

The mdframed package ¹

auto-split frame environment

Marco Daniel Elke Schubert

v1.2a

2012/01/08

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	12
4. Commands	3	7. Errors, Warnings and Messages	13
5. Options	4	8. Known Problems	14
5.1. Global Options	5	9. ToDo	14
5.2. Global and Local Options	5	10. Acknowledgements	14
5.3. Hidden Lines	10	A. More information	15
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.*

¹Extending 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 load 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.

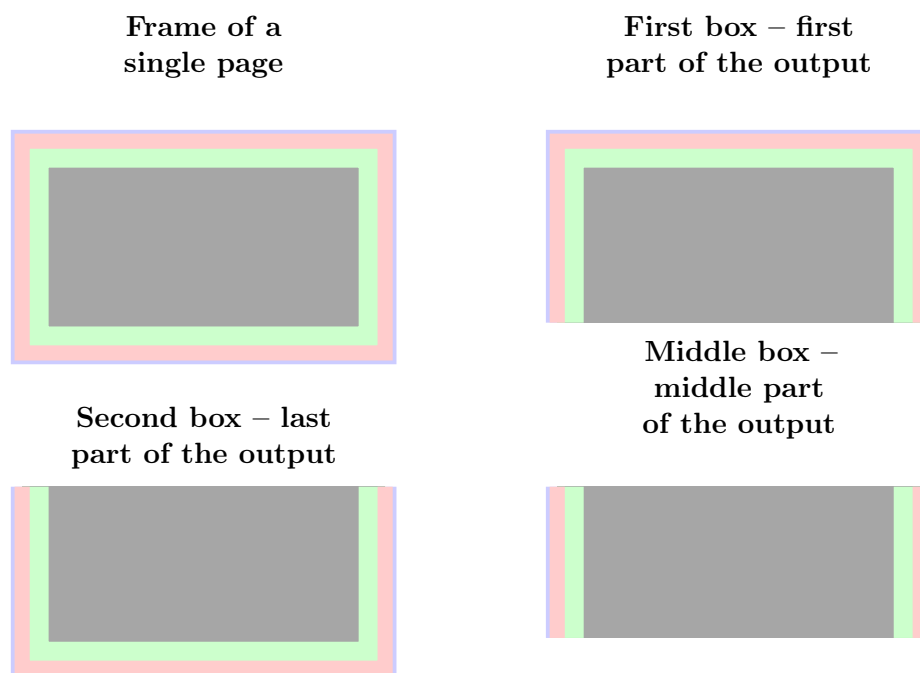


Figure 1: The basic frames

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 a `\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 your are avoiding breaking of non robust commands.²

`\mdfdefinestyle`

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

Here a small example:

```
\mdfdefinestyle { mystyle } { leftmargin=0pt , %
                                linecolor=blue }

....
\begin { mdframed } [ style=mystyle ]
foo
\end { mdframed }
```

`\mdfapptodefinestyle`

This commands allows to expand a defined style.³

5. Options

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

²Thanks to Heiko Oberdieck and Philipp Stephani [kvoptions-Declaration von Optionen schlägt fehl](#)

³Thanks to Martin Scharrer and Enrico Gregorio:

<http://tex.stackexchange.com/questions/34684/argument-of-setkeys>

5.1. Global Options

The following options are only global options.

`xcolor` default=`none`

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

`framemethod` default=`default`

With this key you can change the way frames are drawn. You can decide whether the frame is drawn with

1. \LaTeX -commands `\hrule`, `\vrule`, `\rule`,
2. `TikZ` (the package `TikZ` will be loaded) or
3. `PSTricks` (the package `pstricks` will be loaded).

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

Table 1: Allowed keys for `framemethod`

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

FYI

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

Note

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

5.2. Global and Local Options

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

5.2.1. Options with lengths

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

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

`defaultunit` default=`pt`

see the sentence above.

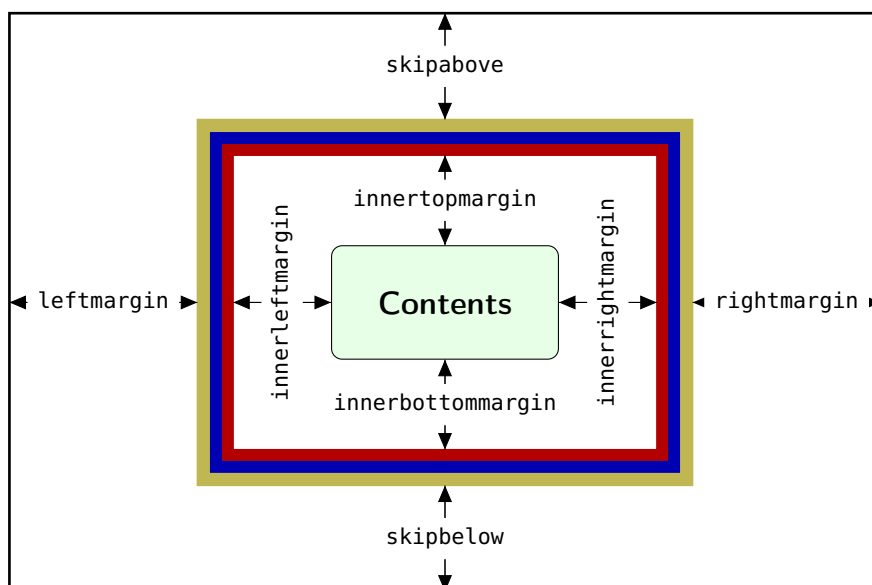


Figure 2: adjustable lengths of mdframed

`skipabove` default=0pt

Sets an additional skip above the frame.

`skipbelow` default=0pt

Sets an additional skip below the frame.

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

`leftmargin` default=0pt

Sets the length of the left margin of the environment.

`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 0 pt.

`nobreak` default=`false`

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

`usetwoside` default=`true`

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

`needspace` default=`0pt`

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

`style`

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

`settings` default=`none`

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

`align` default=`left`

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

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

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

`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 `\apptopsstyle` in combination with this option you can expand the definition. The predefined styles are

- `mdfbackgroundstyle`
- `mdfframetitlebackgroundstyle`
- `mdfouterlinestyle`
- `mdfinnerlinestyle`
- `mdfmiddlelinestyle`
- `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/.sstyle}`

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 <code>frametitle</code> . This option must be set via <code>\mdfsetup</code> .	
<code>frametitlerule</code>	default=false
Set this key to <code>false</code> to get no line between the frame title and the text.	
<code>frametitlerulewidth</code>	default=.2pt
Sets the width of the line between the text and the title of <code>mdframed</code> .	
<code>frametitleaboveskip</code>	default=5pt
Sets the skip of the frame title to the margin above of <code>mdframed</code> .	

`frametitlebelowskip`

default=5pt

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

`frametitlebackgroundcolor`

default=white

Sets the color of the background of the frametitle

FYI and Note

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

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

`repeatframetitle`

default=false

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

5.5. Theorems

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

`\newmdtheoremenv`

Since the package is often used to highlight theorem environments, I have created a command⁴ to simplify this process. The command has the following syntax:

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

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

```
\theoremstyle{<some style>}
\newmdtheoremenv[linewidth=blue]{lemma}%
{Lemma}[section]
...
\begin{lemma}[Some title]
foo foo foo foo foo foo
\end{lemma}
```

So far there is no `\renewmdtheoremenv`!

`\mdtheorem`

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

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

How 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 environment based on the given first mandatory argument. The first environment is named like the given argument and creates a numbered theorem. The

⁴Thanks to Martin Scharrer and Enrico Gregorio:

[Own command to create new environment](#)

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

What happened? The caption of the command will be set as the frame title. In this way all option of the frametitle are available. Furthermore `mdframed` provided 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.

7. Errors, Warnings and Messages

The package `mdframed` provides different errors, warnings and messages in the `log`-file. Some \LaTeX -editors like `TeXMaker` or `TeXStudio` have a special tab for errors and warnings but not for messages. So you should look in the `log-File` itself.

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

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

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

```
package option style is depreciated
use framemethod instead style
```

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

```
Unknown framemethod .... mdframed
```

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

```
You have not loaded ntheorem yet
```

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

```
You have only a width of 3cm
```

The package `mdframed` calculates the width of the contents based on the given options. If the width of the contents 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`.

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`

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.

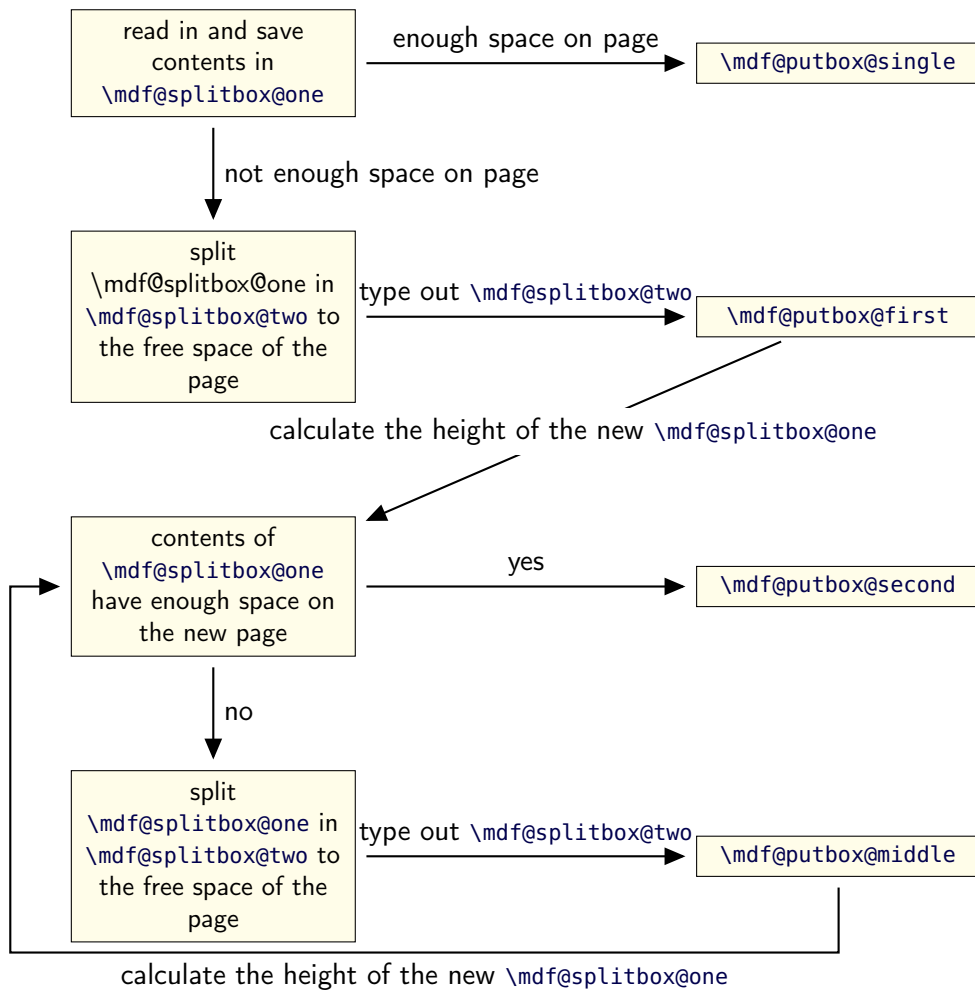


Figure 3: Setting the contents of `mdframed`

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

A.2. The Frametcommands

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 1.2 submitted 8 Jan 2012

- fixed documentation (Thanks to Dietrich Grau) • fixed bug in combination with `amsthm` • fixed bug in `\newmdtheoremenv` • defined new styles via `\newpsstyle`

This works only with `framemethod=PSTricks`. • added new commands for interaction with TikZ and PSTricks • expand frame title option by option `frametitlerule`, `frametitlerulewidth`, `frametitlefont`, `frametitleaboveskip`, `frametitlebelowskip`, `frametitlealignment` • removed limitation of three lines for PSTricks • defined new commands `\surroundwithmdframed`, `\mdflength`, `\mdtheorem` • load `xparse` by default • changed internal names • expanded examples

Version 1.0b submitted 9 Dec 2011

- fixes documentation (Thanks to Dietrich Grau) • fixes bug in `\newmdtheoremenv` • fixes bug with overfull boxes (Thanks to Dietrich Grau) • defined `\newpsstylemdfbackgroundstyle` and `mdflinestyle`

This works only with `framemethod=PSTricks`. • created dtx-file (Thanks to Kevin Godby) • added `\@parboxrestore` to `\mdf@lrbox`

Version 1.0 submitted 13 Nov 2011

- add option `userdefinedwidth` • add option `align` • add option `apptotikzsetting` • create new command `\mdfapptodefinestyle` • changed internal algorithm • removed `calc` instead using ε -TeX `\dimexpr` • expand documentation • trying to 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.dtx3202012-01-0918:44:33Zmarco Rev : 320 Author : marco

Date : 2012-01-0919:44:33+0100(Mo,09.Jan2012)

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

Set package information

```
1 \def\mdversion{v1.2a}
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 320 2012-01-09 18:44:33Z marco $%
7     \mdversion: \mdframedpackagename]
```

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

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

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

Loading required packages

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

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

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

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

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

```

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

`\mdf@dolist`

Loop used by *mdframed*.

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

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

Command to define a new length with a default value.

```

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

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

```

47 \newrobustcmd*{\mdf@define@key@length}[1]{%
48   \define@key{mdf}{#1}{%
49     \def\@tempa{##1}
50     \mdf@iflength{\@tempa}%
51     {\csxdef{mdfl@#1}{\the\mdf@templength}}%
52     {\csxdef{mdfl@#1}{\the\mdf@templength}}%
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 }

```

`\mdf@do@lengthoption`

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

```

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

```

`\mdf@do@booloption`

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

```

184 \mdf@dolist{\mdf@do@booloption}{%
185     {ntheorem==false},%
186     {topline==true},%
187     {leftline==true},%
188     {bottomline==true},%
189     {rightline==true},%
190     {frametitletopline==true},%
191     {frametitleleftline==true},%
192     {frametitlebottomline==true},%
193     {frametitlerightline==true},%
194     {hidealllines==false},%
195     {frametitlerule==false},%
196     {nobreak==false},%
197     {footnoteinside==true},%
198     {usetwoside==true},%
199     {repeatframetitle==false},% Noch nicht richtig implementiert
200 }

```

```
\mdf@do@alignoption
```

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

```

201 \mdf@dolist{\mdf@do@alignoption}{%
202     {left==\mdf@leftmargin@length==\z@},%
203     {center==\fill==\fill},%
204     {right==\fill==\mdf@rightmargin@length},%
205     {outer==\fill==\mdf@rightmargin@length},%not supported yet
206     {outer==\mdf@leftmargin@length==\fill},%not supported yet
207 }

```

```

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

```

Set the alignment.

```

208 \newcommand*\mdf@align{}%
209 \newcommand*\mdf@makeboxalign@left{\null\hspace*{\mdf@leftmargin@length}}%
210 \newcommand*\mdf@makeboxalign@right{}%
211 \define@key{mdf}{align}[left]{%
212     \ifcsundef{mdf@align@#1@left}{%
213         \mdf@PackageWarning{Unknown alignment #1\MessageBreak}%
214         \letcs\mdf@makeboxalign@left{mdf@align@left@left}%
215         \letcs\mdf@makeboxalign@right{mdf@align@left@right}%
216     }{%
217         \def\mdf@makeboxalign@left{\csuse{mdf@align@#1@left}}%
218         \def\mdf@makeboxalign@right{\csuse{mdf@align@#1@right}}%
219     }%
220 }

```

```

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

```

Option to pass options to tikz or pstricks

```
221 \def\mdf@tikzset@local{\tikzset{tikzsetting/.style={}}}
```

```

222 \define@key{mdf}{tikzsetting}{%
223   \def\mdf@tikzset@local{\tikzset{tikzsetting/.style={#1}}}%
224 }
225 \define@key{mdf}{apptotikzsetting}{%
226   \appto\mdf@tikzset@local{#1}%
227 }
228 \def\mdf@psset@local{}
229 \define@key{mdf}{pstrickssetting}{%
230   \def\mdf@psset@local{#1}
231 }
232 \def\mdfpstricks@appendsettings{}
233 \define@key{mdf}{pstricksappsetting}{%
234   \def\mdfpstricks@appendsettings{#1}%
235 }
236

```

\mdf@xcolor

Problem with xcolor. This part must be reworked!

```

237 \def\mdf@xcolor{}
238 \define@key{mdf}{xcolor}[none]{%
239   \def\@tempa{#1}%
240   \ifpackageloaded{xcolor}{%
241     \let\mdf@xcolor\@empty %ignoriere die Eingabe der Optionen
242     \def\@tempa{}%
243   }{}%
244   \ifx\relax\@tempa\relax\else
245     \PassOptionsToPackage{\mdf@xcolor}{xcolor}%
246     \RequirePackage{xcolor}%
247   \fi%
248 }%

```

\mdf@needspace

Defining the option needspace

```

249 \define@key{mdf}{needspace}[\z@]{%
250   \begingroup%
251     \setlength{\dimen@}{#1}%
252     \vskip\z@\@plus\dimen@
253     \penalty -100\vskip\z@\@plus -\dimen@%
254     \vskip\dimen@%
255     \penalty 9999%
256     \vskip -\dimen@%
257     \vskip\z@skip % hide the previous |\vskip| from |\addvspace|
258   \endgroup%
259 }

260 \DeclareDefaultOption{%
261   \mdf@PackageWarning{Unknown Option '\CurrentOption' for mdframed}}
262 \ProcessKeyvalOptions*\relax

```

\mdfsetup

Short form of `\setkeys{mdf}`


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

```
\mdf@style
```

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

```
264 \define@key{mdf}{style}{%
265   \ifcsundef{mdf@definestyle@#1}{%
266     \mdf@PackageWarning{Unknown definedstyle #1^^J
267       You have to define a style ^^J
268       via \string\mdfdefinedstyle\MessageBreak
269     }%
270   }%
271   {\expandafter\expandafter\expandafter\mdfsetup%
272     \expandafter\expandafter\expandafter{\csname mdf@definestyle@#1\endcsname}}%
273 }
```

```
\mdf@print@space
```

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

```
274 \let\mdf@PackageNoInfo\@gobble
275 \newrobustcmd*{\mdf@ifstrequal@expand{%
276   \expandafter\ifstrequal\expandafter{\mdf@printheight}%
277 }
278 \newrobustcmd*{\mdf@print@space{%
279   %case "none"
280   \mdf@ifstrequal@expand{none}{\def\mdf@tempa{NoInfo}}{%
281     %case "info"
282     \mdf@ifstrequal@expand{info}{\def\mdf@tempa{Info}}{%
283       %case "warning"
284       \mdf@ifstrequal@expand{warning}{\def\mdf@tempa{Warning}}{%
285         %case "unknown"
286         \mdf@PackageWarning{Unknown key for printheight=\mdf@printheight^^J
287           use none, info or warning}%
288         \def\mdf@tempa{none}%
289       }%
290     }%
291   }%
292   \def\mdf@PackageInfoSpace{\csname mdf@Package\mdf@tempa\endcsname}%
293 }
```

```
\new...
```

Initialize all commands and length which will we used later

```
294 \newsavebox\mdf@frametitlebox
295 \newsavebox\mdf@footnotebox
296 \newsavebox\mdf@splitbox@one
297 \newsavebox\mdf@splitbox@two
298 \newlength\mdf@splitboxwidth
299 \newlength\mdf@splitboxtotalwidth
300 \newlength\mdf@splitboxheight
301 \newlength\mdf@splitboxdepth
302 \newlength\mdf@splitboxtotalheight
303 \newlength\mdf@frametitleboxwidth
```

```

304 \newlength\mdfframetitleboxtotalwidth
305 \newlength\mdfframetitleboxheight
306 \newlength\mdfframetitleboxdepth
307 \newlength\mdfframetitleboxtotalheight
308 \newlength\mdffootnoteboxwidth
309 \newlength\mdffootnoteboxtotalwidth
310 \newlength\mdffootnoteboxheight
311 \newlength\mdffootnoteboxdepth
312 \newlength\mdffootnoteboxtotalheight
313
314 \newlength\mdftotallinewidth
315
316 \newlength\mdfboundingboxwidth
317 \newlength\mdfboundingboxtotalwidth
318
319 \newlength\mdfboundingboxheight
320 \newlength\mdfboundingboxdepth
321 \newlength\mdfboundingboxtotalheight
322
323 \newlength\mdf@freevspace@length
324 \newlength\mdf@horizontalwidthofbox@length
325 \newlength\mdf@verticalmarginwhole@length
326
327 % Command to expand the tikz code. (see md-frame-1.mdf)
328 \newrobustcmd\mdfcreateextratikz{}
329

```

```

\mdf@lrbox
\endmdf@lrbox

```

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

```

330 \def\mdf@lrbox#1{%
331 %%patch to work with amsthm
332 \mdf@patchamsthm
333 %%end patch
334 \edef\mdf@restoreparams{%
335 \parindent=\the\parindent \parskip=\the\parskip}
336 \setbox#1\vbox\bgroup
337 \begingroup
338 \mdf@horizontalmargin@equation%
339 \color@setgroup%
340 \hsize=\mdf@horizontalsofbox%
341 \columnwidth=\hsize%
342 \textwidth=\hsize%
343 \let\if@nobreak\iffalse
344 \let\if@noskipsec\iffalse
345 \let\par\@@par
346 \let\-\@dischph
347 \let'\@acci\let'\@accii\let\=\@acciii
348 \parindent\z@ \parskip\z@skip
349 \linewidth\hsize
350 \@totalleftmargin\z@
351 \leftskip\z@skip \rightskip\z@skip
352 \parfillskip\@flushglue \lineskip\normallineskip%

```

```

353 \baselineskip\normalbaselineskip%
354 \everypar{\mdf@restoreparams}\ignorespaces%
355 }
356
357
358 \def\endmdf@lrbox{\endgroup\unskip\color@endgroup\egroup}
359

```

```

\mdf@ignorevbadness
\mdf@restorevbadness

```

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

```

360 \newrobustcmd*\mdf@ignorevbadness{%
361 \edef\mdf@currentvbadness{\the\vbadness}%
362 \vbadness=\@M%
363 \afterassignment\mdf@restorevbadness}
364 \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`.

```

365 \ifpackageloaded{amsthm}{%
366 \newrobustcmd\mdf@patchamsth{%
367 \let\mdf@deferred@thm@head\deferred@thm@head
368 \patchcmd{\deferred@thm@head}{\indent}{\relax}{}{}
369 }%
370 }\let\mdf@patchamsth\relax}%

```

```

\mdf@trivlist
\endmdf@trivlist

```

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

```

371 \def\mdf@trivlist#1{%
372 \setlength{\topsep}{#1}%
373 \partopsep\z@%
374 \parsep\z@%
375 \@nmblistfalse%
376 \@trivlist%
377 \labelwidth\z@%
378 \leftmargin\z@%
379 \itemindent\z@%
380 \let\@itemlabel\@empty%
381 \def\makelabel##1{##1}%
382 \item\leavevmode\hrule \@height\z@ \@width\linewidth\relax%
383 %% \item\mbox{}\relax% second version
384 %% \item\relax% first Version
385 }
386 \let\endmdf@trivlist\endtrivlist
387 \patchcmd\endmdf@trivlist\@endparenv\mdf@endparenv{}{}
388 \def\mdf@endparenv{%
389 \addpenalty\@endparpenalty\addvspace\mdf@skipbelow@length\@endpetrue}

```

390

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

```
391 \newrobustcmd*\mdf@makebox@out[2][\linewidth]{%
392 \noindent\hb@xt@\z@{%
393   \noindent\makebox[\dimexpr #1\relax][l]{#2}%
394 \hss}%
395 }%
396 \newrobustcmd*\mdf@makebox@in[2][\mdf@userdefinedwidth@length]{%
397 \noindent\makebox[\dimexpr #1\relax][l]{#2}%
398 }
```

```
\mdfdefinestyle
\mdfapptodefinestyle
```

See explanation of this commands above.

```
399 \newrobustcmd*\mdfdefinestyle[2]{%
400 \csdef{mdf@definestyle@#1}{#2}%
401 }
402 \newrobustcmd*\mdfapptodefinestyle[2]{%
403 \ifcsundef{mdf@definestyle@#1}%
404   {\mdf@PackageWarning{Unknown style #1}}%
405   {\csappto{mdf@definestyle@#1}{, #2}}%
406 }
```

```
\mdflength
\surroundwithmdframed
```

Helper macros to work with *mdframed*

```
407 \newrobustcmd*\mdflength[1]{\csuse{mdf@#1@length}}
408
409 \newrobustcmd*\surroundwithmdframed[2][]{%
410 \BeforeBeginEnvironment{#2}{\begin{mdframed}[#1]}%
411 \AfterEndEnvironment{#2}{\end{mdframed}}%
412 }
```

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

Defining of the new environment defintions.

```
413 \newrobustcmd*\newmdenv[2][]{%
414 \newenvironment{#2}{%
415   \mdfsetup{#1}%
416   \begin{mdframed}%
417 }{%
418   \end{mdframed}%
419 }%
420 }
```

```

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

```

```

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

```

```

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

```

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

```

520 %TESTVERSION
521 % \newrobustcmd*\mdf@setopt@title{%
522 % \ifbool{mdf@frametitlerule}{\booltrue{mdf@bottomline}}{\boolfalse{mdf@bottomline}}}%
523 % \let\ifmdf@leftline\ifmdf@frametitleleftline%

```

```

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

```

```

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

```

`\mdf@checkntheorem`

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

```

602
603 \newrobustcmd*\mdf@checkntheorem{%
604   \ifbool{mdf@ntheorem}%
605     {\ifundef{\theorempreskipamount}%
606       {\mdf@PackageWarning{You have not loaded ntheorem yet}}%
607       {\setlength{\theorempreskipamount}{\z@}%
608        \setlength{\theorempostskipamount}{\z@}%
609       }%
610     }{}%
611 }

```

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

Support for footnotes.

```

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

```



```

625 \def\@mpfn{mpfootnote}%
626 \def\thempfn{\thempfootnote}%
627 \c@mpfootnote\z@%
628 \let\@footnotetext\@mpfootnotetext%
629 }

```

```

\mdf@load@style
\mdf@styledefinition

```

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

```

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

```

```

\detected@mdf@put@frame

```

Detect whether inside a non breakable environment.

```

670 \let\mdf@reserved@a\@empty
671 \newrobustcmd*\detected@mdf@put@frame{%
672   \ifmdf@nobreak%Option nobreak=true?
673     \def\mdf@reserved@a{\mdf@put@frame@standalone}%
674   \else
675     \def\mdf@reserved@a{\mdf@put@frame}%
676     \ifnum\@floatpenalty<0\relax%Detecting float
677       \if@twocolumn%
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       \else
686         \mdf@PackageInfo{mdframed inside float ^^J
687           mdframed uses option nobreak \mdframedpackagename}%
688         \def\mdf@reserved@a{\mdf@put@frame@standalone}%
689       \fi%
690     \fi%
691     \if@minipage%
692       \mdf@PackageInfo{mdframed inside minipage ^^J
693         mdframed uses option nobreak \mdframedpackagename}%
694       \def\mdf@reserved@a{\mdf@put@frame@standalone}%
695     \fi%
696     \ifinner%
697       \mdf@PackageInfo{mdframed inside a box ^^J
698         mdframed uses option nobreak \mdframedpackagename}%
699       \def\mdf@reserved@a{\mdf@put@frame@standalone}%
700     \fi%
701   \fi%
702 \mdf@reserved@a%
703 }

```

`\mdf@hidealllines@check`

```

704 \newrobustcmd*\mdf@hidealllines@check{%
705   \ifbool{mdf@hidealllines}{%
706     \boolfalse{mdf@leftline}\boolfalse{mdf@rightline}%
707     \boolfalse{mdf@topline}\boolfalse{mdf@bottomline}%
708     \boolfalse{mdf@frametitleleftline}\boolfalse{mdf@frametitlerightline}%
709     \boolfalse{mdf@frametitletopline}\boolfalse{mdf@frametitlebottomline}%
710   }{}%
711 }

```

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

That the user environment.

```

712 \newenvironment{mdframed}[1][[]]{%
713   \begin{group}%

```

```

714 \color@setgroup%
715   \mdfsetup{userdefinedwidth=\linewidth,#1}%
716   \mdf@hidealllines@check%
717   \mdf@twoside@checklength%
718   \let\width\z@%
719   \let\height\z@%
720   \mdf@checknththeorem%
721   \mdf@styledefinition%
722   \mdf@footnoteinput%
723   \color{\mdf@fontcolor}%
724   \ifvmode\nointerlineskip\fi%
725   \mdf@trivlist{\mdf@skipabove@length}%%
726   \ifdefempty{\mdf@frametitle}{\mdf@@frametitle}%
727   \mdf@settings%
728   \mdf@lrbox{\mdf@splitbox@one}%
729 }%
730 {\par\unskip%
731   \ifmdf@footnoteinside%
732     \def\mdf@reserveda{%
733       \mdf@footnoteoutput%
734       \endmdf@lrbox%
735       \ifdefempty{\mdf@frametitle}{\mdf@@frametitle@use}%
736       \detected@mdf@put@frame}%
737   \else%
738     \def\mdf@reserveda{%
739       \endmdf@lrbox%
740       \ifdefempty{\mdf@frametitle}{\mdf@@frametitle@use}%
741       \detected@mdf@put@frame%
742       \mdf@footnoteoutput%
743     }%
744   \fi%
745   \mdf@reserveda%
746   \endmdf@trivlist%
747 \color@endgroup\endgroup\@doendpe%\@endparenv%
748 }
749
750

```

```

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

```

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

```

751 \newtoggle{md:checktwoside}
752 \settoggle{md:checktwoside}{false}
753 \newrobustcmd*\mdf@twoside@checklength{%
754   \if@twoside
755     \ifbool{mdf@usetwoside}%
756       {\mdf@PackageInfo{mdframed works in twoside mode}%
757        \settoggle{md:checktwoside}{true}%
758        \setlength\mdf@rightmargin@length{\mdf@outermargin@length}%
759        \setlength\mdf@leftmargin@length{\mdf@innermargin@length}%
760       }%

```

```

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

```

`\mdf@freepagevspace`

```

788 \newrobustcmd*{\mdf@freepagevspace{%
789   \penalty\@M \vskip 2\baselineskip \vskip\height
790   \penalty9999 \vskip -2\baselineskip \vskip-\height
791   \penalty9999
792   \ifdimequal{\pagegoal}{\maxdimen}%
793     {\mdf@freevspace@length\vsiz}%
794     {\mdf@freevspace@length=\pagegoal\relax%
795       \advance\mdf@freevspace@length by -\pagetotal\relax%
796       \addtolength\mdf@freevspace@length{\dimexpr-\parskip\relax}\relax%
797     }%
798 }

```

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

Width of the box

```

799 \newrobustcmd*{\mdf@advancelength@horizontalmargin@sub[1]{%
800   \advance\mdf@horizontalsofbox by -\csname mdf@#1@length\endcsname\relax%
801 }
802 \newlength\mdf@horizontalsofbox
803 \newrobustcmd*{\mdf@horizontalmargin@equation{%

```

```

804 \setlength{\mdf@horizontalsofbox}{\mdf@userdefinedwidth@length}%
805 \mdf@dolist{\mdf@advancelength@horizontalmargin@sub}{%
806     leftmargin,outerlinewidth,middlelinewidth,%
807     innerlinewidth,innerleftmargin,inerrightmargin,%
808     innerlinewidth,middlelinewidth,outerlinewidth,%
809     rightmargin}%
810 \notbool{mdf@leftline}{%
811     \advance\mdf@horizontalsofbox by \mdf@innerlinewidth@length\relax%
812     \advance\mdf@horizontalsofbox by \mdf@middlelinewidth@length\relax%
813     \advance\mdf@horizontalsofbox by \mdf@outerlinewidth@length\relax%
814 }{}%
815 \notbool{mdf@rightline}{%
816     \advance\mdf@horizontalsofbox by \mdf@innerlinewidth@length\relax%
817     \advance\mdf@horizontalsofbox by \mdf@middlelinewidth@length\relax%
818     \advance\mdf@horizontalsofbox by \mdf@outerlinewidth@length\relax%
819 }{}%
820 \ifdimless{\mdf@horizontalsofbox}{3cm}%
821     {\mdf@PackageWarning{You have only a width of 3cm}}{}
822 \hsize=\mdf@horizontalsofbox%
823 }

```

`\mdf@keeplines@single`

horizontal space in relation of the lines.

```

824 \newrobustcmd*\mdf@keeplines@single{%
825     \notbool{mdf@topline}{%
826         \advance\mdf@verticalmarginwhole@length by -\mdf@innerlinewidth@length%
827         \advance\mdf@verticalmarginwhole@length by -\mdf@middlelinewidth@length%
828         \advance\mdf@verticalmarginwhole@length by -\mdf@outerlinewidth@length%
829     }{}%
830     \notbool{mdf@bottomline}{%
831         \advance\mdf@verticalmarginwhole@length by -\mdf@innerlinewidth@length%
832         \advance\mdf@verticalmarginwhole@length by -\mdf@middlelinewidth@length%
833         \advance\mdf@verticalmarginwhole@length by -\mdf@outerlinewidth@length%
834     }{}%
835 }

```

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

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

```

836 \newrobustcmd*\mdf@advancelength@verticalmarginwhole[1]{%
837     \advance\mdf@verticalmarginwhole@length by \csname mdf@#1@length\endcsname\relax%
838 }
839 \newrobustcmd*\mdf@advancelength@freevspace@sub[1]{%
840     \advance\dimen@ by -\csname mdf@#1@length\endcsname\relax%
841 }
842 \newrobustcmd*\mdf@advancelength@freevspace@add[1]{%
843     \advance\dimen@ by \csname mdf@#1@length\endcsname\relax%
844 }

```

`\mdf@reset`

Reset changes

```
845 \protected@edef\mdf@reset{\boxmaxdepth\the\boxmaxdepth
846 \splittopskip\the\splittopskip}%
```

`\mdf@put@frame@standalone`

Output of `mdframed` inside a non breakable environment.

```
847 \newrobustcmd*\mdf@put@frame@standalone{\relax%
848   \ifvoid\mdf@splitbox@one\relax
849     \mdf@PackageWarning{The environment is empty\MessageBreak}%
850     \let\mdf@reserved@a\relax%
851   \else
852     %Hier berechnung Box-Inhalt+Rahmen oben und unten
853     \setlength{\mdf@verticalmarginwhole@length}%
854       {\dimexpr\ht\mdf@splitbox@one+\dp\mdf@splitbox@one\relax}%
855     \mdf@dolist{\mdf@advancelength@verticalmarginwhole}{%
856       outerlinewidth,middlelinewidth,innerlinewidth,innertopmargin,
857       innerbottommargin,innerlinewidth,middlelinewidth,outerlinewidth}%
858     \mdf@keeplines@single%
859     \def\mdf@reserved@a{\mdf@putbox@single}%
860   \fi
861   \mdf@reserved@a%
862 }
```

`\mdf@put@frame`

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

```
863 \def\mdf@put@frame{\relax%
864 \ifvoid\mdf@splitbox@one\relax
865 \mdf@PackageWarning{The environment is empty\MessageBreak}%
866 \let\mdf@reserved@a\relax%
867 \else
868   \setlength\mdf@boundingboxwidth{\wd\mdf@splitbox@one}%
869   \mdf@print@space%
870   \mdf@freepagevspace@gives \mdf@freevspace@length
871   \mdf@PackageInfoSpace{\the\mdf@freevspace@length before the beginning of \MessageBreak
872     the environment ending on input line \MessageBreak}%
873   \ifdimless{\mdf@freevspace@length}{2\baselineskip}
874     {\mdf@PackageInfo{Not enough space on this page}
875     \vfill\eject%
876     \def\mdf@reserved@a{\mdf@put@frame}%
877     }{%
878     %Hier berechnung Box-Inhalt+Rahmen oben und unten
879     \setlength{\mdf@verticalmarginwhole@length}%
880       {\dimexpr\ht\mdf@splitbox@one+\dp\mdf@splitbox@one\relax}%
881     \mdf@dolist{\mdf@advancelength@verticalmarginwhole}{%
882       outerlinewidth,middlelinewidth,innerlinewidth,innertopmargin,
883       innerbottommargin,innerlinewidth,middlelinewidth,outerlinewidth}%
884     \mdf@keeplines@single%
885     \ifdimless{\mdf@verticalmarginwhole@length}{\mdf@freevspace@length}%
886       {%passt auf Seite%
887       \begingroup
888       \mdf@@setzref
```

```

889             \mdf@putbox@single%
890         \endgroup
891         \let\mdf@reserved@a\relax}%
892         {\def\mdf@reserved@a{\mdf@put@frame@i}}%passt nicht auf Seite
893     }%
894 \fi
895 \mdf@reserved@a%
896 }

```

`\mdf@put@frame@i`

Output of the first splitted box.

```

897 \def\mdf@put@frame@i{%Box muss gesplittet werden -- Ausgabe der ersten Teilbox
898 %Berechnung der Splittgroesse -- Linien und Abstand oben
899 %\vbox to 0pt{}%
900 %\rlap{\smash{\the\mdf@freevspace@length}}%\hrule \@height\z@ \@width\hsize
901 \mdf@freepagevspace@gives \mdf@freevspace@length
902 %Berechnung ob nur oberen Linien nur auf die Seite passe
903 \dimen@=\the\mdf@freevspace@length%
904 \dimen@i=\mdf@innertopmargin@length%
905 \advance\dimen@i by \mdf@innerlinewidth@length%
906 \advance\dimen@i by \mdf@middlelinewidth@length%
907 \advance\dimen@i by \mdf@outerlinewidth@length%
908 \advance\dimen@i by 2\baselineskip%
909 \ifdimless{\dimen@}{\dimen@i}%
910     {\hrule \@height\z@ \@width\hsize%
911       \vfill\ject%
912       \def\mdf@reserved@a{\mdf@put@frame}%
913     }{%
914       \mdf@freepagevspace%
915       \dimen@=\the\mdf@freevspace@length%
916       \mdf@dolist{\mdf@advancelength@freevspace@sub}{%calculate with \dimen@
917         outerlinewidth,middlelinewidth,innerlinewidth,%
918         innertopmargin,splitbottomskip}%
919       \ifbool{mdf@topline}{%
920         \advance\dimen@ by \mdf@innerlinewidth@length%
921         \advance\dimen@ by \mdf@middlelinewidth@length%
922         \advance\dimen@ by \mdf@outerlinewidth@length%
923       }%
924       \advance\dimen@.8\pageshrink
925       \ifdimless{\ht\mdf@splitbox@one+\dp\mdf@splitbox@one}{\dimen@}%
926         {\mdf@PackageWarning{You got a bad break\MessageBreak
927           you have to change it manually\MessageBreak
928           by changing the text, the space\MessageBreak
929           or something else}%
930         \advance\dimen@ by -1.8\baselineskip\relax%
931       }{%
932 %       \advance\dimen@ by -1pt\relax%Box darf nicht zu Groß werden.
933       \splitmaxdepth\z@ \splittopskip\mdf@splittopskip@length%
934       \mdf@ignorevbadness%
935       \setbox\mdf@splitbox@two\vsplit\mdf@splitbox@one to \dimen@
936       \setbox\mdf@splitbox@two\vbox{\unvbox\mdf@splitbox@two}%
937       \setbox\mdf@splitbox@one\vbox{\unvbox\mdf@splitbox@one}%
938       \ifbool{mdf@repeatframetitle}{%

```

```

939         \setbox\mdf@splitbox@one\vbox{%
940             \vbox to \mdf@splittopskip@length{\hsize\z@}
941             %\par\unskip\nointerlineskip
942             \unvcopy\mdf@frametitlebox%
943             \mdf@@frametitlerule%
944             \vbox to\dimexpr
945                 -\mdf@splittopskip@length+\ht\strutbox+\dp\strutbox
946                 +\mdf@innertopmargin@length\relax{\hsize\z@}%
947             \unvbox\mdf@splitbox@one}%
948     }{}%
949 \ifdimgreater{\ht\mdf@splitbox@two+\dp\mdf@splitbox@two}{\dimen@}%
950 {%Falsch gesplittet
951     \mdf@PackageInfo{Box was splittet wrong\MessageBreak}%
952     \dimen@i=\dimen@
953     \advance\dimen@ by -\ht\mdf@splitbox@two
954     \advance\dimen@ by -\dp\mdf@splitbox@two
955     \advance\dimen@i by 0.5\dimen@
956     \splittopskip\z@%
957     \setbox\mdf@splitbox@one\vbox{\unvbox\mdf@splitbox@two%
958         %benoetigt um Tiefe zu haben
959         \hrule \@height\dp\strutbox \@width\z@
960         \unvbox\mdf@splitbox@one}
961     \splittopskip\mdf@splittopskip@length%
962     \mdf@ignorevbadness%
963     \setbox\mdf@splitbox@two\vsplit\mdf@splitbox@one to \dimen@i
964     \setbox\mdf@splitbox@two\vbox{\unvbox\mdf@splitbox@two}%
965     \setbox\mdf@splitbox@one\vbox{\unvbox\mdf@splitbox@one}%
966 \ifbool{\mdf@repeatframetitle}{%
967     \setbox\mdf@splitbox@one\vbox{%
968         \vbox to \mdf@splittopskip@length{\hsize\z@}
969         %\par\unskip\nointerlineskip
970         \unvcopy\mdf@frametitlebox%
971         \mdf@@frametitlerule%
972         \vbox to\dimexpr
973             -\mdf@splittopskip@length+\ht\strutbox+\dp\strutbox
974             +\mdf@innertopmargin@length\relax{\hsize\z@}%
975         \unvbox\mdf@splitbox@one}%
976     }{}%
977 }{}%
978 \ifvoid\mdf@splitbox@one
979     \mdf@PackageWarning{You got a bad break\MessageBreak
980         because the splittet box is empty\MessageBreak
981         You have to change the page settings\MessageBreak
982         like enlargethispage or something else}%
983     \setbox\mdf@splitbox@one\vbox{\unvbox\mdf@splitbox@two%
984         %benoetigt um Tiefe zu haben
985         \hrule \@height\dp\strutbox \@width\z@
986         \unvbox\mdf@splitbox@one}%
987     \setbox\mdf@splitbox@one\vbox{\unvbox\mdf@splitbox@one}%
988     \enlargethispage{\baselineskip}%
989     \def\mdf@reserved@a{\mdf@put@frame}%
990 \fi
991 \ifvoid\mdf@splitbox@two%pruefe, ob erste Box leer ist
992     \hrule \@height\z@ \@width\hsize
993     \vfill\@eject%
994     \def\mdf@reserved@a{\mdf@put@frame}%

```



```

995     \else
996     \ifdimequal{\ht\mdf@splitbox@two}{0pt}%
997         {\hrule \@height\z@ \@width\hsize%
998         \vfill\ject%
999         \setbox\mdf@splitbox@one\vbox{\unvbox\mdf@splitbox@two\unvbox\mdf@splitbox@one}
1000         \def\mdf@reserved@a{\mdf@put@frame}%
1001         }%
1002     {%
1003     \begingroup%
1004         \mdf@setzref
1005         \mdf@putbox@first%%Groesse des Splittens passt
1006     \endgroup%
1007     \hrule \@height\z@ \@width\hsize%
1008     \vfill\ject%
1009     \def\mdf@reserved@a{\mdf@put@frame@ii}%
1010     }%
1011     \fi%
1012 }%
1013 \mdf@reserved@a%
1014 }

```

`\mdf@put@frame@ii`

Output of the middle and last box.

```

1015 \def\mdf@put@frame@ii{%Ausgabe der mittleren Box(en) wenn vorhanden
1016     \setlength{\mdf@freevspace@length}{\vsize}%
1017     \setlength{\dimen@}{\dimexpr\ht\mdf@splitbox@one+\dp\mdf@splitbox@one\relax}%
1018     \mdf@dolist{\mdf@advance@length@freevspace@add}{%used \dimen@
1019         outerlinewidth,middlelinewidth,innerlinewidth,%
1020         innerbottommargin}%%Addition der Linien unten
1021     \ifbool{mdf@bottomline}{}%
1022         \advance\dimen@i by \mdf@innerlinewidth@length%
1023         \advance\dimen@i by \mdf@middlelinewidth@length%
1024         \advance\dimen@i by \mdf@outerlinewidth@length%
1025     \relax}%
1026     \ifdimgreater{\dimen@}{\mdf@freevspace@length}%
1027     {%
1028     \advance\mdf@freevspace@length by -\mdf@splitbottomskip@length\relax%
1029     \ifbool{mdf@bottomline}{}%
1030         \advance\dimen@i by -\mdf@innerlinewidth@length%
1031         \advance\dimen@i by -\mdf@middlelinewidth@length%
1032         \advance\dimen@i by -\mdf@outerlinewidth@length%
1033     \relax}%
1034     \splitmaxdepth\z@ \splittopskip\mdf@splittopskip@length%
1035     \mdf@ignorevbadness%
1036     \setbox\mdf@splitbox@two\vsplit\mdf@splitbox@one to \mdf@freevspace@length%
1037     \setbox\mdf@splitbox@two\vbox{\unvbox\mdf@splitbox@two}%PRUEFEN!!!
1038     \setbox\mdf@splitbox@one\vbox{\unvbox\mdf@splitbox@one}%PRUEFEN!!!!
1039     \ifbool{mdf@repeatframetitle}{%
1040         \setbox\mdf@splitbox@one\vbox{%
1041             \vbox to \mdf@splittopskip@length{\hsize\z@}
1042             %\par\unskip\nointerlineskip
1043             \unvcopy\mdf@frametitlebox%
1044             \mdf@@@frametitlerule%
1045             \vbox to\dimexpr

```

```

1046             -\mdf@splittopskip@length+\ht\strutbox+\dp\strutbox
1047             +\mdf@innertopmargin@length\relax{\hsize\z@}%
1048             \unvbox\mdf@splitbox@one}%
1049         }{}%
1050     \ifvoid\mdf@splitbox@one\relax%
1051         \mdf@PackageWarning{You got a bad break\MessageBreak
1052             because the split box is empty\MessageBreak
1053             You have to change the settings}%
1054         \setbox\mdf@splitbox@one{\unvbox\mdf@splitbox@two}%
1055         \def\mdf@reserved@a{\enlargethispage{\baselineskip}\mdf@put@frame@ii}%
1056     \else
1057         \begingroup
1058             \mdf@@setzref
1059             \mdf@putbox@middle%
1060         \endgroup
1061         \hrule \@height\z@ \@width\hsize
1062         \vfill\ject
1063         \def\mdf@reserved@a{\mdf@put@frame@ii}%
1064     \fi
1065 }%Hier die Ausgabe der mittleren Box
1066 {\ifvoid\mdf@splitbox@one
1067     \mdf@PackageWarning{You got a bad break\MessageBreak
1068         because the last split box is empty\MessageBreak
1069         You have to change the settings}%
1070     \setbox\mdf@splitbox@one\vbox{\unvbox\mdf@splitbox@one\hrule \@height\z@ \@width\mdfbounding
1071 \fi%
1072 \ifdimless{\ht\mdf@splitbox@one}{1sp}}%
1073     \mdf@PackageWarning{You got a bad break\MessageBreak
1074         because the last split box is empty\MessageBreak
1075         You have to change the settings}%
1076     %\hb@xt@\z@{\box\mdf@splitbox@one}%
1077     \let\mdf@reserved@a\relax%
1078     \setbox\mdf@splitbox@one\vbox{\unvbox\mdf@splitbox@one\hrule \@height\z@ \@width\mdfboundin
1079 }{}%
1080 \begingroup%
1081     \mdf@@setzref
1082     \mdf@putbox@second%
1083     \hrule \@height\z@ \@width\hsize%
1084 \endgroup%
1085 \let\mdf@reserved@a\relax%
1086 }%Hier kommt die Ausgabe der letzten Box
1087 \mdf@reserved@a%
1088 }
1089

```

```
\mdf@test@ltrb
\mdf@test@ltr
\mdf@test@ltb
\mdf@test@trb
\mdf@test@lrb
\mdf@test@lb
\mdf@test@rb
\mdf@test@tr
\mdf@test@lt
\mdf@test@lr
\mdf@test@tb
\mdf@test@l
\mdf@test@r
\mdf@test@t
\mdf@test@b
\mdf@test@none
```

Short forms of checking the option which lines should be drawn.

```

1090 %%%      -----t-----
1091 %%%      |                   |
1092 %%%      |                   |
1093 %%%      |                   |
1094 %%%      l|                   |r
1095 %%%      |                   |
1096 %%%      |                   |
1097 %%%      |-----b-----|
1098 %%%
1099 %%Zusammenhaenge abfragen:
1100 \newrobustcmd*\mdf@test@ltr{%
1101     \ifboolexpr{ (bool {mdf@topline}) and (bool {mdf@bottomline})
1102                 and (bool {mdf@leftline}) and (bool {mdf@rightline})}}
1103 %3-set
1104 \newrobustcmd*\mdf@test@ltr{%
1105     \ifboolexpr{ (bool {mdf@topline}) and not (bool {mdf@bottomline})
1106                 and (bool {mdf@leftline}) and (bool {mdf@rightline})}}
1107 \newrobustcmd*\mdf@test@ltb{%
1108     \ifboolexpr{ (bool {mdf@topline}) and (bool {mdf@bottomline})
1109                 and (bool {mdf@leftline}) and not (bool {mdf@rightline})}}
1110 \newrobustcmd*\mdf@test@trb{%
1111     \ifboolexpr{ (bool {mdf@topline}) and (bool {mdf@bottomline})
1112                 and not (bool {mdf@leftline}) and (bool {mdf@rightline})}}
1113 \newrobustcmd*\mdf@test@lrb{%
1114     \ifboolexpr{ not (bool {mdf@topline}) and (bool {mdf@bottomline})
1115                 and (bool {mdf@leftline}) and (bool {mdf@rightline})}}
1116 %2-set
1117 \newrobustcmd*\mdf@test@lb{%
1118     \ifboolexpr{ not (bool {mdf@topline}) and (bool {mdf@bottomline})
1119                 and (bool {mdf@leftline}) and not (bool {mdf@rightline})}}
1120 \newrobustcmd*\mdf@test@rb{%
1121     \ifboolexpr{ not (bool {mdf@topline}) and (bool {mdf@bottomline})
1122                 and not (bool {mdf@leftline}) and (bool {mdf@rightline})}}
1123 \newrobustcmd*\mdf@test@tr{%
1124     \ifboolexpr{ (bool {mdf@topline}) and not (bool {mdf@bottomline})
1125                 and not (bool {mdf@leftline}) and (bool {mdf@rightline})}}
1126 \newrobustcmd*\mdf@test@lt{%
1127     \ifboolexpr{ (bool {mdf@topline}) and not (bool {mdf@bottomline})

```

```

1128         and (bool {mdf@leftline}) and not (bool {mdf@rightline}}})
1129 \newrobustcmd*{\mdf@test@lr{%
1130     \ifboolexpr{not (bool {mdf@topline}) and not (bool {mdf@bottomline})
1131         and (bool {mdf@leftline}) and (bool {mdf@rightline}}})
1132 \newrobustcmd*{\mdf@test@tb{%
1133     \ifboolexpr{ (bool {mdf@topline}) and (bool {mdf@bottomline})
1134         and not (bool {mdf@leftline}) and not (bool {mdf@rightline}}})
1135 %Einzellinien
1136 \newrobustcmd*{\mdf@test@l{%
1137     \ifboolexpr{ not (bool {mdf@topline}) and not (bool {mdf@bottomline})
1138         and (bool {mdf@leftline}) and not (bool {mdf@rightline}}})
1139 \newrobustcmd*{\mdf@test@r{%
1140     \ifboolexpr{ not (bool {mdf@topline}) and not (bool {mdf@bottomline})
1141         and not (bool {mdf@leftline}) and (bool {mdf@rightline}}})
1142 \newrobustcmd*{\mdf@test@t{%
1143     \ifboolexpr{ (bool {mdf@topline}) and not (bool {mdf@bottomline})
1144         and not (bool {mdf@leftline}) and not (bool {mdf@rightline}}})
1145 \newrobustcmd*{\mdf@test@b{%
1146     \ifboolexpr{ not (bool {mdf@topline}) and (bool {mdf@bottomline})
1147         and not (bool {mdf@leftline}) and not (bool {mdf@rightline}}})
1148 %keine Linien
1149 \newrobustcmd*{\mdf@test@noline{%
1150     \ifboolexpr{ not (bool {mdf@topline}) and not (bool {mdf@bottomline})
1151         and not (bool {mdf@leftline}) and not (bool {mdf@rightline}}})
1152 \newrobustcmd*{\mdf@test@single{%
1153     \ifboolexpr{ not (test {\mdf@test@ltrb} or test {\mdf@test@ltr} or
1154         test {\mdf@test@ltb} or test {\mdf@test@trb} or
1155         test {\mdf@test@lrb} or test {\mdf@test@lb} or
1156         test {\mdf@test@rb} or test {\mdf@test@tr} or
1157         test {\mdf@test@lt} ) }}
1158 %
1159 \DisableKeyvalOption[action=warning,package=mdframed]{mdf}{framemethod}%
1160 \DisableKeyvalOption[action=warning,package=mdframed]{mdf}{xcolor}%
1161
1162 \endinput

```

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

```

1163 %% Style file for mdframed for package option 'framemethod=default'
1164 %%
1165 %% This package may be distributed under the terms of the LaTeX Project
1166 %% Public License, as described in lppl.txt in the base LaTeX distribution.
1167 %% Either version 1.0 or, at your option, any later version.
1168
1169 %%$Id: mdframed.dtx 320 2012-01-09 18:44:33Z marco $
1170 %

```

```

\mdframed0packagename
\mdf@frame0date@svn

```

local settings

```

1171 \def\mdframed0packagename{md-frame-0}
1172 \def\mdf@frame0date@svn$1: #2 #3 #4-#5-#6 #7 #8${#4/#5/#6\space }
1173 \ProvidesFile{md-frame-0.mdf}%
1174     [\mdf@frame0date@svn$Id: mdframed.dtx 320 2012-01-09 18:44:33Z marco $]

```

```
1175 \mdversion: \mdframed0packagename]
```

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

short command

```
1176 \def\mdf@background@default{\color{\mdf@backgroundcolor}}
1177 \def\mdf@frametitlebackground@default{\color{\mdf@frametitlebackgroundcolor}}
1178 \def\mdf@innerlinecolor@default{\color{\mdf@innerlinecolor}}
1179 \def\mdf@middlelinecolor@default{\color{\mdf@middlelinecolor}}
1180 \def\mdf@outerlinecolor@default{\color{\mdf@outerlinecolor}}
1181 \def\mdf@frametitlerulecolor@default{\color{\mdf@frametitlerulecolor}}
1182 \let\mdf@linecolor@default\mdf@middlelinecolor@default
1183 \def\mdf@@frametitlerule{%
1184   \ifbool{mdf@frametitlerule}{%
1185     \vbox to \mdf@frametitlerulewidth@length {\hsize\mdfframetitleboxwidth%
1186       \par\unskip\vskip\mdf@frametitlebelowskip@length%
1187       \rlap{\noindent\hspace*{-\mdf@innerleftmargin@length}%
1188         \mdf@frametitlerulecolor@default%
1189         \rule{\dimexpr\mdfframetitleboxwidth%
1190           +\mdf@innerleftmargin@length
1191           +\mdf@innerrightmargin@length\relax
1192           }{\mdf@frametitlerulewidth@length}%
1193         }}%
1194   }{}
1195   \par\unskip\vskip\mdf@innertopmargin@length%
1196 }%
1197
```

```
\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*

```
1198 \def\mdf@frame@background@single{%
1199   \rlap{\mdf@background@default%
1200     \rule[-\mdfboundingboxdepth]{%
1201       {\mdfboundingboxtotalwidth}%
1202       {\mdfboundingboxtotalheight}%
1203     }%
1204 }%
1205 \def\mdf@frame@frametitlebackground@single{%
1206   \rlap{\mdf@frametitlebackground@default%
1207     \rule[\dimexpr-\mdfboundingboxdepth+\mdfboundingboxtotalheight-\mdfframetitleboxtotalheight\relax]{%
1208       {\mdfboundingboxtotalwidth}%
1209       {\mdfframetitleboxtotalheight}%
1210     }%
1211 }%
1212
1213 \def\mdf@frame@topline@single{%
1214   \rlap{\mdf@linecolor@default%
```

```

1215 \ifbool{mdf@topline}{%
1216 \rule[\dimexpr\mdfboundingboxheight-\mdfboundingboxdepth%
1217 +\mdf@innerbottommargin@length+\mdf@innertopmargin@length\relax]%
1218 {\mdfboundingboxtotalwidth}%
1219 {\mdf@middlelinewidth@length}}%
1220 {}%
1221 }%
1222 }%
1223 \def\mdf@frame@bottomline@single{%
1224 \rlap{\ifbool{mdf@leftline}{\hspace*{-\mdf@middlelinewidth@length}}{\mdf@linecolor@default%
1225 \ifbool{mdf@bottomline}{%
1226 \rule[\dimexpr-\mdfboundingboxdepth-\mdf@middlelinewidth@length\relax]%
1227 {\dimexpr\mdfboundingboxtotalwidth
1228 \ifbool{mdf@rightline}{+\mdf@middlelinewidth@length}}}%
1229 \ifbool{mdf@leftline}{+\mdf@middlelinewidth@length}}{\relax}%
1230 {\mdf@middlelinewidth@length}}}%
1231 {}%
1232 }%
1233 }%
1234 \def\mdf@frame@leftline@single{%
1235 \llap{\mdf@linecolor@default%
1236 \rule[-\mdfboundingboxdepth]%
1237 {\mdf@middlelinewidth@length}%
1238 {\dimexpr\mdfboundingboxtotalheight%
1239 \ifbool{mdf@topline}{+\mdf@middlelinewidth@length}}{\relax}%
1240 }%
1241 }%
1242 \def\mdf@frame@rightline@single{%
1243 \rlap{\mdf@linecolor@default%
1244 \hspace*{\mdfboundingboxwidth}%
1245 \hspace*{\mdf@innerrightmargin@length}%
1246 \rule[\dimexpr-\mdfboundingboxdepth%
1247 \relax]%
1248 {\mdf@middlelinewidth@length}%
1249 {\dimexpr\mdfboundingboxtotalheight%
1250 +\ifbool{mdf@topline}{\mdf@middlelinewidth@length}{0pt}}\relax}%
1251 }%
1252 }%
1253 \def\mdf@putbox@single{%%%% Ausgabe der ungesplitteten Gesamtbox
1254 \ifvoid\mdf@splitbox@one
1255 \else%
1256 \mdf@makebox@out{%
1257 \mdf@makeboxalign@left%
1258 \setlength{\mdfboundingboxwidth}%
1259 {\wd\mdf@splitbox@one}%
1260 \setlength{\mdfboundingboxtotalwidth}%
1261 {\dimexpr\mdfboundingboxwidth+\mdf@innerleftmargin@length%
1262 +\mdf@innerrightmargin@length\relax}%
1263 \setlength{\mdfboundingboxheight}%
1264 {\dimexpr\ht\mdf@splitbox@one+\dp\mdf@splitbox@one\relax}%
1265 \setlength{\mdfboundingboxdepth}%
1266 {\dimexpr\dp\mdf@splitbox@one+\mdf@innerbottommargin@length\relax}%
1267 \setlength{\mdfboundingboxtotalheight}%
1268 {\dimexpr\mdfboundingboxheight+\mdf@innertopmargin@length%
1269 +\mdf@innerbottommargin@length\relax}%
1270 \setlength{\mdftotalllinewidth}{%

```

```

1271          \dimexpr\mdf@innerlinewidth@length+\mdf@middlelinewidth@length%
1272          +\mdf@outerlinewidth@length}%
1273      \noindent%
1274      \setlength{\@tempdima}{\dimexpr\mdfboundingboxtotalwidth%
1275          +\ifbool{mdf@leftline}%
1276              {\mdf@middlelinewidth@length}{\z@}%
1277          +\ifbool{mdf@rightline}%
1278              {\mdf@middlelinewidth@length}{\z@}\relax}%
1279      \mdf@makebox@in[\@tempdima]{%
1280          \null%
1281          \ifbool{mdf@leftline}{%
1282              \hspace*{\mdftotalllinewidth}%
1283              \mdf@frame@leftline@single%
1284          }{}%
1285          \mdf@frame@topline@single%
1286          \mdf@frame@bottomline@single%
1287          \mdf@frame@background@single%
1288          \ifdefempty{\mdf@frametitle}{\mdf@frame@frametitlebackground@single}%
1289          \hspace*{\mdf@innerleftmargin@length}%
1290          \ifbool{mdf@rightline}{%
1291              \mdf@frame@rightline@single%
1292          }{}%
1293          {\box\mdf@splitbox@one}%
1294      }%
1295      \mdf@makeboxalign@right%
1296  }%
1297  \fi%
1298 }

```

```

\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

```

1299 \def\mdf@frame@background@first{%
1300     \rlap{\mdf@background@default%
1301         \rule[-\mdfboundingboxdepth]{%
1302             {\mdfboundingboxtotalwidth}%
1303             {\mdfboundingboxtotalheight}%
1304         }%
1305     }%
1306 \def\mdf@frame@frametitlebackground@first{%
1307     \ifdimless{\mdfframetitleboxtotalheight}{\mdfboundingboxtotalheight}%
1308     {%
1309         \rlap{\mdf@frametitlebackground@default%
1310             \rule[\dimexpr-\mdfboundingboxdepth+\mdfboundingboxtotalheight-\mdfframetitleboxtotalheight\relax]{%
1311                 {\mdfboundingboxtotalwidth}%
1312                 {\mdfframetitleboxtotalheight}%
1313             }%
1314             \global\mdfframetitleboxtotalheight=-\p@relax%
1315         }{\mdf@PackageWarning{You got a page break inside the frame title\MessageBreak
1316             Current this isn't well supported}%
1317         \rlap{\mdf@frametitlebackground@default%

```

```

1318     \rule[-\mdfboundingboxdepth]%
1319         {\mdfboundingboxtotalwidth}%
1320         {\mdfboundingboxtotalheight}%
1321     }%
1322     \global\mdfframetitleboxtotalheight=\dimexpr\mdfframetitleboxtotalheight
1323         -\mdfboundingboxheight
1324         +\mdf@frametitlebelowskip@length
1325         +.5\baselineskip-1pt
1326     %
1327         +\dp\strutbox
1328     \relax%
1329 }%
1330 \def\mdf@frame@leftline@first{%
1331     \llap{\mdf@linecolor@default%
1332         \rule[-\mdfboundingboxdepth]%
1333             {\mdf@middlelinewidth@length}%
1334             {\dimexpr\mdfboundingboxtotalheight%
1335                 +\ifbool{mdf@topline}{\mdf@middlelinewidth@length}{0pt}}\relax}%
1336     }%
1337 }%
1338 \def\mdf@frame@topline@first{%
1339     \rlap{\mdf@linecolor@default%
1340         \rule[\dimexpr\mdfboundingboxheight-\mdfboundingboxdepth+%
1341             \mdf@splitbottomskip@length+\mdf@innertopmargin@length]\relax}%
1342         {\mdfboundingboxtotalwidth}%
1343         {\mdf@middlelinewidth@length}%
1344     }%
1345 }
1346 \def\mdf@frame@rightline@first{%
1347     \rlap{\mdf@linecolor@default\hspace*{\mdfboundingboxwidth}%
1348         \hspace*{\mdf@innerrightmargin@length}%
1349         \rule[-\mdfboundingboxdepth]%
1350             {\mdf@middlelinewidth@length}%
1351             {\dimexpr\mdfboundingboxtotalheight%
1352                 +\ifbool{mdf@topline}{\mdf@middlelinewidth@length}{0pt}}\relax}%
1353     }%
1354 }%
1355 \def\mdf@putbox@first{%%% Ausgabe der Teilbox 1
1356     \ifvoid\mdf@splitbox@two
1357     \else%
1358         \mdf@makebox@out[\linewidth]{%
1359             \mdf@makeboxalign@left%
1360             \setlength{\mdfboundingboxwidth}{\wd\mdf@splitbox@two}%
1361             \setlength{\mdfboundingboxtotalwidth}%
1362                 {\dimexpr\mdfboundingboxwidth+\mdf@innerleftmargin@length%
1363                     +\mdf@innerrightmargin@length\relax}%
1364             \setlength{\mdfboundingboxheight}{\dimexpr\ht\mdf@splitbox@two+\dp\mdf@splitbox@two\relax}%
1365             \setlength{\mdfboundingboxdepth}%
1366                 {\dimexpr\dp\mdf@splitbox@two+\mdf@splitbottomskip@length\relax}%
1367             \setlength{\mdfboundingboxtotalheight}%
1368                 {\dimexpr\mdfboundingboxheight+\mdf@innertopmargin@length%
1369                     +\mdf@splitbottomskip@length\relax}%
1370             \setlength{\@tempdima}%
1371                 {\dimexpr\mdfboundingboxtotalwidth%
1372                     +\ifbool{mdf@leftline}{\mdf@middlelinewidth@length}{\z@}%
1373                     +\ifbool{mdf@rightline}{\mdf@middlelinewidth@length}{\z@}%

```



```

1374         \relax}%
1375     \mdf@makebox@in[\@tempdima]{%
1376         \null%
1377         \ifbool{mdf@leftline}{%
1378             \hspace*{\mdf@middlelinewidth@length}%
1379             \mdf@frame@leftline@first}}}%
1380         \ifbool{mdf@topline}{%
1381             \mdf@frame@topline@first}}}%
1382         \mdf@frame@background@first%
1383         \ifdefempty{\mdf@frametitle}{\mdf@frame@frametitlebackground@first}%
1384         \hspace*{\mdf@innerleftmargin@length}%
1385         \ifbool{mdf@rightline}{%
1386             \mdf@frame@rightline@first}}}%
1387         {\box\mdf@splitbox@two}%
1388     }%
1389     \mdf@makebox@align@right%
1390 }%
1391 \fi%
1392 }

```

```

\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

```

1393 \def\mdf@frame@background@second{%
1394     \rlap{\mdf@background@default%
1395         \rule[-\mdf@boundingboxdepth]{%
1396             {\mdf@boundingboxtotalwidth}%
1397             {\mdf@boundingboxtotalheight}}%
1398     }%
1399 }%
1400 \def\mdf@frame@frametitlebackground@second{%
1401     \ifdimless{\mdfframetitleboxtotalheight}{\z@}%
1402     {%
1403         \rlap{\mdf@frametitlebackground@default%
1404             \rule[\dimexpr-\mdf@boundingboxdepth+\mdf@boundingboxtotalheight-\mdfframetitleboxtotalheight\relax]{%
1405                 {\mdf@boundingboxtotalwidth}%
1406                 {\mdfframetitleboxtotalheight}}%
1407         }%
1408     }%
1409 }%
1410 \def\mdf@frame@leftline@second{%
1411     \llap{\mdf@linecolor@default%
1412         \rule[-\mdf@boundingboxdepth]{%
1413             {\mdf@middlelinewidth@length}%
1414             {\dimexpr\mdf@boundingboxtotalheight}}%
1415     }%
1416 }%
1417 \def\mdf@frame@bottomline@second{%
1418     \rlap{\ifbool{mdf@leftline}{\hspace*{-\mdf@middlelinewidth@length}}{\mdf@linecolor@default%
1419         \rule[\dimexpr-\mdf@boundingboxdepth-\mdf@middlelinewidth@length\relax]{%
1420             {\dimexpr\mdf@boundingboxtotalwidth

```

```

1421             \ifbool{mdf@rightline}{+\mdf@middlelinewidth@length}{}
1422             \ifbool{mdf@leftline}{+\mdf@middlelinewidth@length}{}\relax}%
1423     {\mdf@middlelinewidth@length}%
1424 }%
1425}%
1426 \def\mdf@frame@rightline@second{%
1427   \rlap{\mdf@linecolor@default\hspace*{\mdfboundingboxwidth}%
1428     \hspace*{\mdf@innerrightmargin@length}%
1429     \rule[-\mdfboundingboxdepth]%
1430       {\mdf@middlelinewidth@length}%
1431       {\mdfboundingboxtotalheight}%
1432     }%
1433}%
1434 \def\mdf@putbox@second{%
1435   \ifvoid\mdf@splitbox@one%
1436   \else
1437     \mdf@makebox@out{%
1438       \mdf@makeboxalign@left%
1439       \setlength{\mdfboundingboxwidth}{\wd\mdf@splitbox@one}%
1440       \setlength{\mdfboundingboxtotalwidth}%
1441         {\dimexpr\mdfboundingboxwidth+\mdf@innerleftmargin@length%
1442           +\mdf@innerrightmargin@length\relax}%
1443       \setlength{\mdfboundingboxheight}{\dimexpr\ht\mdf@splitbox@one+\dp\mdf@splitbox@one\relax}%
1444       \setlength{\mdfboundingboxdepth}%
1445         {\dimexpr\dp\mdf@splitbox@one+\mdf@innerbottommargin@length\relax}%
1446       \setlength{\mdfboundingboxtotalheight}%
1447         {\dimexpr\mdfboundingboxheight+\mdf@innerbottommargin@length\relax}%
1448       \setlength{\@tempdima}{\dimexpr\mdfboundingboxtotalwidth%
1449         +\ifbool{mdf@leftline}{\mdf@middlelinewidth@length}{\z@}%
1450         +\ifbool{mdf@rightline}{\mdf@middlelinewidth@length}{\z@}%
1451         \relax}%
1452       \mdf@makebox@in[\@tempdima]{%
1453         \null%
1454         \ifbool{mdf@leftline}{%
1455           \hspace*{\mdf@middlelinewidth@length}%
1456           \mdf@frame@leftline@second}{}%
1457         \ifbool{mdf@bottomline}{%
1458           \mdf@frame@bottomline@second}{}%
1459         \mdf@frame@background@second%
1460         \ifdefempty{\mdf@frametitle}{\mdf@frame@frametitlebackground@second}%
1461         \hspace*{\mdf@innerleftmargin@length}%
1462         \ifbool{mdf@rightline}{%
1463           \mdf@frame@rightline@second}{}%
1464         {\box\mdf@splitbox@one}%
1465       }%
1466       \mdf@makeboxalign@right%
1467     }%
1468   \fi%
1469}%

```

```

\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

```

1470 \def\mdf@frame@leftline@middle{%
1471   \llap{\mdf@linecolor@default%
1472     \rule[-\mdfboundingboxdepth]%
1473       {\mdf@middlelinewidth@length}%
1474       {\mdfboundingboxtotalheight}%
1475   }%
1476 }%
1477 \def\mdf@frame@background@middle{%
1478   \rlap{\mdf@background@default%
1479     \rule[-\mdfboundingboxdepth]%
1480       {\mdfboundingboxtotalwidth}%
1481       {\mdfboundingboxtotalheight}%
1482   }%
1483 }%
1484 \def\mdf@frame@frametitlebackground@middle{%
1485   \ifdimless{\mdfframetitleboxtotalheight}{\z@}%
1486   {%
1487     {\rlap{\mdf@frametitlebackground@default%
1488       \rule[\dimexpr-\mdfboundingboxdepth+\mdfboundingboxtotalheight-\mdfframetitleboxtotalheight\relax]
1489         {\mdfboundingboxtotalwidth}%
1490         {\mdfframetitleboxtotalheight}%
1491     }%
1492     \global\mdfframetitleboxtotalheight=-\p@ \relax%
1493   }%
1494 }%
1495 \def\mdf@frame@rightline@middle{%
1496   \rlap{\mdf@linecolor@default\hspace*{\mdfboundingboxwidth}%
1497     \hspace*{\mdf@innerrightmargin@length}%
1498     \rule[-\mdfboundingboxdepth]%
1499       {\mdf@middlelinewidth@length}%
1500       {\mdfboundingboxtotalheight}%
1501   }%
1502 }%
1503 \def\mdf@putbox@middle{%
1504   \ifvoid\mdf@splitbox@two%
1505   \else
1506     \mdf@makebox@out{%
1507       \mdf@makeboxalign@left%
1508       \setlength{\mdfboundingboxwidth}{\wd\mdf@splitbox@two}%
1509       \setlength{\mdfboundingboxtotalwidth}%
1510         {\dimexpr\mdfboundingboxwidth+\mdf@innerleftmargin@length%
1511           +\mdf@innerrightmargin@length\relax}%
1512       \setlength{\mdfboundingboxheight}{\dimexpr\ht\mdf@splitbox@two+\dp\mdf@splitbox@two\relax}%
1513       \setlength{\mdfboundingboxdepth}%
1514         {\dimexpr\dp\mdf@splitbox@two+\mdf@splitbottomskip@length\relax}%
1515       \setlength{\mdfboundingboxtotalheight}%
1516         {\dimexpr\mdfboundingboxheight+\mdf@splitbottomskip@length\relax}%
1517       \setlength{\@tempdima}{\dimexpr\mdfboundingboxtotalwidth%
1518         +\ifbool{\mdf@leftline}{\mdf@middlelinewidth@length}{\z@}%
1519         +\ifbool{\mdf@rightline}{\mdf@middlelinewidth@length}{\z@}%
1520       \relax}%
1521       \mdf@makebox@in[\@tempdima]{%
1522         \null%
1523         \ifbool{\mdf@leftline}{%
1524           \hspace*{\mdf@middlelinewidth@length}%

```

```

1525         \mdf@frame@leftline@middle}{}%
1526         \mdf@frame@background@middle%
1527         \ifdefempty{\mdf@frametitle}{\mdf@frame@frametitlebackground@middle}%
1528         \hspace*{\mdf@innerleftmargin@length}%
1529         \ifbool{mdf@rightline}{%
1530             \mdf@frame@rightline@middle}{}%
1531             {\box\mdf@splitbox@two}%
1532         }%
1533         \mdf@makeboxalign@right%
1534     }
1535     \fi%
1536 }

1537 \endinput

```

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

```

1538 %% Style file for mdframed for package option 'framemethod=default'
1539 %%
1540 %% This package may be distributed under the terms of the LaTeX Project
1541 %% Public License, as described in lppl.txt in the base LaTeX distribution.
1542 %% Either version 1.0 or, at your option, any later version.
1543
1544 %%$Id: mdframed.dtx 320 2012-01-09 18:44:33Z marco $
1545 %

```

```

\mdframedIpackagename
\mdf@frameIdate@svn

```

local settings

```

1546 \def\mdframedIpackagename{md-frame-1}
1547 \def\mdf@frameIdate@svn$#1: #2 #3 #4-#5-#6 #7 #8$#{#4/#5/#6\space }
1548 \ProvidesFile{md-frame-1.mdf}%
1549         [\mdf@frameIdate@svn$Id: mdframed.dtx 320 2012-01-09 18:44:33Z marco $ %
1550         \mdversion: \mdframedIpackagename]
1551 %

```

```

\mdf@tikz@settings

```

Define settings for tikz

```

1552 %Allgemeine Einstellungen fuer tikz
1553 \def\mdf@tikz@settings{%
1554 %
1555     \tikzset{mdfbox/.style={anchor=south west,%
1556                             inner sep=0pt,%
1557                             outer sep=0pt,%
1558                             \mdf@fontcolor,}}% anchor der Ausgabebox ist unten links
1559     \tikzset{mdfcorners/.style={rounded corners=\mdf@roundcorner@length}}%
1560     \tikzset{mdfbackground/.style={fill=\mdf@backgroundcolor,%
1561                                     draw=\mdf@backgroundcolor}}%
1562     \tikzset{mdfframetitlebackground/.style={fill=\mdf@frametitlebackgroundcolor,%
1563                                                draw=none,%
1564                                                rounded corners={max(\mdf@roundcorner@length%
1565                                                                -\mdf@innerlinewidth@length%
1566                                                                -.5\mdf@middlelinewidth@length,0)}}}%

```

```

1567 %
1568 \tikzset{mdfouterline/.style={}}%
1569 % nur wenn outerlinewidth>0 wird aussere Linie gezeichnet
1570 \ifdimgreater{\mdf@outerlinewidth@length}{\z@}
1571   {\tikzset{mdfouterline/.append style={%
1572     draw=\mdf@outerlinecolor,%
1573     line width=2\mdf@outerlinewidth@length+\mdf@middlelinewidth@length}}}%
1574 %
1575 \tikzset{mdfinnerline/.style={}}%
1576 % nur wenn innerlinewidth>0 wird innere Linie gezeichnet
1577 \ifdimgreater{\mdf@innerlinewidth@length}{\z@}
1578   {\tikzset{mdfinnerline/.append style={%
1579     draw=\mdf@innerlinecolor,%
1580     line width=2\mdf@innerlinewidth@length+\mdf@middlelinewidth@length}}}%
1581 %
1582 \mdf@tikzset@local
1583 \tikzset{mdfmiddleline/.style={}}%
1584 % nur wenn middlelinewidth>0 wird mittlere Linie gezeichnet
1585 \ifdimgreater{\mdf@middlelinewidth@length}{\z@}
1586   {\tikzset{mdfmiddleline/.append style={%
1587     preaction={draw=\mdf@middlelinecolor,%
1588       line width=\mdf@middlelinewidth@length},%
1589     line width=\mdf@middlelinewidth@length,%
1590     tikzsetting}}}%
1591   }{}%
1592 }%

```

```

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

```

Befehle fuer Ausgabe von Rahmen und Hintergrund

```

1593 \newrobustcmd*\mdf@tikzbox@tfl[1]{%three or four borders
1594   \clip(0,0)rectangle(\mdfboundingboxwidth,\mdfboundingboxheight);%
1595   \begin{scope}[mdfcorners]%
1596     \clip[preaction=mdfouterline]%
1597       [postaction=mdfbackground]%
1598       [postaction=mdfinnerline]#1;%
1599   \end{scope}%
1600   \path[mdfmiddleline,mdfcorners]#1;
1601 }%
1602
1603
1604
1605 \newrobustcmd*\mdf@tikzbox@otl[2]{%one or two borders
1606   \clip(0,0)rectangle(\mdfboundingboxwidth,\mdfboundingboxheight);%
1607   \begin{scope}
1608     \path[mdfouterline,mdfcorners]#1;%
1609     \clip[postaction=mdfbackground]#2;%
1610     \path[mdfinnerline,mdfcorners]#1;%
1611   \end{scope}%
1612   \path[mdfmiddleline,mdfcorners]#1;%

```

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

frametitlerule with tikz

```

1613 \tikzset{mdfframetitrerule/.style={%
1614     draw=none,
1615     fill=\mdf@frametitrerulecolor,
1616 }%
1617 }
1618 \def\mdf@@frametitrerule{%
1619   \ifbool{mdf@frametitrerule}{%
1620     \vbox{\hsize0pt
1621       \par\unskip\vskip\mdf@frametitlebelowskip@length
1622       \noindent\rlap{\hspace*{-\mdf@innerleftmargin@length}%
1623       \begingroup%
1624       \pgfmathsetlength{\dimen@}{\mdfframetitleboxwidth+\mdf@innerleftmargin@length+\mdf@innerrightmargin@length}
1625       \tikz\draw[mdfframetitrerule] (0,0)%
1626           rectangle (\dimen@,\mdf@frametitrerulewidth@length);
1627       \endgroup}
1628     }%
1629   }{}
1630   \par\unskip\vskip\mdf@innertopmargin@length%
1631 }%
1632

```

`\mdf@putbox@single`

Output of the non breakable contents.

```

1633 % Info zu den verwendeten Punkten:
1634 % O ist die untere linke Ecke der Mitte der middleline
1635 % P ist die obere rechte Ecke der Mitte der middleline
1636 % A ist der Punkt fuer den anchor (d.h. die untere linke Ecke) der Ausgabebox
1637 %
1638 \def\mdf@putbox@single{%
1639   \ifvoid\mdf@splitbox@one
1640   \else%
1641     \mdf@makebox@out{%
1642       \mdf@makeboxalign@left%
1643       \mdf@tikz@settings%
1644     }%
1645     \setlength\mdfboundingboxwidth{\wd\mdf@splitbox@one}%
1646     \advance\mdfboundingboxwidth by \mdf@innerleftmargin@length\relax%
1647     \advance\mdfboundingboxwidth by \mdf@innerrightmargin@length\relax%
1648     \ifbool{mdf@leftline}{%
1649       \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
1650       \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
1651       \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}%{}%
1652     \ifbool{mdf@rightline}{%
1653       \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
1654       \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
1655       \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}%{}%
1656   %
1657   \setlength\mdfboundingboxheight{\dimexpr\ht\mdf@splitbox@one+\dp\mdf@splitbox@one\relax}%
1658   \advance\mdfboundingboxheight by \mdf@innertopmargin@length\relax%
1659   \advance\mdfboundingboxheight by \mdf@innerbottommargin@length\relax%
1660   \ifbool{mdf@topline}{%
1661     \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
1662     \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
1663     \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}%{}%

```

```

1664 \ifbool{mdf@bottomline}{%
1665   \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
1666   \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
1667   \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}}{%
1668 \mdf@makebox@in[\mdfboundingboxwidth]{%
1669 \null%
1670 \begin{tikzpicture}[remember picture]%
1671 \begin{scope}
1672   \pgfmathsetlengthmacro\mdf@Ax{+\mdf@innerleftmargin@length}%
1673   \pgfmathsetlengthmacro\mdf@Ay{+\mdf@innerbottommargin@length}%
1674   \pgfmathsetlengthmacro\mdf@Ox{+0pt}%
1675   \pgfmathsetlengthmacro\mdf@Oy{+0pt}%
1676   \pgfmathsetlengthmacro\mdf@Px{+\mdfboundingboxwidth}%
1677   \pgfmathsetlengthmacro\mdf@Py{+\mdfboundingboxheight}%
1678   \ifbool{mdf@leftline}{%
1679     {%
1680       \pgfmathsetlengthmacro\mdf@Ax%
1681         {\mdf@Ax+\mdf@outerlinewidth@length+
1682          \mdf@middlelinewidth@length+\mdf@innerlinewidth@length}%
1683       \pgfmathsetlengthmacro\mdf@Ox%
1684         {\mdf@Ox+\mdf@outerlinewidth@length+0.5\mdf@middlelinewidth@length}%
1685     }}%
1686   \ifbool{mdf@rightline}{%
1687     {%
1688       \pgfmathsetlengthmacro\mdf@Px%
1689         {\mdf@Px-\mdf@outerlinewidth@length-0.5\mdf@middlelinewidth@length}%
1690     }}%
1691   \ifbool{mdf@bottomline}{%
1692     {%
1693       \pgfmathsetlengthmacro\mdf@Ay%
1694         {\mdf@Ay+\mdf@outerlinewidth@length+\mdf@middlelinewidth@length
1695          +\mdf@innerlinewidth@length}%
1696       \pgfmathsetlengthmacro\mdf@Oy%
1697         {\mdf@Oy+\mdf@outerlinewidth@length+0.5\mdf@middlelinewidth@length}%
1698     }}%
1699   \ifbool{mdf@topline}{%
1700     {%
1701       \pgfmathsetlengthmacro\mdf@Py%
1702         {\mdf@Py-\mdf@outerlinewidth@length-0.5\mdf@middlelinewidth@length}%
1703     }}%
1704 %
1705   \coordinate(0)at(\mdf@Ox,\mdf@Oy);%
1706   \coordinate(P)at(\mdf@Px,\mdf@Py);%
1707 %
1708   \mdf@test@ltrb{\mdf@tikzbox@tfl{(0)--(0|-P)--(P)--(P|-0)--cycle)}}{%
1709 %
1710   \mdf@test@ltb{\mdf@tikzbox@tfl{(P|-0)--(0)--(0|-P)--(P)}}{%
1711   \mdf@test@trb{\mdf@tikzbox@tfl{(0|-P)--(P)--(P|-0)--(0)}}{%
1712   \mdf@test@ltr{\mdf@tikzbox@tfl{(0)--(0|-P)--(P)--(P|-0)}}{%
1713   \mdf@test@lrb{\mdf@tikzbox@tfl{(P|-0)--(0)--(0|-P)--(P)}}{%
1714 %
1715   \mdf@test@lb{\mdf@tikzbox@otl{(P|-0)--(0)--(0|-P)}}%
1716     {(P)--(P|-0)[mdfcorners]--(0)--(0|-P)}}%
1717     }}%
1718   \mdf@test@rb{\mdf@tikzbox@otl{(P)--(P|-0)--(0)}}%
1719     {(0|-P)--(P)[mdfcorners]--(P|-0)--(0)}}%

```

```

1720         }{}%
1721     \mdf@test@tr{\mdf@tikzbox@otl{(0|P)--(P)--(P|0)}%
1722                 {(0)--(0|P)[mdfcorners]--(P)--(P|0)}%
1723         }{}%
1724     \mdf@test@lt{\mdf@tikzbox@otl{(0)--(0|P)--(P)}%
1725                 {(P|0)--(0)[mdfcorners]--(0|P)--(P)}%
1726         }{}%
1727     \mdf@test@lr{\mdf@tikzbox@otl{(0)--(0|P)(P)--(P|0)}%
1728                 {(0)rectangle(P)}%
1729         }{}%
1730     \mdf@test@tb{\mdf@tikzbox@otl{(0)--(0|P)(0|P)--(P)}%
1731                 {(0)rectangle(P)}%
1732         }{}%
1733 %
1734     \mdf@test@l{\mdf@tikzbox@otl{(0)--(0|P)}%
1735                 {(0)rectangle(P)}%
1736         }{}%
1737     \mdf@test@r{\mdf@tikzbox@otl{(0|P)--(P)}%
1738                 {(0)rectangle(P)}%
1739         }{}%
1740     \mdf@test@t{\mdf@tikzbox@otl{(0|P)--(P)}%
1741                 {(0)rectangle(P)}%
1742         }{}%
1743     \mdf@test@b{\mdf@tikzbox@otl{(0)--(0|P)}%
1744                 {(0)rectangle(P)}%
1745         }{}%
1746 %
1747     \mdf@test@noline{\path[mdfbackground,mdfcorners](0)rectangle(P);}%
1748 %
1749     %Frametitlebackground
1750     \drawbackgroundframetitle@single
1751 %
1752     \node[mdfbox]at(\mdf@Ax,\mdf@Ay){\box\mdf@splitbox@one};% Ausgabebox einfüegen
1753 \end{scope}
1754 %HIER KOMMT EIN WEITERES MAKRO
1755 \mdfcreateextratikz
1756 \end{tikzpicture}%
1757 }%
1758 \mdf@makeboxalign@right%
1759 }%
1760 \fi
1761 }%
1762 \def\drawbackgroundframetitle@single{%
1763 \ifdefempty{\mdf@frametitle}{}{}%
1764 \drawbackgroundframetitle@@single%
1765 }%
1766 }%
1767 \def\drawbackgroundframetitle@@single{%
1768 \begin{scope}%background frame title
1769 \ifbool{mdf@leftline}{
1770 \pgfmathsetlengthmacro\mdf@0x%
1771 {\mdf@0x+\mdf@innerlinewidth@length+0.5\mdf@middlelinewidth@length}
1772 }{}%
1773 \ifbool{mdf@rightline}{%
1774 \pgfmathsetlengthmacro\mdf@Px%
1775 {\mdf@Px-\mdf@innerlinewidth@length-0.5\mdf@middlelinewidth@length}

```



```

1776     }{}%
1777     \ifbool{mdf@topline}{%
1778         \pgfmathsetlengthmacro\mdf@Py%
1779             {\mdf@Py-\mdf@innerlinewidth@length-0.5\mdf@middlelinewidth@length}
1780     }{}%
1781     \pgfmathsetlengthmacro\mdf@Fy
1782         {\mdf@Py-\mdfframetitleboxtotalheight}
1783     \path[mdfframetitlebackground]
1784         (\mdf@0x,\mdf@Fy) -- (\mdf@0x,\mdf@Py)%
1785         --(\mdf@Px,\mdf@Py) --(\mdf@Px,\mdf@Fy);
1786 \end{scope}
1787 }

```

`\mdf@putbox@first`

Output of the first breakable contents.

```

1788 \def\drawbrackgroundframetitle@first{%
1789     \ifdefempty{\mdf@frametitle}{}{}%
1790     \ifdimgreater{\mdf@boundingboxheight}{\mdfframetitleboxtotalheight}%
1791     {%
1792         \drawbrackgroundframetitle@@first
1793         \pgfmathsetlength{\global\mdfframetitleboxtotalheight}{-\p@}%
1794     }{\mdf@PackageWarning{You got a page break inside the frame title\MessageBreak
1795         Currently this isn't well supported}%
1796     \drawbrackgroundframetitle@@first
1797     \pgfmathsetlength{\global\mdfframetitleboxtotalheight}%
1798         {\mdfframetitleboxtotalheight-\mdf@boundingboxheight-
1799         \mdf@innerlinewidth@length-0.5\mdf@middlelinewidth@length%
1800         +\mdf@frametitlebelowskip@length+\mdf@splitbottomskip@length+\mdf@splittopskip@length}
1801         +\dp\strutbox%
1802     }%
1803 }%
1804 }%
1805 }%
1806 %
1807 \def\drawbrackgroundframetitle@@first{%
1808     \begin{scope}%background frame title
1809         \ifbool{mdf@leftline}{%
1810             \pgfmathsetlengthmacro\mdf@0x%
1811                 {\mdf@0x+\mdf@innerlinewidth@length+0.5\mdf@middlelinewidth@length}
1812             }{}%
1813         \ifbool{mdf@rightline}{%
1814             \pgfmathsetlengthmacro\mdf@Px%
1815                 {\mdf@Px-\mdf@innerlinewidth@length-0.5\mdf@middlelinewidth@length}
1816             }{}%
1817         \ifbool{mdf@topline}{%
1818             \pgfmathsetlengthmacro\mdf@Py%
1819                 {\mdf@Py-\mdf@innerlinewidth@length-0.5\mdf@middlelinewidth@length}
1820             }{}%
1821         \pgfmathsetlengthmacro\mdf@Fy
1822             {\max(0,\mdf@Py-\mdfframetitleboxtotalheight)}
1823         \path[mdfframetitlebackground]
1824             (\mdf@0x,\mdf@Fy) -- (\mdf@0x,\mdf@Py)%
1825             --(\mdf@Px,\mdf@Py) --(\mdf@Px,\mdf@Fy);
1826     \end{scope}%

```

```

1827 }%
1828 %
1829 \def\mdf@putbox@first{%
1830   \ifvoid\mdf@splitbox@two
1831   \else%
1832     \mdf@makebox@out{%
1833       \mdf@makeboxalign@left%
1834       \mdf@tikz@settings%
1835       \setlength\mdfboundingboxwidth{\wd\mdf@splitbox@two}%
1836       \advance\mdfboundingboxwidth by \mdf@innerleftmargin@length\relax%
1837       \advance\mdfboundingboxwidth by \mdf@innerrightmargin@length\relax%
1838       \ifbool{mdf@leftline}{%
1839         \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
1840         \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
1841         \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}}{%
1842       \ifbool{mdf@rightline}{%
1843         \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
1844         \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
1845         \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}}}%
1846 %
1847 \setlength\mdfboundingboxheight{\dimexpr\ht\mdf@splitbox@two+\dp\mdf@splitbox@two\relax}%
1848 \advance\mdfboundingboxheight by \mdf@innertopmargin@length\relax%
1849 \advance\mdfboundingboxheight by \mdf@splitbottomskip@length\relax%
1850 \ifbool{mdf@topline}{%
1851   \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
1852   \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
1853   \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}}{%
1854 %
1855 %\ifdimequal{\pagegoal}{\maxdimen}{\enlargethispage{\baselineskip}}}% ???
1856 \ifdimgreater{\pagegoal-\maxdimen}{0pt}{\enlargethispage{\baselineskip}}%
1857 \mdf@makebox@in[\mdfboundingboxwidth]{%
1858   \null%
1859   \begin{tikzpicture}[remember picture]
1860     \begin{scope}
1861 %
1862     \pgfmathsetlengthmacro\mdf@Ax{+\mdf@innerleftmargin@length}%
1863     \pgfmathsetlengthmacro\mdf@Ay{+\mdf@splitbottomskip@length}%
1864     \pgfmathsetlengthmacro\mdf@Ox{+0pt}%
1865     \pgfmathsetlengthmacro\mdf@Oy{+0pt}%
1866     \pgfmathsetlengthmacro\mdf@Px{+\mdfboundingboxwidth}%
1867     \pgfmathsetlengthmacro\mdf@Py{+\mdfboundingboxheight}%
1868     \ifbool{mdf@leftline}
1869     {%
1870       \pgfmathsetlengthmacro\mdf@Ax%
1871         {\mdf@Ax+\mdf@outerlinewidth@length+
1872          \mdf@middlelinewidth@length+\mdf@innerlinewidth@length}%
1873       \pgfmathsetlengthmacro\mdf@Ox%
1874         {\mdf@Ox+\mdf@outerlinewidth@length+0.5\mdf@middlelinewidth@length}%
1875     }{%
1876       \ifbool{mdf@rightline}{%
1877         \pgfmathsetlengthmacro\mdf@Px%
1878         {\mdf@Px-\mdf@outerlinewidth@length-0.5\mdf@middlelinewidth@length}%
1879       }{%
1880         \ifbool{mdf@topline}{%
1881           \pgfmathsetlengthmacro\mdf@Py%
1882           {\mdf@Py-\mdf@outerlinewidth@length-0.5\mdf@middlelinewidth@length}%

```

```

1883     }{}%
1884 %
1885     \coordinate(0)at(\mdf@0x,\mdf@0y);%
1886     \coordinate(P)at(\mdf@Px,\mdf@Py);%
1887 %
1888     \ifboolexpr{test {\mdf@test@ltrb} or test {\mdf@test@ltr}}%
1889         {\mdf@tikzbox@otl{(0)--(0|-P)--(P)--(P|-0)}}%
1890     }{}%
1891     \ifboolexpr{test {\mdf@test@ltb} or test {\mdf@test@lt}}%
1892         {\mdf@tikzbox@otl{(0)--(0|-P)--(P)}{(P|-0)--(0)[mdfcorners]--(0|-P)--(P)}}%
1893     }{}%
1894     \ifboolexpr{test {\mdf@test@trb} or test {\mdf@test@tr}}%
1895         {\mdf@tikzbox@otl{(0|-P)--(P)--(P|-0)}{(0)--(0|-P)[mdfcorners]--(P)--(P|-0)}}%
1896     }{}%
1897     \ifboolexpr{test {\mdf@test@lrb} or test {\mdf@test@lr}}%
1898         {\mdf@tikzbox@otl{(0)--(0|-P)(P)--(P|-0)}{(0)rectangle(P)}}%
1899     }{}%
1900     \ifboolexpr{test {\mdf@test@tb} or test {\mdf@test@t}}%
1901         {\mdf@tikzbox@otl{(0|-P)--(P)}{(0)rectangle(P)}}%
1902     }{}%
1903     \ifboolexpr{test {\mdf@test@lb} or test {\mdf@test@l}}%
1904         {\mdf@tikzbox@otl{(0)--(0|-P)}{(0)rectangle(P)}}%
1905     }{}%
1906     \ifboolexpr{test {\mdf@test@rb} or test {\mdf@test@r}}%
1907         {\mdf@tikzbox@otl{(0|-P)--(P)}{(0)rectangle(P)}}%
1908     }{}%
1909     \mdf@test@b{\path[mdfbackground](0)rectangle(P);}{}%
1910 %
1911     \mdf@test@noline{\path[mdfbackground,mdfcorners](0)--(0|-P)--(P)--(P|-0);}{}%
1912 %
1913     \drawbrackgroundframetitle@first
1914 %
1915     \node[mdfbox]at(\mdf@Ax,\mdf@Ay){\box\mdf@splitbox@two};% Ausgabebox einfuegen
1916     \end{scope}
1917     %HIER KOMMT EIN WEITERES MAKRO
1918     \mdfcreateextratikz%
1919     \end{tikzpicture}%
1920 }{}%
1921 \mdf@makeboxalign@right%
1922 }{}%
1923 \fi
1924 }{}%

```

`\mdf@putbox@middle`

Output of the middle breakable contents.

```

1925 \def\drawbrackgroundframetitle@middle{%
1926 \ifdefempty{\mdf@frametitle}{}{}%
1927 \ifdimless{\mdfframetitleboxtotalheight}{\z@}
1928 {}{}%
1929 \drawbrackgroundframetitle@@middle%
1930 \pgfmathsetlength{\global\mdfframetitleboxtotalheight}{-\p@}%
1931 }{}%
1932 }{}%
1933 }{}%

```

```

1934 %
1935 \def\drawbackgroundframetitle@@middle{%
1936     \begin{scope}%background frame title
1937     \ifbool{mdf@leftline}{
1938         \pgfmathsetlengthmacro\mdf@0x%
1939             {\mdf@0x+\mdf@innerlinewidth@length+0.5\mdf@middlelinewidth@length}
1940     }{}%
1941     \ifbool{mdf@rightline}{%
1942         \pgfmathsetlengthmacro\mdf@Px%
1943             {\mdf@Px-\mdf@innerlinewidth@length-0.5\mdf@middlelinewidth@length}
1944     }{}%
1945     \pgfmathsetlengthmacro\mdf@Fy
1946         {\mdf@Py-\mdfframetitleboxtotalheight}
1947     \path[mdfframetitlebackground,rounded corners=\z@]
1948         (\mdf@0x,\mdf@Fy) -- (\mdf@0x,\mdf@Py)%
1949         -- (\mdf@Px,\mdf@Py) -- (\mdf@Px,\mdf@Fy);
1950     \end{scope}
1951 }%
1952 %
1953 \def\mdf@putbox@middle{%
1954     \ifvoid\mdf@splitbox@two
1955     \else%
1956         \mdf@makebox@out{%
1957             \mdf@makeboxalign@left%
1958             \mdf@tikz@settings%
1959 %
1960             \setlength\mdfboundingboxwidth{\wd\mdf@splitbox@two}%
1961             \advance\mdfboundingboxwidth by \mdf@innerleftmargin@length\relax%
1962             \advance\mdfboundingboxwidth by \mdf@innerrightmargin@length\relax%
1963             \ifbool{mdf@leftline}{%
1964                 \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
1965                 \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
1966                 \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}%{}%
1967             \ifbool{mdf@rightline}{%
1968                 \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
1969                 \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
1970                 \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}%{}%
1971 %
1972             \setlength\mdfboundingboxheight{\dimexpr\ht\mdf@splitbox@two+\dp\mdf@splitbox@two\relax}%
1973             \advance\mdfboundingboxheight by \mdf@splitbottomskip@length\relax%
1974 %
1975             \mdf@makebox@in[\mdfboundingboxwidth]{%
1976                 \null%
1977                 \begin{tikzpicture}[remember picture]
1978                     \begin{scope}
1979                         \pgfmathsetlengthmacro\mdf@Ax{+\mdf@innerleftmargin@length}%
1980                         \pgfmathsetlengthmacro\mdf@Ay{+\mdf@splitbottomskip@length}%
1981                         \pgfmathsetlengthmacro\mdf@0x{+0pt}%
1982                         \pgfmathsetlengthmacro\mdf@0y{+0pt}%
1983                         \pgfmathsetlengthmacro\mdf@Px{+\mdfboundingboxwidth}%
1984                         \pgfmathsetlengthmacro\mdf@Py{+\mdfboundingboxheight}%
1985                         \ifbool{mdf@leftline}%
1986                             {%
1987                                 \pgfmathsetlengthmacro\mdf@Ax%
1988                                     {\mdf@Ax+\mdf@outerlinewidth@length+%
1989                                     \mdf@middlelinewidth@length+\mdf@innerlinewidth@length}%

```

```

1990      \pgfmathsetlengthmacro\mdf@0x%
1991          {\mdf@0x+\mdf@outerlinewidth@length+0.5\mdf@middlelinewidth@length}%
1992      }{}%
1993      \ifbool{mdf@rightline}%
1994      {%
1995          \pgfmathsetlengthmacro\mdf@Px%
1996              {\mdf@Px-\mdf@outerlinewidth@length-0.5\mdf@middlelinewidth@length}%
1997      }{}%
1998 %
1999      \coordinate(0)at(\mdf@0x,\mdf@0y);%
2000      \coordinate(P)at(\mdf@Px,\mdf@Py);%
2001 %
2002      \ifboolexpr{bool {mdf@leftline} and bool {mdf@rightline}}%
2003          {\mdf@tikzbox@otl{(0)--(0|-P)(P)--(P|-0)}{(0)rectangle(P)}}{}%
2004      \ifboolexpr{bool {mdf@leftline} and not (bool {mdf@rightline})}%
2005          {\mdf@tikzbox@otl{(0)--(0|-P)}{(0)rectangle(P)}}{}%
2006      \ifboolexpr{not (bool {mdf@leftline}) and bool {mdf@rightline}}%
2007          {\mdf@tikzbox@otl{(P)--(P|-0)}{(0)rectangle(P)}}{}%
2008      \ifboolexpr{not (bool {mdf@leftline}) and not (bool {mdf@rightline})}%
2009          {\path[mdfbackground](0)rectangle(P);}{}%
2010 %
2011      \drawbrackgroundframetitle@middle
2012 %
2013      \node[mdfbox]at(\mdf@Ax,\mdf@Ay){\box\mdf@splitbox@two};% Ausgabebox einfuegen
2014      \end{scope}
2015      %HIER KOMMT EIN WEITERES MAKRO
2016      \end{tikzpicture}%
2017      }%
2018      \mdf@makeboxalign@right%
2019      }%
2020      \fi
2021      }%

```

`\mdf@putbox@second`

Output of the last breakable contents.

```

2022 \def\drawbrackgroundframetitle@second{%
2023     \ifdefempty{\mdf@frametitle}{}{}%
2024     \ifdimless{\mdfframetitleboxtotalheight}{\z@}
2025     {}{}%
2026     \drawbrackgroundframetitle@@second%
2027     }%
2028     }%
2029     }%
2030 %
2031 \def\drawbrackgroundframetitle@@second{%
2032     \begin{scope}%background frame title
2033         \ifbool{mdf@leftline}{
2034             \pgfmathsetlengthmacro\mdf@0x%
2035                 {\mdf@0x+\mdf@innerlinewidth@length+0.5\mdf@middlelinewidth@length}
2036             }{}%
2037         \ifbool{mdf@rightline}{%
2038             \pgfmathsetlengthmacro\mdf@Px%
2039                 {\mdf@Px-\mdf@innerlinewidth@length-0.5\mdf@middlelinewidth@length}
2040             }{}%

```

```

2041      \pgfmathsetlengthmacro\mdf@Fy
2042          {\mdf@Py-\mdfframetitleboxtotalheight}
2043      \path[mdfframetitlebackground,rounded corners=\z@]
2044          (\mdf@Ox,\mdf@Fy) -- (\mdf@Ox,\mdf@Py)%
2045          --(\mdf@Px,\mdf@Py) --(\mdf@Px,\mdf@Fy);
2046      \end{scope}
2047 }%
2048 \def\mdf@putbox@second{%
2049     \ifvoid\mdf@splitbox@one
2050     \else%
2051         \mdf@makebox@out{%
2052             \mdf@makeboxalign@left%
2053             \mdf@tikz@settings%
2054 %
2055             \setlength\mdfboundingboxwidth{\wd\mdf@splitbox@one}%
2056             \advance\mdfboundingboxwidth by \mdf@innerleftmargin@length\relax%
2057             \advance\mdfboundingboxwidth by \mdf@innerrightmargin@length\relax%
2058             \ifbool{mdf@leftline}{%
2059                 \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
2060                 \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
2061                 \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}}{%
2062             \ifbool{mdf@rightline}{%
2063                 \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
2064                 \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
2065                 \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}}}%
2066 %
2067             \setlength\mdfboundingboxheight{\dimexpr\ht\mdf@splitbox@one+\dp\mdf@splitbox@one\relax}%
2068             \advance\mdfboundingboxheight by \mdf@innerbottommargin@length\relax%
2069             \ifbool{mdf@bottomline}{%
2070                 \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
2071                 \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
2072                 \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}}}%
2073 %
2074             \mdf@makebox@in[\mdfboundingboxwidth]{%
2075                 \null%
2076                 \begin{tikzpicture}[remember picture]
2077                     \begin{scope}
2078                         \pgfmathsetlengthmacro\mdf@Ax{+\mdf@innerleftmargin@length}%
2079                         \pgfmathsetlengthmacro\mdf@Ay{+\mdf@innerbottommargin@length}%
2080                         \pgfmathsetlengthmacro\mdf@Ox{+0pt}%
2081                         \pgfmathsetlengthmacro\mdf@Oy{+0pt}%
2082                         \pgfmathsetlengthmacro\mdf@Px{+\mdfboundingboxwidth}%
2083                         \pgfmathsetlengthmacro\mdf@Py{+\mdfboundingboxheight}%
2084                         \ifbool{mdf@leftline}%
2085                         {%
2086                             \pgfmathsetlengthmacro\mdf@Ax%
2087                                 {\mdf@Ax+\mdf@outerlinewidth@length+
2088                                 \mdf@middlelinewidth@length+\mdf@innerlinewidth@length}%
2089                             \pgfmathsetlengthmacro\mdf@Ox%
2090                                 {\mdf@Ox+\mdf@outerlinewidth@length+0.5\mdf@middlelinewidth@length}%
2091                         }{}%
2092                         \ifbool{mdf@rightline}%
2093                         {%
2094                             \pgfmathsetlengthmacro\mdf@Px%
2095                                 {\mdf@Px-\mdf@outerlinewidth@length-0.5\mdf@middlelinewidth@length}%
2096                         }{}%

```

```

2097 \ifbool{mdf@bottomline}%
2098 {%
2099 \pgfmathsetlengthmacro\mdf@Ay%
2100 {\mdf@Ay+\mdf@outerlinewidth@length+
2101 \mdf@middlelinewidth@length+\mdf@innerlinewidth@length}%
2102 \pgfmathsetlengthmacro\mdf@Oy%
2103 {\mdf@Oy+\mdf@outerlinewidth@length+0.5\mdf@middlelinewidth@length}%
2104 }{}%
2105 %
2106 \coordinate(0)at(\mdf@0x,\mdf@0y);%
2107 \coordinate(P)at(\mdf@Px,\mdf@Py);%
2108 %
2109 \ifboolexpr{test {\mdf@test@ltrb} or test {\mdf@test@lrb}}%
2110 {\mdf@tikzbox@otl{(P|-0)--(0)--(0|-P)--(P))}}%
2111 {}%
2112 \ifboolexpr{test {\mdf@test@ltb} or test {\mdf@test@lb}}%
2113 {\mdf@tikzbox@otl{(P|-0)--(0)--(0|-P)){(P)--(P|-0)[mdfcorners]--(0)--(0|-P))}}%
2114 {}%
2115 \ifboolexpr{test {\mdf@test@trb} or test {\mdf@test@rb}}%
2116 {\mdf@tikzbox@otl{(P)--(P|-0)--(0)){(0|-P)--(P)[mdfcorners]--(P|-0)--(0))}}%
2117 {}%
2118 \ifboolexpr{test {\mdf@test@ltr} or test {\mdf@test@lr}}%
2119 {\mdf@tikzbox@otl{(0)--(0|-P)(P)--(P|-0)){(0)rectangle(P))}}%
2120 {}%
2121 \ifboolexpr{test {\mdf@test@tb} or test {\mdf@test@b}}%
2122 {\mdf@tikzbox@otl{(0)--(0|-P)){(0)rectangle(P))}}%
2123 {}%
2124 \ifboolexpr{test {\mdf@test@lt} or test {\mdf@test@l}}%
2125 {\mdf@tikzbox@otl{(0)--(0|-P)){(0)rectangle(P))}}%
2126 {}%
2127 \ifboolexpr{test {\mdf@test@tr} or test {\mdf@test@r}}%
2128 {\mdf@tikzbox@otl{(0|-P)--(P)){(0)rectangle(P))}}%
2129 {}%
2130 \mdf@test@t{\path[mdfbackground,mdfcorners](0|-P)--(0)--(0|-P)--(P);}%
2131 %
2132 \mdf@test@noline{\path[mdfbackground,mdfcorners](0|-P)--(0)--(0|-P)--(P);}%
2133 %
2134 \drawbrackgroundframetitle@second
2135 %
2136 \node[mdfbox] at (\mdf@Ax,\mdf@Ay){\box\mdf@splitbox@one};% Ausgabebox einfuegen
2137 \end{scope}
2138 %HIER KOMMT EIN WEITERES MAKRO
2139 \end{tikzpicture}%
2140}%
2141 \mdf@makeboxalign@right%
2142}%
2143 \fi
2144}%
2145 \endinput

```

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

```

2146 %% Style file for mdframed for package option 'framemethod=default'
2147 %%
2148 %% This package may be distributed under the terms of the LaTeX Project

```



```

2149 %% Public License, as described in lppl.txt in the base LaTeX distribution.
2150 %% Either version 1.0 or, at your option, any later version.
2151
2152 %%$Id: mdframed.dtx 320 2012-01-09 18:44:33Z marco $
2153 %

```

```

\mdframedIIPackagename
\mdf@frameIIdate@svn

```

local settings

```

2154 \def\mdframedIIPackagename{md-frame-2}
2155 \def\mdf@frameIIdate@svn$#1: #2 #3 #4-#5-#6 #7 #8${#4/#5/#6\space }
2156 \ProvidesFile{md-frame-2.mdf}%
2157      [\mdf@frameIIdate@svn$Id: mdframed.dtx 320 2012-01-09 18:44:33Z marco $ %
2158      \mdversion: \mdframedIIPackagename]

```

```

\mdf@ptlength@to@pscode
\ptTps

```

Command to calculate a latex length to postscript

```

2159 \def\mdf@ptlength@to@pscode#1{\pst@number{#1} \pst@number\psxunit div }
2160 \def\mdf@ptlength@to@pscode@length#1{\pst@number{\csname mdf@#1@length\endcsname} \pst@number\psxunit o
2161 \let\ptTps\mdf@ptlength@to@pscode\relax
2162 \let\ptTpsL\mdf@ptlength@to@pscode@length\relax

```

```

\mdfbackgroundstyle
\mdflinestyle
\mdfframetitlestyle
\mdfframetitlebackground

```

background and line settings for pstricks

```

2163 \def\mdfpstricks@settings{%expand by \addtopsstyle
2164   \newpsstyle{mdfbackgroundstyle}%
2165     {linecolor=\mdf@backgroundcolor,fillstyle=solid,%
2166     fillcolor=\mdf@backgroundcolor,linestyle=none,%
2167     ,dimen=middle,%
2168     }%
2169 %
2170   \newpsstyle{mdfframetitlebackgroundstyle}{%
2171     linecolor=\mdf@frametitlebackgroundcolor,
2172     fillcolor=\mdf@frametitlebackgroundcolor,
2173     fillstyle=solid,linestyle=none,
2174     linearc=\ifdimgreater{\mdf@roundcorner@length%
2175       -\mdf@innerlinewidth@length%
2176       -.5\mdf@middlelinewidth@length}
2177     {\z@}{\dimexpr\mdf@roundcorner@length%
2178       -\mdf@innerlinewidth@length%
2179       -.5\mdf@middlelinewidth@length}{\z@},
2180   }
2181 %
2182   \newpsstyle{mdfouterlinestyle}{linestyle=none}%
2183   \ifdimgreater{\mdf@outerlinewidth@length}{\z@}
2184     {\newpsstyle{mdfouterlinestyle}{%
2185       linecolor=\mdf@outerlinecolor,%
2186       linewidth=\dimexpr2\mdf@outerlinewidth@length+\mdf@middlelinewidth@length\relax,

```



```

2187     dimen=middle,
2188     }}{}%
2189 %
2190 \newsstyle{mdfinnerlinestyle}{linestyle=none}%
2191 \ifdimgreater{\mdf@innerlinewidth@length}{\z@}%
2192     {\newsstyle{mdfinnerlinestyle}{%
2193         linecolor=\mdf@innerlinecolor,%
2194         linewidth=\dimexpr2\mdf@innerlinewidth@length+\mdf@middlelinewidth@length\relax,
2195         dimen=middle,
2196         }}{}%
2197 %
2198 \newsstyle{mdfmiddlelinestyle}{linestyle=none}%
2199 \ifdimgreater{\mdf@middlelinewidth@length}{\z@}%
2200     {\newsstyle{mdfmiddlelinestyle}{%
2201         linewidth=\mdf@middlelinewidth@length,%
2202         linecolor=\mdf@middlelinecolor,dimen=middle
2203         }}{}%
2204 \mdfpstricks@appendsettings
2205 }%
2206 %
2207 \newrobustcmd*{\mdf@pstricksbox@fl[2]}{%four lines
2208     \psframe[style=mdfouterlinestyle](#1)(#2)%aussen=3mm
2209     \psframe[style=mdfbackgroundstyle](#1)(#2)%Hintergrund
2210     \psclip{\psframe[style=mdfmiddlelinestyle](#1)(#2)}
2211     \psframe[style=mdfinnerlinestyle](#1)(#2)%innere=3mm
2212     \endpsclip
2213     \psframe[style=mdfmiddlelinestyle](#1)(#2)%mittlere=2mm
2214     }%
2215 \newrobustcmd*{\mdf@pstricksbox@tl[1]}{%three lines
2216     \psline[style=mdfouterlinestyle]#1%aussen=3mm
2217     \psline[style=mdfbackgroundstyle]#1%Hintergrund
2218     \psclip{\psline[style=mdfmiddlelinestyle]#1}
2219     \psline[style=mdfinnerlinestyle]#1%innere=3mm
2220     \endpsclip
2221     \psline[style=mdfmiddlelinestyle]#1%mittlere=2mm
2222     }%
2223 \newrobustcmd*{\mdf@pstricksbox@tcl[2]}{%two combined lines
2224 %>#1 background comple
2225 %>#2 line path
2226     \psline[style=mdfouterlinestyle]#2%aussen=3mm
2227     \psline[style=mdfbackgroundstyle]#2%Hintergrund
2228     \psclip{\pscustom[linestyle=none]{
2229         \psline[style=mdfmiddlelinestyle]#2
2230         \psline[linestyle=none,lineararc=0pt]#1}
2231     }
2232     \psframe[style=mdfbackgroundstyle,lineararc=0pt](mdf@0)(mdf@P)%Hintergrund
2233     \psline[style=mdfinnerlinestyle]#2%innere=3mm
2234     \endpsclip
2235     \psline[style=mdfmiddlelinestyle]#2%mittlere=2mm
2236     }%
2237 \newrobustcmd*{\mdf@pstricksbox@tncl[2]}{%two not combined lines
2238 \begingroup
2239     \psset{lineararc=0pt}
2240     \psline[style=mdfouterlinestyle](mdf@0)#1%aussen=3mm
2241     \psline[style=mdfouterlinestyle](mdf@P)#2%aussen=3mm
2242     \psclip{

```

```

2243 \pscustom[linestyle=none]{%
2244     \psline[style=mdfmiddlelinestyle](mdf@0)#1%mittlere=2mm
2245     \psline[linestyle=none](mdf@0)#2
2246     \psline[style=mdfmiddlelinestyle](mdf@P)#2%mittlere=2mm
2247     \psline[linestyle=none](mdf@P)#1
2248 }%
2249 }%
2250 \psframe[style=mdfbackgroundstyle,lineararc=0pt](mdf@0)(mdf@P)%Hintergrund
2251 \psline[style=mdfinnerlinestyle](mdf@0)#1%innere=3mm
2252 \psline[style=mdfinnerlinestyle](mdf@P)#2%innere=3mm
2253 \endpsclip
2254 \psline[style=mdfmiddlelinestyle](mdf@0)#1%mittlere=2mm
2255 \psline[style=mdfmiddlelinestyle](mdf@P)#2%mittlere=2mm
2256 \endgroup
2257 }%
2258 \newrobustcmd*\mdf@pstricksbox@ol[1]{%one line
2259 \begingroup
2260 \psset{lineararc=0pt}
2261 \psline[style=mdfouterlinestyle]#1%ausen=3mm
2262 \psline[style=mdfbackgroundstyle]#1%Hintergrund
2263 \psclip{\pscustom[linestyle=none]{
2264     \psline[style=mdfmiddlelinestyle]#1
2265     \psframe[linestyle=none,fillstyle=none,dimen=inner](mdf@0)(mdf@P)
2266 }}
2267 \psframe[style=mdfbackgroundstyle](mdf@0)(mdf@P)
2268 \psline[style=mdfinnerlinestyle]#1%innere=3mm
2269 \endpsclip
2270 \psline[style=mdfmiddlelinestyle]#1%mittlere=2mm
2271 \endgroup%
2272 }%
2273
2274 %
2275 \newpsstyle{mdfframetitlerule}{%
2276     linecolor=\mdf@frametitlerulecolor,%
2277     fillcolor=\mdf@frametitlerulecolor,%
2278     fillstyle=solid,dimen=outer,%
2279 }
2280 %

```

`\mdf@put@frametitlerule`

frametitlerule with pstricks

```

2281 \def\mdf@@frametitlerule{%
2282 \ifbool{mdf@frametitlerule}{%
2283 \vbox{\hsize0pt
2284 \par\unskip\vskip\mdf@frametitlebelowskip@length
2285 \noindent\rlap{%
2286 \begingroup%
2287 \begin{pspicture}(0,0)(0,\mdf@frametitlerulewidth@length)
2288 \psframe[style=mdfframetitlerule](!\ptTpsL{innerleftmargin} neg 0)%
2289 \ptTpsL{innerrightmargin}
2290 \ptTpsL{\mdfframetitleboxwidth} add \ptTpsL{frametitlerulewidth})
2291 \end{pspicture}
2292 \endgroup}
2293 }%

```

```

2294 }{}
2295 \par\unskip\vskip\mdf@innertopmargin@length%
2296 }%
2297 %
2298 % \begin{macro}{mdf@putbox@single}
2299 % Single output
2300 % \begin{macrocode}
2301 % Info zu den verwendeten Punkten:
2302 % O ist die untere linke Ecke der Mitte der middleline
2303 % P ist die obere rechte Ecke der Mitte der middleline
2304 % A ist der Punkt fuer den anchor (d.h. die untere linke Ecke) der Ausgabebox
2305 \def\mdf@putbox@single{%
2306   \ifvoid\mdf@splitbox@one
2307   \else%
2308     \mdf@makebox@out{%
2309       \mdf@makeboxalign@left%
2310       \setlength\mdfboundingboxwidth{\wd\mdf@splitbox@one}%
2311       \advance\mdfboundingboxwidth by \mdf@innerleftmargin@length\relax%
2312       \advance\mdfboundingboxwidth by \mdf@innerrightmargin@length\relax%
2313       \ifbool{mdf@leftline}{%
2314         \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
2315         \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
2316         \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}}{%
2317       \ifbool{mdf@rightline}{%
2318         \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
2319         \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
2320         \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}}}%
2321 %
2322 \setlength\mdfboundingboxheight{\dimexpr\ht\mdf@splitbox@one+\dp\mdf@splitbox@one\relax}%
2323 \advance\mdfboundingboxheight by \mdf@innerbottommargin@length\relax%
2324 \advance\mdfboundingboxheight by \mdf@innertopmargin@length\relax%
2325 \ifbool{mdf@topline}{%
2326   \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
2327   \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
2328   \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}}{%
2329 \ifbool{mdf@bottomline}{%
2330   \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
2331   \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
2332   \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}}}%
2333 %
2334 \setlength\mdftotalllinewidth{\dimexpr\mdf@innerlinewidth@length%
2335                                   +\mdf@middlelinewidth@length
2336                                   +\mdf@outerlinewidth@length\relax}%
2337 \psset{unit=1truecm}%
2338 \mdf@makebox@in[\mdfboundingboxwidth]{%
2339   \null%
2340   \begin{pspicture}(0,0)(\mdfboundingboxwidth,\mdfboundingboxheight)
2341     \mdfpstricks@settings%
2342     \psset{lineararc=\mdf@roundcorner@length, cornersize=absolut,}%
2343     \expandafter\psset\expandafter{\mdf@psset@local}%
2344     \pnode(\mdf@innerleftmargin@length,\mdf@innerbottommargin@length){mdf@A}
2345     \pnode(0,0){mdf@O}
2346     \pnode(\mdfboundingboxwidth,\mdfboundingboxheight){mdf@P}
2347     \ifbool{mdf@leftline}%
2348       {%
2349       \nodexn{(mdf@A)+(\mdf@outerlinewidth@length,0)}

```

```

2350          +(\mdf@middlelinewidth@length,0)
2351          +(\mdf@innerlinewidth@length,0)){mdf@A}%
2352      \nodexn{(mdf@0)+(\mdf@outerlinewidth@length,0)
2353          +0.5(\mdf@middlelinewidth@length,0)){mdf@0}%
2354      }{}%
2355  \ifbool{mdf@rightline}%
2356  {%
2357      \nodexn{(mdf@P) - (\mdf@outerlinewidth@length,0)
2358          -0.5(\mdf@middlelinewidth@length,0)){mdf@P}%
2359      }{}%
2360  \ifbool{mdf@bottomline}%
2361  {%
2362      \nodexn{(mdf@A)+(0,\mdf@outerlinewidth@length)
2363          +(0,\mdf@middlelinewidth@length)
2364          +(0,\mdf@innerlinewidth@length)){mdf@A}%
2365      \nodexn{(mdf@0)+(0,\mdf@outerlinewidth@length)
2366          +0.5(0,\mdf@middlelinewidth@length)){mdf@0}%
2367      }{}%
2368  \ifbool{mdf@topline}%
2369  {%
2370      \nodexn{(mdf@P) - (0,\mdf@outerlinewidth@length)
2371          -0.5(0,\mdf@middlelinewidth@length)){mdf@P}
2372      }{}%
2373  %
2374  %Four lines
2375      \mdf@test@lrb{\mdf@pstricksbox@fl{mdf@0}{mdf@P}}{}
2376  %three lines
2377      \mdf@test@ltb{\mdf@pstricksbox@tl{(mdf@P|mdf@0)(mdf@0)(mdf@0|mdf@P)(mdf@P)}}{}
2378      \mdf@test@trb{\mdf@pstricksbox@tl{(mdf@0)(mdf@P|mdf@0)(mdf@P)(mdf@0|mdf@P)}}{}
2379      \mdf@test@ltr{\mdf@pstricksbox@tl{(mdf@0)(mdf@0|mdf@P)(mdf@P)(mdf@P|mdf@0)}}{}%
2380      \mdf@test@lrb{\mdf@pstricksbox@tl{(mdf@0|mdf@P)(mdf@0)(mdf@P|mdf@0)(mdf@P)}}{}%
2381  %two lines combined
2382      \mdf@test@lb{\mdf@pstricksbox@tcl{(mdf@P|mdf@0)(mdf@P)(mdf@0|mdf@P)}%
2383          {(mdf@0|mdf@P)(mdf@0)(mdf@P|mdf@0)}}{}
2384      \mdf@test@rb{\mdf@pstricksbox@tcl{(mdf@P)(mdf@0|mdf@P)(mdf@0)}%
2385          {(mdf@0)(mdf@P|mdf@0)(mdf@P)}}{}
2386      \mdf@test@tr{\mdf@pstricksbox@tcl{(mdf@P|mdf@0)(mdf@0)(mdf@0|mdf@P)}%
2387          {(mdf@0|mdf@P)(mdf@P)(mdf@P|mdf@0)}}{}
2388      \mdf@test@lt{\mdf@pstricksbox@tcl{(mdf@0)(mdf@P|mdf@0)(mdf@P)}%
2389          {(mdf@0)(mdf@0|mdf@P)(mdf@P)}}{}
2390  %two lines not combined
2391      \mdf@test@lr{\mdf@pstricksbox@tncl{(mdf@0|mdf@P)}{(mdf@P|mdf@0)}
2392          {}}
2393      \mdf@test@tb{\mdf@pstricksbox@tncl{(mdf@P|mdf@0)}{(mdf@0|mdf@P)}
2394          {}}
2395  %single line
2396      \mdf@test@l{\mdf@pstricksbox@ol{(mdf@0)(mdf@0|mdf@P)}}{}
2397      \mdf@test@r{\mdf@pstricksbox@ol{(mdf@P)(mdf@P|mdf@0)}}{}
2398      \mdf@test@t{\mdf@pstricksbox@ol{(mdf@P)(mdf@0|mdf@P)}}{}
2399      \mdf@test@b{\mdf@pstricksbox@ol{(mdf@0)(mdf@P|mdf@0)}}{}
2400  %no line
2401      \mdf@test@noline{\psframe[style=mdfbackgroundstyle](mdf@0)(mdf@P)}{}
2402  %
2403  %Frametitlebackground
2404      \drawbackgroundframetitle@single
2405  %output%

```

```

2406      \rput[bl](mdf@A){\box\mdf@splitbox@one}
2407 %      \psdot(mdf@A)\uput[90](mdf@A){mdf at A}
2408 %      \psdot(mdf@P)\uput[90](mdf@P){mdf at P}
2409 %      \psdot(mdf@O)\uput[90](mdf@O){mdf at O}
2410 %
2411 %      \endpsclip
2412      \end{pspicture}%
2413  }%
2414      \mdf@makeboxalign@right%
2415  }%
2416 \fi
2417 }%
2418 \def\drawbackgroundframetitle@single{%
2419 \ifdefempty{\mdf@frametitle}{}%
2420   \drawbackgroundframetitle@@single%
2421 }%
2422 }%
2423 \def\drawbackgroundframetitle@@single{%
2424 \begingroup%
2425   \ifbool{mdf@leftline}{%
2426     \nodexn{(mdf@O)+(\mdf@innerlinewidth@length,0)
2427             +0.5(\mdf@middlelinewidth@length,0)}{mdf@O}%
2428     }{}%
2429   \ifbool{mdf@rightline}{%
2430     \nodexn{(mdf@P)-(\mdf@innerlinewidth@length,0)
2431             -0.5(\mdf@middlelinewidth@length,0)}{mdf@P}%
2432     }{}%
2433   \ifbool{mdf@topline}{%
2434     \nodexn{(mdf@P)-(0,\mdf@innerlinewidth@length)
2435             -0.5(0,\mdf@middlelinewidth@length)}{mdf@P}%
2436     }{}%
2437   \nodexn{(mdf@P)-(0,\mdfframetitleboxtotalheight)}{mdf@F}%
2438   \psline[style=mdfframetitlebackgroundstyle](mdf@O|mdf@F)(mdf@O|mdf@P)
2439           (mdf@P)(mdf@P|mdf@F)%
2440 \endgroup
2441 }

```

`\mdf@putbox@first`

First output

```

2442 \def\mdf@putbox@first{%
2443   \ifvoid\mdf@splitbox@two
2444   \else%
2445     \mdf@makebox@out{%
2446       \mdf@makeboxalign@left%
2447       %\ifbool{mdf@leftline}{\hspace*{\mdf@middlelinewidth@length}}{}%
2448       \setlength\mdfboundingboxwidth{\wd\mdf@splitbox@two}%
2449       \advance\mdfboundingboxwidth by \mdf@innerleftmargin@length\relax%
2450       \advance\mdfboundingboxwidth by \mdf@innerrightmargin@length\relax%
2451       \ifbool{mdf@leftline}{%
2452         \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
2453         \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
2454         \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}%
2455       \ifbool{mdf@rightline}{%
2456         \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%

```

```

2457 \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
2458 \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}}}%
2459 \setlength\mdfboundingboxheight{\dimexpr\ht\mdf@splitbox@two+\dp\mdf@splitbox@two\relax}%
2460 \advance\mdfboundingboxheight by \mdf@innertopmargin@length\relax%
2461 \advance\mdfboundingboxheight by \mdf@splitbottomskip@length\relax%
2462 \ifbool{mdf@topline}{%
2463 \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
2464 \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
2465 \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}}}%
2466 \psset{lineararc=\mdf@roundcorner@length, cornersize=absolute}%
2467 \expandafter\psset\expandafter{\mdf@psset@local}%
2468 \mdf@makebox@in[\mdfboundingboxwidth]{%
2469 \null%
2470 \psset{unit=1truecm}%
2471 \ifdimgreater{\mdfboundingboxheight}{\vsize}
2472 {\begin{pspicture}(0,0)(\mdfboundingboxwidth,\vsize)}
2473 {\begin{pspicture}(0,0)(\mdfboundingboxwidth,\mdfboundingboxheight)}
2474 \mdfpstricks@settings%
2475 \psset{lineararc=\mdf@roundcorner@length, cornersize=absolut,}%
2476 \expandafter\psset\expandafter{\mdf@psset@local}%
2477 \pnode(\mdf@innerleftmargin@length,\mdf@splitbottomskip@length){mdf@A}
2478 \pnode(0,0){mdf@0}
2479 \pnode(\mdfboundingboxwidth,\mdfboundingboxheight){mdf@P}
2480 \ifbool{mdf@leftline}%
2481 {%
2482 \nodexn{(\mdf@A)+(\mdf@outerlinewidth@length,0)
2483 +(\mdf@middlelinewidth@length,0)
2484 +(\mdf@innerlinewidth@length,0)}}{mdf@A}
2485 \nodexn{(\mdf@0)+(\mdf@outerlinewidth@length,0)
2486 +0.5(\mdf@middlelinewidth@length,0)}}{mdf@0}
2487 }{}%
2488 \ifbool{mdf@rightline}%
2489 {%
2490 \nodexn{(\mdf@P)-(\mdf@outerlinewidth@length,0)
2491 -0.5(\mdf@middlelinewidth@length,0)}}{mdf@P}
2492 }{}%
2493 \ifbool{mdf@topline}%
2494 {%
2495 \nodexn{(\mdf@P)-(0,\mdf@outerlinewidth@length)
2496 -0.5(0,\mdf@middlelinewidth@length)}}{mdf@P}
2497 }{}%
2498 % \psclip{
2499 %Four or Three lines
2500 \ifboolexpr{test {\mdf@test@lrb} or test {\mdf@test@lrb}}%
2501 {\mdf@pstricksbox@tl{(\mdf@0)(\mdf@0|\mdf@P)(\mdf@P)(\mdf@P|\mdf@0)}}%
2502 }{}%
2503 %two combined lines
2504 \ifboolexpr{test {\mdf@test@ltb} or test {\mdf@test@lt}}%
2505 {\mdf@pstricksbox@tcl{(\mdf@0)(\mdf@P|\mdf@0)(\mdf@P)}}%
2506 {(\mdf@0)(\mdf@0|\mdf@P)(\mdf@P)}}{}%
2507 \ifboolexpr{test {\mdf@test@trb} or test {\mdf@test@tr}}%
2508 {\mdf@pstricksbox@tcl{(\mdf@P|\mdf@0)(\mdf@0)(\mdf@0|\mdf@P)}}%
2509 {(\mdf@0|\mdf@P)(\mdf@P)(\mdf@P|\mdf@0)}}{}%
2510 %two not combined lines
2511 \ifboolexpr{test {\mdf@test@lrb} or test {\mdf@test@lrb}}%
2512 {\mdf@pstricksbox@tnc1{(\mdf@0|\mdf@P)}}{(\mdf@P|\mdf@0)}}{}%

```

```

2513 %single line
2514 \ifboolexpr{test {\mdf@test@tb} or test {\mdf@test@t}}%
2515     {\mdf@pstricksbox@ol{(\mdf@P)(mdf@O|mdf@P)}}{}
2516 \ifboolexpr{test {\mdf@test@lb} or test {\mdf@test@l}}%
2517     {\mdf@pstricksbox@ol{(\mdf@O)(mdf@O|mdf@P)}}{}
2518 \ifboolexpr{test {\mdf@test@rb} or test {\mdf@test@r}}%
2519     {\mdf@pstricksbox@ol{(\mdf@P)(mdf@P|mdf@O)}}{}
2520 %no line
2521 \mdf@test@b{\psframe[style=mdfbackgroundstyle](mdf@O)(mdf@P)}{}%
2522 \mdf@test@noline{\psframe[style=mdfbackgroundstyle](mdf@O)(mdf@P)}{}%
2523 %
2524 %Frametitlebackground
2525 \drawbackgroundframetitle@first
2526 %output%
2527 \rput[bl](mdf@A){\box\mdf@splitbox@two}
2528 % \psdot(mdf@A)\uput[90](mdf@A){mdf at A}
2529 % \psdot(mdf@P)\uput[90](mdf@P){mdf at P}
2530 % \psdot(mdf@O)\uput[90](mdf@O){mdf at O}
2531 % \endpsclip
2532 \end{pspicture}
2533 }%
2534 \mdf@makeboxalign@right%
2535 }%
2536 \fi
2537 }%
2538 \def\drawbackgroundframetitle@first{%
2539 \ifdefempty{\mdf@frametitle}}{}%
2540 \ifdimgreater{\mdfboundingboxheight}{\mdfframetitleboxtotalheight}%
2541 {%
2542 \drawbackgroundframetitle@@first
2543 \global\mdfframetitleboxtotalheight=-\p@%
2544 }{\mdf@PackageWarning{You got a page break inside the frame title\MessageBreak
2545     Currently this isn't well supported}%
2546 \drawbackgroundframetitle@@first
2547 \global\mdfframetitleboxtotalheight=\dimexpr\mdfframetitleboxtotalheight
2548     -\mdfboundingboxheight
2549     -\mdf@innerlinewidth@length-0.5\mdf@middlelinewidth@length%
2550     +\mdf@frametitlebelowskip@length+\mdf@splitbottomskip@length
2551     +\mdf@splittopskip@length
2552     +\dp\strutbox\relax%
2553 }%
2554 }%
2555 }%
2556 \def\drawbackgroundframetitle@@first{%
2557 \begingroup%
2558 \ifbool{mdf@leftline}{%
2559     \nodexn{(\mdf@O)+(\mdf@innerlinewidth@length,0)
2560         +0.5(\mdf@middlelinewidth@length,0)}{\mdf@O}%
2561     }{}%
2562 \ifbool{mdf@rightline}{%
2563     \nodexn{(\mdf@P)-(\mdf@innerlinewidth@length,0)
2564         -0.5(\mdf@middlelinewidth@length,0)}{\mdf@P}%
2565     }{}%
2566 \ifbool{mdf@topline}{%
2567     \nodexn{(\mdf@P)-(0,\mdf@innerlinewidth@length)
2568         -0.5(0,\mdf@middlelinewidth@length)}{\mdf@P}%

```



```

2569     }{}%
2570 \ifdimgreater{\mdfboundingboxheight}{\mdfframetitleboxtotalheight}
2571     {\nodexn{(mdf@P)-(0,\mdfframetitleboxtotalheight)}{mdf@F}}%
2572     {\nodexn{(mdf@0)}{mdf@F}}%
2573 \psline[style=mdfframetitlebackgroundstyle](mdf@0|mdf@F)(mdf@0|mdf@P)
2574                                     (mdf@P)(mdf@P|mdf@F)%
2575 \endgroup
2576 }

```

\mdf@putbox@middle

Middle output

```

2577 \def\mdf@putbox@middle{%
2578   \ifvoid\mdf@splitbox@two
2579   \else%
2580     \mdf@makebox@out{%
2581       \mdf@makeboxalign@left%
2582 %     \ifbool{mdf@leftline}{\hspace*{\mdf@middlelinewidth@length}}{}%
2583       \setlength\mdfboundingboxwidth{\wd\mdf@splitbox@two}%
2584       \advance\mdfboundingboxwidth by \mdf@innerleftmargin@length\relax%
2585       \advance\mdfboundingboxwidth by \mdf@innerrightmargin@length\relax%
2586       \ifbool{mdf@leftline}{%
2587         \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
2588         \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
2589         \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}%{}%
2590       \ifbool{mdf@rightline}{%
2591         \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
2592         \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
2593         \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}%{}%
2594       \setlength\mdfboundingboxheight{\dimexpr\ht\mdf@splitbox@two+\dp\mdf@splitbox@two\relax}%
2595       \advance\mdfboundingboxheight by \mdf@splitbottomskip@length\relax%
2596       \psset{unit=1truecm}%
2597       \mdf@makebox@in[\mdfboundingboxwidth]{%
2598         \null%
2599         \ifdimgreater{\mdfboundingboxheight}{\vsize}
2600         {\begin{pspicture}(0,0)(\mdfboundingboxwidth,\vsize)}
2601         {\begin{pspicture}(0,0)(\mdfboundingboxwidth,\mdfboundingboxheight)}
2602           \mdfpstricks@settings%
2603           \psset{lineararc=0pt, cornersize=absolut,}%
2604           \expandafter\psset\expandafter{\mdf@psset@local}%
2605           %%%
2606           \pnode(\mdf@innerleftmargin@length,\mdf@splitbottomskip@length){mdf@A}
2607           \pnode(0,0){mdf@0}
2608           \pnode(\mdfboundingboxwidth,\mdfboundingboxheight){mdf@P}
2609           \ifbool{mdf@leftline}%
2610             {%
2611               \nodexn{(mdf@A)+(\mdf@outerlinewidth@length,0)
2612                 +(\mdf@middlelinewidth@length,0)
2613                 +(\mdf@innerlinewidth@length,0)}{mdf@A}
2614               \nodexn{(mdf@0)+(\mdf@outerlinewidth@length,0)
2615                 +0.5(\mdf@middlelinewidth@length,0)}{mdf@0}
2616             }{}%
2617           \ifbool{mdf@rightline}%
2618             {%
2619               \nodexn{(mdf@P)-(\mdf@outerlinewidth@length,0)

```



```

2620             -0.5(\mdf@middlelinewidth@length,0)){mdf@P}
2621         }{}%
2622     %%
2623     \ifbool{bool {mdf@leftline} and bool {mdf@rightline}}%
2624         {\mdf@pstricksbox@tncl{(\mdf@0|mdf@P)}{(\mdf@P|mdf@0)}}{}%
2625     \ifbool{bool {mdf@leftline} and not (bool {mdf@rightline})}%
2626         {\mdf@pstricksbox@ol{(\mdf@0)(mdf@0|mdf@P)}}{}%
2627     \ifbool{not (bool {mdf@leftline}) and bool {mdf@rightline}}%
2628         {\mdf@pstricksbox@ol{(\mdf@P)(mdf@P|mdf@0)}}{}%
2629     \ifbool{not (bool {mdf@leftline}) and not (bool {mdf@rightline})}%
2630         {\psframe[style=mdfbackgroundstyle](mdf@0)(mdf@P)}{}%
2631     %Frametitlebackground
2632     \drawbackgroundframetitle@middle
2633     %output%
2634     \rput[bl](mdf@A){\box\mdf@splitbox@two}
2635 %     \psdot(mdf@A)\uput[90](mdf@A){mdf at A}
2636 %     \psdot(mdf@P)\uput[90](mdf@P){mdf at P}
2637 %     \psdot(mdf@0)\uput[90](mdf@0){mdf at 0}
2638     \end{pspicture}%
2639 }%
2640 \mdf@makeboxalign@right%
2641 }%
2642 \fi
2643 }%
2644 \def\drawbackgroundframetitle@middle{%
2645 \ifdefempty{\mdf@frametitle}{}{}%
2646 \ifdimless{\mdfframetitleboxtotalheight}{\z@}
2647 {}{}%
2648 \drawbackgroundframetitle@@middle
2649 \global\mdfframetitleboxtotalheight=-\p@ \relax%
2650 }%
2651 }%
2652 }%
2653 \def\drawbackgroundframetitle@@middle{%
2654 \begingroup%
2655 \ifbool{mdf@leftline}{}%
2656     \nodexn{(\mdf@0)+(\mdf@innerlinewidth@length,0)}
2657     +0.5(\mdf@middlelinewidth@length,0){mdf@0}%
2658     }{}%
2659 \ifbool{mdf@rightline}{}%
2660     \nodexn{(\mdf@P)-(\mdf@innerlinewidth@length,0)}
2661     -0.5(\mdf@middlelinewidth@length,0){mdf@P}%
2662     }{}%
2663 \nodexn{(\mdf@P)-(0,\mdfframetitleboxtotalheight)}{mdf@F}%
2664 \psline[style=mdfframetitlebackgroundstyle,linear=\z@](mdf@0|mdf@F)(mdf@0|mdf@P)
2665     (mdf@P)(mdf@P|mdf@F)%
2666 \endgroup
2667 }

```

\mdf@putbox@second

Last output

```

2668 \def\mdf@putbox@second{
2669     \ifvoid\mdf@splitbox@one
2670     \else%

```

```

2671 \mdf@makebox@out{%
2672   \mdf@makeboxalign@left%
2673 %   \ifbool{mdf@leftline}{\hspace*{\mdf@middlelinewidth@length}}{}%
2674   \setlength\mdfboundingboxwidth{\wd\mdf@splitbox@one}%
2675   \advance\mdfboundingboxwidth by \mdf@innerleftmargin@length\relax%
2676   \advance\mdfboundingboxwidth by \mdf@innerrightmargin@length\relax%
2677   \ifbool{mdf@leftline}{%
2678     \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
2679     \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
2680     \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}}{}%
2681   \ifbool{mdf@rightline}{%
2682     \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
2683     \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
2684     \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}}{}%
2685   \setlength\mdfboundingboxheight{\dimexpr\ht\mdf@splitbox@one+\dp\mdf@splitbox@one\relax}%
2686   \advance\mdfboundingboxheight by \mdf@innerbottommargin@length\relax%
2687   \ifbool{mdf@bottomline}{%
2688     \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
2689     \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
2690     \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}}{}%
2691   \psset{unit=1truecm}%
2692   \mdf@makebox@in[\mdfboundingboxwidth]{%
2693     \null%
2694     \begin{pspicture}(0,0)(\mdfboundingboxwidth,\mdfboundingboxheight)
2695       \mdfpstricks@settings%
2696       \psset{lineararc=\mdf@roundcorner@length, cornersize=absolut,}%
2697       \expandafter\psset\expandafter{\mdf@psset@local}%
2698       \pnode(\mdf@innerleftmargin@length,\mdf@innerbottommargin@length){mdf@A}
2699       \pnode(0,0){mdf@0}
2700       \pnode(\mdfboundingboxwidth,\mdfboundingboxheight){mdf@P}
2701       \ifbool{mdf@leftline}%
2702       {%
2703         \nodexn{(\mdf@A)+(\mdf@outerlinewidth@length,0)
2704               +(\mdf@middlelinewidth@length,0)
2705               +(\mdf@innerlinewidth@length,0)}{mdf@A}
2706         \nodexn{(\mdf@0)+(\mdf@outerlinewidth@length,0)
2707               +0.5(\mdf@middlelinewidth@length,0)}{mdf@0}
2708       }{}%
2709       \ifbool{mdf@rightline}%
2710       {%
2711         \nodexn{(\mdf@P)-(\mdf@outerlinewidth@length,0)
2712               -0.5(\mdf@middlelinewidth@length,0)}{mdf@P}
2713       }{}%
2714       \ifbool{mdf@bottomline}%
2715       {%
2716         \nodexn{(\mdf@A)+(0,\mdf@outerlinewidth@length)
2717               +(0,\mdf@middlelinewidth@length)
2718               +(0,\mdf@innerlinewidth@length)}{mdf@A}
2719         \nodexn{(\mdf@0)+(0,\mdf@outerlinewidth@length)
2720               +0.5(0,\mdf@middlelinewidth@length)}{mdf@0}
2721       }{}%
2722       %Four + Three
2723       \ifboolexpr{test {\mdf@test@lrb} or test {\mdf@test@lrb}}{}%
2724       {\mdf@pstricksbox@tl{(\mdf@0|\mdf@P)(\mdf@0)(\mdf@P|\mdf@0)(\mdf@P)}}{}%
2725       %Two combined
2726       \ifboolexpr{test {\mdf@test@ltb} or test {\mdf@test@lb}}{}%

```

```

2727      {\mdf@pstricksbox@tcl{(mdf@P|mdf@0)(mdf@P)(mdf@0|mdf@P)}%
2728                               {(mdf@0|mdf@P)(mdf@0)(mdf@P|mdf@0)}}{}
2729      \ifbool{test {\mdf@test@trb} or test {\mdf@test@rb}}%
2730      {\mdf@pstricksbox@tcl{(mdf@P)(mdf@0|mdf@P)(mdf@0)}%
2731                               {(mdf@0)(mdf@P|mdf@0)(mdf@P)}}{}
2732      %Two not combined
2733      \ifbool{test {\mdf@test@ltr} or test {\mdf@test@lr}}%
2734      {\mdf@pstricksbox@tnc{(mdf@0|mdf@P)}{(mdf@P|mdf@0)}}{}%
2735      %one line
2736      \ifbool{test {\mdf@test@tb} or test {\mdf@test@b}}%
2737      {\mdf@pstricksbox@ol{(mdf@0)(mdf@P|mdf@0)}}{}
2738      \ifbool{test {\mdf@test@lt} or test {\mdf@test@l}}%
2739      {\mdf@pstricksbox@ol{(mdf@0)(mdf@0|mdf@P)}}{}
2740      \ifbool{test {\mdf@test@tr} or test {\mdf@test@r}}%
2741      {\mdf@pstricksbox@ol{(mdf@P)(mdf@P|mdf@0)}}{}
2742      %no line
2743      \mdf@test@t{\psframe[style=mdfbackgroundstyle](mdf@0)(mdf@P)}{}%
2744      \mdf@test@noline{\psframe[style=mdfbackgroundstyle](mdf@0)(mdf@P)}{}%
2745      %Frametitlebackground
2746      \drawbackgroundframetitle@second
2747      %output%
2748      \rput[bl](mdf@A){\box\mdf@splitbox@one}
2749      % \psdot(mdf@A)\uput[90](mdf@A){mdf at A}
2750      % \psdot(mdf@P)\uput[90](mdf@P){mdf at P}
2751      % \psdot(mdf@0)\uput[90](mdf@0){mdf at 0}
2752      \end{pspicture}%
2753      }%
2754      \mdf@makeboxalign@right%
2755      }%
2756      \fi
2757      }%
2758      \def\drawbackgroundframetitle@second{%
2759      \ifdefempty{\mdf@frametitle}}{}%
2760      \ifdimless{\mdfframetitleboxtotalheight}{\z@}
2761      {}{}%
2762      \drawbackgroundframetitle@@second
2763      }%
2764      }%
2765      }%
2766      \def\drawbackgroundframetitle@@second{%
2767      \begingroup%
2768      \ifbool{mdf@leftline}%
2769      \nodexn{(mdf@0)+(\mdf@innerlinewidth@length,0)
2770              +0.5(\mdf@middlelinewidth@length,0)}{mdf@0}%
2771      }{}%
2772      \ifbool{mdf@rightline}%
2773      \nodexn{(mdf@P)-(\mdf@innerlinewidth@length,0)
2774              -0.5(\mdf@middlelinewidth@length,0)}{mdf@P}%
2775      }{}%
2776      \nodexn{(mdf@P)-(0,\mdfframetitleboxtotalheight)}{mdf@F}%
2777      \psline[style=mdfframetitlebackgroundstyle,linear=\z@](mdf@0|mdf@F)(mdf@0|mdf@P)
2778              (mdf@P)(mdf@P|mdf@F)%
2779      \endgroup
2780      }

2781      \endinput

```

2782 %eof

C. The file *mdframed-example-default*

```

2783 %Documentation of the package mdframed
2784 %$Id: mdframed.dtx 320 2012-01-09 18:44:33Z marco $
2785 \setcounter{errorcontextlines}{999}
2786 \documentclass[parskip=false,english,11pt]{ltxmdf}
2787 \ltxmdfsetifoot $Id: mdframed.dtx 320 2012-01-09 18:44:33Z marco $
2788
2789 \usepackage{showexpl}
2790 \lstset{style=lstltxmdf,explpreset={pos=b,rframe={}},}
2791
2792 \newcommand\Loadedframemethod{default}
2793 \usepackage[framemethod=\Loadedframemethod]{mdframed}
2794
2795 \title{The \Pack{mdframed} package}
2796 \subtitle{Examples for \Opt{framemethod=\Loadedframemethod}}
2797 \author{\href{mailto:marco.daniel@mada-nada.de}{Marco Daniel}}
2798 \version{\mdversion}
2799 \introduction{In this document I collect various examples for \Opt{framemethod=\Loadedframemethod}.
2800 Some presented examples are more or less exorbitant.}
2801
2802 \mdfsetup{skipabove=\topskip,skipbelow=\topskip}
2803 \newrobustcmd\ExampleText{%
2804     An \textit{inhomogeneous linear} differential equation has the form
2805     \begin{align}
2806         L[v] &= f,
2807     \end{align}
2808     where  $L$  is a linear differential operator,  $v$  is
2809     the dependent variable, and  $f$  is a given non-zero
2810     function of the independent variables alone.
2811 }
2812
2813 \newcounter{examplecount}
2814 \setcounter{examplecount}{0}
2815 \renewcommand\thesubsection{}
2816 \newcommand\Examplesec[1]{%
2817 \stepcounter{examplecount}%
2818 \subsection{Example~\arabic{examplecount}~---\#1\relax}%
2819 }
2820
2821 \begin{document}
2822 \maketitle
2823 \section{Loading}
2824 In the preamble only the package \Pack{mdframed} with the option \Opt{framemethod=\Loadedframemethod}
2825
2826 {\large\color{red!50!black}
2827 \NOTE Every \Cmd{global} inside the examples is necessary to work with the package \Pack{showexpl}.}
2828
2829 \section{Examples}
2830 All examples have the following settings:
2831
2832 \begin{tltxmdfexample}
2833 \mdfsetup{skipabove=\topskip,skipbelow=\topskip}

```

```

2834 \newrobustcmd\ExampleText{%
2835 An \textit{inhomogeneous linear} differential equation
2836 has the form
2837 \begin{align}
2838 L[v] = f,
2839 \end{align}
2840 where  $L$  is a linear differential operator,  $v$  is
2841 the dependent variable, and  $f$  is a given non-zero
2842 function of the independent variables alone.
2843 }
2844 \end{tltxmdfexample}
2845 \clearpage
2846 \Examplesec{very simple}
2847 \begin{LTXexample}
2848 \global\mdfdefinestyle{exampledefault}{%
2849     linecolor=red,linewidth=3pt,%
2850     leftmargin=1cm,rightmargin=1cm
2851 }
2852 \begin{mdframed}[style=exampledefault]
2853 \ExampleText
2854 \end{mdframed}
2855 \end{LTXexample}
2856
2857 \Examplesec{hidden line + frame title}
2858 \begin{LTXexample}
2859 \global\mdfapptodefinestyle{exampledefault}{%
2860     topline=false,rightline=true,bottomline=false}
2861 \begin{mdframed}[style=exampledefault,frametitle={Inhomogeneous linear}]
2862 \ExampleText
2863 \end{mdframed}
2864 \end{LTXexample}
2865 \clearpage
2866
2867 \Examplesec{colored frame title}
2868 \begin{LTXexample}
2869
2870 \global\mdfapptodefinestyle{exampledefault}{%
2871     rightline=true,innerleftmargin=10,innerrightmargin=10,
2872     frametitlerule=true,frametitlerulecolor=green,
2873     frametitlebackgroundcolor=yellow,
2874     frametitlerulewidth=2pt}
2875 \begin{mdframed}[style=exampledefault,frametitle={Inhomogeneous linear}]
2876 \ExampleText
2877 \end{mdframed}
2878 \end{LTXexample}
2879
2880 \Examplesec{framed picture which is centered}
2881 \begin{LTXexample}
2882 \begin{mdframed}[userdefinedwidth=6cm,align=center,
2883     linecolor=blue,linewidth=4pt]
2884 \includegraphics[width=\linewidth]{donald-duck}
2885 \end{mdframed}
2886 \end{LTXexample}
2887
2888 \clearpage
2889 \Examplesec{Theorem environments}

```

```

2890 \begin{LTXexample}
2891 \mdfdefinestyle{theoremstyle}{%
2892     linecolor=red,linewidth=2pt,%
2893     frametitle=rule=true,%
2894     frametitlebackgroundcolor=gray!20,
2895     innertopmargin=\topskip,
2896 }
2897 \mdtheorem[style=theoremstyle]{definition}{Definition}
2898 \begin{definition}
2899 \ExampleText
2900 \end{definition}
2901 \begin{definition}[Inhomogeneous linear]
2902 \ExampleText
2903 \end{definition}
2904 \begin{definition*}[Inhomogeneous linear]
2905 \ExampleText
2906 \end{definition*}
2907 \end{LTXexample}
2908
2909
2910 \clearpage
2911 \Examplesec{theorem with separate header and the help of TikZ (complex)}
2912 \begin{LTXexample}
2913 \newcounter{theo}[section]
2914 \newenvironment{theo}[1][1]{%
2915     \stepcounter{theo}%
2916     \ifstrempy{#1}%
2917     {\mdfsetup{%
2918         frametitle={%
2919             \tikz[baseline=(current bounding box.east),outer sep=0pt]
2920                 \node[anchor=east,rectangle,fill=blue!20]
2921                     {\strut Theorem~\thetheo};}}
2922     }%
2923     {\mdfsetup{%
2924         frametitle={%
2925             \tikz[baseline=(current bounding box.east),outer sep=0pt]
2926                 \node[anchor=east,rectangle,fill=blue!20]
2927                     {\strut Theorem~\thetheo:~#1};}}%
2928     }%
2929     \mdfsetup{innertopmargin=10pt,linecolor=blue!20,%
2930         linewidth=2pt,topline=true,
2931         frametitleaboveskip=\dimexpr-\ht\strutbox\relax,}
2932     \begin{mdframed}[]\relax%
2933     }\end{mdframed}}
2934 \begin{theo}[Inhomogeneous Linear]
2935 \ExampleText
2936 \end{theo}
2937
2938 \begin{theo}
2939 \ExampleText
2940 \end{theo}
2941 \end{LTXexample}
2942
2943 \clearpage
2944 \Examplesec{hide only a part of a line}
2945 The example below is inspired by the following post on StackExchange \href{http://tex.stackexchange.com

```

```

2946 \begin{LTExample}
2947 \makeatletter
2948 \newlength{\interruptlength}
2949 \setlength{\interruptlength}{2.5ex}
2950 \newrobustcmd\overlaplines{%
2951   \appto\mdf@frame@leftline@single{%
2952     \llap{\color{white}%
2953       \rule[\dimexpr-\mdfboundingboxdepth+\interruptlength\relax]{%
2954         {\mdf@middlelinewidth@length}%
2955         {\dimexpr\mdfboundingboxtotalheight%
2956           \ifbool{mdf@topline}{+\mdf@middlelinewidth@length}{}}
2957         -2\interruptlength\relax}%
2958     }%
2959   }%
2960   \appto\mdf@frame@rightline@single{%
2961     \rlap{\color{white}%
2962       \hspace*{\mdfboundingboxwidth}%
2963       \hspace*{\mdf@innerrightmargin@length}%
2964       \rule[\dimexpr-\mdfboundingboxdepth%
2965         +\interruptlength\relax]{%
2966         {\mdf@middlelinewidth@length}%
2967         {\dimexpr\mdfboundingboxtotalheight%
2968           +\ifbool{mdf@topline}{\mdf@middlelinewidth@length}{0pt}}
2969         -2\interruptlength\relax}%
2970     }%
2971   }%
2972 }
2973 \makeatother
2974 \overlaplines
2975
2976 \begin{mdframed}[linecolor=blue,linewidth=8pt]
2977 \ExampleText
2978 \end{mdframed}
2979 \end{LTExample}
2980 \end{document}
2981 \endinput

```

D. The file mdframed-example-tikz

```

2982 %Documentation of the package mdframed
2983 %$Id: mdframed.dtx 320 2012-01-09 18:44:33Z marco $
2984 \setcounter{errorcontextlines}{999}
2985 \documentclass[parskip=false,english,11pt]{ltxmdf}
2986 \ltxmdfsetifoot $Id: mdframed.dtx 320 2012-01-09 18:44:33Z marco $
2987
2988 \usepackage{showexpl}
2989 \lstset{style=lstltxmdf,explpreset={pos=b,rframe={}},}
2990
2991 \newcommand\Loadedframemethod{TikZ}
2992 \usepackage[framemethod=\Loadedframemethod]{mdframed}
2993
2994 \title{The \Pack{mdframed} package}
2995 \subtitle{Examples for \Opt{framemethod=\Loadedframemethod}}
2996 \author{\href{mailto:marco.daniel@mada-nada.de}{Marco Daniel}}
2997 \version{\mdversion}
2998 \introduction{In this document I collect various examples for \Opt{framemethod=\Loadedframemethod}.

```

```

2999 Some presented examples are more or less exorbitant.}
3000
3001 \mdfsetup{skipabove=\topskip,skipbelow=\topskip}
3002 \newrobustcmd\ExampleText{%
3003     An \textit{inhomogeneous linear} differential equation has the form
3004     \begin{align}
3005         L[v] = f,
3006     \end{align}
3007     where  $L$  is a linear differential operator,  $v$  is
3008     the dependent variable, and  $f$  is a given non-zero
3009     function of the independent variables alone.
3010 }
3011
3012 \newcounter{examplecount}
3013 \setcounter{examplecount}{0}
3014 \renewcommand\thesubsection{}
3015 \newcommand\Examplesec[1]{%
3016 \stepcounter{examplecount}%
3017 \subsection{Example~\arabic{examplecount}~---~#1\relax}%
3018 }
3019
3020 \begin{document}
3021 \maketitle
3022 \section{Loading}
3023 In the preamble only the package \Pack{mdframed} with the option \Opt{framemethod=Loadedframemethod}
3024
3025 {\large\color{red!50!black}
3026 \NOTE Every \Cmd{global} inside the examples is necessary to work with the package \Pack{showexpl}.}
3027
3028 \section{Examples}
3029 All examples have the following settings:
3030
3031 \begin{tltxmdfexample}
3032 \mdfsetup{skipabove=\topskip,skipbelow=\topskip}
3033 \newrobustcmd\ExampleText{%
3034 An \textit{inhomogeneous linear} differential equation
3035 has the form
3036 \begin{align}
3037 L[v] = f,
3038 \end{align}
3039 where  $L$  is a linear differential operator,  $v$  is
3040 the dependent variable, and  $f$  is a given non-zero
3041 function of the independent variables alone.
3042 }
3043 \end{tltxmdfexample}
3044 \clearpage
3045 \ExampleText{round corner}
3046 \begin{LTExample}
3047 \global\mdfdefinestyle{exampledefault}{%
3048     outerlinewidth=5pt,innerlinewidth=0pt,
3049     outerlinecolor=red,roundcorner=5pt
3050 }
3051 \begin{mdframed}[style=exampledefault]
3052 \ExampleText
3053 \end{mdframed}
3054 \end{LTExample}

```



```

3055
3056 \Examplesec{hidden line + frame title}
3057 \begin{LTXexample}
3058 \global\mdfapptodefinestyle{exampledefault}{%
3059   topline=false,leftline=false,}
3060 \begin{mdframed}[style=exampledefault,frametitle={Inhomogeneous linear}]
3061 \ExampleText
3062 \end{mdframed}
3063 \end{LTXexample}
3064 \clearpage
3065 \Examplesec{framed picture which is centered}
3066 \begin{LTXexample}
3067 \begin{mdframed}[userdefinedwidth=6cm,align=center,
3068   linecolor=blue,middlelinewidth=4pt,roundcorner=5pt]
3069 \includegraphics[width=\linewidth]{donald-duck}
3070 \end{mdframed}
3071 \end{LTXexample}
3072
3073 \Examplesec{Gimmick}
3074 \begin{LTXexample}
3075 \mdfsetup{splitbottomskip=0.8cm,splittopskip=0cm,
3076   innerrightmargin=2cm,innertopmargin=1cm,%
3077   innerlinewidth=2pt,outerlinewidth=2pt,
3078   middlelinewidth=10pt,backgroundcolor=red,
3079   linecolor=blue,middlelinecolor=gray,
3080   tikzsetting={draw=yellow,line width=3pt,%
3081     dashed,%
3082     dash pattern= on 10pt off 3pt},
3083   rightline=false,bottomline=false}
3084 \begin{mdframed}
3085 \ExampleText
3086 \end{mdframed}
3087 \end{LTXexample}
3088
3089 \Examplesec{complex example with TikZ}
3090
3091 \begin{tltxmdfexample}
3092 \tikzstyle{titregris} =
3093   [draw=gray, thick, fill=white, shading = exersicetitle, %
3094   text=gray, rectangle, rounded corners,
3095   right,minimum height=.7cm]
3096
3097 \pgfdeclarehorizontalshading{exersicebackground}{100bp}
3098 {color(0bp)=(green!40);
3099 color(100bp)=(black!5)}
3100
3101 \pgfdeclarehorizontalshading{exersicetitle}{100bp}
3102 {color(0bp)=(red!40);
3103 color(100bp)=(black!5)}
3104
3105 \newcounter{exercise}
3106 \renewcommand\theexercise{Exercise-\n\arabic{exercise}}
3107 \makeatletter
3108 \def\mdf@@exercisepoints{}
3109 \define@key{mdf}{exercisepoints}{%
3110   \def\mdf@@exercisepoints{#1}

```

```

3111 }
3112 \renewrobustcmd\mdfcreateextratikz{%
3113     \node[titregris,xshift=1cm] at (P-|0) %
3114         {\~\mdf@frametitlefont{\theexercise}\~};
3115     \ifdefempty{\mdf@@exercisepoints}%
3116     {%
3117         \node[titregris,left,xshift=-1cm] at (P)%
3118             {\~\mdf@frametitlefont{\mdf@@exercisepoints points}\~};}%
3119 }
3120 \makeatother
3121
3122 \mdfdefinestyle{exercisestyle}{%
3123     outerlinewidth=1pt,
3124     innerlinewidth=0pt,
3125     roundcorner=2pt,
3126     linecolor=gray,
3127     tikzsetting={shading = exersicebackground},
3128     innertopmargin=1.2\baselineskip,
3129     skipabove={\dimexpr0.5\baselineskip+\topskip\relax},
3130     needspace=3\baselineskip,
3131     frametitlefont=\sffamily\bfseries,
3132     settings={\global\stepcounter{exercise}},
3133 }
3134
3135 \begin{mdframed}[style=exercisestyle,]
3136 \ExampleText
3137 \end{mdframed}
3138
3139 \begin{mdframed}[style=exercisestyle,exercisepoints=10]
3140 \ExampleText
3141 \end{mdframed}
3142 \end{tltxmdfexample}
3143
3144 \tikzstyle{titregris} =
3145     [draw=gray, thick, fill=white, shading = exersicetitle, %
3146     text=gray, rectangle, rounded corners,
3147     right,minimum height=.7cm]
3148
3149 \pgfdeclarehorizontalshading{exersicebackground}{100bp}
3150 {color(0bp)=(green!40);
3151 color(100bp)=(black!5)}
3152
3153 \pgfdeclarehorizontalshading{exersicetitle}{100bp}
3154 {color(0bp)=(red!40);
3155 color(100bp)=(black!5)}
3156
3157 \newcounter{exercise}
3158 \renewcommand\theexercise{Exercise~\n\arabic{exercise}}
3159 \makeatletter
3160 \def\mdf@@exercisepoints{}
3161 \define@key{mdf}{exercisepoints}{%
3162     \def\mdf@@exercisepoints{\#1}
3163 }
3164 \newrobustcmd\mdfcreateextratikzlocal{%
3165     \node[titregris,xshift=1cm] at (P-|0) {\~\textbf{\theexercise}\~};
3166     \ifdefempty{\mdf@@exercisepoints}%

```

```

3167     {}%
3168     {\node[titregris,left,xshift=-1cm] at (P)%
3169       {\mdf@frametitlefont{\mdf@exercisepoints points}~};}%
3170 }
3171 \makeatother
3172
3173 \mdfdefinestyle{exercisestyle}{%
3174   outerlinewidth=1pt,
3175   innerlinewidth=0pt,
3176   roundcorner=2pt,
3177   linecolor=gray,
3178   tikzsetting={shading = exersicebackground},
3179   innertopmargin=1.2\baselineskip,
3180   skipabove={\dimexpr0.5\baselineskip+\topskip\relax},
3181   needspace=3\baselineskip,
3182   frametitlefont=\sffamily\bfseries,
3183   settings={\global\stepcounter{exercise}\let\mdfcreateextratikz\mdfcreateextratikzlocal},
3184 }
3185
3186 \begin{mdframed}[style=exercisestyle,]
3187 \ExampleText
3188 \end{mdframed}
3189
3190 \begin{mdframed}[style=exercisestyle,exercisepoints=10]
3191 \ExampleText
3192 \end{mdframed}
3193
3194 \clearpage
3195 \Examplesec{Theorem environments}
3196 \begin{LTXexample}
3197 \mdfdefinestyle{theoremstyle}{%
3198   linecolor=red,linewidth=2pt,%
3199   frametitlerule=true,%
3200   apptotikzsetting={\tikzset{mdfframetitlebackground/.append style={%
3201     shade,left color=white, right color=blue!20}}},
3202   frametitlerulecolor=green!60,
3203   frametitlerulewidth=1pt,
3204   innertopmargin=\topskip,
3205 }
3206 \mdtheorem[style=theoremstyle]{definition}{Definition}
3207 \begin{definition}[Inhomogeneous linear]
3208 \ExampleText
3209 \end{definition}
3210 \begin{definition*}[Inhomogeneous linear]
3211 \ExampleText
3212 \end{definition*}
3213 \end{LTXexample}
3214
3215 \end{document}
3216 \endinput

```

E. The file *mdframed-example-pstricks*

```

3217 %Documenation of the package mdframed
3218 %%$Id: mdframed.dtx 320 2012-01-09 18:44:33Z marco $
3219 \setcounter{errorcontextlines}{999}

```

```

3220 \documentclass[parskip=false,english,11pt]{ltxmdf}
3221 \ltxmdfsetifoot$Id: mdframed.dtx 320 2012-01-09 18:44:33Z marco $
3222
3223 \lstDeleteShortInline{[]
3224 \newcommand\Loadedframemethod{PSTricks}
3225 \usepackage[framemethod=\Loadedframemethod]{mdframed}
3226
3227 \usepackage{showexpl}
3228 \lstset{style=lstltxmdf,explpreset={pos=b,rframe={}},}
3229
3230 \title{The \Pack{mdframed} package}
3231 \subtitle{Examples for \Opt{framemethod=\Loadedframemethod}}
3232 \author{\href{mailto:marco.daniel@mada-nada.de}{Marco Daniel}}
3233 \version{\mdversion}
3234 \introduction{In this document I collect various examples for \Opt{framemethod=\Loadedframemethod}.
3235 Some presented examples are more or less exorbitant.}
3236
3237 \mdfsetup{skipabove=\topskip,skipbelow=\topskip}
3238 \newrobustcmd\ExampleText{%
3239     An \textit{inhomogeneous linear} differential equation has the form
3240     \begin{align}
3241         L[v] = f,
3242     \end{align}
3243     where  $L$  is a linear differential operator,  $v$  is
3244     the dependent variable, and  $f$  is a given non-zero
3245     function of the independent variables alone.
3246 }
3247
3248 \newcounter{examplecount}
3249 \setcounter{examplecount}{0}
3250 \renewcommand\thesubsection{}
3251 \newcommand\Examplesec[1]{%
3252 \stepcounter{examplecount}%
3253 \subsection{Example~\arabic{examplecount}~---~\#1\relax}%
3254 }
3255
3256 \begin{document}
3257 \maketitle
3258 \section{Loading}
3259 In the preamble only the package \Pack{mdframed} with the option \Opt{framemethod=\Loadedframemethod}
3260
3261 {\large\color{red!50!black}
3262 \NOTE Every \Cmd{global} inside the examples is necessary to work with the package \Pack{showexpl}.}
3263 X
3264 \section{Examples}
3265 All examples have the following settings:
3266
3267 \begin{tltltxmdfexample}
3268 \mdfsetup{skipabove=\topskip,skipbelow=\topskip}
3269 \newrobustcmd\ExampleText{%
3270 An \textit{inhomogeneous linear} differential equation
3271 has the form
3272 \begin{align}
3273 L[v] = f,
3274 \end{align}
3275 where  $L$  is a linear differential operator,  $v$  is

```

```

3276 the dependent variable, and  $f$  is a given non-zero
3277 function of the independent variables alone.
3278 }
3279 \end{tltxmdfexample}
3280 \clearpage
3281
3282 \Examplesec{very simple}
3283 \begin{LTExample}
3284 \global\mdfdefinestyle{exampledefault}{%
3285     linecolor=red,middlelinewidth=3pt,%
3286     leftmargin=1cm,rightmargin=1cm
3287 }
3288 \begin{mdframed}[style=exampledefault,roundcorner=5]
3289 \ExampleText
3290 \end{mdframed}
3291 \end{LTExample}
3292
3293 \Examplesec{hidden line + frame title}
3294 \begin{LTExample}
3295 \global\mdfapptodefinestyle{exampledefault}{%
3296     topline=false,rightline=false,bottomline=false,
3297     frametitlerule=true,innertopmargin=6pt,
3298     outerlinewidth=6pt,outerlinecolor=blue,
3299     pstricksappsetting={\addtopsstyle{mdfouterlinestyle}{linestyle=dashed}},
3300     innerlinecolor=yellow,innerlinewidth=5pt}%
3301 \begin{mdframed}[style=exampledefault,frametitle={Inhomogeneous linear}]
3302 \ExampleText
3303 \end{mdframed}
3304 \end{LTExample}
3305
3306 \clearpage
3307
3308 \Examplesec{Dash Lines}
3309 \begin{LTExample}
3310 \global\mdfdefinestyle{exampledefault}{%
3311     pstrickssetting={linestyle=dashed,},linecolor=red,linewidth=5pt}
3312 \begin{mdframed}[style=exampledefault,]
3313 \ExampleText
3314 \end{mdframed}
3315 \end{LTExample}
3316
3317 \Examplesec{Double Lines}
3318 \begin{LTExample}
3319 \global\mdfdefinestyle{exampledefault}{%
3320     pstrickssetting={doubleline=true,doublesep=6pt},
3321     linecolor=red,linewidth=5pt,middlelinewidth=4pt}
3322 \begin{mdframed}[style=exampledefault,]
3323 \ExampleText
3324 \end{mdframed}
3325 \end{LTExample}
3326 \end{document}
3327 \endinput

```

F. The file *mdframed-example-texsx*

```

3328 %Documenation of the package mdframed

```

```

3329 %$Id: mdframed.dtx 320 2012-01-09 18:44:33Z marco $
3330 \setcounter{errorcontextlines}{999}
3331 \documentclass[parskip=false,english,11pt,ltxlipsum]{ltxmdf}
3332 \ltxmdfsetifoot $Id: mdframed.dtx 320 2012-01-09 18:44:33Z marco $
3333
3334 \usepackage{showexpl}
3335 \lstset{style=lstltxmdf,explpreset={pos=b,rframe={}}},}
3336
3337 \newcommand\Loadedframemethod{default}
3338 \usepackage[framemethod=\Loadedframemethod]{mdframed}
3339
3340 \title{The \Pack{mdframed} package}
3341 \subtitle{Examples for \Opt{framemethod=\Loadedframemethod}}
3342 \author{\href{mailto:marco.daniel@mada-nada.de}{Marco Daniel}}
3343 \version{\mdversion}
3344 \introduction{In this document I collect various examples for \Opt{framemethod=\Loadedframemethod}.
3345 Some presented examples are more or less exorbitant.}
3346
3347 \mdfsetup{skipabove=\topskip,skipbelow=\topskip}
3348 \newrobustcmd\ExampleText{%
3349     An \textit{inhomogeneous linear} differential equation has the form
3350     \begin{align}
3351         L[v] = f,
3352     \end{align}
3353     where  $L$  is a linear differential operator,  $v$  is
3354     the dependent variable, and  $f$  is a given non-zero
3355     function of the independent variables alone.
3356 }
3357
3358 \newcounter{examplecount}
3359 \setcounter{examplecount}{0}
3360 \renewcommand\thesubsection{}
3361 \newcommand\Examplesec[1]{%
3362 \stepcounter{examplecount}%
3363 \subsection{Example~\arabic{examplecount}~---~\#1\relax}%
3364 }
3365
3366 \begin{document}
3367 \maketitle
3368 \section{Loading}
3369 In the preamble only the package \Pack{mdframed} with the option \Opt{framemethod=\Loadedframemethod}
3370
3371 {\large\color{red!50!black}
3372 \NOTE Every \Cmd{global} inside the examples is necessary to work with the package \Pack{showexpl}.}
3373
3374 \section{Examples}
3375 All examples have the following settings:
3376
3377 \begin{tltxmdfexample}
3378 \mdfsetup{skipabove=\topskip,skipbelow=\topskip}
3379 \newrobustcmd\ExampleText{%
3380 An \textit{inhomogeneous linear} differential equation
3381 has the form
3382 \begin{align}
3383 L[v] = f,
3384 \end{align}

```

```

3385 where  $L$  is a linear differential operator,  $v$  is
3386 the dependent variable, and  $f$  is a given non-zero
3387 function of the independent variables alone.
3388 }
3389 \end{tltxmdfexample}
3390 \clearpage
3391 \Examplesec{Package listings}
3392 The example below is inspired by the following post on StackExchange \href{http://tex.stackexchange.com}
3393
3394 Here the solution which can be decorate as usual.
3395
3396 \begin{tltxmdfexample}[moretexcs={BeforeBeginEnvironment,AfterEndEnvironment},morekeywords={lstlisting}]
3397 \BeforeBeginEnvironment{lstlisting}{%
3398     \begin{mdframed}[<modification>%
3399     \vspace{-0.7em}}
3400 \AfterEndEnvironment{lstlisting}{%
3401     \vspace{-0.5em}%
3402     \end{mdframed}}
3403 \end{tltxmdfexample}
3404
3405 With the new command \Cmd{surroundwithmdframed} you can use
3406 \begin{tltxmdfexample}[moretexcs={BeforeBeginEnvironment,AfterEndEnvironment},morekeywords={lstlisting}]
3407 \surroundwithmdframed{listings}
3408 \end{tltxmdfexample}
3409
3410 \Examplesec{Package multicol}
3411 How I wrote in \enquote{Known Problems} you can't combine \Pack{multicol} with \Pack{mdframed}. In a s
3412 \begin{LTXexample}
3413 \begin{multicols}{2}
3414 \lipsum[1]
3415 \begin{mdframed}
3416 \ExampleText
3417 \end{mdframed}
3418 \lipsum[2]
3419 \end{multicols}
3420 \end{LTXexample}
3421 \clearpage
3422 \twocolumn[\Examplesec{Working in twocolumn mode}]
3423 \begin{tltxmdfexample}
3424 \twocolumn[%
3425     \Examplesec{Working in
3426         twocolumn mode}]
3427 \lipsum[1]\lipsum[2]
3428 \begin{mdframed}[%
3429     leftmargin=10pt,%
3430     rightmargin=10pt,%
3431     linecolor=red,
3432     backgroundcolor=yellow]
3433 \ExampleText
3434 \end{mdframed}
3435 \lipsum[2]
3436 \end{tltxmdfexample}
3437 \lipsum[1]\lipsum[2]
3438 \begin{mdframed}[leftmargin=10pt,%
3439     rightmargin=10pt,%
3440     linecolor=red,

```

```
3441                 backgroundColor=yellow]
3442 \ExampleText
3443 \end{mdframed}
3444 \lipsum[2]
3445 \clearpage
3446 \onecolumn
3447 \Examplesec{Working inside enumerate}
3448 \begin{LTXexample}
3449 Text Text Text Text Text Text Text Text
3450 \begin{enumerate}
3451 \item in the following \ldots
3452     \begin{mdframed}[linecolor=blue,linewidth=2]
3453         \ExampleText
3454     \end{mdframed}
3455 \item \lipsum[2]
3456 \end{enumerate}
3457 Text Text Text Text Text Text
3458 \end{LTXexample}
3459 \end{document}
3460 \endinput
```


G. Change History

v1.0a		Redefinition of <code>\newmdtheoremenv</code> . – Now	
General: Created dtx and fixes bugs	1	check of theorem definition.	28
v1.0b		Removing <code>\@arrayparboxrestore</code>	36
General: added command <code>\@parboxrestore</code>		Renamed some commands so that every	
to <code>\mdf@lrbox</code>	26	command have the same prefix <code>\mdf@</code>	1
removed <code>\setbox\mdf@splitbox@two</code>		v1.1release	
<code>\vbox\unvbox \mdf@splitbox@two</code>	39	General: Added <code>\mbox</code> to the definition.	
v1.1beta		<code>\item\mbox\relax</code> – Need for amsthm	27
General: added command to avoid overfull		changed definition of <code>\mdf@lrbox</code> (Thanks	
box warning by vsplit	27	Lars Madsen)	26
Added frametitle detection to		Changed the enddefinition of <code>mdframed</code> .	
<code>\detected@mdf@put@frame</code>	33	Uses now <code>\@doendpe</code> instead of	
added lost semicolons	52	<code>\endparenv</code>	34
Added method frame title via <code>\savebox</code>	30	Edit algorithm to combine the	
Added option <code>frametitulerulecolor</code> ,		saveboxes <code>\mdf@frametitlebox</code> and	
<code>frametitlebackgroundcolor</code> , font	22	<code>\mdf@splitboxone</code> by the predefined set-	
Added option <code>titleaboveskip</code> ,		tings: <code>\parskip\z@</code> , <code>\parindent\z@</code> and	
<code>titlebelowskip</code> , <code>frametitulerulewidth</code>	21	<code>\offinterlineskip</code>	30
Added option <code>usetwoside</code>	22	expand definition of <code>\mdf@lrbox</code> by	
Changed the definition of <code>\mdf@trivlist</code>	34	<code>\mdf@restoreparams</code>	26
Create new <code>\savebox</code> and renamed		v1.2a	
<code>\@tempboxa</code>	25	General: take account of <code>\parskip</code> for the	
Defining <code>mdframed</code> with <code>\newenvironment</code>	34	vertical calculation	36
Joining all new definitions	25		

H. Index

The index only collect package relevant words.

Symbols	<code>\CurrentOption</code> 261	<code>\ExampleText</code> 2803, 2834, 2853, 2862, 2876, 2899, 2902, 2905, 2935, 2939, 2977, 3002, 3033, 3045, 3052, 3061, 3085, 3136, 3140, 3187, 3191, 3208, 3211, 3238, 3269, 3289, 3302, 3313, 3323, 3348, 3379, 3416, 3433, 3442, 3453
<code>\'</code> 347	D	F
<code>\-</code> 346	<code>\DeclareDocumentCommand</code> 428, 440	<code>font</code> (option) 7
<code>\=</code> 347	<code>defaultunit</code> (option) 5	<code>fontcolor</code> (option) 7
<code>\@par</code> 345	<code>\deferred@thm@head</code> . 367, 368	<code>footnotedistance</code> (option) 12
<code>\@acci</code> 347	<code>\detected@mdf@put@frame</code> . .. 558, 670, 671, 736, 741	<code>footnoteinside</code> (option) .. 12
<code>\@accii</code> 347	<code>\DisableKeyvalOption</code> 1159, 1160	<code>framemethod</code> (option) 4
<code>\@acciii</code> 347	<code>\documentclass</code> 2786, 2985, 3220, 3331	<code>frametitle</code> (option) 10
<code>\@definecounter</code> 448, 468	<code>\draw</code> 1625	<code>frametitleaboveskip</code> (op- tion) 10
<code>\@dischph</code> 346	<code>\drawbackgroundframetitle@first</code> 1792, 1796, 1807, 2542, 2546, 2556	<code>frametitlealignment</code> (op- tion) 10
<code>\@doendpe</code> 747	<code>\drawbackgroundframetitle@middle</code> .. 1929, 1935, 2648, 2653	<code>frametitlebackgroundcolor</code> (option) 10
<code>\@flushglue</code> 352	<code>\drawbackgroundframetitle@second</code> .. 2026, 2031, 2762, 2766	<code>frametitlebelowskip</code> (op- tion) 10
<code>\@itemlabel</code> 380	<code>\drawbackgroundframetitle@single</code> .. 1764, 1767, 2420, 2423	<code>frametitlefont</code> (option) .. 10
<code>\@namedef</code> 499	<code>\drawbackgroundframetitle@first</code> .. 1788, 1913, 2525, 2538	<code>frametitlerule</code> (option) .. 10
<code>\@nameuse</code> 499	<code>\drawbackgroundframetitle@middle</code> .. 1925, 2011, 2632, 2644	<code>frametitlerulewidth</code> (op- tion) 10
<code>\@newctr</code> 468	<code>\drawbackgroundframetitle@second</code> .. 2022, 2134, 2746, 2758	
<code>\@nmbrlistfalse</code> 375	<code>\drawbackgroundframetitle@single</code> .. 1750, 1762, 2404, 2418	G
<code>\@temptitle</code> 453, 455, 460, 463, 464, 476, 478, 483, 487, 489, 494, 503, 505, 510, 513, 514	E	<code>\global</code> 499, 555, 557, 571, 572, 573, 574, 575, 591, 597, 1314, 1322, 1492, 1793, 1797, 1930, 2543, 2547, 2649, 2848, 2859, 2870, 3047, 3058, 3132, 3183, 3284, 3295, 3310, 3319
<code>\@thmcounter</code> ... 449, 469, 472	<code>\endgroup</code> 30, 258, 358, 560, 578, 599, 747, 890, 1006, 1060, 1084, 1627, 2256, 2271, 2292, 2440, 2575, 2666, 2779	H
<code>\@thmcountersep</code> 471	<code>\endmdf@lrbbox</code> 330, 358, 553, 569, 734, 739	<code>hidealllines</code> (option) 9
<code>\@totalleftmargin</code> 350	<code>\endmdf@trivlist</code> 371, 386, 387, 746	<code>\href</code> 2797, 2945, 2996, 3232, 3342, 3392
<code>\@trivlist</code> 376	<code>\endpsclip</code> 2212, 2220, 2234, 2253, 2269, 2411, 2531	
<code>\'</code> 347	<code>\enquote</code> 3411	I
<code>_</code> 460, 463, 483, 510, 513	<code>\everypar</code> 354	<code>\if@mdf@pageodd</code> . 751, 775, 786
A	<code>\Examplesec</code> 2816, 2846, 2857, 2867, 2880, 2889, 2911, 2944, 3015, 3056, 3065, 3073, 3089, 3195, 3251, 3282, 3293, 3308, 3317, 3361, 3391, 3410, 3422, 3425, 3447	<code>\if@nobreak</code> 343
<code>\addtolength</code> 796		<code>\if@noskipsec</code> 344
<code>\addtopsstyle</code> ... 2163, 3299		<code>\ifcsdef</code> 441
<code>align</code> (option) 8		<code>\ifdefempty</code> 726, 735, 740, 1288, 1383,
<code>apptotikzsetting</code> (option) . 9		
<code>\arabic</code> 2818, 3017, 3106, 3158, 3253, 3363		
<code>\author</code> 2797, 2996, 3232, 3342		
B		
<code>backgroundcolor</code> (option) .. 7		
<code>\booltrue</code> 522		
<code>bottomline</code> (option) 9		
C		
<code>\clearpage</code> 2845, 2865, 2888, 2910, 2943, 3044, 3064, 3194, 3280, 3306, 3390, 3421, 3445		
<code>\Cmd</code> 2824, 2827, 3023, 3026, 3259, 3262, 3369, 3372, 3405		
<code>\csappto</code> 405		

1460, 1527, 1763, 1789,
1926, 2023, 2419, 2539,
2645, 2759, 3115, 3166
`\iffalse` 343, 344
`\ifmdf@bottomline` 526
`\ifmdf@footnoteinside` ... 731
`\ifmdf@frametitlebottomline`
 526
`\ifmdf@frametitleleftline` 523
`\ifmdf@frametitlerightline`
 525
`\ifmdf@frametitletopline` 524
`\ifmdf@leftline` 523
`\ifmdf@nobreak` 672
`\ifmdf@rightline` 525
`\ifmdf@topline` 524
`\IfNoValueTF` ... 429, 444, 446
`\ifstrempy` 452, 463,
 475, 486, 502, 513, 2916
`\IfValueTF` 431, 432
`\ifvmode` 724
`\ignorespaces` 354
`\includegraphics` . 2884, 3069
`\indent` 368
`innerbottommargin (option)` 6
`innerleftmargin (option)` .. 6
`innerlinecolor (option)` ... 7
`innerlinewidth (option)` ... 7
`innermargin (option)` 6
`innerrightmargin (option)` . 6
`innertopmargin (option)` ... 6
`\interruptlength` 2948, 2949,
 2953, 2957, 2965, 2969
`\introduction`
 .. 2799, 2998, 3234, 3344
`\itemindent` 379

L

`\labelwidth` 377
`\ldots` 3451
`\leavevmode` 382
`leftline (option)` 9
`\leftmargin` 378
`leftmargin (option)` 6
`\leftskip` 351
`linecolor (option)` 7
`\lineskip` 352
`linewidth (option)` 6
`\lipsum` . 3414, 3418, 3427,
 3435, 3437, 3444, 3455
`\Loadedframemethod`
 2792, 2793, 2796, 2799,
 2824, 2991, 2992, 2995,
 2998, 3023, 3224, 3225,
 3231, 3234, 3259, 3337,
 3338, 3341, 3344, 3369

`\lstDeleteShortInline` .. 3223
`\lstset` 2790, 2989, 3228, 3335
`\ltxmdfsetifoot`
 .. 2787, 2986, 3221, 3332

M

`\makeatletter` 2947, 3107, 3159
`\makeatother` 2973, 3120, 3171
`\makelabel` 381
`\maketitle`
 .. 2822, 3021, 3257, 3367
`margin (option)` 6
`\mbox` 383
`\mdf@@exercisepoints`
 3108, 3110, 3115, 3118,
 3160, 3162, 3166, 3169
`\mdf@@framemethod` 116, 118, 120
`\mdf@@frametitle` 520, 581, 726
`\mdf@@frametitle@use`
 585, 735, 740
`\mdf@@frametitlerule`
 593, 943,
 971, 1044, 1183, 1618, 2281
`\mdf@@setzref` 751,
 785, 888, 1004, 1058, 1081
`\mdf@advancelength@freevspace@add`
 836, 842, 1018
`\mdf@advancelength@freevspace@sub`
 836, 839, 916
`\mdf@advancelength@horizontalmargin@add`
 799
`\mdf@advancelength@horizontalmargin@sub`
 799, 805
`\mdf@advancelength@verticalmargin@whole`
 836, 836, 855, 881
`\mdf@align` 208, 208
`\mdf@alignoption@triple do`
 81, 82, 84
`\mdf@Ax`
 1672, 1680, 1681, 1752,
 1862, 1870, 1871, 1915,
 1979, 1987, 1988, 2013,
 2078, 2086, 2087, 2136
`\mdf@Ay`
 1673, 1693, 1694, 1752,
 1863, 1915, 1980, 2013,
 2079, 2099, 2100, 2136
`\mdf@background@default` .
 1176, 1176,
 1199, 1300, 1394, 1478
`\mdf@backgroundcolor`
 169, 171, 1176,
 1560, 1561, 2165, 2166
`\mdf@booloption@double do`
 72, 73, 75

`\mdf@checknththeorem`
 602, 603, 720
`\mdf@currentvbadness` 361, 364
`\mdf@defaultunit` 29
`\mdf@deferred@thm@head` .. 367
`\mdf@define@key@length` ..
 43, 47, 61
`\mdf@do@alignoption`
 81, 81, 201, 201
`\mdf@do@booloption`
 72, 72, 184, 184
`\mdf@do@lengthoption`
 ... 56, 56, 133, 133, 159
`\mdf@do@stringoption`
 63, 63, 159
`\mdf@dolist` 42,
 42, 133, 159, 184, 201,
 805, 855, 881, 916, 1018
`\mdf@endparenv` 387, 388
`\mdf@fontcolor` 723, 1558
`\mdf@footnotedistance@length`
 618
`\mdf@footnotebox` 295
`\mdf@footnoteinput`
 612, 624, 722
`\mdf@footnoteoutput`
 612, 615, 733, 742
`\mdf@footnoterule` 612, 612, 620
`\mdf@frame@background@first`
 1299, 1299, 1382
`\mdf@frame@background@middle`
 1470, 1477, 1526
`\mdf@frame@background@second`
 1393, 1393, 1459
`\mdf@frame@background@single`
 1198, 1198, 1287
`\mdf@frame@bottomline@second`
 1393, 1417, 1458
`\mdf@frame@bottomline@single`
 1223, 1286
`\mdf@frame@frametitlebackground@first`
 1306, 1383
`\mdf@frame@frametitlebackground@middle`
 1484, 1527
`\mdf@frame@frametitlebackground@second`
 1400, 1460
`\mdf@frame@frametitlebackground@single`
 1205, 1288
`\mdf@frame@leftline@first`
 1299, 1330, 1379
`\mdf@frame@leftline@middle`
 1470, 1470, 1525
`\mdf@frame@leftline@second`
 1393, 1410, 1456
`\mdf@frame@leftline@single`
 .. 1198, 1234, 1283, 2951

\mdf@frame@rightline@first 1299, 1346, 1386	\mdf@frametitle@rightmargin@length 533	\mdf@innerlinecolor@default 1178
\mdf@frame@rightline@middle 1470, 1495, 1530	\mdf@frametitle@rulecolor 529, 1181, 1615, 2276, 2277	\mdf@innerlinewidth@length 650, 658, 664, 811, 816, 826, 831, 905, 920, 1022, 1030, 1271, 1565, 1577, 1580, 1649, 1653, 1661, 1665, 1682, 1695, 1771, 1775, 1779, 1799, 1811, 1815, 1819, 1839, 1843, 1851, 1872, 1939, 1943, 1964, 1968, 1989, 2035, 2039, 2059, 2063, 2070, 2088, 2101, 2175, 2178, 2191, 2194, 2314, 2318, 2326, 2330, 2334, 2351, 2364, 2426, 2430, 2434, 2452, 2456, 2463, 2484, 2549, 2559, 2563, 2567, 2587, 2591, 2613, 2656, 2660, 2678, 2682, 2688, 2705, 2718, 2769, 2773
\mdf@frame@rightline@second 1393, 1426, 1463	\mdf@frametitle@rulecolor@default 1181, 1188	\mdf@innermargin@length 759, 779, 781
\mdf@frame@rightline@single .. 1198, 1242, 1291, 2960	\mdf@frametitle@rulewidth@length 531, 1185, 1192, 1626, 2287	\mdf@innerrightmargin@length ... 1191, 1245, 1262, 1348, 1363, 1428, 1442, 1497, 1511, 1624, 1647, 1837, 1962, 2057, 2312, 2450, 2585, 2676, 2963
\mdf@frame@topandbottomline@single 1198	\mdf@frame@titlesettings . 537	\mdf@innertopmargin@length 904, 946, 974, 1047, 1195, 1217, 1268, 1341, 1368, 1630, 1658, 1848, 2295, 2324, 2460
\mdf@frame@topline@first 1299, 1338, 1381	\mdf@freepage@space 788, 788, 870, 901, 914	\mdf@keep@lines@single 824, 824, 858, 884
\mdf@frame@topline@single 1213, 1285	\mdf@free@space@length 323, 793, 794, 795, 796, 870, 871, 873, 885, 900, 901, 903, 915, 1016, 1026, 1028, 1036	\mdf@leftmargin@length 202, 206, 209, 759, 779, 782
\mdf@frame@idate@svn 1546, 1547, 1549	\mdf@fy 1781, 1784, 1785, 1821, 1824, 1825, 1945, 1948, 1949, 2041, 2044, 2045	\mdf@length@option@double@do 56, 57, 59
\mdf@frame@idate@svn 2154, 2155, 2157	\mdf@hide@all@lines@check 704, 704, 716	\mdf@linecolor 166, 167, 168, 170, 653, 654, 655, 661, 667
\mdf@frame@method . . . 106, 106	\mdf@horizontalmargin@equation 338, 799, 803	\mdf@linecolor@bottom 536, 1176
\mdf@frame@method@i 107, 112, 115	\mdf@horizontal@space@of@box 340, 799, 800, 802, 804, 811, 812, 813, 816, 817, 818, 820, 822	\mdf@linecolor@default 1176, 1182, 1214, 1224, 1235, 1243, 1331, 1339, 1347, 1411, 1418, 1427, 1471, 1496
\mdf@frame@method@ii 108, 113, 117	\mdf@horizontalwidth@of@box@length 324	\mdf@linewidth@length 148, 651, 659, 665
\mdf@frame@method@iii 109, 114, 119	\mdf@if@length 26, 27, 50	\mdf@load@style . 630, 630, 646
\mdf@frame@odate@svn 1171, 1172, 1174	\mdf@if@length@check 26, 28, 32	\mdf@LoadFile@IfExist 8, 10, 98, 99,
\mdf@frame@title 582, 726, 735, 740, 1288, 1383, 1460, 1527, 1763, 1789, 1926, 2023, 2419, 2539, 2645, 2759	\mdf@if@length@cleanup . 38, 41	
\mdf@frame@title@aboveskip@length 576, 600	\mdf@if@strequal@expand 275, 280, 282, 284	
\mdf@frame@title@alignment 534, 551, 567	\mdf@ignore@ev@badness 360, 360, 554, 556, 570, 590, 596, 934, 962, 1035	
\mdf@frame@title@background@default 1177, 1206, 1309, 1317, 1403, 1487	\mdf@innerbottommargin@length 1217, 1266, 1269, 1445, 1447, 1659, 1673, 2068, 2079, 2323, 2344, 2686, 2698	
\mdf@frame@title@backgroundcolor 530, 1177, 1562, 2171, 2172	\mdf@innerleftmargin@length 1187, 1190, 1261, 1289, 1362, 1384, 1441, 1461, 1510, 1528, 1622, 1624, 1646, 1672, 1836, 1862, 1961, 1979, 2056, 2078, 2311, 2344, 2449, 2477, 2584, 2606, 2675, 2698	
\mdf@frame@title@belowskip@length 576, 1186, 1324, 1621, 1800, 2284, 2550	\mdf@innerlinewidth@length . 653, 661, 667, 1178, 1579, 2193	
\mdf@frame@title@bottomrulecolor 536		
\mdf@frame@title@box 294, 555, 557, 566, 571, 572, 573, 574, 575, 592, 942, 970, 1043		
\mdf@frame@title@font 549, 565, 3114, 3118, 3169		
\mdf@frame@title@fontcolor 565		
\mdf@frame@title@leftmargin@length 532		

101, 102, 122, 128, 129, 130	2464, 2483, 2486, 2491,	606, 641, 821, 849, 865,
\mdf@lrbox	2496, 2549, 2560, 2564,	926, 979, 1051, 1067,
.. 330, 330, 550, 566, 728	2568, 2582, 2588, 2592,	1073, 1315, 1794, 2544
\mdf@maindate@svn 1, 3, 6	2612, 2615, 2620, 2657,	\mdf@pageiseven 751
\mdf@makebox@in . 391, 396,	2661, 2673, 2679, 2683,	\mdf@pageisodd 751
1279, 1375, 1452, 1521,	2689, 2704, 2707, 2712,	\mdf@patchamsth 365
1668, 1857, 1975, 2074,	2717, 2720, 2770, 2774,	\mdf@patchamsthm 332, 366, 370
2338, 2468, 2597, 2692	2954, 2956, 2966, 2968	\mdf@print@space 274, 278, 869
\mdf@makebox@out 391, 391,	\mdf@needspace 249	\mdf@printheight . . . 276, 286
1256, 1358, 1437, 1506,	\mdf@option@length 43, 43, 60	\mdf@psset@local
1641, 1832, 1956, 2051,	\mdf@outerlinecolor 221, 228, 230, 2343,
2308, 2445, 2580, 2671	... 655, 1180, 1572, 2185	2467, 2476, 2604, 2697
\mdf@makebox@align@left . .	\mdf@outerlinecolor@default	\mdf@pstricksbox@fl 2207, 2375
.. 208, 209, 214, 217,	... 1180	\mdf@pstricksbox@ol 2258,
1257, 1359, 1438, 1507,	\mdf@outerlinewidth@length	2396, 2397, 2398, 2399,
1642, 1833, 1957, 2052,	.. 652, 660, 666, 813,	2515, 2517, 2519, 2626,
2309, 2446, 2581, 2672	818, 828, 833, 907, 922,	2628, 2737, 2739, 2741
\mdf@makebox@align@right .	1024, 1032, 1272, 1570,	\mdf@pstricksbox@tcl 2223,
.. 208, 210, 215, 218,	1573, 1651, 1655, 1663,	2382, 2384, 2386, 2388,
1295, 1389, 1466, 1533,	1667, 1681, 1684, 1689,	2505, 2508, 2727, 2730
1758, 1921, 2018, 2141,	1694, 1697, 1702, 1841,	\mdf@pstricksbox@tl
2414, 2534, 2640, 2754	1845, 1853, 1871, 1874,	... 2215, 2377, 2378,
\mdf@middlelinecolor	1878, 1882, 1966, 1970,	2379, 2380, 2501, 2724
... 654, 1179, 1587, 2202	1988, 1991, 1996, 2061,	\mdf@pstricksbox@tncl . . .
\mdf@middlelinecolor@default	2065, 2072, 2087, 2090,	... 2237, 2391,
... 1179, 1182	2095, 2100, 2103, 2183,	2393, 2512, 2624, 2734
\mdf@middlelinewidth@length	2186, 2316, 2320, 2328,	\mdf@ptlength@to@pscode .
.. 651, 659, 665, 812,	2332, 2336, 2349, 2352,	... 2159, 2159, 2161
817, 827, 832, 906, 921,	2357, 2362, 2365, 2370,	\mdf@ptlength@to@pscode@length
1023, 1031, 1219, 1224,	2454, 2458, 2465, 2482,	... 2160, 2162
1226, 1228, 1229, 1230,	2485, 2490, 2495, 2589,	\mdf@put@frame
1237, 1239, 1248, 1250,	2593, 2611, 2614, 2619,	.. 675, 679, 863, 863,
1271, 1276, 1278, 1333,	2680, 2684, 2690, 2703,	876, 912, 989, 994, 1000
1335, 1343, 1350, 1352,	2706, 2711, 2716, 2719	\mdf@put@frame@i 892, 897, 897
1372, 1373, 1378, 1413,	\mdf@outermargin@length .	\mdf@put@frame@ii . . 1009,
1418, 1419, 1421, 1422,	... 758, 778, 782	1015, 1015, 1055, 1063
1423, 1430, 1449, 1450,	\mdf@0x	\mdf@put@frame@standalone
1455, 1473, 1499, 1518,	1674, 1683, 1684, 1705,	... 673,
1519, 1524, 1566, 1573,	1770, 1771, 1784, 1810,	683, 688, 694, 699, 847, 847
1580, 1585, 1588, 1589,	1811, 1824, 1864, 1873,	\mdf@put@frametitulerule .
1650, 1654, 1662, 1666,	1874, 1885, 1938, 1939,	... 1613, 2281
1682, 1684, 1689, 1694,	1948, 1981, 1990, 1991,	\mdf@putbox@first
1697, 1702, 1771, 1775,	1999, 2034, 2035, 2044,	... 1005, 1299, 1355,
1779, 1799, 1811, 1815,	2080, 2089, 2090, 2106	1788, 1829, 2442, 2442
1819, 1840, 1844, 1852,	\mdf@0y	\mdf@putbox@middle
1872, 1874, 1878, 1882,	1675, 1696, 1697, 1705,	... 1059, 1470, 1503,
1939, 1943, 1965, 1969,	1865, 1885, 1982, 1999,	1925, 1953, 2577, 2577
1989, 1991, 1996, 2035,	2081, 2102, 2103, 2106	\mdf@putbox@second
2039, 2060, 2064, 2071,	\mdf@PackageInfo 1082, 1393, 1434,
2088, 2090, 2095, 2101,	... 8, 9, 681, 686,	2022, 2048, 2668, 2668
2103, 2176, 2179, 2186,	692, 697, 756, 761, 874, 951	\mdf@putbox@single
2194, 2199, 2201, 2315,	\mdf@PackageInfoSpace 292, 871	... 859, 889, 1198,
2319, 2327, 2331, 2335,	\mdf@PackageNoInfo 274	1253, 1633, 1638, 2305
2350, 2353, 2358, 2363,	\mdf@PackageWarning	\mdf@Px
2366, 2371, 2427, 2431,	8, 8, 14, 92, 103, 213,	1676, 1688, 1689, 1706,
2435, 2447, 2453, 2457,	261, 266, 286, 404, 442,	1774, 1775, 1785, 1814,

1815, 1825, 1866, 1877, 1878, 1886, 1942, 1943, 1949, 1983, 1995, 1996, 2000, 2038, 2039, 2045, 2082, 2094, 2095, 2107	2306, 2310, 2322, 2406, 2669, 2674, 2685, 2748	\mdf@test@r 1090, 1139, 1737, 1906, 2127, 2397, 2518, 2740
\mdf@Py 1677, 1701, 1702, 1706, 1778, 1779, 1782, 1784, 1785, 1818, 1819, 1822, 1824, 1825, 1867, 1881, 1882, 1886, 1946, 1948, 1949, 1984, 2000, 2042, 2044, 2045, 2083, 2107	\mdf@splitbox@two 297, 935, 936, 949, 953, 954, 957, 963, 964, 983, 991, 996, 999, 1036, 1037, 1054, 1356, 1360, 1364, 1366, 1387, 1504, 1508, 1512, 1514, 1531, 1830, 1835, 1847, 1915, 1954, 1960, 1972, 2013, 2443, 2448, 2459, 2527, 2578, 2583, 2594, 2634	\mdf@test@rb 1090, 1120, 1156, 1718, 1906, 2115, 2384, 2518, 2729
\mdf@reserved@a 670, 673, 675, 679, 683, 688, 694, 699, 702, 850, 859, 861, 866, 876, 891, 892, 895, 912, 989, 994, 1000, 1009, 1013, 1055, 1063, 1077, 1085, 1087	\mdf@splittopskip@length 933, 940, 945, 961, 968, 973, 1034, 1041, 1046, 1800, 2551	\mdf@test@single 1152
\mdf@reserveda .. 732, 738, 745	\mdf@stringoption@doubledo 63, 64, 66	\mdf@test@t 1090, 1142, 1740, 1900, 2130, 2398, 2514, 2743
\mdf@reset 845, 845	\mdf@style 264	\mdf@test@tb 1090, 1132, 1730, 1900, 2121, 2393, 2514, 2736
\mdf@restoreparams . 334, 354	\mdf@styledefinition 630, 648, 721	\mdf@test@tr 1090, 1123, 1156, 1721, 1894, 2127, 2386, 2507, 2740
\mdf@restorevbaddness 360, 363, 364	\mdf@tempa .. 111, 115, 117, 119, 280, 282, 284, 288, 292	\mdf@test@trb 1090, 1110, 1154, 1711, 1894, 2115, 2378, 2507, 2729
\mdf@rightmargin@length . .. 204, 205, 758, 778, 781	\mdf@templength 26, 29, 51, 52	\mdf@theoremseparator 455, 478, 489, 505
\mdf@roundcorner@length . 1559, 1564, 2174, 2177, 2342, 2466, 2475, 2696	\mdf@test@b 1090, 1145, 1743, 1909, 2121, 2399, 2521, 2736	\mdf@theoremspace 456, 479, 490, 506
\mdf@setopt@body ... 520, 540	\mdf@test@l 1090, 1136, 1734, 1903, 2124, 2396, 2516, 2738	\mdf@theoremtitlefont 457, 480, 491, 507
\mdf@setopt@title 520, 521, 547	\mdf@test@lb 1090, 1117, 1155, 1715, 1903, 2112, 2382, 2516, 2726	\mdf@tikz@settings 1552, 1553, 1643, 1834, 1958, 2053
\mdf@settings 727	\mdf@test@lr 1090, 1129, 1727, 1897, 2118, 2391, 2511, 2733	\mdf@tikzbox@otl 1593, 1605, 1715, 1718, 1721, 1724, 1727, 1730, 1734, 1737, 1740, 1743, 1892, 1895, 1898, 1901, 1904, 1907, 2003, 2005, 2007, 2113, 2116, 2119, 2122, 2125, 2128
\mdf@skipabove@length ... 725	\mdf@test@lrb 1090, 1113, 1155, 1713, 1897, 2109, 2380, 2511, 2723	\mdf@tikzbox@tfl ... 1593, 1593, 1708, 1710, 1711, 1712, 1713, 1889, 2110
\mdf@skipbelow@length ... 389	\mdf@test@lt 1090, 1126, 1157, 1724, 1891, 2124, 2388, 2504, 2738	\mdf@tikzset@local 221, 221, 223, 226, 1582
\mdf@splitbottomskip@length 1028, 1341, 1366, 1369, 1514, 1516, 1800, 1849, 1863, 1973, 1980, 2461, 2477, 2550, 2595, 2606	\mdf@test@ltb 1090, 1107, 1154, 1710, 1891, 2112, 2377, 2504, 2726	\mdf@titleaboveskip@length 528
\mdf@splitbox@one 296, 550, 555, 557, 591, 594, 597, 598, 728, 848, 854, 864, 868, 880, 925, 935, 937, 939, 947, 957, 960, 963, 965, 967, 975, 978, 983, 986, 987, 999, 1017, 1036, 1038, 1040, 1048, 1050, 1054, 1066, 1070, 1072, 1076, 1078, 1254, 1259, 1264, 1266, 1293, 1435, 1439, 1443, 1445, 1464, 1639, 1645, 1657, 1752, 2049, 2055, 2067, 2136,	\mdf@test@ltr 1090, 1104, 1153, 1712, 1888, 2118, 2379, 2500, 2733	\mdf@titlebelowskip@length 527
	\mdf@test@lrb 1090, 1100, 1153, 1708, 1888, 2109, 2375, 2500, 2723	\mdf@trivlist .. 371, 371, 725
	\mdf@test@noline 1090, 1149, 1747, 1911, 2132, 2401, 2522, 2744	\mdf@twoside@checklength 717, 751, 753
		\mdf@userdefinedwidth@length 396, 804
		\mdf@verticalmarginwhole@length 325, 826, 827, 828, 831, 832, 833, 837, 853, 879, 885
		\mdf@xcolor 237, 237, 241, 245
		\mdf@zref@label . 751, 771, 786

`\mdfapptodefinestyle` 4, 399, 402, 2859, 2870, 3058, 3295
`\mdfbackgroundstyle` ... 2163
`\mdfboundingboxdepth` 320, 1200, 1207, 1216, 1226, 1236, 1246, 1265, 1301, 1310, 1318, 1332, 1340, 1349, 1365, 1395, 1404, 1412, 1419, 1429, 1444, 1472, 1479, 1488, 1498, 1513, 2953, 2964
`\mdfboundingboxheight` 319, 1216, 1263, 1268, 1323, 1340, 1364, 1368, 1443, 1447, 1512, 1516, 1594, 1606, 1657, 1658, 1659, 1661, 1662, 1663, 1665, 1666, 1667, 1677, 1790, 1798, 1847, 1848, 1849, 1851, 1852, 1853, 1867, 1972, 1973, 1984, 2067, 2068, 2070, 2071, 2072, 2083, 2322, 2323, 2324, 2326, 2327, 2328, 2330, 2331, 2332, 2340, 2346, 2459, 2460, 2461, 2463, 2464, 2465, 2471, 2473, 2479, 2540, 2548, 2570, 2594, 2595, 2599, 2601, 2608, 2685, 2686, 2688, 2689, 2690, 2694, 2700
`\mdfboundingboxtotalheight` 321, 1202, 1207, 1238, 1249, 1267, 1303, 1307, 1310, 1320, 1334, 1351, 1367, 1397, 1404, 1414, 1431, 1446, 1474, 1481, 1488, 1500, 1515, 2955, 2967
`\mdfboundingboxtotalwidth` 317, 1201, 1208, 1218, 1227, 1260, 1274, 1302, 1311, 1319, 1342, 1361, 1371, 1396, 1405, 1420, 1440, 1448, 1480, 1489, 1509, 1517
`\mdfboundingboxwidth` . 316, 868, 1070, 1078, 1244, 1258, 1261, 1347, 1360, 1362, 1427, 1439, 1441, 1496, 1508, 1510, 1594, 1606, 1645, 1646, 1647, 1649, 1650, 1651, 1653, 1654, 1655, 1668, 1676, 1835, 1836, 1837, 1839, 1840, 1841, 1843, 1844,

1845, 1857, 1866, 1960, 1961, 1962, 1964, 1965, 1966, 1968, 1969, 1970, 1975, 1983, 2055, 2056, 2057, 2059, 2060, 2061, 2063, 2064, 2065, 2074, 2082, 2310, 2311, 2312, 2314, 2315, 2316, 2318, 2319, 2320, 2338, 2340, 2346, 2448, 2449, 2450, 2452, 2453, 2454, 2456, 2457, 2458, 2468, 2472, 2473, 2479, 2583, 2584, 2585, 2587, 2588, 2589, 2591, 2592, 2593, 2597, 2600, 2601, 2608, 2674, 2675, 2676, 2678, 2679, 2680, 2682, 2683, 2684, 2692, 2694, 2700, 2962
`\mdfcreateextratikz` . 328, 1755, 1918, 3112, 3183
`\mdfcreateextratikzlocal` 3164, 3183
`\mdfdefinedstyle` 268
`\mdfdefinestyle` 4, 399, 399, 2848, 2891, 3047, 3122, 3173, 3197, 3284, 3310, 3319
`\mdffootnoteboxdepth` 311
`\mdffootnoteboxheight` ... 310
`\mdffootnoteboxtotalheight` 312
`\mdffootnoteboxtotalwidth` 309
`\mdffootnoteboxwidth` 308
`\mdfframedtitleenv` 520, 545, 562, 582
`\mdfframetitlebackground` 2163
`\mdfframetitleboxdepth` .. 306, 574
`\mdfframetitleboxheight` . 305, 573
`\mdfframetitleboxtotalheight` 307, 575, 1207, 1209, 1307, 1310, 1312, 1314, 1322, 1401, 1404, 1406, 1485, 1488, 1490, 1492, 1782, 1790, 1793, 1797, 1798, 1822, 1927, 1930, 1946, 2024, 2042, 2437, 2540, 2543, 2547, 2570, 2571, 2646, 2649, 2663, 2760, 2776
`\mdfframetitleboxtotalwidth` 304
`\mdfframetitleboxwidth` 303, 572, 1185, 1189, 1624, 2290

`\mdfframetitlerule` 2163
`\mdfglobal@style` 90, 94
`\mdflength` 3, 407, 407
`\mdflinestyle` 2163
`\mdfpstricks@appendsettings` 232, 234, 2204
`\mdfpstricks@settings` 2163, 2341, 2474, 2602, 2695
`\mdframed` 712
`\mdframed@i` 712
`\mdframed@ii` 712
`\mdframedIIPackagename` .. 2154, 2154, 2158
`\mdframedIPackagename` ... 1546, 1546, 1550
`\mdframedOPackagename` ... 1171, 1171, 1175
`\mdframedpackagename` 1, 2, 7, 8, 9, 15, 642, 682, 687, 693, 698
`\mdfsetup` . 3, 263, 263, 271, 415, 527, 541, 600, 715, 2802, 2833, 2917, 2923, 2929, 3001, 3032, 3075, 3237, 3268, 3347, 3378
`\mdfsplitboxdepth` 301
`\mdfsplitboxheight` 300
`\mdfsplitboxtotalheight` . 302
`\mdfsplitboxtotalwidth` .. 299
`\mdfsplitboxwidth` 298
`\mdftotallinewidth` 314, 1270, 1282, 2334
`\mdtheorem` 11, 413, 440, 2897, 3206
`\mdversion` 1, 1, 7, 1175, 1550, 2158, 2798, 2997, 3233, 3343
`middlelinecolor` (option) .. 7
`middlelinewidth` (option) .. 7

N

`needspace` (option) 8
`\new\protect_\kern_\fontdimen_3\font_\kern_` 294
`\newmdenv` 3, 413, 413, 424
`\newmdtheoremenv` 10, 413, 428
`\newsavebox` 294, 295, 296, 297
`nobreak` (option) 8
`\nodexn` 2349, 2352, 2357, 2362, 2365, 2370, 2426, 2430, 2434, 2437, 2482, 2485, 2490, 2495, 2559, 2563, 2567, 2571, 2572, 2611, 2614, 2619, 2656, 2660, 2663,

2703, 2706, 2711, 2716,
2719, 2769, 2773, 2776
`\noexpand` 471
`\nointerlineskip`
 . 542, 724, 941, 969, 1042
`\normalbaselineskip` 353
`\normalfont` 175
`\normallineskip` 352
`\NOTE` .. 2827, 3026, 3262, 3372
`ntheorem` (option) 7

O

`\offinterlineskip` 589
`\onecolumn` 3446
`\Opt` 2796, 2799, 2824, 2995,
2998, 3023, 3231, 3234,
3259, 3341, 3344, 3369

options:

`align` 8
`apptotikzsetting` 9
`backgroundcolor` 7
`bottomline` 9
`defaultunit` 5
`font` 7
`fontcolor` 7
`footnotedistance` 12
`footnoteinside` 12
`framemethod` 4
`frametitle` 10
`frametitleaboveskip` .. 10
`frametitlealignment` .. 10
`frametitlebackgroundcolor`
 10
`frametitlebelowskip` .. 10
`frametitlefont` 10
`frametitlerule` 10
`frametitlerulewidth` .. 10
`hidealllines` 9
`innerbottommargin` 6
`innerleftmargin` 6
`innerlinecolor` 7
`innerlinewidth` 7
`innermargin` 6
`innerrightmargin` 6
`innertopmargin` 6
`leftline` 9
`leftmargin` 6
`linecolor` 7
`linewidth` 6
`margin` 6
`middlelinecolor` 7
`middlelinewidth` 7
`needspace` 8
`nobreak` 8
`ntheorem` 7
`outerlinecolor` 7

`outerlinewidth` 7
`outermargin` 6
`pstricksappsetting` 8
`pstrickssetting` 8
`repeatframetitle` 10
`rightline` 9
`rightmargin` 6
`roundcorner` 7
`settings` 8
`skipabove` 6
`skipbelow` 6
`splitbottomskip` 6
`splittopskip` 6
`style` 8
`theoremseparator` 11
`theoremspace` 11
`theoremtitlefont` 11
`tikzsetting` 9
`topline` 9
`userdefinedwidth` 6
`usetwoside` 8
`xcolor` 4
`outerlinecolor` (option) ... 7
`outerlinewidth` (option) ... 7
`outermargin` (option) 6
`\overlapiines` 2950, 2974

P

`\Pack` 2795,
2824, 2827, 2994, 3023,
3026, 3230, 3259, 3262,
3340, 3369, 3372, 3411
`\pageshrink` 924
`\parsep` 374
`\parskip` .. 335, 348, 587, 796
`\pgfdeclarehorizontalshading`
 .. 3097, 3101, 3149, 3153
`\pgfmathsetlength`
 .. 1624, 1793, 1797, 1930
`\pnode` 2344, 2345, 2346, 2477,
2478, 2479, 2606, 2607,
2608, 2698, 2699, 2700
`\psclip` . 2210, 2218, 2228,
2242, 2263, 2373, 2498
`\pscustom` ... 2228, 2243, 2263
`\psdot` 2407, 2408, 2409, 2528,
2529, 2530, 2635, 2636,
2637, 2749, 2750, 2751
`pstricksappsetting` (option) 8
`pstrickssetting` (option) .. 8
`\ptTps` 2159, 2161, 2290
`\ptTpsL` 2162, 2288, 2289, 2290

R

`\refstepcounter` . 451, 474, 501
`\renewmdenv` 3, 413, 421

`\renewrobustcmd` 3112
`repeatframetitle` (option) 10
`rightline` (option) 9
`rightmargin` (option) 6
`\rightskip` 351
`roundcorner` (option) 7

S

`\section`
 2823, 2829, 3022, 3028,
3258, 3264, 3368, 3374
`\setcounter`
 2785, 2814, 2984, 3013,
3219, 3249, 3330, 3359
`settings` (option) 8
`\sffamily` 3131, 3182
`skipabove` (option) 6
`skipbelow` (option) 6
`\smash` 900
`splitbottomskip` (option) .. 6
`splittopskip` (option) 6
`\strut` 460, 464, 483,
494, 510, 514, 2921, 2927
`style` (option) 8
`\subsection`
 .. 2818, 3017, 3253, 3363
`\subtitle` 2796, 2995, 3231, 3341
`\surroundwithmdframed` ...
 3, 407, 409, 3407

T

`\textbf` 3165
`\textit`
 2804, 2835, 3003, 3034,
3239, 3270, 3349, 3380
`\theexercise`
 .. 3106, 3114, 3158, 3165
`\theorempostskipamount` .. 608
`\theoremreskipamount` 605, 607
`theoremseparator` (option) 11
`theoremspace` (option) 11
`theoremtitlefont` (option) 11
`\thesubsection`
 .. 2815, 3014, 3250, 3360
`\thetheo` 2921, 2927
`\tikz` 1625, 2919, 2925
`tikzsetting` (option) 9
`\tikzstyle` 3092, 3144
`\title` . 2795, 2994, 3230, 3340
`topline` (option) 9
`\topskip`
 2802, 2833, 2895, 3001,
3032, 3129, 3180, 3204,
3237, 3268, 3347, 3378
`\twocolumn` 3422, 3424

U		
<code>\unvcopy</code>	557, 592, 942, 970, 1043	
<code>\uput</code>	2407, 2408, 2409, 2528, 2529, 2530, 2635, 2636, 2637, 2749, 2750, 2751	
<code>\usepackage</code>	
	2789, 2793, 2988, 2992, 3225, 3227, 3334, 3338	
	<code>userdefinedwidth</code> (option)	. 6
	<code>usetwoside</code> (option) 8
V		
<code>\vbadness</code>	361, 362, 364
	<code>\version</code>	2798, 2997, 3233, 3343
	<code>\vspace</code> 3399, 3401
X		
	<code>xcolor</code> (option) 4
	<code>\xdef</code> 449, 469, 470