzbox@otl{(0|-P) -- (P)}{(0)rectangle(P)}}%
1982         {}%
1983         \ifbool{test {\mdf@test@lb} or test {\mdf@test@lb}}%
1984             {\mdf@tikzbox@otl{(0) -- (0|-P)}{(0)rectangle(P)}}%
1985         {}%
1986         \ifbool{test {\mdf@test@rb} or test {\mdf@test@rb}}%
1987             {\mdf@tikzbox@otl{(0|-P) -- (P)}{(0)rectangle(P)}}%
1988         {}%
1989         \mdf@test@b{\path[mdfbackground](0)rectangle(P);}%
1990 %
1991         \mdf@test@noline{\path[mdfbackground,mdfcorners](0) -- (0|-P) -- (P) -- (P|-0);}%
1992 %
1993         \drawbrackgroundframetitle@first
1994 %
1995         \node[mdfbox]at(\mdf@Ax,\mdf@Ay){\box\mdf@splitbox@two};% Ausgabebox einfuegen
1996     \end{scope}
1997     %HIER KOMMT EIN WEITERES MAKRO
1998     \mdfcreateextratikz%
1999     \end{tikzpicture}%
2000 }%
2001 \mdf@makeboxalign@right%
2002 }%
2003 \fi
2004 }%

```

\mdf@putbox@middle

Output of the middle breakable contents.

```

2005 \def\drawbackgroundframetitle@middle{%
2006   \ifdefempty{\mdf@frametitle}{}{%
2007     \ifdimless{\mdfframetitleboxtotalheight}{\z@}
2008     {}{%
2009       \drawbackgroundframetitle@@middle%
2010       \pgfmathsetlength{\global\mdfframetitleboxtotalheight}{-\p@}%
2011     }%
2012   }%
2013 }%
2014 %
2015 \def\drawbackgroundframetitle@@middle{%
2016   \begin{scope}%background frame title
2017     \ifbool{mdf@leftline}{
2018       \pgfmathsetlengthmacro\mdf@0x%
2019         {\mdf@0x+\mdf@innerlinewidth@length+0.5\mdf@middlelinewidth@length}
2020     }{%
2021       \ifbool{mdf@rightline}{%
2022         \pgfmathsetlengthmacro\mdf@Px%
2023           {\mdf@Px-\mdf@innerlinewidth@length-0.5\mdf@middlelinewidth@length}
2024       }{%
2025         \pgfmathsetlengthmacro\mdf@Fy
2026           {\mdf@Py-\mdfframetitleboxtotalheight}
2027         \path[mdfframetitlebackground,rounded corners=\z@]
2028           (\mdf@0x,\mdf@Fy) -- (\mdf@0x,\mdf@Py)%
2029           --(\mdf@Px,\mdf@Py) --(\mdf@Px,\mdf@Fy);
2030       }
2031     }
2032   \end{scope}%
2033 }%
2034 %
2035 \def\mdf@putbox@middle{%
2036   \ifvoid\mdf@splitbox@two
2037   \else%
2038     \mdf@makebox@out{%
2039       \mdf@makeboxalign@left%
2040       \mdf@tikz@settings%
2041     }%
2042   \setlength\mdfboundingboxwidth{\wd\mdf@splitbox@two}%
2043   \advance\mdfboundingboxwidth by \mdf@innerleftmargin@length\relax%
2044   \advance\mdfboundingboxwidth by \mdf@innerrightmargin@length\relax%
2045   \ifbool{mdf@leftline}{%
2046     \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
2047     \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
2048     \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}%
2049   \ifbool{mdf@rightline}{%
2050     \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
2051     \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
2052     \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}%
2053   \setlength\mdfboundingboxheight{\dimexpr\ht\mdf@splitbox@two+\dp\mdf@splitbox@two\relax}%
2054   \advance\mdfboundingboxheight by \mdf@splitbottomskip@length\relax%
2055   \mdf@makebox@in[\mdfboundingboxwidth]{%
2056     \null%
2057     \begin{tikzpicture}[remember picture]

```



```

2058 \pgfmathsetlengthmacro\mdf@Ax{+\mdf@innerleftmargin@length}%
2059 \pgfmathsetlengthmacro\mdf@Ay{+\mdf@splitbottomskip@length}%
2060 \pgfmathsetlengthmacro\mdf@Ox{+0pt}%
2061 \pgfmathsetlengthmacro\mdf@Oy{+0pt}%
2062 \pgfmathsetlengthmacro\mdf@Px{+\mdfboundingboxwidth}%
2063 \pgfmathsetlengthmacro\mdf@Py{+\mdfboundingboxheight}%
2064 \ifbool{mdf@leftline}%
2065 {%
2066 \pgfmathsetlengthmacro\mdf@Ax%
2067 {\mdf@Ax+\mdf@outerlinewidth@length+
2068 \mdf@middlelinewidth@length+\mdf@innerlinewidth@length}%
2069 \pgfmathsetlengthmacro\mdf@Ox%
2070 {\mdf@Ox+\mdf@outerlinewidth@length+0.5\mdf@middlelinewidth@length}%
2071 }{}%
2072 \ifbool{mdf@rightline}%
2073 {%
2074 \pgfmathsetlengthmacro\mdf@Px%
2075 {\mdf@Px-\mdf@outerlinewidth@length-0.5\mdf@middlelinewidth@length}%
2076 }{}%
2077 %
2078 \coordinate(0)at(\mdf@Ox,\mdf@Oy);%
2079 \coordinate(P)at(\mdf@Px,\mdf@Py);%
2080 %
2081 \ifbool{mdf@shadow}
2082 {\path[mdfshadow](0) rectangle (P);}%
2083 %
2084 \begin{scope}[use as bounding box]
2085 \ifboolexpr{bool {mdf@leftline} and bool {mdf@rightline}}%
2086 {\mdf@tikzbox@otl{(0)--(0|-P)(P)--(P|-0)}{(0)rectangle(P)}}{}%
2087 \ifboolexpr{bool {mdf@leftline} and not (bool {mdf@rightline})}%
2088 {\mdf@tikzbox@otl{(0)--(0|-P)}{(0)rectangle(P)}}{}%
2089 \ifboolexpr{not (bool {mdf@leftline}) and bool {mdf@rightline}}%
2090 {\mdf@tikzbox@otl{(P)--(P|-0)}{(0)rectangle(P)}}{}%
2091 \ifboolexpr{not (bool {mdf@leftline}) and not (bool {mdf@rightline})}%
2092 {\path[mdfbackground](0) rectangle(P);}%
2093 %
2094 \drawbrackgroundframetitle@middle
2095 %
2096 \node[mdfbox]at(\mdf@Ax,\mdf@Ay){\box\mdf@splitbox@two};% Ausgabebox einfüegen
2097 \end{scope}
2098 %HIER KOMMT EIN WEITERES MAKRO
2099 \mdfcreateextratikz
2100 \end{tikzpicture}%
2101 }%
2102 \mdf@makeboxalign@right%
2103 }%
2104 \fi
2105 }%

```

\mdf@putbox@second

Output of the last breakable contents.

```

2106 \def\drawbrackgroundframetitle@second{%
2107 \ifdefempty{\mdf@frametitle}{}{}%
2108 \ifdimless{\mdfframetitleboxtotalheight}{\z@}

```



```

2109  {}{%
2110    \drawbackgroundframetitle@@second%
2111  }%
2112 }%
2113 }%
2114 %
2115 \def\drawbackgroundframetitle@@second{%
2116     \begin{scope}%background frame title
2117     \ifbool{mdf@leftline}{
2118         \pgfmathsetlengthmacro\mdf@0x%
2119             {\mdf@0x+\mdf@innerlinewidth@length+0.5\mdf@middlelinewidth@length}
2120     }{%
2121     \ifbool{mdf@rightline}{%
2122         \pgfmathsetlengthmacro\mdf@Px%
2123             {\mdf@Px-\mdf@innerlinewidth@length-0.5\mdf@middlelinewidth@length}
2124     }{%
2125     \pgfmathsetlengthmacro\mdf@Fy
2126         {\mdf@Py-\mdfframetitleboxtotalheight}
2127     \path[mdfframetitlebackground,rounded corners=\z@]
2128         (\mdf@0x,\mdf@Fy) -- (\mdf@0x,\mdf@Py)%
2129         --(\mdf@Px,\mdf@Py) --(\mdf@Px,\mdf@Fy);
2130     \end{scope}
2131 }%
2132 \def\mdf@putbox@second{%
2133     \ifvoid\mdf@splitbox@one
2134     \else%
2135         \mdf@makebox@out{%
2136             \mdf@makeboxalign@left%
2137             \mdf@tikz@settings%
2138 %
2139             \setlength\mdfboundingboxwidth{\wd\mdf@splitbox@one}%
2140             \advance\mdfboundingboxwidth by \mdf@innerleftmargin@length\relax%
2141             \advance\mdfboundingboxwidth by \mdf@innerrightmargin@length\relax%
2142             \ifbool{mdf@leftline}{%
2143                 \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
2144                 \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
2145                 \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}%
2146             \ifbool{mdf@rightline}{%
2147                 \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
2148                 \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
2149                 \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}%
2150 %
2151             \setlength\mdfboundingboxheight{\dimexpr\ht\mdf@splitbox@one+\dp\mdf@splitbox@one\relax}%
2152             \advance\mdfboundingboxheight by \mdf@innerbottommargin@length\relax%
2153             \ifbool{mdf@bottomline}{%
2154                 \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
2155                 \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
2156                 \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}%
2157 %
2158             \mdf@makebox@in[\mdfboundingboxwidth]{%
2159                 \null%
2160                 \begin{tikzpicture}[remember picture]
2161                     \pgfmathsetlengthmacro\mdf@Ax{+\mdf@innerleftmargin@length}%
2162                     \pgfmathsetlengthmacro\mdf@Ay{+\mdf@innerbottommargin@length}%
2163                     \pgfmathsetlengthmacro\mdf@0x{+0pt}%
2164                     \pgfmathsetlengthmacro\mdf@0y{+0pt}%

```

```

2165 \pgfmathsetlengthmacro\mdf@Px{+\mdfboundingboxwidth}%
2166 \pgfmathsetlengthmacro\mdf@Py{+\mdfboundingboxheight}%
2167 \ifbool{mdf@leftline}%
2168 {%
2169 \pgfmathsetlengthmacro\mdf@Ax%
2170 {\mdf@Ax+\mdf@outerlinewidth@length+
2171 \mdf@middlelinewidth@length+\mdf@innerlinewidth@length}%
2172 \pgfmathsetlengthmacro\mdf@Ox%
2173 {\mdf@Ox+\mdf@outerlinewidth@length+0.5\mdf@middlelinewidth@length}%
2174 }{}%
2175 \ifbool{mdf@rightline}%
2176 {%
2177 \pgfmathsetlengthmacro\mdf@Px%
2178 {\mdf@Px-\mdf@outerlinewidth@length-0.5\mdf@middlelinewidth@length}%
2179 }{}%
2180 \ifbool{mdf@bottomline}%
2181 {%
2182 \pgfmathsetlengthmacro\mdf@Ay%
2183 {\mdf@Ay+\mdf@outerlinewidth@length+
2184 \mdf@middlelinewidth@length+\mdf@innerlinewidth@length}%
2185 \pgfmathsetlengthmacro\mdf@Oy%
2186 {\mdf@Oy+\mdf@outerlinewidth@length+0.5\mdf@middlelinewidth@length}%
2187 }{}%
2188 %
2189 \coordinate(0)at(\mdf@Ox,\mdf@Oy);%
2190 \coordinate(P)at(\mdf@Px,\mdf@Py);%
2191 %
2192 \ifbool{mdf@shadow}
2193 {\path[mdfshadow] (0|-P) to[mdfcorners] (0) to[mdfcorners] (P|-0) -- (P) -- (0|-P);}%
2194 %
2195 \begin{scope}[use as bounding box]
2196 \ifboolexpr{test {\mdf@test@lrb} or test {\mdf@test@lrb}}%
2197 {\mdf@tikzbox@otl{(P|-0)--(0)--(0|-P)--(P))}%
2198 }{}%
2199 \ifboolexpr{test {\mdf@test@ltb} or test {\mdf@test@lb}}%
2200 {\mdf@tikzbox@otl{(P|-0)--(0)--(0|-P)){(P)--(P|-0)[mdfcorners]--(0)--(0|-P))}%
2201 }{}%
2202 \ifboolexpr{test {\mdf@test@trb} or test {\mdf@test@rb}}%
2203 {\mdf@tikzbox@otl{(P)--(P|-0)--(0)){(0|-P)--(P)[mdfcorners]--(P|-0)--(0))}%
2204 }{}%
2205 \ifboolexpr{test {\mdf@test@ltr} or test {\mdf@test@lr}}%
2206 {\mdf@tikzbox@otl{(0)--(0|-P)(P)--(P|-0)){(0)rectangle(P)}}%
2207 }{}%
2208 \ifboolexpr{test {\mdf@test@tb} or test {\mdf@test@b}}%
2209 {\mdf@tikzbox@otl{(0)--(0|-P)){(0)rectangle(P)}}%
2210 }{}%
2211 \ifboolexpr{test {\mdf@test@lt} or test {\mdf@test@l}}%
2212 {\mdf@tikzbox@otl{(0)--(0|-P)){(0)rectangle(P)}}%
2213 }{}%
2214 \ifboolexpr{test {\mdf@test@tr} or test {\mdf@test@r}}%
2215 {\mdf@tikzbox@otl{(0|-P)--(P)){(0)rectangle(P)}}%
2216 }{}%
2217 \mdf@test@t{\path[mdfbackground,mdfcorners](0|-P)--(0)--(0|-P)--(P);}%
2218 %
2219 \mdf@test@noline{\path[mdfbackground,mdfcorners](0|-P)--(0)--(0|-P)--(P);}%
2220 %

```

```

2221      \drawbackgroundframetitle@second
2222 %
2223      \node[mdfbox] at (\mdf@Ax,\mdf@Ay){\box\mdf@splitbox@one};% Ausgabebox einfuegen
2224      \end{scope}
2225      %HIER KOMMT EIN WEITERES MAKRO
2226      \mdfcreateextratikz
2227      \end{tikzpicture}%
2228      }%
2229      \mdf@makeboxalign@right%
2230      }%
2231 \fi
2232 }%

2233 \endinput

```

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

```

2234 %% Style file for mdframed for package option 'framemethod=default'
2235 %%
2236 %% This package may be distributed under the terms of the LaTeX Project
2237 %% Public License, as described in lppl.txt in the base LaTeX distribution.
2238 %% Either version 1.0 or, at your option, any later version.
2239 %%
2240 %%
2241 %%$Id: mdframed.dtx 352 2012-03-12 19:53:51Z marco $
2242 %

```

```

\mdframedIIPackagename
\mdf@frameIIDate@svn

```

local settings

```

2243 \def\mdframedIIPackagename{md-frame-2}
2244 \def\mdf@frameIIDate@svn$#1: #2 #3 #4-#5-#6 #7 #8$#{#4/#5/#6\space }
2245 \ProvidesFile{md-frame-2.mdf}%
2246      [\mdf@frameIIDate@svn$Id: mdframed.dtx 352 2012-03-12 19:53:51Z marco $ %
2247      \mdversion: \mdframedIIPackagename]

```

```

\mdf@ptlength@to@pscode
\ptTps

```

Command to calculate a latex length to postscript

```

2248 \def\mdf@ptlength@to@pscode#1{\pst@number{#1} \pst@number\psxunit div }
2249 \def\mdf@ptlength@to@pscode@length#1{\pst@number{\csname md f@#1@length\endcsname} \pst@number\psxunit o
2250 \let\ptTps\mdf@ptlength@to@pscode\relax
2251 \let\ptTpsL\mdf@ptlength@to@pscode@length\relax

```

```

\mdfbackgroundstyle
\mdflinestyle
\mdfframetitlerule
\mdfframetitlebackground

```

background and line settings for pstricks

```

2252 \def\mdf@pstricks@settings{%expand by \addtopsstyle
2253      \newpsstyle{mdfbackgroundstyle}%

```

```

2254 {linecolor=\mdf@backgroundcolor,fillstyle=solid,%
2255 fillcolor=\mdf@backgroundcolor,linestyle=none,%
2256 ,dimen=middle,%
2257 }%
2258 %
2259 \newsstyle{mdfframetitlebackgroundstyle}{%
2260 linecolor=\mdf@frametitlebackgroundcolor,
2261 fillcolor=\mdf@frametitlebackgroundcolor,
2262 fillstyle=solid,linestyle=none,
2263 linearc=\ifdimgreater{\mdf@roundcorner@length%
2264 -\mdf@innerlinewidth@length%
2265 -.5\mdf@middlelinewidth@length}%
2266 {\z@}{\dimexpr\mdf@roundcorner@length%
2267 -\mdf@innerlinewidth@length%
2268 -.5\mdf@middlelinewidth@length}{\z@},
2269 }
2270 %
2271 \newsstyle{mdfouterlinestyle}{linestyle=none}%
2272 \ifdimgreater{\mdf@outerlinewidth@length}{\z@}%
2273 {\newsstyle{mdfouterlinestyle}{%
2274 linecolor=\mdf@outerlinecolor,%
2275 linewidth=\dimexpr2\mdf@outerlinewidth@length+\mdf@middlelinewidth@length\relax,
2276 dimen=middle,
2277 }}}%
2278 %
2279 \newsstyle{mdfinnerlinestyle}{linestyle=none}%
2280 \ifdimgreater{\mdf@innerlinewidth@length}{\z@}%
2281 {\newsstyle{mdfinnerlinestyle}{%
2282 linecolor=\mdf@innerlinecolor,%
2283 linewidth=\dimexpr2\mdf@innerlinewidth@length+\mdf@middlelinewidth@length\relax,
2284 dimen=middle,
2285 }}}%
2286 %
2287 \newsstyle{mdfmiddlelinestyle}{linestyle=none}%
2288 \newsstyle{mdfshadow}{shadow=true,shadowcolor=\mdf@shadowcolor,shadowsize=\mdf@shadowsize@length}%
2289 \ifdimgreater{\mdf@middlelinewidth@length}{\z@}%
2290 {\newsstyle{mdfmiddlelinestyle}{%
2291 linewidth=\mdf@middlelinewidth@length,%
2292 linecolor=\mdf@middlelinecolor,dimen=middle
2293 }}}%
2294 \mdfpstricks@appendsettings
2295 }%
2296 %
2297 \newrobustcmd*\mdf@pstricksbox@fl[2]{%four lines
2298 \psframe[style=mdfouterlinestyle](#1)(#2)%aussen=3mm
2299 \psframe[style=mdfbackgroundstyle](#1)(#2)%Hintergrund
2300 \psclip{\psframe[style=mdfmiddlelinestyle](#1)(#2)}
2301 \psframe[style=mdfinnerlinestyle](#1)(#2)%innere=3mm
2302 \endpsclip
2303 \psframe[style=mdfmiddlelinestyle](#1)(#2)%mittlere=2mm
2304 }%
2305 \newrobustcmd*\mdf@pstricksbox@tl[1]{%three lines
2306 \psline[style=mdfouterlinestyle]#1%aussen=3mm
2307 \psline[style=mdfbackgroundstyle]#1%Hintergrund
2308 \psclip{\psline[style=mdfmiddlelinestyle]#1}
2309 \psline[style=mdfinnerlinestyle]#1%innere=3mm

```

```

2310 \endpsclip
2311 \psline[style=mdfmiddlelinestyle]#1%mittlere=2mm
2312 }%
2313 \newrobustcmd*\mdf@pstricksbox@tcl[2]{%two combined lines
2314 %%#1 background comple
2315 %%#2 line path
2316 \psline[style=mdfouterlinestyle]#2%ausсен=3mm
2317 \psline[style=mdfbackgroundstyle]#2%Hintergrund
2318 \psclip{\pscustom[linestyle=none]{
2319     \psline[style=mdfmiddlelinestyle]#2
2320     \psline[linestyle=none,lineararc=0pt]#1}
2321 }
2322 \psframe[style=mdfbackgroundstyle,lineararc=0pt](mdf@0)(mdf@P)%Hintergrund
2323 \psline[style=mdfinnerlinestyle]#2%innere=3mm
2324 \endpsclip
2325 \psline[style=mdfmiddlelinestyle]#2%mittlere=2mm
2326 }%
2327 \newrobustcmd*\mdf@pstricksbox@tncl[2]{%two not combined lines
2328 \beginngroup
2329 \psset{lineararc=0pt}
2330 \psline[style=mdfouterlinestyle](mdf@0)#1%ausсен=3mm
2331 \psline[style=mdfouterlinestyle](mdf@P)#2%ausсен=3mm
2332 \psclip{
2333     \pscustom[linestyle=none]{%
2334         \psline[style=mdfmiddlelinestyle](mdf@0)#1%mittlere=2mm
2335         \psline[linestyle=none](mdf@0)#2
2336         \psline[style=mdfmiddlelinestyle](mdf@P)#2%mittlere=2mm
2337         \psline[linestyle=none](mdf@P)#1
2338     }%
2339 }%
2340 \psframe[style=mdfbackgroundstyle,lineararc=0pt](mdf@0)(mdf@P)%Hintergrund
2341 \psline[style=mdfinnerlinestyle](mdf@0)#1%innere=3mm
2342 \psline[style=mdfinnerlinestyle](mdf@P)#2%innere=3mm
2343 \endpsclip
2344 \psline[style=mdfmiddlelinestyle](mdf@0)#1%mittlere=2mm
2345 \psline[style=mdfmiddlelinestyle](mdf@P)#2%mittlere=2mm
2346 \endgroup
2347 }%
2348 \newrobustcmd*\mdf@pstricksbox@ol[1]{%one line
2349 \beginngroup
2350 \psset{lineararc=0pt}
2351 \psline[style=mdfouterlinestyle]#1%ausсен=3mm
2352 \psline[style=mdfbackgroundstyle]#1%Hintergrund
2353 \psclip{\pscustom[linestyle=none]{
2354     \psline[style=mdfmiddlelinestyle]#1
2355     \psframe[linestyle=none,fillstyle=none,dimen=inner](mdf@0)(mdf@P)
2356 }}
2357 \psframe[style=mdfbackgroundstyle](mdf@0)(mdf@P)
2358 \psline[style=mdfinnerlinestyle]#1%innere=3mm
2359 \endpsclip
2360 \psline[style=mdfmiddlelinestyle]#1%mittlere=2mm
2361 \endgroup%
2362 }%
2363
2364 %
2365 \newpsstyle{mdfframetitrerule}{%

```

```

2366   linecolor=\mdf@frametitlecolor,%
2367   fillcolor=\mdf@frametitlecolor,%
2368   fillstyle=solid,dimen=outer,%
2369 }
2370 %

```

\mdf@put@frametitlerule

frametitlerule with pstricks

```

2371 \def\mdf@@frametitlerule{%
2372   \ifbool{mdf@frametitlerule}{%
2373     \vbox{\hsize0pt
2374       \par\unskip\vskip\mdf@frametitlebelowskip@length
2375       \noindent\rlap{%
2376         \begin{group}%
2377           \begin{pspicture}(0,0)(0,\mdf@frametitlewidth@length)
2378             \psframe[style=mdfframetitlerule](!\ptTpsL{innerleftmargin} neg 0)%
2379                                   (! \ptTpsL{innerrightmargin}
2380                                   \ptTps{\mdfframetitleboxwidth} add \ptTpsL{frametitlewidth})
2381           \end{pspicture}
2382         \end{group}%
2383       }%
2384     }{}
2385   \par\unskip\vskip\mdf@innertopmargin@length%
2386 }%
2387 %
2388 % \begin{macro}{mdf@putbox@single}
2389 % Single output
2390 %   \begin{macrocode}
2391 % Info zu den verwendeten Punkten:
2392 % 0 ist die untere linke Ecke der Mitte der middleline
2393 % P ist die obere rechte Ecke der Mitte der middleline
2394 % A ist der Punkt fuer den anchor (d.h. die untere linke Ecke) der Ausgabebox
2395 \def\mdf@putbox@single{%
2396   \ifvoid\mdf@splitbox@one
2397   \else%
2398     \mdf@makebox@out{%
2399       \mdf@makeboxalign@left%
2400       \setlength\mdfboundingboxwidth{\wd\mdf@splitbox@one}%
2401       \advance\mdfboundingboxwidth by \mdf@innerleftmargin@length\relax%
2402       \advance\mdfboundingboxwidth by \mdf@innerrightmargin@length\relax%
2403       \ifbool{mdf@leftline}{%
2404         \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
2405         \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
2406         \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}%{}%
2407       \ifbool{mdf@rightline}{%
2408         \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
2409         \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
2410         \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}%{}%
2411     }%
2412     \setlength\mdfboundingboxheight{\dimexpr\ht\mdf@splitbox@one+\dp\mdf@splitbox@one\relax}%
2413     \advance\mdfboundingboxheight by \mdf@innerbottommargin@length\relax%
2414     \advance\mdfboundingboxheight by \mdf@innertopmargin@length\relax%
2415     \ifbool{mdf@topline}{%
2416       \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%

```

```

2417 \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
2418 \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}}}%
2419 \ifbool{mdf@bottomline}{%
2420 \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
2421 \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
2422 \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}}}%
2423 %
2424 \setlength\mdftotalllinewidth{\dimexpr\mdf@innerlinewidth@length%
2425 \advance\mdftotalllinewidth\mdf@middlelinewidth@length
2426 \advance\mdftotalllinewidth\mdf@outerlinewidth@length\relax}%
2427 \psset{unit=1truecm}%
2428 \mdf@makebox@in[\mdfboundingboxwidth]{%
2429 \null%
2430 \begin{pspicture}(0,0)(\mdfboundingboxwidth,\mdfboundingboxheight)
2431 \mdfpstricks@settings%
2432 \psset{linearc=\mdf@roundcorner@length, cornersize=absolut,}%
2433 \expandafter\psset\expandafter{\mdf@psset@local}%
2434 \pnode(\mdf@innerleftmargin@length,\mdf@innerbottommargin@length){mdf@A}
2435 \pnode(0,0){mdf@0}
2436 \pnode(\mdfboundingboxwidth,\mdfboundingboxheight){mdf@P}
2437 \ifbool{mdf@leftline}%
2438 {%
2439 \nodexn{(mdf@A)+(\mdf@outerlinewidth@length,0)
2440 \advance\mdf@A\mdf@middlelinewidth@length,0)
2441 \advance\mdf@A\mdf@innerlinewidth@length,0)}}{mdf@A}%
2442 \nodexn{(mdf@0)+(\mdf@outerlinewidth@length,0)
2443 \advance\mdf@0\mdf@middlelinewidth@length,0)}}{mdf@0}%
2444 }}}%
2445 \ifbool{mdf@rightline}%
2446 {%
2447 \nodexn{(mdf@P)-(\mdf@outerlinewidth@length,0)
2448 \advance\mdf@P\mdf@middlelinewidth@length,0)}}{mdf@P}%
2449 }}}%
2450 \ifbool{mdf@bottomline}%
2451 {%
2452 \nodexn{(mdf@A)+(0,\mdf@outerlinewidth@length)
2453 \advance\mdf@A(0,\mdf@middlelinewidth@length)
2454 \advance\mdf@A(0,\mdf@innerlinewidth@length)}}{mdf@A}%
2455 \nodexn{(mdf@0)+(0,\mdf@outerlinewidth@length)
2456 \advance\mdf@0(0,\mdf@middlelinewidth@length)}}{mdf@0}%
2457 }}}%
2458 \ifbool{mdf@topline}%
2459 {%
2460 \nodexn{(mdf@P)-(0,\mdf@outerlinewidth@length)
2461 \advance\mdf@P(0,\mdf@middlelinewidth@length)}}{mdf@P}%
2462 }}}%
2463 \ifbool{mdf@shadow}
2464 {\psframe[style=mdfshadow](mdf@0)(mdf@P)}}}
2465 %
2466 %Four lines
2467 \mdf@test@lrb{\mdf@pstricksbox@fl{mdf@0}{mdf@P}}}%
2468 %three lines
2469 \mdf@test@ltb{\mdf@pstricksbox@tl{(mdf@P|mdf@0)(mdf@0)(mdf@0|mdf@P)(mdf@P)}}}%
2470 \mdf@test@trb{\mdf@pstricksbox@tr{(mdf@0)(mdf@P|mdf@0)(mdf@P)(mdf@0|mdf@P)}}}%
2471 \mdf@test@ltr{\mdf@pstricksbox@tl{(mdf@0)(mdf@0|mdf@P)(mdf@P)(mdf@P|mdf@0)}}}%
2472 \mdf@test@lrb{\mdf@pstricksbox@tl{(mdf@0|mdf@P)(mdf@0)(mdf@P|mdf@0)(mdf@P)}}}%

```



```

2473 %two lines combined
2474 \mdf@test@lb{\mdf@pstricksbox@tcl{(mdf@P|mdf@O)(mdf@P)(mdf@O|mdf@P)}%
2475 { (mdf@O|mdf@P)(mdf@O)(mdf@P|mdf@O)}}{}
2476 \mdf@test@rb{\mdf@pstricksbox@tcl{(mdf@P)(mdf@O|mdf@P)(mdf@O)}%
2477 { (mdf@O)(mdf@P|mdf@O)(mdf@P)}}{}
2478 \mdf@test@tr{\mdf@pstricksbox@tcl{(mdf@P|mdf@O)(mdf@O)(mdf@O|mdf@P)}%
2479 { (mdf@O|mdf@P)(mdf@P)(mdf@P|mdf@O)}}{}
2480 \mdf@test@lt{\mdf@pstricksbox@tcl{(mdf@O)(mdf@P|mdf@O)(mdf@P)}%
2481 { (mdf@O)(mdf@O|mdf@P)(mdf@P)}}{}
2482 %two lines not combined combined
2483 \mdf@test@lr{\mdf@pstricksbox@tncl{(mdf@O|mdf@P)}{(mdf@P|mdf@O)}
2484 {}
2485 \mdf@test@tb{\mdf@pstricksbox@tncl{(mdf@P|mdf@O)}{(mdf@O|mdf@P)}
2486 {}
2487 %single line
2488 \mdf@test@l{\mdf@pstricksbox@ol{(mdf@O)(mdf@O|mdf@P)}}{}
2489 \mdf@test@r{\mdf@pstricksbox@ol{(mdf@P)(mdf@P|mdf@O)}}{}
2490 \mdf@test@t{\mdf@pstricksbox@ol{(mdf@P)(mdf@O|mdf@P)}}{}
2491 \mdf@test@b{\mdf@pstricksbox@ol{(mdf@O)(mdf@P|mdf@O)}}{}
2492 %no line
2493 \mdf@test@noline{\psframe[style=mdfbackgroundstyle](mdf@O)(mdf@P)}{}
2494 %
2495 %Frametitlebackground
2496 \drawbackgroundframetitle@single
2497 %output%
2498 \rput[bl](mdf@A){\box\mdf@splitbox@one}
2499 % \psdot(mdf@A)\uput[90](mdf@A){mdf at A}
2500 % \psdot(mdf@P)\uput[90](mdf@P){mdf at P}
2501 % \psdot(mdf@O)\uput[90](mdf@O){mdf at O}
2502 %
2503 % \endpsclip
2504 \end{pspicture}%
2505 }%
2506 \mdf@makeboxalign@right%
2507 }%
2508 \fi
2509 }%
2510 \def\drawbackgroundframetitle@single{%
2511 \ifdefempty{\mdf@frametitle}}{}%
2512 \drawbackgroundframetitle@@single%
2513 }%
2514 }%
2515 \def\drawbackgroundframetitle@@single{%
2516 \begingroup%
2517 \ifbool{mdf@leftline}{%
2518 \nodexn{(mdf@O)+(\mdf@innerlinewidth@length,0)
2519 +0.5(\mdf@middlelinewidth@length,0)}{mdf@O}%
2520 }{}%
2521 \ifbool{mdf@rightline}{%
2522 \nodexn{(mdf@P)-(\mdf@innerlinewidth@length,0)
2523 -0.5(\mdf@middlelinewidth@length,0)}{mdf@P}%
2524 }{}%
2525 \ifbool{mdf@topline}{%
2526 \nodexn{(mdf@P)-(0,\mdf@innerlinewidth@length)
2527 -0.5(0,\mdf@middlelinewidth@length)}{mdf@P}%
2528 }{}%

```



```

2529 \nodexn{(mdf@P) - (0,\mdfframetitleboxtotalheight)}{mdf@F}%
2530 \psline[style=mdfframetitlebackgroundstyle](mdf@0|mdf@F)(mdf@0|mdf@P)
2531 (mdf@P)(mdf@P|mdf@F)%
2532 \endgroup
2533 }

```

\mdf@putbox@first

First output

```

2534 \def\mdf@putbox@first{%
2535   \ifvoid\mdf@splitbox@two
2536   \else%
2537     \mdf@makebox@out{%
2538       \mdf@makeboxalign@left%
2539       %\ifbool{mdf@leftline}{\hspace*{\mdf@middlelinewidth@length}}{}%
2540       \setlength\mdfboundingboxwidth{\wd\mdf@splitbox@two}%
2541       \advance\mdfboundingboxwidth by \mdf@innerleftmargin@length\relax%
2542       \advance\mdfboundingboxwidth by \mdf@innerrightmargin@length\relax%
2543       \ifbool{mdf@leftline}{%
2544         \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
2545         \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
2546         \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}}{}%
2547       \ifbool{mdf@rightline}{%
2548         \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
2549         \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
2550         \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}}{}%
2551       \setlength\mdfboundingboxheight{\dimexpr\ht\mdf@splitbox@two+\dp\mdf@splitbox@two\relax}%
2552       \advance\mdfboundingboxheight by \mdf@innertopmargin@length\relax%
2553       \advance\mdfboundingboxheight by \mdf@splitbottomskip@length\relax%
2554       \ifbool{mdf@topline}{%
2555         \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
2556         \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
2557         \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}}{}%
2558       \psset{linear=\mdf@roundcorner@length, cornersize=absolute}%
2559       \expandafter\psset\expandafter{\mdf@psset@local}%
2560       \mdf@makebox@in[\mdfboundingboxwidth]{%
2561         \null%
2562         \psset{unit=1truecm}%
2563         \ifdimgreater{\mdfboundingboxheight}{\vsize}
2564           {\begin{pspicture}(0,0)(\mdfboundingboxwidth,\vsize)}
2565           {\begin{pspicture}(0,0)(\mdfboundingboxwidth,\mdfboundingboxheight)}
2566             \mdfpstricks@settings%
2567             \psset{linear=\mdf@roundcorner@length, cornersize=absolut,}%
2568             \expandafter\psset\expandafter{\mdf@psset@local}%
2569             \pnode(\mdf@innerleftmargin@length,\mdf@splitbottomskip@length){mdf@A}
2570             \pnode(0,0){mdf@0}
2571             \pnode(\mdfboundingboxwidth,\mdfboundingboxheight){mdf@P}
2572             \ifbool{mdf@leftline}{%
2573               {%
2574                 \nodexn{(mdf@A)+(\mdf@outerlinewidth@length,0)
2575                   +(\mdf@middlelinewidth@length,0)
2576                   +(\mdf@innerlinewidth@length,0)}{mdf@A}
2577                 \nodexn{(mdf@0)+(\mdf@outerlinewidth@length,0)
2578                   +0.5(\mdf@middlelinewidth@length,0)}{mdf@0}
2579               }}%

```

```

2580 \ifbool{mdf@rightline}%
2581 {%
2582 \nodexn{(mdf@P) - (\mdf@outerlinewidth@length,0)
2583 -0.5(\mdf@middlelinewidth@length,0)}{mdf@P}
2584 }{}%
2585 \ifbool{mdf@topline}%
2586 {%
2587 \nodexn{(mdf@P) - (0,\mdf@outerlinewidth@length)
2588 -0.5(0,\mdf@middlelinewidth@length)}{mdf@P}
2589 }{}%
2590 \ifbool{mdf@shadow}
2591 {\pscustom[style=mdfshadow,linestyle=none]{%
2592 \psline[linejoin=2,linecap=1,](mdf@P|mdf@0)(mdf@P)(mdf@0|mdf@P)%
2593 \psline[linejoin=2,linecap=1,lineararc=\z@](mdf@0|mdf@P)(mdf@0)(mdf@P|mdf@0)
2594 \closedshadow
2595 }
2596 {}%
2597 % \psclip{
2598 %Four or Three lines
2599 \ifboolexpr{test {\mdf@test@ltrb} or test {\mdf@test@ltr}}%
2600 {\mdf@pstricksbox@tl{(mdf@0)(mdf@0|mdf@P)(mdf@P)(mdf@P|mdf@0)}}%
2601 {}%
2602 %two combined lines
2603 \ifboolexpr{test {\mdf@test@ltb} or test {\mdf@test@lt}}%
2604 {\mdf@pstricksbox@tcl{(mdf@0)(mdf@P|mdf@0)(mdf@P)%
2605 {(mdf@0)(mdf@0|mdf@P)(mdf@P)}}%
2606 \ifboolexpr{test {\mdf@test@trb} or test {\mdf@test@tr}}%
2607 {\mdf@pstricksbox@tcl{(mdf@P|mdf@0)(mdf@0)(mdf@0|mdf@P)%
2608 {(mdf@0|mdf@P)(mdf@P)(mdf@P|mdf@0)}}%
2609 %two not combined lines
2610 \ifboolexpr{test {\mdf@test@lrb} or test {\mdf@test@lr}}%
2611 {\mdf@pstricksbox@tncl{(mdf@0|mdf@P)}{(mdf@P|mdf@0)}}%
2612 %single line
2613 \ifboolexpr{test {\mdf@test@tb} or test {\mdf@test@t}}%
2614 {\mdf@pstricksbox@ol{(mdf@P)(mdf@0|mdf@P)}}%
2615 \ifboolexpr{test {\mdf@test@lb} or test {\mdf@test@l}}%
2616 {\mdf@pstricksbox@ol{(mdf@0)(mdf@0|mdf@P)}}%
2617 \ifboolexpr{test {\mdf@test@rb} or test {\mdf@test@r}}%
2618 {\mdf@pstricksbox@ol{(mdf@P)(mdf@P|mdf@0)}}%
2619 %no line
2620 \mdf@test@b{\psframe[style=mdfbackgroundstyle](mdf@0)(mdf@P)}%
2621 \mdf@test@noline{\psframe[style=mdfbackgroundstyle](mdf@0)(mdf@P)}%
2622 % }
2623 %Frametitlebackground
2624 \drawbackgroundframetitle@first
2625 %output%
2626 \rput[bl](mdf@A){\box\mdf@splitbox@two}
2627 % \psdot(mdf@A)\uput[90](mdf@A){mdf at A}
2628 % \psdot(mdf@P)\uput[90](mdf@P){mdf at P}
2629 % \psdot(mdf@0)\uput[90](mdf@0){mdf at 0}
2630 % \endpsclip
2631 \end{pspicture}
2632 }%
2633 \mdf@makeboxalign@right%
2634 }%
2635 \fi

```

```

2636 }%
2637 \def\drawbackgroundframetitle@first{%
2638 \ifdefempty{\mdf@frametitle}{}%
2639 \ifdimgreater{\mdfboundingboxheight}{\mdfframetitleboxtotalheight}%
2640 {%
2641 \drawbackgroundframetitle@@first
2642 \global\mdfframetitleboxtotalheight=-\p@%
2643 }\mdf@PackageWarning{You got a page break inside the frame title\MessageBreak
2644 Currently this isn't well supported}%
2645 \drawbackgroundframetitle@@first
2646 \global\mdfframetitleboxtotalheight=\dimexpr\mdfframetitleboxtotalheight
2647 -\mdfboundingboxheight
2648 -\mdf@innerlinewidth@length-0.5\mdf@middlelinewidth@length%
2649 +\mdf@frametitlebelowskip@length+\mdf@splitbottomskip@length
2650 +\mdf@splittopskip@length
2651 +\dp\strutbox\relax%
2652 }%
2653 }%
2654 }%
2655 \def\drawbackgroundframetitle@@first{%
2656 \begingroup%
2657 \ifbool{mdf@leftline}{%
2658 \nodexn{(\mdf@0)+(\mdf@innerlinewidth@length,0)
2659 +0.5(\mdf@middlelinewidth@length,0)}{\mdf@0}%
2660 }{%
2661 \ifbool{mdf@rightline}{%
2662 \nodexn{(\mdf@P)-(\mdf@innerlinewidth@length,0)
2663 -0.5(\mdf@middlelinewidth@length,0)}{\mdf@P}%
2664 }{%
2665 \ifbool{mdf@topline}{%
2666 \nodexn{(\mdf@P)-(0,\mdf@innerlinewidth@length)
2667 -0.5(0,\mdf@middlelinewidth@length)}{\mdf@P}%
2668 }{%
2669 \ifdimgreater{\mdfboundingboxheight}{\mdfframetitleboxtotalheight}
2670 {\nodexn{(\mdf@P)-(0,\mdfframetitleboxtotalheight)}{\mdf@F}}%
2671 {\nodexn{(\mdf@0)}{\mdf@F}}%
2672 \psline[style=mdfframetitlebackgroundstyle](mdf@0|mdf@F)(mdf@0|mdf@P)
2673 (mdf@P)(mdf@P|mdf@F)%
2674 \endgroup
2675 }

```

\mdf@putbox@middle

Middle output

```

2676 \def\mdf@putbox@middle{%
2677 \ifvoid\mdf@splitbox@two
2678 \else%
2679 \mdf@makebox@out{%
2680 \mdf@makeboxalign@left%
2681 % \ifbool{mdf@leftline}{\hspace*{\mdf@middlelinewidth@length}}{%
2682 \setlength\mdfboundingboxwidth{\wd\mdf@splitbox@two}%
2683 \advance\mdfboundingboxwidth by \mdf@innerleftmargin@length\relax%
2684 \advance\mdfboundingboxwidth by \mdf@innerrightmargin@length\relax%
2685 \ifbool{mdf@leftline}{%
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 \ifbool{mdf@rightline}}{%
2690 \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
2691 \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
2692 \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}}}%
2693 \setlength\mdfboundingboxheight{\dimexpr\ht\mdf@splitbox@two+\dp\mdf@splitbox@two\relax}%
2694 \advance\mdfboundingboxheight by \mdf@splitbottomskip@length\relax%
2695 \psset{unit=1truecm}%
2696 \mdf@makebox@in[\mdfboundingboxwidth]{%
2697 \null%
2698 \ifdimgreater{\mdfboundingboxheight}{\vsize}
2699 {\begin{pspicture}(0,0)(\mdfboundingboxwidth,\vsize)}
2700 {\begin{pspicture}(0,0)(\mdfboundingboxwidth,\mdfboundingboxheight)}
2701 \mdfpstricks@settings%
2702 \psset{lineararc=0pt, cornersize=absolut,}%
2703 \expandafter\psset\expandafter{\mdf@psset@local}%
2704 %%%
2705 \pnode(\mdf@innerleftmargin@length,\mdf@splitbottomskip@length){mdf@A}
2706 \pnode(0,0){mdf@0}
2707 \pnode(\mdfboundingboxwidth,\mdfboundingboxheight){mdf@P}
2708 \ifbool{mdf@leftline}}{%
2709 {%
2710 \nodexn{(mdf@A)+(\mdf@outerlinewidth@length,0)
2711 +(\mdf@middlelinewidth@length,0)
2712 +(\mdf@innerlinewidth@length,0)}}{mdf@A}
2713 \nodexn{(mdf@0)+(\mdf@outerlinewidth@length,0)
2714 +0.5(\mdf@middlelinewidth@length,0)}}{mdf@0}
2715 }}}%
2716 \ifbool{mdf@rightline}}{%
2717 {%
2718 \nodexn{(mdf@P)-(\mdf@outerlinewidth@length,0)
2719 -0.5(\mdf@middlelinewidth@length,0)}}{mdf@P}
2720 }}}%
2721 %%
2722 %%
2723 \ifbool{mdf@shadow}
2724 {\psframe[style=mdfshadow](mdf@0)(mdf@P)}}%
2725 \ifboolexpr{bool {mdf@leftline} and bool {mdf@rightline}}%
2726 {\mdf@pstricksbox@tnc{\mdf@0|mdf@P}}{\mdf@P|mdf@0}}}%
2727 \ifboolexpr{bool {mdf@leftline} and not (bool {mdf@rightline}}%
2728 {\mdf@pstricksbox@ol{\mdf@0)(mdf@0|mdf@P}}}%
2729 \ifboolexpr{not (bool {mdf@leftline}) and bool {mdf@rightline}}%
2730 {\mdf@pstricksbox@ol{\mdf@P)(mdf@P|mdf@0}}}%
2731 \ifboolexpr{not (bool {mdf@leftline}) and not (bool {mdf@rightline}}%
2732 {\psframe[style=mdfbackgroundstyle](mdf@0)(mdf@P)}}}%
2733 %Frametitlebackground
2734 \drawbackgroundframetitle@middle
2735 %output%
2736 \rput[bl](mdf@A){\box\mdf@splitbox@two}
2737 % \psdot(mdf@A)\uput[90](mdf@A){mdf at A}
2738 % \psdot(mdf@P)\uput[90](mdf@P){mdf at P}
2739 % \psdot(mdf@0)\uput[90](mdf@0){mdf at 0}
2740 \end{pspicture}%
2741 }%
2742 \mdf@makeboxalign@right%

```

```

2743 }%
2744 \fi
2745 }%
2746 \def\drawbackgroundframetitle@middle{%
2747 \ifdefempty{\mdf@frametitle}{\}%
2748 \ifdimless{\mdfframetitleboxtotalheight}{\z@}
2749 {\}%
2750 \drawbackgroundframetitle@@middle
2751 \global\mdfframetitleboxtotalheight=-\p@\relax%
2752 }%
2753 }%
2754 }%
2755 \def\drawbackgroundframetitle@@middle{%
2756 \begingroup%
2757 \ifbool{mdf@leftline}{%
2758 \nodexn{(\mdf@0)+(\mdf@innerlinewidth@length,0)
2759 +0.5(\mdf@middlelinewidth@length,0)}{\mdf@0}%
2760 }{\}%
2761 \ifbool{mdf@rightline}{%
2762 \nodexn{(\mdf@P)-(\mdf@innerlinewidth@length,0)
2763 -0.5(\mdf@middlelinewidth@length,0)}{\mdf@P}%
2764 }{\}%
2765 \nodexn{(\mdf@P)-(0,\mdfframetitleboxtotalheight)}{\mdf@F}%
2766 \psline[style=mdfframetitlebackgroundstyle,lineararc=\z@](\mdf@0|\mdf@F)(\mdf@0|\mdf@P)
2767 (\mdf@P)(\mdf@P|\mdf@F)%
2768 \endgroup
2769 }

```

\mdf@putbox@second

Last output

```

2770 \def\mdf@putbox@second{
2771 \ifvoid\mdf@splitbox@one
2772 \else%
2773 \mdf@makebox@out{%
2774 \mdf@makeboxalign@left%
2775 % \ifbool{mdf@leftline}{\hspace*{\mdf@middlelinewidth@length}}{\}%
2776 \setlength\mdfboundingboxwidth{\wd\mdf@splitbox@one}%
2777 \advance\mdfboundingboxwidth by \mdf@innerleftmargin@length\relax%
2778 \advance\mdfboundingboxwidth by \mdf@innerrightmargin@length\relax%
2779 \ifbool{mdf@leftline}{%
2780 \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
2781 \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
2782 \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}{\}%
2783 \ifbool{mdf@rightline}{%
2784 \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
2785 \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
2786 \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}{\}%
2787 \setlength\mdfboundingboxheight{\dimexpr\ht\mdf@splitbox@one+\dp\mdf@splitbox@one\relax}%
2788 \advance\mdfboundingboxheight by \mdf@innerbottommargin@length\relax%
2789 \ifbool{mdf@bottomline}{%
2790 \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
2791 \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
2792 \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}{\}%
2793 \psset{unit=1truecm}%

```

```

2794 \mdf@makebox@in[\mdfboundingboxwidth]{%
2795 \null%
2796 \begin{pspicture}(0,0)(\mdfboundingboxwidth,\mdfboundingboxheight)
2797 \mdfpstricks@settings%
2798 \psset{lineararc=\mdf@roundcorner@length, cornersize=absolut,}%
2799 \expandafter\psset\expandafter{\mdf@psset@local}%
2800 \pnode(\mdf@innerleftmargin@length,\mdf@innerbottommargin@length){mdf@A}
2801 \pnode(0,0){mdf@0}
2802 \pnode(\mdfboundingboxwidth,\mdfboundingboxheight){mdf@P}
2803 \ifbool{mdf@leftline}%
2804 {%
2805 \nodexn{(\mdf@A)+(\mdf@outerlinewidth@length,0)
2806 +(\mdf@middlelinewidth@length,0)
2807 +(\mdf@innerlinewidth@length,0)}{mdf@A}
2808 \nodexn{(\mdf@0)+(\mdf@outerlinewidth@length,0)
2809 +0.5(\mdf@middlelinewidth@length,0)}{mdf@0}
2810 }{}%
2811 \ifbool{mdf@rightline}%
2812 {%
2813 \nodexn{(\mdf@P)-(\mdf@outerlinewidth@length,0)
2814 -0.5(\mdf@middlelinewidth@length,0)}{mdf@P}
2815 }{}%
2816 \ifbool{mdf@bottomline}%
2817 {%
2818 \nodexn{(\mdf@A)+(0,\mdf@outerlinewidth@length)
2819 +(0,\mdf@middlelinewidth@length)
2820 +(0,\mdf@innerlinewidth@length)}{mdf@A}
2821 \nodexn{(\mdf@0)+(0,\mdf@outerlinewidth@length)
2822 +0.5(0,\mdf@middlelinewidth@length)}{mdf@0}
2823 }{}%
2824 %%
2825 \ifbool{mdf@shadow}
2826 {\pscustom[style=mdfshadow,linestyle=none]{%
2827 \psline[linejoin=2,linecap=1,](mdf@0)(mdf@P)(mdf@0)(mdf@P)(mdf@0)(mdf@P)%
2828 \psline[linejoin=2,linecap=1,lineararc=\z@](mdf@0)(mdf@P)(mdf@P)
2829 \closedshadow
2830 }
2831 }{}
2832 %Four + Three
2833 \ifboolexpr{test {\mdf@test@lrb} or test {\mdf@test@lrb}}%
2834 {\mdf@pstricksbox@tcl{(\mdf@0)(mdf@P)(mdf@0)(mdf@P)(mdf@0)(mdf@P)}}{}%
2835 %Two combined
2836 \ifboolexpr{test {\mdf@test@ltb} or test {\mdf@test@lb}}%
2837 {\mdf@pstricksbox@tcl{(\mdf@P)(mdf@0)(mdf@P)(mdf@0)(mdf@P)(mdf@0)}}%
2838 {(mdf@0)(mdf@P)(mdf@0)(mdf@P)(mdf@0)(mdf@P)}}{}
2839 \ifboolexpr{test {\mdf@test@trb} or test {\mdf@test@rb}}%
2840 {\mdf@pstricksbox@tcl{(\mdf@P)(mdf@0)(mdf@P)(mdf@0)(mdf@0)%
2841 {(mdf@0)(mdf@P)(mdf@0)(mdf@P)}}{}
2842 %Two not combined
2843 \ifboolexpr{test {\mdf@test@ltr} or test {\mdf@test@lr}}%
2844 {\mdf@pstricksbox@tncl{(\mdf@0)(mdf@P)}{(\mdf@P)(mdf@0)}}{}%
2845 %one line
2846 \ifboolexpr{test {\mdf@test@tb} or test {\mdf@test@b}}%
2847 {\mdf@pstricksbox@ol{(\mdf@0)(mdf@P)(mdf@0)}}{}
2848 \ifboolexpr{test {\mdf@test@lt} or test {\mdf@test@l}}%
2849 {\mdf@pstricksbox@ol{(\mdf@0)(mdf@0)(mdf@P)}}{}

```

```

2850 \ifbool{test {\mdf@test@tr} or test {\mdf@test@r}}%
2851 {\mdf@pstricksbox@ol{\mdf@P}(\mdf@P|\mdf@O)}}{}
2852 %no line
2853 \mdf@test@t{\psframe[style=mdfbackgroundstyle](mdf@O)(mdf@P)}}{}%
2854 \mdf@test@noline{\psframe[style=mdfbackgroundstyle](mdf@O)(mdf@P)}}{}%
2855 %Frametitlebackground
2856 \drawbackgroundframetitle@second
2857 %output%
2858 \rput[bl](mdf@A){\box\mdf@splitbox@one}
2859 % \psdot(mdf@A)\uput[90](mdf@A){mdf at A}
2860 % \psdot(mdf@P)\uput[90](mdf@P){mdf at P}
2861 % \psdot(mdf@O)\uput[90](mdf@O){mdf at O}
2862 \end{pspicture}%
2863 }%
2864 \mdf@makeboxalign@right%
2865 }%
2866 \fi
2867 }%
2868 \def\drawbackgroundframetitle@second{%
2869 \ifdefempty{\mdf@frametitle}}{}%
2870 \ifdimless{\mdfframetitleboxtotalheight}{\z@}
2871 {}{}%
2872 \drawbackgroundframetitle@@second
2873 }%
2874 }%
2875 }%
2876 \def\drawbackgroundframetitle@@second{%
2877 \begin{group}%
2878 \ifbool{mdf@leftline}{%
2879 \nodexn{(mdf@O)+(\mdf@innerlinewidth@length,0)
2880 +0.5(\mdf@middlelinewidth@length,0)}{mdf@O}%
2881 }{}%
2882 \ifbool{mdf@rightline}{%
2883 \nodexn{(mdf@P)-(\mdf@innerlinewidth@length,0)
2884 -0.5(\mdf@middlelinewidth@length,0)}{mdf@P}%
2885 }{}%
2886 \nodexn{(mdf@P)-(0,\mdfframetitleboxtotalheight)}{mdf@F}%
2887 \psline[style=mdfframetitlebackgroundstyle,linear=\z@](mdf@O|mdf@F)(mdf@O|mdf@P)
2888 (mdf@P)(mdf@P|mdf@F)%
2889 \end{group}
2890 }

2891 \endinput
2892 %eof

```

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

```

2893 %Documentation of the package mdframed
2894 %$Id: mdframed.dtx 352 2012-03-12 19:53:51Z marco $
2895 \setcounter{errorcontextlines}{999}
2896 \documentclass[parskip=false,english,11pt]{ltxmdf}
2897 \ltxmdfsetifoot $Id: mdframed.dtx 352 2012-03-12 19:53:51Z marco $
2898
2899 \usepackage{showexpl}
2900 \lstset{style=lstltxmdf,explpreset={pos=b,rframe={}},}

```



```

2901
2902 \newcommand\Loadedframemethod{default}
2903 \usepackage[framemethod=\Loadedframemethod]{mdfamed}
2904
2905 \title{The \Pack{mdfamed} package}
2906 \subtitle{Examples for \Opt{framemethod=\Loadedframemethod}}
2907 \author{\href{mailto:marco.daniel@mada-nada.de}{Marco Daniel}}
2908 \date{\mdfdateID$Id: mdfamed.dtx 352 2012-03-12 19:53:51Z marco $}
2909 \version{\mdversion}
2910 \introduction{In this document I collect various examples for \Opt{framemethod=\Loadedframemethod}.
2911 Some presented examples are more or less exorbitant.}
2912
2913 \mdfsetup{skipabove=\topskip,skipbelow=\topskip}
2914 \newrobustcmd\ExampleText{%
2915     An \textit{inhomogeneous linear} differential equation has the form
2916     \begin{align}
2917         L[v] = f,
2918     \end{align}
2919     where  $L$  is a linear differential operator,  $v$  is
2920     the dependent variable, and  $f$  is a given non-zero
2921     function of the independent variables alone.
2922 }
2923
2924 \newcounter{examplecount}
2925 \setcounter{examplecount}{0}
2926 \renewcommand\thesubsection{}
2927 \newcommand\Examplesec[1]{%
2928 \stepcounter{examplecount}%
2929 \subsection{Example~\arabic{examplecount}~---~#1\relax}%
2930 }
2931
2932 \begin{document}
2933 \maketitle
2934 \section{Loading}
2935 In the preamble only the package \Pack{mdfamed} with the option \Opt{framemethod=\Loadedframemethod}
2936
2937 {\large\color{red!50!black}
2938 \NOTE Every \Cmd{global} inside the examples is necessary to work with the package \Pack{showexpl}.}
2939
2940 \section{Examples}
2941 All examples have the following settings:
2942
2943 \begin{tltxmdfexample}
2944 \mdfsetup{skipabove=\topskip,skipbelow=\topskip}
2945 \newrobustcmd\ExampleText{%
2946 An \textit{inhomogeneous linear} differential equation
2947 has the form
2948 \begin{align}
2949 L[v] = f,
2950 \end{align}
2951 where  $L$  is a linear differential operator,  $v$  is
2952 the dependent variable, and  $f$  is a given non-zero
2953 function of the independent variables alone.
2954 }
2955 \end{tltxmdfexample}
2956 \clearpage

```



```

2957 \Examplesec{very simple}
2958 \begin{LTExample}
2959 \global\mdfdefinestyle{exampledefault}{%
2960     linecolor=red,linewidth=3pt,%
2961     leftmargin=1cm,rightmargin=1cm
2962 }
2963 \begin{mdframed}[style=exampledefault]
2964 \ExampleText
2965 \end{mdframed}
2966 \end{LTExample}
2967
2968 \Examplesec{hidden line + frame title}
2969 \begin{LTExample}
2970 \global\mdfapptodefinestyle{exampledefault}{%
2971     topline=false,rightline=true,bottomline=false}
2972 \begin{mdframed}[style=exampledefault,frametitle={Inhomogeneous linear}]
2973 \ExampleText
2974 \end{mdframed}
2975 \end{LTExample}
2976 \clearpage
2977
2978 \Examplesec{colored frame title}
2979 \begin{LTExample}
2980
2981 \global\mdfapptodefinestyle{exampledefault}{%
2982     rightline=true,innerleftmargin=10,innerrightmargin=10,
2983     frametitlerule=true,frametitlerulecolor=green,
2984     frametitlebackgroundcolor=yellow,
2985     frametitlerulewidth=2pt}
2986 \begin{mdframed}[style=exampledefault,frametitle={Inhomogeneous linear}]
2987 \ExampleText
2988 \end{mdframed}
2989 \end{LTExample}
2990
2991 \Examplesec{framed picture which is centered}
2992 \begin{LTExample}
2993 \begin{mdframed}[userdefinedwidth=6cm,align=center,
2994     linecolor=blue,linewidth=4pt]
2995 \includegraphics[width=\linewidth]{donald-duck}
2996 \end{mdframed}
2997 \end{LTExample}
2998
2999 \clearpage
3000 \Examplesec{Theorem environments}
3001 \begin{LTExample}
3002 \mdfdefinestyle{theoremstyle}{%
3003     linecolor=red,linewidth=2pt,%
3004     frametitlerule=true,%
3005     frametitlebackgroundcolor=gray!20,
3006     innertopmargin=\topskip,
3007 }
3008 \mdtheorem[style=theoremstyle]{definition}{Definition}
3009 \begin{definition}
3010 \ExampleText
3011 \end{definition}
3012 \begin{definition}[Inhomogeneous linear]

```

```

3013 \ExampleText
3014 \end{definition}
3015 \begin{definition*}[Inhomogeneous linear]
3016 \ExampleText
3017 \end{definition*}
3018 \end{LTXexample}
3019
3020
3021 \clearpage
3022 \Examplesec{theorem with separate header and the help of TikZ (complex)}
3023 \begin{LTXexample}
3024 \newcounter{theo}[section]
3025 \newenvironment{theo}[1][]{%
3026   \stepcounter{theo}%
3027   \ifstrempy{#1}%
3028   {\mdfsetup{%
3029     frametitle={%
3030       \tikz[baseline=(current bounding box.east),outer sep=0pt]
3031       \node[anchor=east,rectangle,fill=blue!20]
3032       {\strut Theorem~\thetheo};}}
3033   }%
3034   {\mdfsetup{%
3035     frametitle={%
3036       \tikz[baseline=(current bounding box.east),outer sep=0pt]
3037       \node[anchor=east,rectangle,fill=blue!20]
3038       {\strut Theorem~\thetheo:~#1};}}%
3039   }%
3040   \mdfsetup{innertopmargin=10pt,linecolor=blue!20,%
3041     linewidth=2pt,topline=true,
3042     frametitleaboveskip=\dimexpr-\ht\strutbox\relax,}
3043   \begin{mdframed}[]\relax%
3044   }\end{mdframed}}
3045 \begin{theo}[Inhomogeneous Linear]
3046 \ExampleText
3047 \end{theo}
3048
3049 \begin{theo}
3050 \ExampleText
3051 \end{theo}
3052 \end{LTXexample}
3053
3054 \clearpage
3055 \Examplesec{hide only a part of a line}
3056 The example below is inspired by the following post on StackExchange \href{http://tex.stackexchange.com}
3057 \begin{LTXexample}
3058 \makeatletter
3059 \newlength{\interruptlength}
3060 \setlength{\interruptlength}{2.5ex}
3061 \newrobustcmd\overlaplines{%
3062   \appto\mdf@frame@leftline@single{%
3063     \llap{\color{white}%
3064       \rule[\dimexpr-\mdfboundingboxdepth+\interruptlength\relax]{%
3065         {\mdf@middlelinewidth@length}%
3066         {\dimexpr\mdfboundingboxtotalheight%
3067           \ifbool{mdf@topline}{+\mdf@middlelinewidth@length}{}}
3068         -2\interruptlength\relax}%

```

```

3069 }%
3070 }%
3071 \appto\mdf@frame@rightline@single{%
3072   \rlap{\color{white}%
3073     \hspace*{\mdfboundingboxwidth}%
3074     \hspace*{\mdf@innerrightmargin@length}%
3075     \rule[\dimexpr-\mdfboundingboxdepth%
3076       +\interruptlength\relax]%
3077       {\mdf@middlelinewidth@length}%
3078       {\dimexpr\mdfboundingboxtotalheight%
3079         +\ifbool{mdf@topline}{\mdf@middlelinewidth@length}{0pt}
3080         -2\interruptlength\relax}%
3081   }%
3082 }%
3083 }
3084 \makeatother
3085 \overlaplines
3086
3087 \begin{mdframed}[linecolor=blue,linewidth=8pt]
3088 \ExampleText
3089 \end{mdframed}
3090 \end{LTXexample}
3091 \end{document}
3092 \endinput

```

## D. The file mdframed-example-tikz

```

3093 %Documenation of the package mdframed
3094 %$Id: mdframed.dtx 352 2012-03-12 19:53:51Z marco $
3095 \setcounter{errorcontextlines}{999}
3096 \documentclass[parskip=false,english,11pt]{ltxmdf}
3097 \ltxmdfsetifoot $Id: mdframed.dtx 352 2012-03-12 19:53:51Z marco $
3098
3099
3100 \usepackage{showexpl}
3101 \lstset{style=lstltxmdf,explpreset={pos=b,rframe={}},}
3102
3103 \newcommand\Loadedframemethod{TikZ}
3104 \usepackage[framemethod=\Loadedframemethod]{mdframed}
3105
3106 \title{The \Pack{mdframed} package}
3107 \subtitle{Examples for \Opt{framemethod=\Loadedframemethod}}
3108 \author{\href{mailto:marco.daniel@mada-nada.de}{Marco Daniel}}
3109 \date{\mdfdateID$Id: mdframed.dtx 352 2012-03-12 19:53:51Z marco $}
3110 \version{\mdfversion}
3111 \introduction{In this document I collect various examples for \Opt{framemethod=\Loadedframemethod}.
3112 Some presented examples are more or less exorbitant.}
3113
3114 \mdfsetup{skipabove=\topskip,skipbelow=\topskip}
3115 \newrobustcmd\ExampleText{%
3116   An \textit{inhomogeneous linear} differential equation has the form
3117   \begin{align}
3118     L[v] &= f,
3119   \end{align}
3120   where $L$ is a linear differential operator, $v$ is
3121   the dependent variable, and $f$ is a given non-zero

```

```

3122         function of the independent variables alone.
3123 }
3124
3125 \newcounter{examplecount}
3126 \setcounter{examplecount}{0}
3127 \renewcommand\thesubsection{}
3128 \newcommand\Examplesec[1]{%
3129 \stepcounter{examplecount}%
3130 \subsection{Example~\arabic{examplecount}~---\#1\relax}%
3131 }
3132
3133 \begin{document}
3134 \maketitle
3135 \section{Loading}
3136 In the preamble only the package \Pack{mdframed} with the option \Opt{framemethod=\Loadedframemethod}
3137
3138 {\large\color{red!50!black}
3139 \NOTE Every \Cmd{global} inside the examples is necessary to work with the package \Pack{showexpl}.}
3140
3141 \section{Examples}
3142 All examples have the following settings:
3143
3144 \begin{tltxmdfexample}
3145 \mdfsetup{skipabove=\topskip,skipbelow=\topskip}
3146 \newrobustcmd\ExampleText{%
3147 An \textit{inhomogeneous linear} differential equation
3148 has the form
3149 \begin{align}
3150 L[v] = f,
3151 \end{align}
3152 where  $L$  is a linear differential operator,  $v$  is
3153 the dependent variable, and  $f$  is a given non-zero
3154 function of the independent variables alone.
3155 }
3156 \end{tltxmdfexample}
3157 \clearpage
3158 \ExampleText{round corner}
3159 \begin{LTxexample}
3160 \global\mdfdefinestyle{exampledefault}{%
3161     outerlinewidth=5pt,innerlinewidth=0pt,
3162     outerlinecolor=red,roundcorner=5pt
3163 }
3164 \begin{mdframed}[style=exampledefault]
3165 \ExampleText
3166 \end{mdframed}
3167 \end{LTxexample}
3168
3169 \Examplesec{hidden line + frame title}
3170 \begin{LTxexample}
3171 \global\mdfapptodefinestyle{exampledefault}{%
3172     topline=false,leftline=false,}
3173 \begin{mdframed}[style=exampledefault,frametitle={Inhomogeneous linear}]
3174 \ExampleText
3175 \end{mdframed}
3176 \end{LTxexample}
3177 \clearpage

```

```

3178 \Examplesec{framed picture which is centered}
3179 \begin{LTXexample}
3180 \begin{mdframed}[userdefinedwidth=6cm,align=center,
3181                 linecolor=blue,middlelinewidth=4pt,roundcorner=5pt]
3182 \includegraphics[width=\linewidth]{donald-duck}
3183 \end{mdframed}
3184 \end{LTXexample}
3185
3186 \Examplesec{Gimmick}
3187 \begin{LTXexample}
3188 \mdfsetup{splitbottomskip=0.8cm,splittopskip=0cm,
3189           innerrightmargin=2cm,innertopmargin=1cm,%
3190           innerlinewidth=2pt,outerlinewidth=2pt,
3191           middlelinewidth=10pt,backgroundcolor=red,
3192           linecolor=blue,middlelinecolor=gray,
3193           tikzsetting={draw=yellow,line width=3pt,%
3194                       dashed,%
3195                       dash pattern= on 10pt off 3pt},
3196           rightline=false,bottomline=false}
3197 \begin{mdframed}
3198 \ExampleText
3199 \end{mdframed}
3200 \end{LTXexample}
3201
3202 \Examplesec{complex example with TikZ}
3203
3204 \begin{tltxmdfexample}
3205 \tikzstyle{titregris} =
3206           [draw=gray, thick, fill=white, shading = exersicetitle, %
3207           text=gray, rectangle, rounded corners,
3208           right,minimum height=.7cm]
3209
3210 \pgfdeclarehorizontalshading{exersicebackground}{100bp}
3211 {color(0bp)=(green!40);
3212 color(100bp)=(black!5)}
3213
3214 \pgfdeclarehorizontalshading{exersicetitle}{100bp}
3215 {color(0bp)=(red!40);
3216 color(100bp)=(black!5)}
3217
3218 \newcounter{exercise}
3219 \renewcommand\theexercise{Exercise~\n\arabic{exercise}}
3220 \makeatletter
3221 \def\mdf@@exercisepoints{}
3222 \define@key{mdf}{exercisepoints}{%
3223   \def\mdf@@exercisepoints{#1}
3224 }
3225 \renewrobustcmd\mdfcreateextratikz{%
3226   \node[titregris,xshift=1cm] at (P-|0) %
3227     {\~\mdf@frametitlefont{\theexercise}~};
3228   \ifdefempty{\mdf@@exercisepoints}%
3229     {}%
3230     {\node[titregris,left,xshift=-1cm] at (P)%
3231       {\~\mdf@frametitlefont{\mdf@@exercisepoints points}~};}%
3232 }
3233 \makeatother

```

```

3234
3235 \mdfdefinestyle{exercisestyle}{%
3236   outerlinewidth=1pt,
3237   innerlinewidth=0pt,
3238   roundcorner=2pt,
3239   linecolor=gray,
3240   tikzsetting={shading = exersicebackground},
3241   innertopmargin=1.2\baselineskip,
3242   skipabove={\dimexpr0.5\baselineskip+\topskip\relax},
3243   needspace=3\baselineskip,
3244   frametitlefont=\sffamily\bfseries,
3245   settings={\global\stepcounter{exercise}},
3246 }
3247
3248 \begin{mdframed}[style=exercisestyle,]
3249 \ExampleText
3250 \end{mdframed}
3251
3252 \begin{mdframed}[style=exercisestyle,exercisepoints=10]
3253 \ExampleText
3254 \end{mdframed}
3255 \end{tltxmdfexample}
3256
3257 \tikzstyle{titregris} =
3258     [draw=gray, thick, fill=white, shading = exersicetitle, %
3259     text=gray, rectangle, rounded corners,
3260     right,minimum height=.7cm]
3261
3262 \pgfdeclarehorizontalshading{exersicebackground}{100bp}
3263 {color(0bp)=(green!40);
3264 color(100bp)=(black!5)}
3265
3266 \pgfdeclarehorizontalshading{exersicetitle}{100bp}
3267 {color(0bp)=(red!40);
3268 color(100bp)=(black!5)}
3269
3270 \newcounter{exercise}
3271 \renewcommand\theexercise{Exercise~\arabic{exercise}}
3272 \makeatletter
3273 \def\mdf@@exercisepoints{}
3274 \define@key{mdf}{exercisepoints}{%
3275     \def\mdf@@exercisepoints{#1}
3276 }
3277 \newrobustcmd\mdfcreateextratikzlocal{%
3278     \node[titregris,xshift=1cm] at (P-|0) {-\textbf{\theexercise}-};
3279     \ifdefempty{\mdf@@exercisepoints}%
3280     {}%
3281     {\node[titregris,left,xshift=-1cm] at (P)%
3282         {-\mdf@frametitlefont{\mdf@@exercisepoints points}-};}%
3283 }
3284 \makeatother
3285
3286 \mdfdefinestyle{exercisestyle}{%
3287   outerlinewidth=1pt,
3288   innerlinewidth=0pt,
3289   roundcorner=2pt,

```

```

3290   linecolor=gray,
3291   tikzsetting={shading = exersicebackground},
3292   innertopmargin=1.2\baselineskip,
3293   skipabove={\dimexpr0.5\baselineskip+\topskip\relax},
3294   needspace=3\baselineskip,
3295   frametitlefont=\sffamily\bfseries,
3296   settings={\global\stepcounter{exercise}\let\mdfcreateextratikz\mdfcreateextratikzlocal},
3297   }
3298
3299 \begin{mdframed}[style=exercisestyle,]
3300 \ExampleText
3301 \end{mdframed}
3302
3303 \begin{mdframed}[style=exercisestyle,exercisepoints=10]
3304 \ExampleText
3305 \end{mdframed}
3306
3307 \clearpage
3308 \Examplesec{Theorem environments}
3309 \begin{LTXexample}
3310 \mdfdefinestyle{theoremstyle}{%
3311     linecolor=red,linewidth=2pt,%
3312     frametitlerule=true,%
3313     apptotikzsetting={\tikzset{mdfframetitlebackground/.append style={%
3314         shade,left color=white, right color=blue!20}}},
3315     frametitlerulecolor=green!60,
3316     frametitlerulewidth=1pt,
3317     innertopmargin=\topskip,
3318   }
3319 \mdtheorem[style=theoremstyle]{definition}{Definition}
3320 \begin{definition}[Inhomogeneous linear]
3321 \ExampleText
3322 \end{definition}
3323 \begin{definition*}[Inhomogeneous linear]
3324 \ExampleText
3325 \end{definition*}
3326 \end{LTXexample}
3327
3328 \end{document}
3329 \endinput

```

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

```

3330 %Documenation of the package mdframed
3331 %$Id: mdframed.dtx 352 2012-03-12 19:53:51Z marco $
3332 \setcounter{errorcontextlines}{999}
3333 \documentclass[parskip=false,english,11pt]{ltxmdf}
3334 \ltxmdfsetifoot$Id: mdframed.dtx 352 2012-03-12 19:53:51Z marco $
3335
3336 \lstDeleteShortInline{[]}
3337 \newcommand\Loadedframemethod{PSTricks}
3338 \usepackage[framemethod=\Loadedframemethod]{mdframed}
3339
3340 \usepackage{showexpl}
3341 \lstset{style=lstltxmdf,explpreset={pos=b,rframe={}}},
3342

```

```

3343 \title{The \Pack{mdframed} package}
3344 \subtitle{Examples for \Opt{framemethod=\Loadedframemethod}}
3345 \author{\href{mailto:marco.daniel@mada-nada.de}{Marco Daniel}}
3346 \date{\mdfdateID$Id: mdframed.dtx 352 2012-03-12 19:53:51Z marco $}
3347 \version{\mdversion}
3348 \introduction{In this document I collect various examples for \Opt{framemethod=\Loadedframemethod}.
3349 Some presented examples are more or less exorbitant.}
3350
3351 \mdfsetup{skipabove=\topskip,skipbelow=\topskip}
3352 \newrobustcmd\ExampleText{%
3353     An \textit{inhomogeneous linear} differential equation has the form
3354     \begin{align}
3355         L[v] = f,
3356     \end{align}
3357     where  $L$  is a linear differential operator,  $v$  is
3358     the dependent variable, and  $f$  is a given non-zero
3359     function of the independent variables alone.
3360 }
3361
3362 \newcounter{examplecount}
3363 \setcounter{examplecount}{0}
3364 \renewcommand\thesubsection{}
3365 \newcommand\Examplesec[1]{%
3366 \stepcounter{examplecount}%
3367 \subsection{Example~\arabic{examplecount}~---~#1\relax}%
3368 }
3369
3370 \begin{document}
3371 \maketitle
3372 \section{Loading}
3373 In the preamble only the package \Pack{mdframed} with the option \Opt{framemethod=\Loadedframemethod}
3374
3375 {\large\color{red!50!black}
3376 \NOTE Every \Cmd{global} inside the examples is necessary to work with the package \Pack{showexpl}.}
3377 X
3378 \section{Examples}
3379 All examples have the following settings:
3380
3381 \begin{tltxmdfexample}
3382 \mdfsetup{skipabove=\topskip,skipbelow=\topskip}
3383 \newrobustcmd\ExampleText{%
3384 An \textit{inhomogeneous linear} differential equation
3385 has the form
3386 \begin{align}
3387 L[v] = f,
3388 \end{align}
3389 where  $L$  is a linear differential operator,  $v$  is
3390 the dependent variable, and  $f$  is a given non-zero
3391 function of the independent variables alone.
3392 }
3393 \end{tltxmdfexample}
3394 \clearpage
3395
3396 \Examplesec{very simple}
3397 \begin{LTXexample}
3398 \global\mdfdefinestyle{exampledefault}{%

```



```

3399     linecolor=red,middlelinewidth=3pt,%
3400     leftmargin=1cm,rightmargin=1cm
3401 }
3402 \begin{mdframed}[style=exampledefault,roundcorner=5]
3403 \ExampleText
3404 \end{mdframed}
3405 \end{LTXexample}
3406
3407 \Examplesec{hidden line + frame title}
3408 \begin{LTXexample}
3409 \global\mdfapptodefinestyle{exampledefault}{%
3410   topline=false,rightline=false,bottomline=false,
3411   frametitlerule=true,innertopmargin=6pt,
3412   outerlinewidth=6pt,outerlinecolor=blue,
3413   pstricksappsetting={\addtopsstyle{mdfouterlinestyle}{linestyle=dashed}},
3414   innerlinecolor=yellow,innerlinewidth=5pt}%
3415 \begin{mdframed}[style=exampledefault,frametitle={Inhomogeneous linear}]
3416 \ExampleText
3417 \end{mdframed}
3418 \end{LTXexample}
3419
3420 \clearpage
3421
3422 \Examplesec{Dash Lines}
3423 \begin{LTXexample}
3424 \global\mdfdefinestyle{exampledefault}{%
3425   pstrickssetting={linestyle=dashed,},linecolor=red,linewidth=5pt}
3426 \begin{mdframed}[style=exampledefault,]
3427 \ExampleText
3428 \end{mdframed}
3429 \end{LTXexample}
3430
3431 \Examplesec{Double Lines}
3432 \begin{LTXexample}
3433 \global\mdfdefinestyle{exampledefault}{%
3434   pstrickssetting={doubleline=true,doublesep=6pt},
3435   linecolor=red,linewidth=5pt,middlelinewidth=4pt}
3436 \begin{mdframed}[style=exampledefault,]
3437 \ExampleText
3438 \end{mdframed}
3439 \end{LTXexample}
3440
3441 \Examplesec{Shadow frame}
3442 \begin{LTXexample}
3443 \newmdenv[shadow=true,
3444   shadowsize=11pt,
3445   linewidth=8pt,
3446   frametitlerule=true,
3447   roundcorner=10pt,
3448   ]{myshadowbox}
3449 \begin{myshadowbox}[frametitle={Inhomogeneous linear}]
3450 \ExampleText
3451 \end{myshadowbox}
3452 \end{LTXexample}
3453 \end{document}
3454 \endinput

```

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

```

3455 %Documenation of the package mdframed
3456 %$Id: mdframed.dtx 352 2012-03-12 19:53:51Z marco $
3457 \setcounter{errorcontextlines}{999}
3458 \documentclass[parskip=false,english,11pt,ltxlipsum]{ltxmdf}
3459 \ltxmdfsetifoot $Id: mdframed.dtx 352 2012-03-12 19:53:51Z marco $
3460
3461
3462 \usepackage{showexpl}
3463 \lstset{style=lstltxmdf,explpreset={pos=b,rframe={}},}
3464
3465 \newcommand\Loadedframemethod{default}
3466 \usepackage[framemethod=\Loadedframemethod]{mdframed}
3467
3468 \title{The \Pack{mdframed} package}
3469 \subtitle{Examples for \Opt{framemethod=\Loadedframemethod}}
3470 \author{\href{mailto:marco.daniel@mada-nada.de}{Marco Daniel}}
3471 \date{\mdfdateID$Id: mdframed.dtx 352 2012-03-12 19:53:51Z marco $}
3472 \version{\mdversion}
3473 \introduction{In this document I collect various examples for \Opt{framemethod=\Loadedframemethod}.
3474 Some presented examples are more or less exorbitant.}
3475
3476 \mdfsetup{skipabove=\topskip,skipbelow=\topskip}
3477 \newrobustcmd\ExampleText{%
3478     An \textit{inhomogeneous linear} differential equation has the form
3479     \begin{align}
3480         L[v] &= f,
3481     \end{align}
3482     where  $L$  is a linear differential operator,  $v$  is
3483     the dependent variable, and  $f$  is a given non-zero
3484     function of the independent variables alone.
3485 }
3486
3487 \newcounter{examplecount}
3488 \setcounter{examplecount}{0}
3489 \renewcommand\thesubsection{}
3490 \newcommand\Examplesec[1]{%
3491 \stepcounter{examplecount}%
3492 \subsection{Example~\arabic{examplecount}~---\#1\relax}%
3493 }
3494
3495 \begin{document}
3496 \maketitle
3497 \section{Loading}
3498 In the preamble only the package \Pack{mdframed} width the option \Opt{framemethod=\Loadedframemethod}
3499
3500 {\large\color{red!50!black}
3501 \NOTE Every \Cmd{global} inside the examples is necessary to work with the package \Pack{showexpl}.}
3502
3503 \section{Examples}
3504 All examples have the following settings:
3505
3506 \begin{tltxmdfexample}
3507 \mdfsetup{skipabove=\topskip,skipbelow=\topskip}
3508 \newrobustcmd\ExampleText{%

```

```

3509 An \textit{inhomogeneous linear} differential equation
3510 has the form
3511 \begin{align}
3512 L[v] = f,
3513 \end{align}
3514 where  $L$  is a linear differential operator,  $v$  is
3515 the dependent variable, and  $f$  is a given non-zero
3516 function of the independent variables alone.
3517 }
3518 \end{tltxmdfexample}
3519 \clearpage
3520 \Examplesec{Package listings}
3521 The example below is inspired by the following post on StackExchange \href{http://tex.stackexchange.com}
3522
3523 Here the solution which can be decorate as usual.
3524
3525 \begin{tltxmdfexample}[moretexcs={BeforeBeginEnvironment,AfterEndEnvironment},morekeywords={lstlisting}]
3526 \BeforeBeginEnvironment{lstlisting}{%
3527     \begin{mdframed}[<modification>%
3528         \vspace{-0.7em}}
3529 \AfterEndEnvironment{lstlisting}{%
3530     \vspace{-0.5em}%
3531     \end{mdframed}}
3532 \end{tltxmdfexample}
3533
3534 With the new command \Cmd{surroundwithmdframed} you can use
3535 \begin{tltxmdfexample}[moretexcs={BeforeBeginEnvironment,AfterEndEnvironment},morekeywords={lstlisting}]
3536 \surroundwithmdframed{listings}
3537 \end{tltxmdfexample}
3538
3539 \Examplesec{Package multicol}
3540 How I wrote in \enquote{Known Problems} you can't combine \Pack{multicol} with \Pack{mdframed}. In a s
3541 \begin{LTXexample}
3542 \begin{multicols}{2}
3543 \lipsum[1]
3544 \begin{mdframed}
3545 \ExampleText
3546 \end{mdframed}
3547 \lipsum[2]
3548 \end{multicols}
3549 \end{LTXexample}
3550 \clearpage
3551 \twocolumn[\Examplesec{Working in twocolumn mode}]
3552 \begin{tltxmdfexample}
3553 \twocolumn[%
3554     \Examplesec{Working in
3555         twocolumn mode}]
3556 \lipsum[1]\lipsum[2]
3557 \begin{mdframed}[%
3558     leftmargin=10pt,%
3559     rightmargin=10pt,%
3560     linecolor=red,
3561     backgroundcolor=yellow]
3562 \ExampleText
3563 \end{mdframed}
3564 \lipsum[2]

```

```
3565 \end{tltxmdfexample}
3566 \lipsum[1]\lipsum[2]
3567 \begin{mdframed}[leftmargin=10pt,%
3568                 rightmargin=10pt,%
3569                 linecolor=red,
3570                 backgroundcolor=yellow]
3571 \ExampleText
3572 \end{mdframed}
3573 \lipsum[2]
3574 \clearpage
3575 \onecolumn
3576 \Examplesec{Working inside enumerate}
3577 \begin{LTXexample}
3578 Text Text Text Text Text Text Text Text
3579 \begin{enumerate}
3580 \item in the following \ldots
3581     \begin{mdframed}[linecolor=blue,linewidth=2]
3582     \ExampleText
3583     \end{mdframed}
3584 \item \lipsum[2]
3585 \end{enumerate}
3586 Text Text Text Text Text Text
3587 \end{LTXexample}
3588 \end{document}
3589 \endinput
```

## G. Change History

v1.0a		\item\mbox\relax – Need for amsthm	29
General: Created dtx and fixes bugs	1	changed definition of \mdf@lrbox (Thanks	
v1.0b		Lars Madsen)	28
General: added command \@parboxrestore		Changed the enddefinition of mdframed.	
to \mdf@lrbox	28	Uses now \@doendpe instead of	
removed \setbox\mdf@splitbox@two		\endparenv	36
\vbox\unvbox \mdf@splitbox@two	41	Edit algorithm to combine the	
v1.1beta		saveboxes \mdf@frametitlebox and	
General: added command to avoid overfull		\mdf@splitboxone by the predefined set-	
box warning by vsplit	29	tings: \parskip\z@, \parindent\z@ and	
Added frametitle detection to		\offinterlineskip	32
\detected@mdf@put@frame	35	v1.2a	
added lost semicolons	55	General: take account of \parskip for the	
Added method frame title via \savebox	32	vertical calculation	38
Added option frametitlerulecolor,		v1.3	
frametitlebackgroundcolor, font	24	General: Added option shadow	24
Added option titleaboveskip,		Use now \item\mbox\relax	29
titlebelowskip, frametitlerulewidth	23	v1.3a	
Added option usetwoside	24	General: fixes bug with \@doendpe (Thanks	
Changed the definition of \mdf@trivlist	36	Dietrich Grau)	28
Create new \savebox and renamed		v1.4	
\@tempboxa	27	General: Changed the detecting of float en-	
Defining mdframed with \newenvironment	36	vironments. Now mdframed uses only	
Joining all new definitions	27	\@capttype instead of \@floatpenalty	35
Redefinition of \newmdtheoremenv. – Now		Changed the enddefinition of mdframed.	
check of theorem definition.	30	Uses now a line to provide the defined	
Removing \@arrayparboxrestore	38	width	36
Renamed some commands so that every		v1.4a	
command have the same prefix \mdf@	1	General: added extra test for a wrong splitted	
v1.1release		box	41
General: Added \mbox to the definition.			

## H. Index

The index only collect package relevant words.

<b>Symbols</b>	<b>\DisableKeyvalOption</b> . . . . .	<b>F</b>
<b>\@definecounter</b> . . . . . 452, 472	. . . . . 1178, 1179	<b>font</b> (option) . . . . . 7
<b>\@doendpe</b> . . . . . 359, 756	<b>\documentclass</b> . . . . .	<b>fontcolor</b> (option) . . . . . 7
<b>\@itemlabel</b> . . . . . 384	. . . . . 2896, 3096, 3333, 3458	<b>footnotedistance</b> (option) . . . . . 12
<b>\@namedef</b> . . . . . 503	<b>\draw</b> . . . . . 1699	<b>footnoteinside</b> (option) . . . . . 12
<b>\@nameuse</b> . . . . . 503	<b>\drawbrackgroundframetitle@first</b> . . . . . 1869, 1873,	<b>framemethod</b> (option) . . . . . 4
<b>\@newctr</b> . . . . . 472	. . . . . 1884, 2641, 2645, 2655	<b>frametitle</b> (option) . . . . . 10
<b>\@nmbrlistfalse</b> . . . . . 379	<b>\drawbrackgroundframetitle@middle</b> . . . . . 2009, 2015, 2750, 2755	<b>frametitleaboveskip</b> (option) . . . . . 10
<b>\@parboxrestore</b> . . . . . 353	<b>\drawbrackgroundframetitle@second</b> . . . . . 2110, 2115, 2872, 2876	<b>frametitlealignment</b> (option) . . . . . 10
<b>\@temptitle</b> . . . . . 457,	<b>\drawbrackgroundframetitle@single</b> . . . . . 1841, 1844, 2512, 2515	<b>frametitlebackgroundcolor</b> (option) . . . . . 10
. . . . . 459, 464, 467, 468, 480,	<b>\drawbrackgroundframetitle@first</b> . . . . . 1865, 1993, 2624, 2637	<b>frametitlebelowskip</b> (option) . . . . . 10
. . . . . 482, 487, 491, 493, 498,	<b>\drawbrackgroundframetitle@middle</b> . . . . . 2005, 2094, 2734, 2746	<b>frametitlefont</b> (option) . . . . . 10
. . . . . 507, 509, 514, 517, 518	<b>\drawbrackgroundframetitle@second</b> . . . . . 2106, 2221, 2856, 2868	<b>frametitlerule</b> (option) . . . . . 10
<b>\@thmcounter</b> . . . . . 453, 473, 476	<b>\drawbrackgroundframetitle@single</b> . . . . . 1827, 1839, 2496, 2510	<b>frametitlerulewidth</b> (option) . . . . . 10
<b>\@thmcountersep</b> . . . . . 475		
<b>\@trivlist</b> . . . . . 380	<b>E</b>	<b>G</b>
<b>\_</b> . . . . . 464, 467, 487, 514, 517	<b>\endgroup</b> 30, 269, 564, 601,	<b>\global</b> . . . . .
<b>A</b>	. . . . . 899, 1025, 1079, 1103,	. . . . . 503, 559, 561, 574, 575,
<b>\addtolength</b> . . . . . 805	. . . . . 1701, 2346, 2361, 2382,	. . . . . 576, 577, 578, 593, 599,
<b>\addtopstyle</b> . . . . . 2252, 3413	. . . . . 2532, 2674, 2768, 2889	. . . . . 1359, 1367, 1559, 1870,
<b>align</b> (option) . . . . . 8	<b>\endmdf@lrbox</b> . . . . . 341,	. . . . . 1874, 2010, 2642, 2646,
<b>apptotikzsetting</b> (option) . . . . . 9	. . . . . 362, 557, 572, 743, 748	. . . . . 2751, 2959, 2970, 2981,
<b>\arabic</b> . . . . . 2929, 3130,	<b>\endmdf@trivlist</b> . . . . .	. . . . . 3160, 3171, 3245, 3296,
. . . . . 3219, 3271, 3367, 3492	. . . . . 375, 390, 391, 755	. . . . . 3398, 3409, 3424, 3433
<b>\author</b> 2907, 3108, 3345, 3470	<b>\endpsclip</b> 2302, 2310, 2324,	<b>H</b>
<b>B</b>	. . . . . 2343, 2359, 2503, 2630	<b>hidealllines</b> (option) . . . . . 10
<b>backgroundcolor</b> (option) . . . . . 7	<b>\enquote</b> . . . . . 3540	<b>\href</b> . . . . . 2907, 3056,
<b>\booltrue</b> . . . . . 526	<b>\Examplesec</b> . . . . . 2927, 2957,	. . . . . 3108, 3345, 3470, 3521
<b>bottomline</b> (option) . . . . . 10	. . . . . 2968, 2978, 2991, 3000,	<b>I</b>
<b>C</b>	. . . . . 3022, 3055, 3128, 3169,	<b>\if@mdf@pageodd</b> . . . . . 760, 784, 795
<b>\clearpage</b> . . . . . 2956,	. . . . . 3178, 3186, 3202, 3308,	<b>\ifcsdef</b> . . . . . 445
. . . . . 2976, 2999, 3021, 3054,	. . . . . 3365, 3396, 3407, 3422,	<b>\ifdefempty</b> . . . . . 735,
. . . . . 3157, 3177, 3307, 3394,	. . . . . 3431, 3441, 3490, 3520,	. . . . . 744, 749, 1322, 1428,
. . . . . 3420, 3519, 3550, 3574	. . . . . 3539, 3551, 3554, 3576	. . . . . 1517, 1594, 1840, 1866,
<b>\closedshadow</b> . . . . . 2594, 2829	<b>\ExampleText</b> . . . . .	. . . . . 2006, 2107, 2511, 2638,
<b>\Cmd</b> . . . . . 2935,	. . . . . 2914, 2945, 2964, 2973,	. . . . . 2747, 2869, 3228, 3279
. . . . . 2938, 3136, 3139, 3373,	. . . . . 2987, 3010, 3013, 3016,	<b>\ifmdf@bottomline</b> . . . . . 530
. . . . . 3376, 3498, 3501, 3534	. . . . . 3046, 3050, 3088, 3115,	<b>\ifmdf@footnoteinside</b> . . . . . 740
<b>\csappto</b> . . . . . 409	. . . . . 3146, 3158, 3165, 3174,	<b>\ifmdf@frametitlebottomline</b>
<b>\CurrentOption</b> . . . . . 272	. . . . . 3198, 3249, 3253, 3300,	. . . . . 530
<b>D</b>	. . . . . 3304, 3321, 3324, 3352,	<b>\ifmdf@frametitleleftline</b> 527
<b>\date</b> . . . . . 2908, 3109, 3346, 3471	. . . . . 3383, 3403, 3416, 3427,	. . . . . 529
<b>\DeclareDocumentCommand</b> .	. . . . . 3437, 3450, 3477, 3508,	<b>\ifmdf@frametitletopline</b> 528
. . . . . 432, 444	. . . . . 3545, 3562, 3571, 3582	<b>\ifmdf@leftline</b> . . . . . 527
<b>defaultunit</b> (option) . . . . . 5		<b>\ifmdf@nobreak</b> . . . . . 674
<b>\deferred@thm@head</b> . . . . . 371, 372		
<b>\detected@mdf@put@frame</b> .		
. . . . . 562, 672, 673, 745, 750		

\ifmdf@rightline . . . . .	529	\mdf@@frametitle 524, 583, 735	\mdf@endparenv . . . . .	391, 392
\ifmdf@topline . . . . .	528	\mdf@@frametitle@use . . . . .	\mdf@font . . . . .	732
\IfNoValueTF . . . . .	433, 448, 450	. . . . . 587, 744, 749	\mdf@fontcolor . . . . .	731, 1626
\ifstrempy . . . . .	456, 467,	\mdf@@frametitlerule . . . . .	\mdf@footnotedistance@length	. . . . . 620
. . . . .	479, 490, 506, 517, 3027	. . . . . 595, 952,	\mdf@footnotebox . . . . .	306
\IfValueTF . . . . .	435, 436	. . . . . 990, 1063, 1204, 1692, 2371	\mdf@footnoteinput . . . . .	. . . . . 614, 626, 730
\ifvmode . . . . .	733	\mdf@@setzref . . . . . 760,	\mdf@footnoteoutput . . . . .	. . . . . 614, 617, 742, 751
\includegraphics . . . . .	2995, 3182	. . . . . 794, 897, 1023, 1077, 1100	\mdf@footnoterule 614, 614, 622	
\indent . . . . .	372	\mdf@advancelength@freevspace@add	\mdf@frame@background@first	. . . . . 1333, 1333, 1427
innerbottommargin (option) . . . . .	6	. . . . . 845, 851, 1037	\mdf@frame@background@middle	. . . . . 1527, 1534, 1593
innerleftmargin (option) . . . . .	6	\mdf@advancelength@freevspace@sub	\mdf@frame@background@second	. . . . . 1438, 1438, 1514
innerlinecolor (option) . . . . .	7	. . . . . 845, 848, 925	\mdf@frame@background@single	. . . . . 1219, 1219, 1320
innerlinewidth (option) . . . . .	7	\mdf@advancelength@horizontalmargin@add	\mdf@frame@bottomline@second	. . . . . 1438, 1474, 1516
innermargin (option) . . . . .	6	. . . . . 808	\mdf@frame@bottomline@single	. . . . . 1257, 1321
innerrightmargin (option) . . . . .	6	\mdf@advancelength@horizontalmargin@sub	\mdf@frame@frametitlebackground@first	. . . . . 1351, 1428
innertopmargin (option) . . . . .	6	. . . . . 808, 814	\mdf@frame@frametitlebackground@middle	. . . . . 1551, 1594
\interruptionlength 3059, 3060,		\mdf@advancelength@verticalmargin@whole	\mdf@frame@frametitlebackground@second	. . . . . 1457, 1517
. . . . . 3064, 3068, 3076, 3080		. . . . . 845, 845, 864, 890	\mdf@frame@frametitlebackground@single	. . . . . 1239, 1322
\introduction . . . . .		\mdf@align . . . . . 219, 219	\mdf@frame@leftline@first	. . . . . 1333, 1375, 1424
. . . . . 2910, 3111, 3348, 3473		\mdf@alignoption@tripleddo	\mdf@frame@leftline@middle	. . . . . 1527, 1527, 1592
\itemindent . . . . .	383	. . . . . 81, 82, 84	\mdf@frame@leftline@second	. . . . . 1438, 1467, 1513
<b>L</b>		\mdf@Ax . . . . .	\mdf@frame@leftline@single	. . . . . 1219, 1268, 1317, 3062
\labelwidth . . . . .	381	. . . . . 1745, 1753, 1754, 1829,	\mdf@frame@rightline@first	. . . . . 1333, 1391, 1431
\ldots . . . . .	3580	. . . . . 1938, 1946, 1947, 1995,	\mdf@frame@rightline@middle	. . . . . 1527, 1562, 1597
\leavevmode . . . . .	386	. . . . . 2058, 2066, 2067, 2096,	\mdf@frame@rightline@second	. . . . . 1438, 1483, 1520
leftline (option) . . . . .	10	. . . . . 2161, 2169, 2170, 2223	\mdf@frame@rightline@single	. . . . . 1219, 1276, 1325, 3071
\leftmargin . . . . .	382	\mdf@Ay . . . . .	\mdf@frame@topandbottomline@single	. . . . . 1219
leftmargin (option) . . . . .	6	. . . . . 1746, 1766, 1767, 1829,	\mdf@frame@topline@first	. . . . . 1333, 1383, 1426
linecolor (option) . . . . .	7	. . . . . 1939, 1995, 2059, 2096,	\mdf@frame@topline@single	. . . . . 1247, 1319
linewidth (option) . . . . .	6	. . . . . 2162, 2182, 2183, 2223	\mdf@frameIdate@svn . . . . .	. . . . . 1614, 1615, 1617
\lipsum . . . . .	3543, 3547, 3556,	\mdf@background@default . . . . .		
. . . . . 3564, 3566, 3573, 3584		. . . . . 1196, 1196,		
\Loadedframemethod . . . . .		. . . . . 1233, 1345, 1451, 1545		
. . . . . 2902, 2903, 2906, 2910,		\mdf@backgroundcolor . . . . .		
. . . . . 2935, 3103, 3104, 3107,		. . . . . 170, 172, 1196,		
. . . . . 3111, 3136, 3337, 3338,		. . . . . 1628, 1629, 2254, 2255		
. . . . . 3344, 3348, 3373, 3465,		\mdf@booloption@doubledo		
. . . . . 3466, 3469, 3473, 3498		. . . . . 72, 73, 75		
\lstDeleteShortInline . . . . .	3336	\mdf@checknththeorem . . . . .		
\lstset 2900, 3101, 3341, 3463		. . . . . 604, 605, 728		
\ltxmdfsetifoot . . . . .		\mdf@currentvbadness 365, 368		
. . . . . 2897, 3097, 3334, 3459		\mdf@defaultunit . . . . . 29		
<b>M</b>		\mdf@deferred@thm@head . . . . .		
\makeatletter 3058, 3220, 3272		. . . . . 371		
\makeatother 3084, 3233, 3284		\mdf@define@key@length . . . . .		
\makelabel . . . . .	385	. . . . . 43, 47, 61		
\maketitle . . . . .		\mdf@do@alignoption . . . . .		
. . . . . 2933, 3134, 3371, 3496		. . . . . 81, 81, 212, 212		
margin (option) . . . . .	6	\mdf@do@booloption . . . . .		
\mbox . . . . .	387	. . . . . 72, 72, 186, 186		
\mdf@@exercisepoints . . . . .		\mdf@do@lengthoption . . . . .		
. . . . . 3221, 3223, 3228, 3231,		. . . . . 56, 56, 133, 133, 160		
. . . . . 3273, 3275, 3279, 3282		\mdf@do@stringoption . . . . .		
\mdf@@framemethod 116, 118, 120		. . . . . 63, 63, 160		
		\mdf@dolist . . . . . 42,		
		. . . . . 42, 133, 160, 186, 212,		
		. . . . . 814, 864, 890, 925, 1037		



\mdf@frameIIdate@svn . . . .	882, 894, 909, 910, 912,	2416, 2420, 2424, 2441,
..... 2243, 2244, 2246	924, 1035, 1045, 1047, 1055	2454, 2518, 2522, 2526,
\mdf@framemethod . . . 106, 106	\mdf@Fy . . . . .	2544, 2548, 2555, 2576,
\mdf@framemethod@i . . . .	1858, 1861, 1862, 1898,	2648, 2658, 2662, 2666,
..... 107, 112, 115	1901, 1902, 2025, 2028,	2686, 2690, 2712, 2758,
\mdf@framemethod@ii . . . .	2029, 2125, 2128, 2129	2762, 2780, 2784, 2790,
..... 108, 113, 117	\mdf@hidealllines@check .	2807, 2820, 2879, 2883
\mdf@framemethod@iii . . . .	..... 713, 713, 724	\mdf@innermargin@length .
..... 109, 114, 119	\mdf@horizontalmargin@equation	..... 768, 788, 790
\mdf@frameOdate@svn . . . .	..... 350, 808, 812	\mdf@innerrightmargin@length
..... 1191, 1192, 1194	\mdf@horizontalsofbox	... 1212, 1279, 1296,
\mdf@frametitle . . . . .	..... 808,	1393, 1408, 1485, 1499,
.. 584, 735, 744, 749,	809, 811, 813, 820, 821,	1564, 1578, 1698, 1721,
1322, 1428, 1517, 1594,	822, 825, 826, 827, 829, 831	1914, 2042, 2141, 2402,
1840, 1866, 2006, 2107,	\mdf@horizontalwidthofbox@length	2542, 2684, 2778, 3074
2511, 2638, 2747, 2869	..... 335	\mdf@innertopmargin@length
\mdf@frametitleaboveskip@length	\mdf@iflength . . . . 26, 27, 50	..... 913, 955, 993,
..... 579, 602	\mdf@iflength@check 26, 28, 32	1066, 1216, 1251, 1302,
\mdf@frametitlealignment	\mdf@iflength@cleanup . 38, 41	1386, 1413, 1704, 1732,
..... 538, 555, 569	\mdf@ifstrequal@expand ..	1925, 2385, 2414, 2552
\mdf@frametitlebackground@default	..... 286, 291, 293, 295	\mdf@keeplines@single ...
..... 1197, 1240,	\mdf@ignorevbadness . . . .	..... 833, 833, 867, 893
1354, 1362, 1460, 1554	..... 364, 364,	\mdf@leftmargin@length 213,
\mdf@frametitlebackgroundcolor	558, 560, 573, 592, 598,	217, 220, 768, 788, 791
..... 534,	943, 971, 977, 982, 1054	\mdf@lengthoption@doubledo
1197, 1630, 2260, 2261	\mdf@innerbottommargin@length	..... 56, 57, 59
\mdf@frametitlebelowskip@length	..... 1251,	\mdf@linecolor 167, 168, 169,
..... 579, 1207, 1369,	1300, 1303, 1502, 1504,	171, 655, 656, 657, 663, 669
1695, 1877, 2374, 2649	1733, 1746, 2152, 2162,	\mdf@linecolor@bottom ...
\mdf@frametitlebottomrulecolor	2413, 2434, 2788, 2800	..... 540, 1196
..... 540	\mdf@innerleftmargin@length	\mdf@linecolor@default ..
\mdf@frametitlebox . . . . .	1208, 1211, 1295, 1323,	..... 1196, 1203,
..... 305, 559, 561,	1407, 1429, 1498, 1518,	1248, 1258, 1269, 1277,
568, 574, 575, 576, 577,	1577, 1595, 1696, 1698,	1376, 1384, 1392, 1468,
578, 594, 951, 989, 1062	1720, 1745, 1913, 1938,	1475, 1484, 1528, 1563
\mdf@frametitlefont . . . .	2041, 2058, 2140, 2161,	\mdf@linewidth@length ...
553, 571, 3227, 3231, 3282	2401, 2434, 2541, 2569,	..... 148, 653, 661, 667
\mdf@frametitlefontcolor 570	2683, 2705, 2777, 2800	\mdf@load@style . 632, 632, 648
\mdf@frametitleleftmargin@length	\mdf@innerlinecolor . 655,	\mdf@LoadFile@IfExist ...
..... 536	663, 669, 1199, 1647, 2282	..... 8, 10, 98, 99,
\mdf@frametitlerightmargin@length	\mdf@innerlinecolor@default	101, 102, 122, 128, 129, 130
..... 537	..... 1199	\mdf@lrbox . . . . .
\mdf@frametitlerulecolor	\mdf@innerlinewidth@length	.. 341, 342, 554, 568, 737
..... 533,	..... 652,	\mdf@maindate@svn . . . . 1, 3, 6
1202, 1689, 2366, 2367	660, 666, 820, 825, 835,	\mdf@makebox@in . 395, 400,
\mdf@frametitlerulecolor@default	840, 914, 929, 1041,	1313, 1420, 1509, 1588,
..... 1202, 1209	1049, 1305, 1633, 1645,	1742, 1934, 2055, 2158,
\mdf@frametitlerulewidth@length	1648, 1723, 1727, 1735,	2428, 2560, 2696, 2794
..... 535,	1739, 1755, 1768, 1848,	\mdf@makebox@out 395, 395,
1206, 1213, 1700, 2377	1852, 1856, 1876, 1888,	1290, 1403, 1494, 1573,
\mdf@frametitlesettings . 541	1892, 1896, 1916, 1920,	1715, 1909, 2036, 2135,
\mdf@freepagevspace . . . .	1928, 1948, 2019, 2023,	2398, 2537, 2679, 2773
.. 797, 797, 879, 910, 923	2044, 2048, 2068, 2119,	\mdf@makeboxalign@left ..
\mdf@freespace@length ..	2123, 2143, 2147, 2154,	.. 219, 220, 225, 228,
..... 334, 802,	2171, 2184, 2264, 2267,	1291, 1404, 1495, 1574,
803, 804, 805, 879, 880,	2280, 2283, 2404, 2408,	



1716, 1910, 2037, 2136, 2399, 2538, 2680, 2774	..... 1201	\mdf@pstricksbox@ol 2348, 2488, 2489, 2490, 2491, 2614, 2616, 2618, 2728, 2730, 2847, 2849, 2851
\mdf@makeboxalign@right . .. 219, 221, 226, 229, 1329, 1434, 1523, 1600, 1835, 2001, 2102, 2229, 2506, 2633, 2742, 2864	\mdf@outerlinewidth@length .. 654, 662, 668, 822, 827, 837, 842, 916, 931, 1043, 1051, 1306, 1638, 1641, 1725, 1729, 1737, 1741, 1754, 1757, 1762, 1767, 1770, 1775, 1918, 1922, 1930, 1947, 1950, 1954, 1958, 2046, 2050, 2067, 2070, 2075, 2145, 2149, 2156, 2170, 2173, 2178, 2183, 2186, 2272, 2275, 2406, 2410, 2418, 2422, 2426, 2439, 2442, 2447, 2452, 2455, 2460, 2546, 2550, 2557, 2574, 2577, 2582, 2587, 2688, 2692, 2710, 2713, 2718, 2782, 2786, 2792, 2805, 2808, 2813, 2818, 2821	\mdf@pstricksbox@tcl 2313, 2474, 2476, 2478, 2480, 2604, 2607, 2837, 2840
\mdf@middlelinecolor .... ... 656, 1200, 1661, 2292	\mdf@outermargin@length . ..... 767, 787, 791	\mdf@pstricksbox@tl .... ... 2305, 2469, 2470, 2471, 2472, 2600, 2834
\mdf@middlelinecolor@default ..... 1200, 1203	\mdf@0x ..... 1747, 1756, 1757, 1778, 1847, 1848, 1861, 1887, 1888, 1901, 1940, 1949, 1950, 1961, 2018, 2019, 2028, 2060, 2069, 2070, 2078, 2118, 2119, 2128, 2163, 2172, 2173, 2189	\mdf@pstricksbox@tncl ... ..... 2327, 2483, 2485, 2611, 2726, 2844
\mdf@middlelinewidth@length ..... 653, 661, 667, 821, 826, 836, 841, 915, 930, 1042, 1050, 1224, 1227, 1230, 1253, 1258, 1260, 1262, 1263, 1264, 1271, 1273, 1282, 1284, 1305, 1310, 1312, 1340, 1378, 1380, 1388, 1395, 1397, 1417, 1418, 1423, 1443, 1446, 1470, 1475, 1476, 1478, 1479, 1480, 1487, 1506, 1507, 1512, 1530, 1541, 1566, 1585, 1586, 1591, 1634, 1641, 1648, 1659, 1662, 1663, 1724, 1728, 1736, 1740, 1755, 1757, 1762, 1767, 1770, 1775, 1848, 1852, 1856, 1876, 1888, 1892, 1896, 1917, 1921, 1929, 1948, 1950, 1954, 1958, 2019, 2023, 2045, 2049, 2068, 2070, 2075, 2119, 2123, 2144, 2148, 2155, 2171, 2173, 2178, 2184, 2186, 2265, 2268, 2275, 2283, 2289, 2291, 2405, 2409, 2417, 2421, 2425, 2440, 2443, 2448, 2453, 2456, 2461, 2519, 2523, 2527, 2539, 2545, 2549, 2556, 2575, 2578, 2583, 2588, 2648, 2659, 2663, 2667, 2681, 2687, 2691, 2711, 2714, 2719, 2759, 2763, 2775, 2781, 2785, 2791, 2806, 2809, 2814, 2819, 2822, 2880, 2884, 3065, 3067, 3077, 3079	\mdf@put@frame ..... 677, 679, 688, 872, 872, 885, 921, 1008, 1013, 1019	
\mdf@needspace ..... 260	\mdf@0y ..... 1748, 1769, 1770, 1778, 1941, 1961, 2061, 2078, 2164, 2185, 2186, 2189	\mdf@put@frame@i 901, 906, 906
\mdf@option@length 43, 43, 60	\mdf@PackageInfo ..... .. 8, 9, 681, 690, 695, 701, 706, 765, 770, 883, 960	\mdf@put@frame@ii .. 1028, 1034, 1034, 1074, 1082
\mdf@outerlinecolor .... ... 657, 1201, 1640, 2274	\mdf@PackageInfoSpace 303, 880	\mdf@put@frame@standalone ..... 675, 683, 692, 697, 703, 708, 856, 856
\mdf@outerlinecolor@default	\mdf@PackageNoInfo ..... 285	\mdf@put@frametitlerule . ..... 1687, 2371
	\mdf@PackageWarning .... 8, 8, 14, 92, 103, 224, 272, 277, 297, 408, 446, 608, 643, 830, 858, 874, 935, 998, 1070, 1086, 1092, 1360, 1871, 2643	\mdf@putbox@first ..... ... 1024, 1333, 1400, 1865, 1906, 2534, 2534
	\mdf@pageiseven ..... 760	\mdf@putbox@middle ..... ... 1078, 1527, 1570, 2005, 2033, 2676, 2676
	\mdf@pageisodd ..... 760	\mdf@putbox@second ..... ... 1101, 1438, 1491, 2106, 2132, 2770, 2770
	\mdf@patchamsth ..... 369	\mdf@putbox@single ..... ..... 868, 898, 1219, 1287, 1707, 1712, 2395
	\mdf@patchamsthm 344, 370, 374	\mdf@Px ..... 1749, 1761, 1762, 1779, 1851, 1852, 1862, 1891, 1892, 1902, 1942, 1953, 1954, 1962, 2022, 2023, 2029, 2062, 2074, 2075, 2079, 2122, 2123, 2129, 2165, 2177, 2178, 2190
	\mdf@print@space 285, 289, 878	\mdf@Py ..... 1750, 1774, 1775, 1779, 1855, 1856, 1859, 1861, 1862, 1895, 1896, 1899, 1901, 1902, 1943, 1957, 1958, 1962, 2026, 2028, 2029, 2063, 2079, 2126, 2128, 2129, 2166, 2190
	\mdf@printheight ... 287, 297	
	\mdf@psset@local ..... .. 232, 239, 241, 2433, 2559, 2568, 2703, 2799	
\mdf@outerlinecolor@default	\mdf@pstricksbox@fl 2297, 2467	

\mdf@reserved@a . . . . .	958, 962, 963, 966, 972,	\mdf@test@rb . . . . . <u>1109</u> ,
. . . . . 672, 675, 677,	973, 975, 978, 1002,	1139, 1175, 1795, 1986,
679, 683, 688, 692, 697,	1010, 1015, 1018, 1055,	2202, 2476, 2617, 2839
703, 708, 711, 859, 868,	1056, 1073, 1401, 1405,	\mdf@test@single . . . . . <u>1171</u>
870, 875, 885, 900, 901,	1409, 1411, 1432, 1571,	\mdf@test@t . . . . .
904, 921, 1008, 1013,	1575, 1579, 1581, 1598,	<u>1109</u> , 1161, 1817, 1980,
1019, 1028, 1032, 1074,	1907, 1912, 1924, 1995,	2217, 2490, 2613, 2853
1082, 1096, 1104, 1106	2034, 2040, 2052, 2096,	\mdf@test@tb . . . . .
\mdf@reserveda .. 741, 747, 754	2535, 2540, 2551, 2626,	<u>1109</u> , 1151, 1807, 1980,
\mdf@reset . . . . . <u>854</u> , 854	2677, 2682, 2693, 2736	2208, 2485, 2613, 2846
\mdf@restoreparams . <u>346</u> , 354	\mdf@splittopskip@length	\mdf@test@tr . . . . . <u>1109</u> ,
\mdf@restorevbadness . . . .	. . . . . 942, 949, 954,	1142, 1175, 1798, 1974,
. . . . . <u>364</u> , 367, 368	970, 987, 992, 1053,	2214, 2478, 2606, 2850
\mdf@rightmargin@length .	1060, 1065, 1877, 2650	\mdf@test@trb . . . . . <u>1109</u> ,
. . 215, 216, 767, 787, 790	\mdf@stringoption@doubledo	1129, 1173, 1788, 1974,
\mdf@roundcorner@length .	. . . . . <u>63</u> , 64, 66	2202, 2470, 2606, 2839
1627, 1632, 2263, 2266,	\mdf@style . . . . . <u>275</u>	\mdf@theoremseparator . . .
2432, 2558, 2567, 2798	\mdf@styledefinition . . . .	. . . . . 459, 482, 493, 509
\mdf@setopt@body . . . <u>524</u> , 544	. . . . . <u>632</u> , 650, 729	\mdf@theoremspace . . . . .
\mdf@setopt@title <u>524</u> , 525, 551	\mdf@tempa .. 111, 115, 117,	. . . . . 460, 483, 494, 510
\mdf@settings . . . . . 736	119, 291, 293, 295, 299, 303	\mdf@theoremtitlefont . . .
\mdf@shadow@default 1198,	\mdf@templength 26, 29, 51, 52	. . . . . 461, 484, 495, 511
1221, 1335, 1440, 1536	\mdf@test@b . . . . .	\mdf@tikz@settings . . . . .
\mdf@shadowcolor . . . . .	<u>1109</u> , 1164, 1820, 1989,	. . . . . <u>1620</u> , 1621,
. . . . . 1198, 1653, 2288	2208, 2491, 2620, 2846	1717, 1911, 2038, 2137
\mdf@shadowsize@length . .	\mdf@test@l . . . . .	\mdf@tikzbox@otl . . . . .
. . . . . 1223, 1226,	<u>1109</u> , 1155, 1811, 1983,	. . . <u>1667</u> , 1679, 1792,
1229, 1337, 1339, 1342,	2211, 2488, 2615, 2848	1795, 1798, 1801, 1804,
1442, 1445, 1448, 1538,	\mdf@test@lb . . . . . <u>1109</u> ,	1807, 1811, 1814, 1817,
1540, 1651, 1652, 2288	1136, 1174, 1792, 1983,	1820, 1972, 1975, 1978,
\mdf@skipabove@length . . . 734	2199, 2474, 2615, 2836	1981, 1984, 1987, 2086,
\mdf@skipbelow@length . . . 393	\mdf@test@lr . . . . .	2088, 2090, 2200, 2203,
\mdf@splitbottomskip@length	<u>1109</u> , 1148, 1804, 1977,	2206, 2209, 2212, 2215
1047, 1386, 1411, 1414,	2205, 2483, 2610, 2843	\mdf@tikzbox@tfl . . . <u>1667</u> ,
1581, 1583, 1877, 1926,	\mdf@test@lrb . . . . . <u>1109</u> ,	1667, 1785, 1787, 1788,
1939, 2053, 2059, 2553,	1132, 1174, 1790, 1977,	1789, 1790, 1969, 2197
2569, 2649, 2694, 2705	2196, 2472, 2610, 2833	\mdf@tikzset@local . . . . .
\mdf@splitbox@one 307, 554,	\mdf@test@lt . . . . . <u>1109</u> ,	. <u>232</u> , 232, 234, 237, 1656
559, 561, 593, 596, 599,	1145, 1176, 1801, 1971,	\mdf@titleaboveskip@length
600, 737, 857, 863, 873,	2211, 2480, 2603, 2848	. . . . . 532
877, 889, 934, 944, 946,	\mdf@test@ltb . . . . . <u>1109</u> ,	\mdf@titlebelowskip@length
948, 956, 966, 969, 972,	1126, 1173, 1787, 1971,	. . . . . 531
974, 978, 981, 983, 986,	2199, 2469, 2603, 2836	\mdf@trivlist . . <u>375</u> , 375, 734
994, 997, 1002, 1005,	\mdf@test@ltr . . . . . <u>1109</u> ,	\mdf@twoside@checklength
1006, 1018, 1036, 1055,	1123, 1172, 1789, 1968,	. . . . . 725, <u>760</u> , 762
1057, 1059, 1067, 1069,	2205, 2471, 2599, 2843	\mdf@userdefinedwidth@length
1073, 1085, 1089, 1091,	\mdf@test@ltrb . . . . . <u>1109</u> ,	. . . . . 400, 813
1095, 1097, 1288, 1293,	1119, 1172, 1785, 1968,	\mdf@verticalmarginwhole@length
1298, 1300, 1327, 1492,	2196, 2467, 2599, 2833	. . . . . 336,
1496, 1500, 1502, 1521,	\mdf@test@noline . . . . .	835, 836, 837, 840, 841,
1713, 1719, 1731, 1829,	<u>1109</u> , 1168, 1824, 1991,	842, 846, 862, 888, 894
2133, 2139, 2151, 2223,	2219, 2493, 2621, 2854	\mdf@xcolor <u>248</u> , 248, 252, 256
2396, 2400, 2412, 2498,	\mdf@test@r . . . . .	\mdf@zref@label . <u>760</u> , 780, 795
2771, 2776, 2787, 2858	<u>1109</u> , 1158, 1814, 1986,	\mdfapptodefinestyle 4, <u>403</u> ,
\mdf@splitbox@two . . . . .	2214, 2489, 2617, 2850	406, 2970, 2981, 3171, 3409
. . . . . 308, 944, 945,		\mdfbackgroundstyle . . . <u>2252</u>

<code>\mdfboundingboxdepth</code> . . . .	1922, 1934, 1942, 2040, 2041, 2042, 2044, 2045, 2046, 2048, 2049, 2050, 2055, 2062, 2139, 2140, 2141, 2143, 2144, 2145, 2147, 2148, 2149, 2158, 2165, 2400, 2401, 2402, 2404, 2405, 2406, 2408, 2409, 2410, 2428, 2430, 2436, 2540, 2541, 2542, 2544, 2545, 2546, 2548, 2549, 2550, 2560, 2564, 2565, 2571, 2682, 2683, 2684, 2686, 2687, 2688, 2690, 2691, 2692, 2696, 2699, 2700, 2707, 2776, 2777, 2778, 2780, 2781, 2782, 2784, 2785, 2786, 2794, 2796, 2802, 3073	<code>\mdfframetitleboxtotalwidth</code> ..... 315 <code>\mdfframetitleboxwidth</code> 314, 575, 1206, 1210, 1698, 2380 <code>\mdfframetitlerule</code> . . . . <u>2252</u> <code>\mdfglobal@style</code> . . . . 90, 94 <code>\mdflength</code> . . . . 3, <u>411</u> , 411 <code>\mdflinestyle</code> . . . . . <u>2252</u> <code>\mdfpstricks@appendsettings</code> ..... 243, 245, 2294 <code>\mdfpstricks@settings</code> 2252, 2431, 2566, 2701, 2797 <code>\mdframed</code> . . . . . <u>721</u> <code>\mdframed@i</code> . . . . . <u>721</u> <code>\mdframed@ii</code> . . . . . <u>721</u> <code>\mdframedIIPackagename</code> . ..... <u>2243</u> , 2243, 2247 <code>\mdframedIPackagename</code> . ..... <u>1614</u> , 1614, 1618 <code>\mdframedOPackagename</code> . ..... <u>1191</u> , 1191, 1195 <code>\mdframedpackagename</code> . . . ..... 1, 2, 7, 8, 9, 15, 644, 682, 691, 696, 702, 707 <code>\mdfsetup</code> . 3, <u>274</u> , 274, 282, 419, 531, 545, 602, 723, 2913, 2944, 3028, 3034, 3040, 3114, 3145, 3188, 3351, 3382, 3476, 3507 <code>\mdfsplitboxdepth</code> . . . . . 312 <code>\mdfsplitboxheight</code> . . . . . 311 <code>\mdfsplitboxtotalheight</code> . 313 <code>\mdfsplitboxtotalwidth</code> . 310 <code>\mdfsplitboxwidth</code> . . . . . 309 <code>\mdftotallinewidth</code> . . . . . ... 325, 1304, 1316, 2424 <code>\mdtheorem</code> . . . . . . <u>11</u> , <u>417</u> , 444, 3008, 3319 <code>\mdversion</code> . . . . . <u>1</u> , 1, 7, 1195, 1618, 2247, 2909, 3110, 3347, 3472 middlelinecolor (option) . . 7 middlelinewidth (option) . . 7
<code>\mdfboundingboxheight</code> 330, 1250, 1297, 1302, 1368, 1385, 1409, 1413, 1500, 1504, 1579, 1583, 1668, 1680, 1731, 1732, 1733, 1735, 1736, 1737, 1739, 1740, 1741, 1750, 1867, 1875, 1924, 1925, 1926, 1928, 1929, 1930, 1943, 2052, 2053, 2063, 2151, 2152, 2154, 2155, 2156, 2166, 2412, 2413, 2414, 2416, 2417, 2418, 2420, 2421, 2422, 2430, 2436, 2551, 2552, 2553, 2555, 2556, 2557, 2563, 2565, 2571, 2639, 2647, 2669, 2693, 2694, 2698, 2700, 2707, 2787, 2788, 2790, 2791, 2792, 2796, 2802	<code>\mdfcreateextratikz</code> . . . . ..... 339, 1832, 1998, 2099, 2226, 3225, 3296 <code>\mdfcreateextratikzlocal</code> ..... 3277, 3296 <code>\mdfdateID</code> . . . . . . . 2908, 3109, 3346, 3471 <code>\mdfdefinedstyle</code> . . . . . 279 <code>\mdfdefinestyle</code> . . . . . ... 4, <u>403</u> , 403, 2959, 3002, 3160, 3235, 3286, 3310, 3398, 3424, 3433 <code>\mdffootnoteboxdepth</code> . . . 322 <code>\mdffootnoteboxheight</code> . . 321 <code>\mdffootnoteboxtotalheight</code> ..... 323 <code>\mdffootnoteboxtotalwidth</code> 320 <code>\mdffootnoteboxwidth</code> . . . 319 <code>\mdfframedtitleenv</code> . . . . . ..... <u>524</u> , 549, 566, 584 <code>\mdfframetitlebackground</code> <u>2252</u> <code>\mdfframetitleboxdepth</code> . ..... 317, 577 <code>\mdfframetitleboxheight</code> . ..... 316, 576 <code>\mdfframetitleboxtotalheight</code> ..... 318, 578, 1241, 1243, 1352, 1355, 1357, 1359, 1367, 1458, 1461, 1463, 1552, 1555, 1557, 1559, 1859, 1867, 1870, 1874, 1875, 1899, 2007, 2010, 2026, 2108, 2126, 2529, 2639, 2642, 2646, 2669, 2670, 2748, 2751, 2765, 2870, 2886	<code>\mdfsplitboxwidth</code> . . . . . 309 <code>\mdftotallinewidth</code> . . . . . ... 325, 1304, 1316, 2424 <code>\mdtheorem</code> . . . . . . <u>11</u> , <u>417</u> , 444, 3008, 3319 <code>\mdversion</code> . . . . . <u>1</u> , 1, 7, 1195, 1618, 2247, 2909, 3110, 3347, 3472 middlelinecolor (option) . . 7 middlelinewidth (option) . . 7  <b>N</b> needspace (option) . . . . . 8 <code>\new\protect_.\kern_.\fontdimen_3\font_.\kern</code> ..... <u>305</u> <code>\newmdenv</code> 3, <u>417</u> , 417, 428, 3443 <code>\newmdtheoremenv</code> <u>11</u> , <u>417</u> , 432 <code>\newsavebox</code> 305, 306, 307, 308 nobreak (option) . . . . . 8 <code>\nodexn</code> . . . . . 2439, 2442, 2447, 2452, 2455, 2460, 2518, 2522, 2526, 2529, 2574, 2577, 2582,
<code>\mdfboundingboxtotalheight</code> ..... 332, 1228, 1236, 1241, 1272, 1283, 1301, 1341, 1348, 1352, 1355, 1365, 1379, 1396, 1412, 1447, 1454, 1461, 1471, 1488, 1503, 1531, 1542, 1548, 1555, 1567, 1582, 3066, 3078	<code>\mdfboundingboxtotalwidth</code> ..... 328, 1225, 1235, 1242, 1252, 1261, 1294, 1308, 1338, 1347, 1356, 1364, 1387, 1406, 1416, 1444, 1453, 1462, 1477, 1497, 1505, 1539, 1547, 1556, 1576, 1584	
<code>\mdfboundingboxwidth</code> . 327, 877, 1089, 1097, 1278, 1292, 1295, 1392, 1405, 1407, 1484, 1496, 1498, 1563, 1575, 1577, 1668, 1680, 1719, 1720, 1721, 1723, 1724, 1725, 1727, 1728, 1729, 1742, 1749, 1912, 1913, 1914, 1916, 1917, 1918, 1920, 1921,		

2587, 2658, 2662, 2666, 2670, 2671, 2710, 2713, 2718, 2758, 2762, 2765, 2805, 2808, 2813, 2818, 2821, 2879, 2883, 2886	outerlinecolor . . . . . 7	\ptTpsL 2251, 2378, 2379, 2380
\noexpand . . . . . 475	outerlinewidth . . . . . 7	<b>R</b>
\nointerlineskip . . . . 546, 733, 739, 950, 988, 1061	outermargin . . . . . 6	\refstepcounter . 455, 478, 505
\normalfont . . . . . 177, 571	pstricksappsetting . . . . 9	\renewmdenv . . . . . 3, <a href="#">417</a> , 425
\NOTE . . 2938, 3139, 3376, 3501	pstrickssetting . . . . . 8	\renewrobustcmd . . . . . 3225
ntheorem (option) . . . . . 7	repeatframetitle . . . . 11	repeatframetitle (option) 11
<b>O</b>	rightline . . . . . 10	rightline (option) . . . . . 10
\offinterlineskip . . . . . 591	rightmargin . . . . . 6	rightmargin (option) . . . . . 6
\onecolumn . . . . . 3575	roundcorner . . . . . 7	roundcorner (option) . . . . . 7
\Opt 2906, 2910, 2935, 3107, 3111, 3136, 3344, 3348, 3373, 3469, 3473, 3498	settings . . . . . 8	<b>S</b>
options:	shadow . . . . . 8	\section . . . . .
align . . . . . 8	shadowcolor . . . . . 8	2934, 2940, 3135, 3141, 3372, 3378, 3497, 3503
apptotikzsetting . . . . . 9	shadowsize . . . . . 8	\setcounter . . . . .
backgroundcolor . . . . . 7	skipabove . . . . . 6	2895, 2925, 3095, 3126, 3332, 3363, 3457, 3488
bottomline . . . . . 10	skipbelow . . . . . 6	settings (option) . . . . . 8
defaultunit . . . . . 5	splitbottomskip . . . . . 6	\sffamily . . . . . 3244, 3295
font . . . . . 7	splittopskip . . . . . 6	shadow (option) . . . . . 8
fontcolor . . . . . 7	style . . . . . 8	shadowcolor (option) . . . . . 8
footnotedistance . . . . 12	theoremseparator . . . . 12	shadowsize (option) . . . . . 8
footnoteinside . . . . . 12	theoremspace . . . . . 12	skipabove (option) . . . . . 6
framemethod . . . . . 4	theoremtitlefont . . . . 12	skipbelow (option) . . . . . 6
frametitle . . . . . 10	tikzsetting . . . . . 9	\smash . . . . . 909, 1221, 1335, 1440, 1536
frametitleaboveskip . . 10	topline . . . . . 10	splitbottomskip (option) . . 6
frametitlealignment . . 10	userdefinedwidth . . . . 6	splittopskip (option) . . . . . 6
frametitlebackgroundcolor . . . . . 10	usetwoside . . . . . 8	\strut . . . . . 464, 468, 487, 498, 514, 518, 3032, 3038
frametitlebelowskip . . 10	xcolor . . . . . 4	style (option) . . . . . 8
frametitlefont . . . . . 10	outerlinecolor (option) . . 7	\subsection . . . . .
frametitlerule . . . . . 10	outerlinewidth (option) . . 7	. . 2929, 3130, 3367, 3492
frametitlerulewidth . . 10	outermargin (option) . . . . 6	\subtitle 2906, 3107, 3344, 3469
hidealllines . . . . . 10	\overlaplines . . . 3061, 3085	\surroundwithmdframed . . . . . . . . 3, <a href="#">411</a> , 413, 3536
innerbottommargin . . . . 6	<b>P</b>	<b>T</b>
innerleftmargin . . . . . 6	\Pack . . . . . 2905, 2935, 2938, 3106, 3136, 3139, 3343, 3373, 3376, 3468, 3498, 3501, 3540	\textbf . . . . . 3278
innerlinecolor . . . . . 7	\pageshrink . . . . . 933	\textit . . . . .
innerlinewidth . . . . . 7	\parsep . . . . . 378	2915, 2946, 3116, 3147, 3353, 3384, 3478, 3509
innermargin . . . . . 6	\parskip . . . . . 347, 589, 805	\theexercise . . . . .
innerrightmargin . . . . . 6	\pgfdeclarehorizontalshading . . 3210, 3214, 3262, 3266	. . 3219, 3227, 3271, 3278
innertopmargin . . . . . 6	\pgfmathsetlength . . . . .	\theorempostskipamount . . 610
leftline . . . . . 10	. . 1698, 1870, 1874, 2010	\theorempreskipamount 607, 609
leftmargin . . . . . 6	\pnode 2434, 2435, 2436, 2569, 2570, 2571, 2705, 2706, 2707, 2800, 2801, 2802	theoremseparator (option) 12
linecolor . . . . . 7	\psclip . 2300, 2308, 2318, 2332, 2353, 2465, 2597	theoremspace (option) . . . . 12
linewidth . . . . . 6	\pscustom . . . . . 2318, 2333, 2353, 2591, 2826	theoremtitlefont (option) 12
margin . . . . . 6	\psdot 2499, 2500, 2501, 2627, 2628, 2629, 2737, 2738, 2739, 2859, 2860, 2861	\thesubsection . . . . .
middlelinecolor . . . . . 7	pstricksappsetting (option) 9	. . 2926, 3127, 3364, 3489
middlelinewidth . . . . . 7	pstrickssetting (option) . . 8	\thetheo . . . . . 3032, 3038
needspace . . . . . 8	\ptTps . . . . . <a href="#">2248</a> , 2250, 2380	\tikz . . . . . 1699, 3030, 3036
nobreak . . . . . 8		tikzsetting (option) . . . . . 9
ntheorem . . . . . 7		\tikzstyle . . . . . 3205, 3257

<code>\title</code> . 2905, 3106, 3343, 3468	<code>\uput</code> 2499, 2500, 2501, 2627,	<b>V</b>
<code>topline</code> (option) . . . . . 10	2628, 2629, 2737, 2738,	<code>\vbadness</code> . . . . . 365, 366, 368
<code>\topskip</code> . . . . .	2739, 2859, 2860, 2861	<code>\version</code> 2909, 3110, 3347, 3472
2913, 2944, 3006, 3114,	<code>\usepackage</code> . . . . .	<code>\vspace</code> . . . . . 3528, 3530
3145, 3242, 3293, 3317,	2899, 2903, 3100, 3104,	<b>X</b>
3351, 3382, 3476, 3507	3338, 3340, 3462, 3466	<code>xcolor</code> (option) . . . . . 4
<code>\twocolumn</code> . . . . . 3551, 3553	<code>userdefinedwidth</code> (option) . 6	<code>\xdef</code> . . . . . 453, 473, 474
<b>U</b>	<code>usetwoside</code> (option) . . . . . 8	
<code>\unvcopy</code> 561, 594, 951, 989, 1062		