

The mdframed package ¹

auto-split frame environment

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v1.6b

2012/06/02

The standard methods for framing text (`\fbox` or `\fcolorbox`) require you to handle page breaks by hand, meaning that you have to split the `\fbox` into two. The present package defines the environment `mdframed` which automatically deals with pagebreaks in framed text.

By defining new environments the user may choose between several individual designs.

Linked files: [mdframed-example-default.pdf](#) [mdframed-example-tikz.pdf](#)
[mdframed-example-pstricks.pdf](#) [mdframed-example-texsx.pdf](#)

FYI: I create a repository for `mdframed` on [github](#) where you can [download](#) the current development status.

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1. Motivation

Many users wish to (further) emphasize lemmata, definitions, proofs, etc. The package `mdframed` allows you to create environments with breakable frames. I think an example is the best way to demonstrate its properties.

Theorem 1.1 (Pythagorean theorem) *In any right triangle, the area of the square whose side is the hypotenuse is equal to the sum of the areas of the squares whose sides are the two legs.*

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=\topskip,%
  splittopskip=\topskip,skipbelow=\baselineskip,%
  skipabove=\baselineskip,ntheorem]{theorem}%
{Theorem}[section]
\begin{theorem}[Pythagorean theorem]
...
\end{theorem}
```

2. Syntax

Loadings `mdframed`

The package itself loads the packages

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

Depending on the options `mdframed` will load

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

Load the package as usual:

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

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

Provided environment

The package defines only one environment with the following syntax:

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

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

Autodetecting floats

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

Twoside-mode

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

3. The frames

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

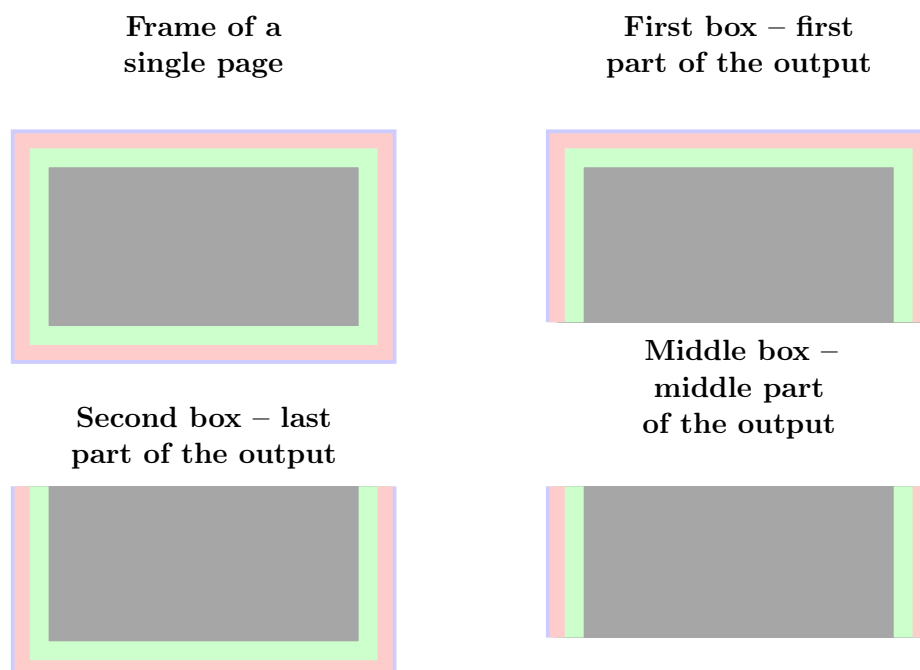


Figure 1: The basic frames

4. Commands

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

`\newmdenv`

The command has the following syntax:

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

In this way you can simply use:

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

`\renewmdenv`

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

`\surroundwithmdframed`

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

```
\surroundwithmdframed[linewidth=2pt]{verbatim}
```

`\mdflength`

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

```
Some Text \hspace{\mdflength{innerleftmargin}} Some Text

\the\mdflength{innerleftmargin}
```

`\mdfsetup`

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

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

`\mdfdefinestyle`

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

Here a small example:

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

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

`\mdfapptodefinestyle`

This commands allows to expand a defined style.³

5. Options

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

5.1. Global Options

The following options are only global options.

`xcolor`

default=none

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

³Thanks to Martin Scharer and Enrico Gregorio:

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

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

`framemethod`

default=`default`

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

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

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

Table 1: Allowed keys for `framemethod`

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

FYI

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

Note

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

5.2. Global and Local Options

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

5.2.1. Options with lengths

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

`defaultunit`

default=`pt`

see the sentence above.

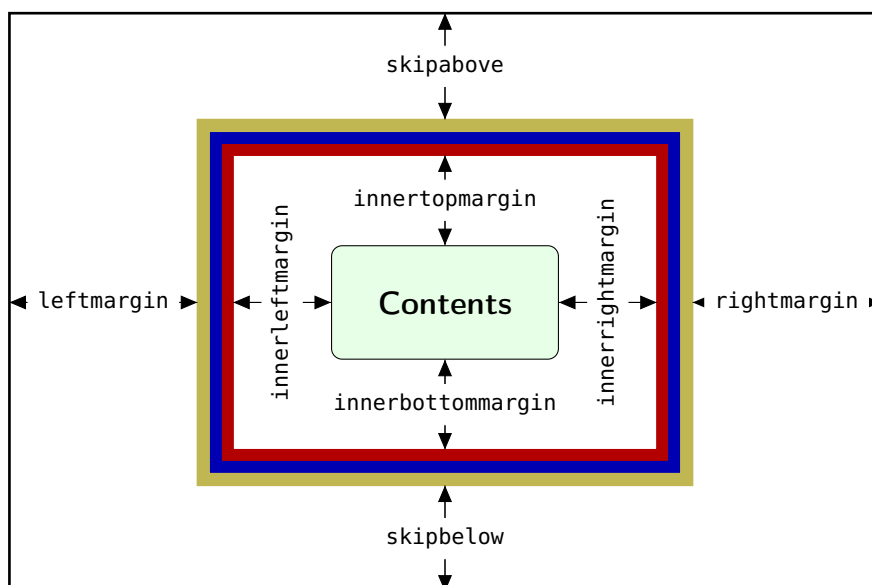


Figure 2: adjustable lengths of mdframed

`skipabove` default=0pt

Sets an additional skip above the frame.

`skipbelow` default=0pt

Sets an additional skip below the frame.

`margin` default=

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

`leftmargin` default=0pt

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

`rightmargin` default=0pt

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

`innerleftmargin` default=10pt

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

`innerrightmargin` default=10pt

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

`innertopmargin` default=.4\baselineskip

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

`innerbottommargin` default=.4\baselineskip

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

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

`userdefinedwidth` default=0pt

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

outermargin	default=0 pt
Sets the length of the outer margin. This option is only available in twoside -mode.	
innermargin	default=0 pt
Sets the length of the inner margin. This option is only available in twoside -mode.	
splittopskip	default=0 pt
Sets the length of the skip above the split part of the environment.	
splitbottomskip	default=0 pt
Sets the length of the skip below the split part of the environment.	
linewidth	default=0.4 pt
Sets the width of the line around the environment.	
This works only with framemethod=default .	
roundcorner	default=0 pt
Sets the size of the radius of the corners of the frames.	
This works only with framemethod=TikZ or PSTricks .	
innerlinewidth	default=0 pt
Sets the width of the inner line around the environment.	
This works only with framemethod=TikZ or PSTricks .	
outerlinewidth	default=0 pt
Sets the width of the outer line around the environment.	
This works only with framemethod=TikZ or PSTricks .	
middlelinewidth	default=0.4 pt
Sets the width of the middle line around the environment.	
This works only with framemethod=TikZ or PSTricks .	

5.2.2. Colored Options

linecolor	default=black
Sets the color of the line around the environment.	
backgroundcolor	default=white
Sets the color of the background of the environment.	
fontcolor	default=black
Sets the color of the contents of the environment.	
innerlinecolor	default=linecolor
Sets the color of the inner line around the environment.	
This works only with framemethod=TikZ or PSTricks .	
middlelinecolor	default=linecolor
Sets the color of the middle line around the environment.	
This works only with framemethod=TikZ or PSTricks .	
outerlinecolor	default=linecolor
Sets the color of the outer line around the environment.	
This works only with framemethod=TikZ or PSTricks .	

5.2.3. General options

<code>everyline</code>	<code>default=false</code>
Allows to draw a bottom and a top line at splitted frames.	
<code>font</code>	<code>default={}</code>
Sets the font of the environment.	
<code>ntheorem</code>	<code>default=false</code>
Before setting this boolean key, you have to load the package <code>ntheorem</code> . With this option you set the values <code>\theorempreskipamount</code> and <code>\theorempostskipamount</code> to 0pt.	
<code>nobreak</code>	<code>default=false</code>
Sometimes it is useful to prevent a frame from splitting. The <code>nobreak</code> option is used for this purpose. If you activate this option you can enable it by setting <code>nobreak=false</code> .	
<code>usetwoside</code>	<code>default=true</code>
If you set the <code>twoside</code> option you can work with <code>outermargin</code> . This option disable this and you work with <code>leftmargin</code> and <code>rightmargin</code> .	
<code>needspace</code>	<code>default=0pt</code>
Sometimes it is useful to set a minimum height before a frame should be splitted. For such cases you can use <code>needspace</code> . The option requires a length which sets the minimum height before a frame will be splitted.	
<code>style</code>	
If you define a special style with <code>\mdfdefinestyle</code> you can use the key <code>style</code> to load the style. <code>mdframed</code> has no predefined styles yet.	
<code>settings</code>	<code>default=none</code>
This option allows the user to commit some macros. An example is shown in the example files.	
<code>align</code>	<code>default=left</code>
Sometimes it is useful to align the environment itself. For this you have the option <code>align</code> which can be set to the following strings:	
<ul style="list-style-type: none"> • <code>left</code>, • <code>right</code> and • <code>center</code>. 	
The alignments <code>left</code> or <code>right</code> depend on the given lengths <code>leftmargin</code> and <code>rightmargin</code> . Later I will present an example to demonstrate my bad English explanation.	
<code>ignorelastdescenders</code>	<code>default=false</code>
Try to ignore the last descenders of the environment <code>mdframed</code> . The complete idea was inspired by Tobias Weh and the solution was provided by Stefan Lemke. See How to make mdframed ignore descenders in last line	
<code>shadow</code>	<code>default=false</code>
Draw a shadow. The shadow doesn't influence the bounding box so the shadow can be drawn in the margin without any overfull box. Note if you are using the TikZ you must load the library. <code>mdframed</code> doesn't do the job to avoid double loading of a library.	
<code>shadowsize</code>	<code>default=8pt</code>
Specify the size of the shadow.	
<code>shadowcolor</code>	<code>default=black!50</code>

Specify the color of the shadow.

`pstrickssetting` default={}

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={}

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

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

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

This works only with `framemethod=PSTricks`.

`tikzsetting` default={}

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={}

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

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

Before you change one please have a look at the file `md-frame-1.mdf` to see the settings.

This works only with `framemethod=TikZ`.

`singleextra` default={}

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

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

`firstextra` default={}

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

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

`middleextra` default={}

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

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

`secondextra` default={}

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

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

5.3. Hidden Lines

`topline` default=true

Draws a line at the top.

`bottomline` default=true

Draws a line at the bottom.

`leftline` default=true

Draws a line on the left.

`rightline` default=true

Draws a line on the right.

`hidealllines` default=false

With this option you can decide whether all lines should be drawn or not.

5.4. Frametitle

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

`frametitle` default=none

The environment gets a title. To set a title use `frametitle={The Title of the frame}` as an option of the environment.

`frametitlefont` default=\normalfont\bfseries

Sets the format of the `frametitle`.

`frametitlealignment` default=\raggedleft

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

`frametitlerule` default=false

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

`frametitlerulewidth` default=.2pt

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

`frametitleaboveskip` default=5pt

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

`frametitlebelowskip`

default=5 pt

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

`repeatframetitle`

default=false

Repeat the frame title on every frame.

FYI and Note

The splitting of the frame title is really a fiddly issue. If you want to use the option `repeatframetitle` a splitting is more than wrong. On the other hand if you use the option `repeatframetitle` the user must prepare the contents well.

The following picture demonstrates the behaviour of the lengths if the option `frametitle` is used.

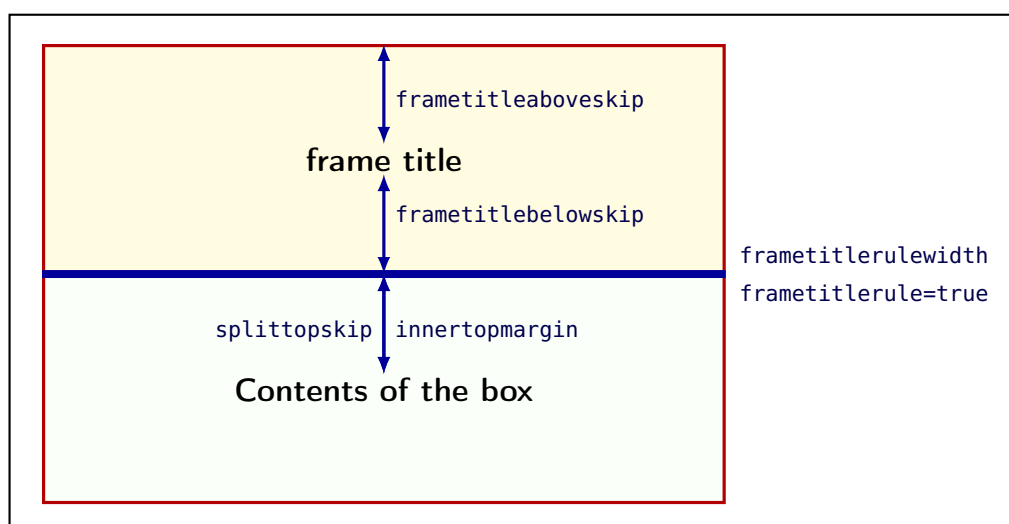


Figure 3: Behavior of the lengths if `frametitle` is used

5.5. Title commands inside the environment

To provide titles inside the environment `mdframed` you can one of the two following commands. The relevant options are listed below.

`\mdfsubtitle`

Set a title inside `mdframed` of the internal level 1.

`\mdfsubsubtitle`

Set a title inside `mdframed` of the internal level 2.

Both commands have the same syntax. They accept one optional and one mandatory argument. The optional argument sets the option of `mdframed` whereby everything will be local. The second argument of subtitle also allows paragraph breaking.

```
\mdfsubtitle[<options>]{the subtitle}
```

5.5.1. Options related to the title of level 1

<code>subtitleaboveline</code>	<code>default=false</code>
Decide to draw a line above the subtitle.	
<code>subtitlebelowline</code>	<code>default=false</code>
Decide to draw a line below the subtitle.	
<code>subtitlefont</code>	<code>default=\normalfont\bfseries</code>
Sets the font for subtitles.	
<code>subtitlebackgroundcolor</code>	<code>default=white</code>
Sets the background color of the subtitle between the above and below line.	
<code>subtitleabovelinecolor</code>	<code>default=black</code>
Sets the line color of the line above.	
<code>subtitlebelowlinecolor</code>	<code>default=black</code>
Sets the line color of the line below.	
<code>subtitleabovelinewidth</code>	<code>default=0.8 pt</code>
Sets the line width of the line above.	
<code>subtitlebelowlinewidth</code>	<code>default=0.6 pt</code>
Sets the line width of the line below.	
<code>subtitleaboveskip</code>	<code>default=\baselineskip</code>
Sets the skip before the subtitle line above will be drawn.	
<code>subtitlebelowskip</code>	<code>default=1.2\baselineskip</code>
Sets the skip after the subtitle line below is drawn.	
<code>subtitleinneraboveskip</code>	<code>default=0.5\baselineskip</code>
Sets the skip after the line above and the subtitle itself.	
<code>subtitleinnerbelowskip</code>	<code>default=0.5\baselineskip</code>
Sets the skip after the subtitle and the line below.	

5.5.2. Options related to the title of level 2

<code>subsubtitleaboveline</code>	<code>default=false</code>
Decide to draw a line above the subsubtitle.	
<code>subsubtitlebelowline</code>	<code>default=false</code>
Decide to draw a line below the subsubtitle.	
<code>subsubtitlefont</code>	<code>default=\normalfont</code>
Sets the font for subsubtitles.	
<code>subsubtitlebackgroundcolor</code>	<code>default=white</code>
Sets the background color of the subsubtitle between the above and below line.	
<code>subsubtitleabovelinecolor</code>	<code>default=black</code>
Sets the line color of the line above.	
<code>subsubtitlebelowlinecolor</code>	<code>default=black</code>
Sets the line color of the line below.	
<code>subsubtitleabovelinewidth</code>	<code>default=0.8 pt</code>
Sets the line width of the line above.	

<code>subsubtitlebelowlinewidth</code>	default=0.6 pt
Sets the line width of the line below.	
<code>subsubtitleaboveskip</code>	default=\baselineskip
Sets the skip before the subsubtitle line above will be drawn.	
<code>subsubtitlebelowskip</code>	default=1.2\baselineskip
Sets the skip after the subsubtitle line below is drawn.	
<code>subsubtitleinneraboveskip</code>	default=0.5\baselineskip
Sets the skip after the line above and the subsubtitle itself.	
<code>subsubtitleinnerbelowskip</code>	default=0.5\baselineskip
Sets the skip after the subsubtitle and the line below.	

5.6. 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, the package provides a command to simplify this process. The command has the following syntax:

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

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

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

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

So far there is no `\renewmdtheoremenv`!

`\mdtheorem`

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

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

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

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

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

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

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

`theoremseparator` default={:}

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

`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` default=\space

Sets the space after `theoremseparator`.
Examples can be found in the attached files.

5.7. Footnotes

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

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

`footnotedistance` default= \bigskipamount

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

`footnoteinside` default=true

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

Note

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

6. Examples

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

mdframed-example-default

Demonstration of examples created with `framemethod=default`.

mdframed-example-tikz

Demonstration of examples created with `framemethod=TikZ`.

mdframed-example-pstricks

Demonstration of examples created with `framemethod=pstricks`.

mdframed-example-texsx

Demonstration of examples like interaction with `listings`

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

The Korean T_EXGroup created a very nice presentation. I want to show the link because it's really a great work: [kts 2012 mdframed](#).

7. Errors, Warnings and Messages

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

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

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

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

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

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

Unknown `framemethod` `mdframed`

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

You have not loaded `ntheorem` yet

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

You have only a width of 3cm

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

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

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

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

See the explanation above.

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

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

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

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

8. Known Problems

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

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

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

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

3. `mdframed` can't handle the option `allowframebreaks` of the class `beamer`.

9. ToDo

It is important to update the documentation

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

10. Acknowledgements

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

Thanks for proofreading

Alan Munn and Nahid Shajari

I hope I forgot nobody.

A. More information

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

A.1. How does `mdframed` work?

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

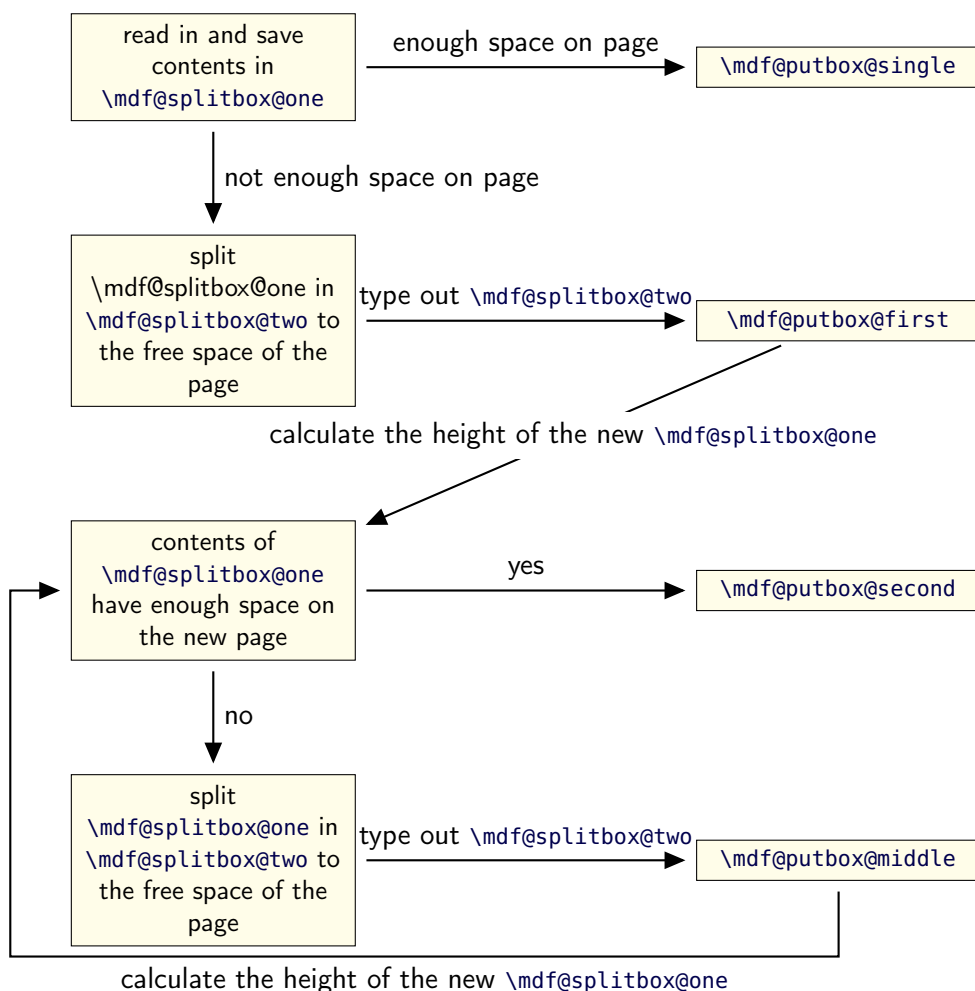


Figure 4: Setting the contents of `mdframed`

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

A.2. The Framecommands

The package `mdframed` knows four kinds of “Framecommand”. These commands tell `LATEX` how to set the contents of `mdframed`.

`\mdf@putbox@single` This command sets the contents of a single unsplit frame.

`\mdf@putbox@first` This command sets the contents of the first frame of a split frame.

`\mdf@putbox@middle` This command sets the contents of the middle frame of a split frame.

`\mdf@putbox@second` This command sets the contents of the last frame of a split frame.

Using the explained commands we give an example. The command `\box` uses the contents of the savebox and types them out.

First we want to type out the single box without any settings (but with the calculated width).

```
\makeatletter
\def\mdf@putbox@single{\box\mdf@splitbox@one}
\makeatother
```

I am using the command `\leftline` to start the “Framecommands” at the left.

```
\makeatletter
\def\mdf@putbox@single{\leftline{\box\mdf@splitbox@one}}
\makeatother
```

Now you have to know how the lengths are named. Every length which can be modified by the options has the following syntax:

```
\mdf@<Name of the Length>@length
```

For example the leftmargin is:

```
\mdf@leftmargin@length
```

To create only a line at the left with the correct `leftmargin` you can set `\mdf@putboxsingle` as follows

```
\makeatletter
\def\mdf@putbox@single{ %
    \leftline{ %
        \hspace*{\mdf@leftmargin@length} %
        \rule[-\dp\mdf@splitbox@one]{\mdf@linewidth} %
        {\ht\mdf@splitbox@one+\dp\mdf@splitbox@one} %
        \box\mdf@splitbox@one
    } %
}
\makeatother
```

In this way you can do what you want. If you create your own style you can save the file as `md-frame-X.mdf`. `X` must be an integer. In this way you can use the option `framemethod` to load the file by setting `framemethod=X`.

A.3. Revision history

Version 1.6b submitted 02 Jun 2012

- added commands `\mdfsubtitle` and `\mdfsubsubtitle`
- added options `subtitleaboveline`, `subtitlebelowline`, `subsubtitleaboveline`, `subsubtitlebelowline`, `subtitlefont`, `subsubtitlefont`, `subtitlebackgroundcolor`, `subsubtitlebackgroundcolor`, `subtitleabovelinecolor`, `subtitlebelowlinecolor`, `subsubtitleabovelinecolor`, `subsubtitlebelowlinecolor`, `subtitleabovelinewidth`, `subtitlebelowlinewidth`, `subtitleaboveskip`, `subtitlebelowskip`, `subtitleinneraboveskip`, `subtitleinnerbelowskip`, `subsubtitleabovelinewidth`, `subsubtitlebelowlinewidth`, `subsubtitleaboveskip`, `subsubtitlebelowskip`, `subsubtitleinneraboveskip`, `subsubtitleinnerbelowskip`
- improved formatting of the file `mdframed.dtx`
- fixed bug in combination with `\parskip` – Thanks David Carlisle.
- added extra loop to compute the splitting point.
- improved splitting algorithm
- added new option `ignorelastdescenders` – Thanks Stephan Lehmke.
- Improved option `repeatframetitle`
- fixed bug: `framemethod=tikz` used wrong computed length by setting `everyline=true`
- Tobias Weh inspired the excurs-environment not Tobias Schwan. Sorry, I fixed it.
- Improved `\mdtheorem` to handle `\listtheorems` provided by `ntheorem`.

Version 1.5 submitted 10 Mar 2012

- fixed bug (Thanks Nicolas Roy)
- expanded documentation (Thanks Martin Wilhelm Leidig)
- added options `singleextra`, `firstextra`, `middleextra` and `secondextra`
- expanded examples

Version 1.4d submitted 30 Mar 2012

- fixed bug (Thanks Nicolas Roy)
- added approach to documentation to work with `picins`
- new implementation of option `hidealllines`, now you can set `\mdfsetup{hidealllines=true,leftline=true}` printing only the left line (inspired by Tobias Weh)
- added option `everyline` to draw a top and bottom line at splitted frames

Version 1.4 submitted 4 Mar 2012

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

Version 1.3a submitted 5 Feb 2012

- fixed bug (Thanks to Dietrich Grau)

Version 1.3 submitted 4 Feb 2012

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

Version 1.2 submitted 8 Jan 2012

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

This works only with `framemethod=PSTricks`.

- added new commands for interaction with TikZ and PSTricks
- expand frame title option by option `frametitulerule`, `frametitulerulewidth`, `frametitlefont`, `frametitleaboveskip`, `frametitlebelowskip`, `frametitlealignment`
- removed limitation of three lines for PSTricks
- defined new commands `\surroundwithmdframed`, `\mdflength`, `\mdtheorem`
- load `xparse` by default
- changed internal names
- expanded examples

Version 1.0b submitted 9 Dec 2011

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

This works only with `framemethod=PSTricks`.

- created dtx-file (Thanks to Kevin Godby)
- added `\@parboxrestore` to `\mdf@lrbox`

Version 1.0 submitted 13 Nov 2011

- add option `userdefinedwidth`
- add option `align`
- add option `apptotikzsetting`
- create new command `\mdfapptodefinestyle`
- changed internal algorithm
- removed `calc` instead using 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.dtx4262012-06-02 12:18:56Zmarco Rev : 426 Author : marco

Date : 2012-06-02 14:18:56 +0200(Sa, 02 Jun 2012)

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

Set package information

```
1 \def\mdversion{v1.6b}
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 426 2012-06-02 12:18:56Z marco $%
7     \mdversion: \mdframedpackagename]
```

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

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

```
8 \newcommand*\mdf@PackageError[1]{\PackageError{\mdframedpackagename}{#1}}
9 \newcommand*\mdf@PackageWarning[1]{\PackageWarning{\mdframedpackagename}{#1}}
10 \newcommand*\mdf@PackageInfo[1]{\PackageInfo{\mdframedpackagename}{#1}}
11 \newcommand*\mdf@LoadFile@IfExist[1]{%
12   \IfFileExists{#1.sty}{%
13     \RequirePackage{#1}%
14   }{%
15     \mdf@PackageWarning{The file #1 does not exist\MessageBreak
16                           but needed by \mdframedpackagename\MessageBreak
17                           see documentation fo further information
18     }%
19   }
20 }
```

Loading required packages

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

Set the family and the prefix of all options.

```
26 \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>}`

```

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

`\mdf@dolist`

Loop used by *mdframed*.

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

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

Command to define a new length width a default value.

```

\mdf@option@length{<name of length>}{<Defaultwert>}
44 \newrobustcmd*{\mdf@option@length}[2]{%
45   \expandafter\newlength\csname mdfl@#1@length\endcsname%
46   \expandafter\setlength\csname mdfl@#1@length\endcsname{#2}%
47 }
```

Command to create a new length option. `\mdf@define@key@length{<name of length option>}`

```

48 \newrobustcmd*{\mdf@define@key@length}[1]{%
49   \define@key{mdf}{#1}{%
50     \def\@tempa{##1}
51     \mdf@iflength{\@tempa}%
52     {\csxdef{mdfl@#1}{\the\mdf@templength}}%
53     {\csxdef{mdfl@#1}{\the\mdf@templength}}%
54     \setlength{\csname mdfl@#1@length\endcsname}{\csname mdfl@#1\endcsname}%
55   }%
56 }
```

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

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

```

57 \def\mdf@do@lengthoption#1{%
58   \mdf@lengthoption@doubledo#1\@nil%
59 }
60 \def\mdf@lengthoption@doubledo#1==#2\@nil{%
61   \mdf@option@length{#1}{#2}%

```

```
62 \mdf@define@key@length{#1}%
63 }
```

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

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

```
64 \def\mdf@do@stringoption#1{%
65   \mdf@stringoption@doubledo#1\@nil%
66 }
67 \def\mdf@stringoption@doubledo#1==#2\@nil{%
68   \expandafter\gdef\csname mdf@#1\endcsname{#2}%
69   \define@key{mdf}{#1}{%
70     \csdef{mdf@#1}{##1}%
71   }%
72 }
```

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

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

```
73 \def\mdf@do@booloption#1{%
74   \mdf@booloption@doubledo#1\@nil%
75 }
76 \def\mdf@booloption@doubledo#1==#2\@nil{%
77   \newbool{mdf@#1}\setbool{mdf@#1}{#2}%
78   \define@key{mdf}{#1}[#2]{%
79     \setbool{mdf@#1}{##1}%
80   }%
81 }
```

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

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

```
82 \def\mdf@do@alignoption#1{%
83   \mdf@alignoption@tripleo#1\@nil%
84 }
85 \def\mdf@alignoption@tripleo#1==#2==#3\@nil{%
86   \csdef{mdf@align@#1@left}{\null\hspace*{#2}}%
87   \csdef{mdf@align@#1@right}{\hspace*{#3}\null}%
88 }
```

Start declaration of options

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

Only provide to be backward compatible

```
92 \define@key{mdf}{style}{%
93   \mdf@PackageWarning{package option style is depreciated^^J
94     use framemethod instead\MessageBreak}%
95   \renewcommand*\mdfglobal@style{#1}%
96   \defcounter{mdf@globalstyle@cnt}{#1}%
97 }
```

```

97  \ifcase\value{mdf@globalstyle@cnt}\relax
98    \or\mdf@LoadFile@IfExist{tikz}%=1
99    \or\mdf@LoadFile@IfExist{pstricks-add}%=2
100   \or\defcounter{mdf@globalstyle@cnt}{2}%=3
101     \mdf@LoadFile@IfExist{pst-node}%
102     \or\mdf@LoadFile@IfExist{pst-node}%=4
103   \else%>4
104     \mdf@PackageWarning{Unknown global style \value{mdf@globalstyle@cnt}}%
105   \fi%
106 }

```

\mdf@framemethod

Defining the global option `framemethod`.

```

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

111 \define@key{mdf}{framemethod}[default]{%
112   \lowercase{\def\mdf@tempa{#1}}%lowercase not expandable
113   \forcsvlist{\listadd\mdf@framemethod@i}{default,tex,latex,none,0}
114   \forcsvlist{\listadd\mdf@framemethod@ii}{pgf,tikz,1}
115   \forcsvlist{\listadd\mdf@framemethod@iii}{pstricks,ps,2,postscript}
116   \xifinlist{\mdf@tempa}{\mdf@framemethod@i}%
117     {\def\mdf@@framemethod{default}\defcounter{mdf@globalstyle@cnt}{0}}%
118     {\xifinlist{\mdf@tempa}{\mdf@framemethod@ii}%
119       {\def\mdf@@framemethod{tikz}\defcounter{mdf@globalstyle@cnt}{1}}%
120       {\xifinlist{\mdf@tempa}{\mdf@framemethod@iii}%
121         {\def\mdf@@framemethod{pstricks}\defcounter{mdf@globalstyle@cnt}{2}}%
122         {\mdf@LoadFile@IfExist{#1}}%
123       }%
124     }%
125   \ifcase\value{mdf@globalstyle@cnt}\relax%
126     \or\mdf@LoadFile@IfExist{tikz}%=1
127     \or\mdf@LoadFile@IfExist{pst-node}%=2
128     \or\mdf@LoadFile@IfExist{pst-node}%=3
129   \fi%
130 }

```

\mdf@do@lengthoption

Here the declaration of all length options.

```

131 \mdf@dolist{\mdf@do@lengthoption}{%
132   {skipabove==\z@},%
133   {skipbelow==\z@},%
134   {leftmargin==\z@},%
135   {rightmargin==\z@},%
136   {innerleftmargin==10pt},%
137   {innerrightmargin==10pt},%
138   {innertopmargin==0.4\baselineskip},%
139   {innerbottommargin==0.4\baselineskip},%
140   {splittopskip==\z@},%
141   {splitbottomskip==\z@},%

```



```

142 {outermargin==\z@},%
143 {innermargin==\z@},%
144 {linewidth==0.4pt},%
145 {innerlinewidth==\z@},%
146 {middlelinewidth==\expandafter\mdf@linewidth@length},%
147 {outerlinewidth==\z@},%
148 {roundcorner==\z@},%
149 {footenotedistance==\medskipamount},
150 {userdefinedwidth==\linewidth},
151 {frametitleaboveskip==5pt},
152 {frametitlebelowskip==5pt},
153 {frametitlerulewidth==.2pt},
154 {frametitleleftmargin==10pt},%
155 {frametitlerightmargin==10pt},%
156 {shadowsize==8pt},%
157 {extratopheight==\z@},%
158 % %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%% %
159 % %%subtitle / subsubtitle added 29.05.12%% %
160 % %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%% %
161 {subtitleabovelinewidth==.8pt},%
162 {subtitlebelowlinewidth==.6pt},%
163 {subtitleaboveskip==\baselineskip},%
164 {subtitlebelowskip==1.2\baselineskip},%
165 {subtitleinneraboveskip==.5\baselineskip},%
166 {subtitleinnerbelowskip==.5\baselineskip},%
167 % %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%% %
168 {subsubtitleabovelinewidth==.8pt},%
169 {subsubtitlebelowlinewidth==.6pt},%
170 {subsubtitleaboveskip==\baselineskip},%
171 {subsubtitlebelowskip==1.2\baselineskip},%
172 {subsubtitleinneraboveskip==.5\baselineskip},%
173 {subsubtitleinnerbelowskip==.5\baselineskip},%
174 }

```

`\mdf@do@lengthoption`

Here the declaration of the string options.

```

175 \mdf@dolist{\mdf@do@stringoption}{%
176   {frametitle=={}},%
177   {defaultunit==pt},%
178   {linecolor==black},%
179   {backgroundcolor==white},%
180   {fontcolor==black},%
181   {frametitlefontcolor==black},%
182   {innerlinecolor==\mdf@linecolor},%
183   {outerlinecolor==\mdf@linecolor},%
184   {middlelinecolor==\mdf@linecolor},%
185   {psroundlinecolor==\mdf@backgroundcolor},%
186   {frametitlerulecolor==\mdf@linecolor},%
187   {frametitlebackgroundcolor==\mdf@backgroundcolor},%
188   {shadowcolor==black!50},%
189   {settings=={}},%
190   {frametitlesettings=={}},%
191   {font=={}},%
192   {frametitlefont==\normalfont\bfseries},%

```

```

193 {printheight==none},%
194 {alignment=={}},%
195 {frametitlealignment=={}},%
196 {theoremseparator=={:}},%
197 {theoremcountersep=={.}},%
198 {theoremtitlefont=={}},%
199 {theoremspace=={\space}},%
200 {singleextra=={}},%
201 {firstextra=={}},%
202 {middleextra=={}},%
203 {secondextra=={}},%
204 % %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%% %
205 % %%subtitle / subsubtitle added 29.05.12%% %
206 % %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%% %
207 {subtitlefont==\normalfont\bfseries},%
208 {subsubtitlefont==\normalfont},%
209 {subtitlebackgroundcolor==white},%
210 {subsubtitlebackgroundcolor==white},%
211 {subtitleabovelinecolor==black},%
212 {subtitlebelowlinecolor==black},%
213 {subsubtitleabovelinecolor==black},%
214 {subsubtitlebelowlinecolor==black},%
215 }

```

`\mdf@do@booloption`

Here the declaration of all bool options.

```

216 \mdf@dolist{\mdf@do@booloption}{%
217 {ntheorem==false},%
218 {topline==true},%
219 {leftline==true},%
220 {bottomline==true},%
221 {rightline==true},%
222 {frametitletopline==true},%
223 {frametitleleftline==true},%
224 {frametitlebottomline==true},%
225 {frametitlerightline==true},%
226 {frametitlerule==false},%
227 {nobreak==false},%
228 {footnoteinside==true},%
229 {usetwoside==true},%
230 {repeatframetitle==false},%Noch nicht richtig implementiert
231 {shadow==false},%
232 {everyline==false},%
233 {ignorelastdescenders==false},%
234 % %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%% %
235 % %%subtitle / subsubtitle added 29.05.12%% %
236 % %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%% %
237 {subtitleaboveline==false},
238 {subtitlebelowline==false},
239 {subsubtitleaboveline==false},
240 {subsubtitlebelowline==false},
241 }
242 %%special boolflag hidealllines:
243 \newbool{mdf@hidealllines}%

```

```

244 \define@key{mdf}{hidealllines}[false]{%
245 \setbool{mdf@hidealllines}{#1}%
246 \ifbool{mdf@hidealllines}{%
247 \kvsetkeys{mdf}{leftline=false,topline=false,%
248 rightline=false,bottomline=false}%
249 }}%
250 }

```

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

Here the declaration of all align options.

```

251 \mdf@dolist{\mdf@do@alignoption}{%
252 {left==\mdf@leftmargin@length==\z@},%
253 {center==\fill==\fill},%
254 {right==\fill==\mdf@rightmargin@length},%
255 {outer==\fill==\mdf@rightmargin@length},%not supported yet
256 {outer==\mdf@leftmargin@length==\fill},%not supported yet
257 }

```

```

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

```

Set the alignment.

```

258 \newcommand*\mdf@align{}%
259 \newcommand*\mdf@makeboxalign@left{\null\hspace*\mdf@leftmargin@length}%
260 \newcommand*\mdf@makeboxalign@right{}%
261 \define@key{mdf}{align}[left]{%
262 \ifcsundef{mdf@align@#1@left}{%
263 \mdf@PackageWarning{Unknown alignment #1\MessageBreak}%
264 \letcs\mdf@makeboxalign@left{mdf@align@left@left}%
265 \letcs\mdf@makeboxalign@right{mdf@align@left@right}%
266 }{%
267 \def\mdf@makeboxalign@left{\csuse{mdf@align@#1@left}}%
268 \def\mdf@makeboxalign@right{\csuse{mdf@align@#1@right}}%
269 }%
270 }

```

```

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

```

Option to pass options to tikz or pstricks

```

271 \def\mdf@tikzset@local{\tikzset{tikzsetting/.style={}}}
272 \define@key{mdf}{tikzsetting}{%
273 \def\mdf@tikzset@local{\tikzset{tikzsetting/.style={#1}}}%
274 }
275 \define@key{mdf}{apptotikzsetting}{%
276 \appto\mdf@tikzset@local{#1}%
277 }
278 \def\mdf@psset@local{}
279 \define@key{mdf}{pstrickssetting}{%
280 \def\mdf@psset@local{#1}%
281 }

```

```

282 \def\mdfpstricks@appendsettings{}
283 \define@key{mdf}{pstricksappsetting}{%
284   \def\mdfpstricks@appendsettings{#1}%
285 }

```

\mdf@xcolor

Problem with xcolor. This part must be reworked!

```

286 \def\mdf@xcolor{}
287 \define@key{mdf}{xcolor}[]{}%
288   \def\@tempa{#1}%
289   \ifpackageloaded{xcolor}{}%
290     \let\mdf@xcolor\@empty %ignore die Eingabe der Optionen
291     \def\@tempa{}%
292   }{}%
293   \ifx\relax\@tempa\relax\else
294     \PassOptionsToPackage{\mdf@xcolor}{xcolor}%
295     \RequirePackage{xcolor}%
296   \fi%
297 }%

```

\mdf@needspace

Defining the option `needspace`

```

298 \define@key{mdf}{needspace}[\z@]{}%
299   \begingroup%
300     \setlength{\dimen@}{#1}%
301     \vskip\z@\@plus\dimen@%
302     \penalty -100\vskip\z@\@plus -\dimen@%
303     \vskip\dimen@%
304     \penalty 9999%
305     \vskip -\dimen@%
306     \vskip\z@skip % hide the previous |\vskip| from |\addvspace|
307   \endgroup%
308 }

309 \DeclareDefaultOption{%
310   \mdf@PackageError{Unknown Option '\CurrentOption' for mdframed}}
311 \ProcessKeyvalOptions*\relax

```

\mdfsetup

Short form of `\setkeys{mdf}`

```

312 \newrobustcmd*{\mdfsetup}{\kvsetkeys{mdf}}

```

\mdf@style

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

```

313 \define@key{mdf}{style}{}%
314   \ifcsundef{mdf@definestyle@#1}{}%
315     \mdf@PackageWarning{Unknown definedstyle #1^^J
316       You have to define a style ^^J
317     via \string\mdfdefinedstyle\MessageBreak

```

```

318             }%
319   }%
320   {\expandafter\expandafter\expandafter\mdfsetup\expandafter%
321     \expandafter\expandafter{\csname mddefinestyle@#1\endcsname}}%
322 }%

```

`\mdf@print@space`

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

```

323 \let\mdf@PackageNoInfo\@gobble
324 \newrobustcmd*\mdf@ifstrequal@expand{%
325   \expandafter\ifstrequal\expandafter{\mdf@printheight}%
326 }
327 \newrobustcmd*\mdf@print@space{%
328   %case "none"
329   \mdf@ifstrequal@expand{none}{\def\mdf@tempa{NoInfo}}{%
330     %case "info"
331     \mdf@ifstrequal@expand{info}{\def\mdf@tempa{Info}}{%
332       %case "warning"
333       \mdf@ifstrequal@expand{warning}{\def\mdf@tempa{Warning}}{%
334         %case "unknown"
335         \mdf@PackageWarning{Unknown key for printheight=\mdf@printheight^^J
336                               use none, info or warning}%
337         \def\mdf@tempa{none}%
338       }%
339     }%
340   }%
341 \def\mdf@PackageInfoSpace{\csname mdf@Package\mdf@tempa\endcsname}%
342 }

```

`\new...`

Initialize all commands and length which will we used later

```

343 \newsavebox\mdf@frametitlebox
344 \newsavebox\mdf@footnotebox
345 \newsavebox\mdf@splitbox@one
346 \newsavebox\mdf@splitbox@two
347 \newsavebox\mdf@splitbox@save
348 \newlength\mdfsplitboxwidth
349 \newlength\mdfsplitboxtotalwidth
350 \newlength\mdfsplitboxheight
351 \newlength\mdfsplitboxdepth
352 \newlength\mdfsplitboxtotalheight
353 \newlength\mdfframetitleboxwidth
354 \newlength\mdfframetitleboxtotalwidth
355 \newlength\mdfframetitleboxheight
356 \newlength\mdfframetitleboxdepth
357 \newlength\mdfframetitleboxtotalheight
358 \newlength\mdffootnoteboxwidth
359 \newlength\mdffootnoteboxtotalwidth
360 \newlength\mdffootnoteboxheight
361 \newlength\mdffootnoteboxdepth
362 \newlength\mdffootnoteboxtotalheight
363
364 \newlength\mdftotallinewidth

```

```

365
366 \newlength\mdfboundingboxwidth
367 \newlength\mdfboundingboxtotalwidth
368
369 \newlength\mdfboundingboxheight
370 \newlength\mdfboundingboxdepth
371 \newlength\mdfboundingboxtotalheight
372
373 \newlength\mdf@freevspace@length
374 \newlength\mdf@horizontalwidthofbox@length
375 \newlength\mdf@verticalmarginwhole@length
376
377 \newtoggle{mdf@notfirstframetitle}%
378 \togglefalse{mdf@notfirstframetitle}%
379
380
381 % Command to expand the tikz code. (see md-frame-1.mdf)
382 \newrobustcmd\mdfcreateextratikz{}
383

```

```

\mdf@lrbox
\endmdf@lrbox

```

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

```

384 \def\mdf@lrbox#1{%
385 %patch to work with amsthm
386   \mdf@patchamsthm
387 %%end patch
388 \edef\mdf@restoreparams{%
389   \parindent=\the\parindent\relax \parskip=\the\parskip\relax}%
390 \setbox#1\vbox\bgroup%
391   \color@begingroup%
392   \mdf@horizontalmargin@equation%
393   \columnwidth=\hsize%
394   \textwidth=\hsize%
395   \let@if@nobreak\iffalse%
396   \let@if@noskipsec\iffalse%
397   \let\par\@par%
398   \let\-\@dischph%
399   \let'\@acci\let'\@accii\let\=\@acciii%
400   \parindent\z@ \parskip\z@skip%
401   \linewidth\hsize%
402   \@totalleftmargin\z@%
403   \leftskip\z@skip \rightskip\z@skip \@rightskip\z@skip%
404   \parfillskip\@flushglue \lineskip\normallineskip%
405   \baselineskip\normalbaselineskip%
406 %% \sloppy%
407   \let\\\@normalcr%
408   \mdf@restoreparams\relax%
409   \@afterindentfalse%
410   \@afterheading%
411 }
412
413 \def\endmdf@lrbox{\color@endgroup\egroup}
414

```

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

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

```
415 \newrobustcmd*\mdf@ignorevbadness{%
416   \edef\mdf@currentvbadness{\the\vbadness}%
417   \vbadness=\@M%
418   \afterassignment\mdf@restorevbadness}
419 \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`.

```
420 \@ifpackageloaded{amsthm}%
421 {%
422   \newrobustcmd*\mdf@patchamsth{%
423     \let\mdf@deferred@thm@head\deferred@thm@head
424     \patchcmd{\deferred@thm@head}{\indent}{}%
425       {\mdf@PackageInfo{mdframed detected package amsthm ^J
426         changed the theorem header of amsthm\MessageBreak}%
427       }{%
428         \mdf@PackageError{mdframed detected package amsthm ^J
429           changed the theorem header of amsthm
430           failed\MessageBreak}%
431       }%
432   }%
433 }{\let\mdf@patchamsth\relax}%
```

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

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

```
434 \def\mdf@trivlist#1{%
435   \setlength{\topsep}{#1}%
436   \partopsep\z@%
437   \parsep\z@%
438   \@nmblistfalse%
439   \@trivlist%
440   \labelwidth\z@%
441   \leftmargin\z@%
442   \itemindent\z@%
443   \let\@itemlabel\@empty%
444   \def\makelabel##1{##1}%
445   % \item\leavevmode\hrule \@height\z@ \@width\linewidth\relax%
446   % \item\mbox{}\relax% second version
447   \item\relax% first Version
448 }
449 \let\endmdf@trivlist\endtrivlist
450 \patchcmd\endmdf@trivlist\@endparenv\mdf@endparenv{%
451   \immediate\typeout{^^J***** mdframed patching \string\endmdf@trivlist}%
452   \immediate\typeout{^^J***** -- success*****^^J}%
453 }{%
454   \immediate\typeout{^^J***** mdframed patching \string\endmdf@trivlist}%
455   \immediate\typeout{^^J***** -- failed*****^^J}%
```

```

456 }
457 \def\mdf@endparenv{%
458   \addpenalty\@endparpenalty\addvspace\mdf@skipbelow@length\@endpetrue}
459

```

```

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

```

```

460 \newrobustcmd*\mdf@makebox@out[2][\linewidth]{%
461   \noindent\hb@xt@\z@{%
462     \noindent\makebox[\dimexpr #1\relax][l]{#2}%
463   \hss}%
464 }%
465 \newrobustcmd*\mdf@makebox@in[2][\mdf@userdefinedwidth@length]{%
466   \noindent\makebox[\dimexpr #1\relax][l]{#2}%
467 }

```

```

\mdfdefinestyle
\mdfapptodefinestyle

```

See explanation of this commands in the main documentation.

```

468 \newrobustcmd*\mdfdefinestyle[2]{%
469   \csdef{mdf@definestyle@#1}{#2}%
470 }
471 \newrobustcmd*\mdfapptodefinestyle[2]{%
472   \ifcsundef{mdf@definestyle@#1}%
473     {\mdf@PackageWarning{Unknown style #1}}%
474     {\csappto{mdf@definestyle@#1}{, #2}}%
475 }

```

```

\mdflength
\surroundwithmdframed

```

Helper macros to work with `mdframed`

```

476 \newrobustcmd*\mdflength[1]{\csuse{mdf@#1@length}}
477
478 \newrobustcmd*\surroundwithmdframed[2][]{%
479   \BeforeBeginEnvironment{#2}{\begin{mdframed}[#1]}%
480   \AfterEndEnvironment{#2}{\end{mdframed}}%
481 }

```

```

\newmdenv
\renewmdenv
\newmdtheoremenv
\mdtheorem

```

Defining of the new environment definitions.

```

482 \newrobustcmd*\newmdenv[2][]{%
483   \newenvironment{#2}{%
484     \mdfsetup{#1}%
485     \begin{mdframed}%
486   }{%
487     \end{mdframed}%

```



```

488 }%
489 }
490 \newrobustcmd*\renewmdenv[2][ ]{%
491   \expandafter\let\csname #2\endcsname\relax%
492   \expandafter\let\csname end#2\endcsname\relax%
493   \newmdenv[#1]{#2}%
494 }%

```

Definitions of the standard Theorems surrounded by *mdframed*.

```

495 \DeclareDocumentCommand\newmdtheoremenv{0}{ m o m o }{%
496   \ifboolexpr{ test {\IfNoValueTF {#3}} and test {\IfNoValueTF {#5}} }{%
497     {\newtheorem{#2}{#4}}{%
498       \IfValueTF{#3}{\newtheorem{#2}[#3]{#4}}{%
499         \IfValueTF{#5}{\newtheorem{#2}{#4}[#5]}{%
500           }%
501       \BeforeBeginEnvironment{#2}{%
502         \begin{mdframed}[#1]}%
503       \AfterEndEnvironment{#2}{%
504         \end{mdframed}}}%
505     }

```

Compatible with *ntheorem*'s `\listoftheorems`.

```

506 \newrobustcmd*\mdf@thm@caption[2]{%
507   \AtBeginDocument{%
508     \@ifpackageloaded{ntheorem}%
509       {\renewrobustcmd*\mdf@thm@caption{\thm@thmcaption}}{%
510         }

```

Defining a complete new theorem set by *mdframed*

```

511 \DeclareDocumentCommand{\mdtheorem}{ 0}{ m o m o }%
512 {\ifcsdef{#2}%
513   {\mdf@PackageWarning{Environment #2 already exists\MessageBreak}}%
514   {%
515     \IfNoValueTF {#3}%
516     {%#3 not given -- number relationship
517       \IfNoValueTF {#5}%
518       {%#3+#5 not given
519         \@definecounter{#2}%
520         \expandafter\xdef\csname the#2\endcsname{\@thmcounter{#2}}%
521         \newenvironment{#2}[1][ ]{%
522           \refstepcounter{#2}%
523           \ifstrempy{##1}%
524             {\let\@temptitle\relax}%
525             {%
526               \def\@temptitle{\mdf@theoremseparator%
527                 \mdf@theoremspace%
528                 \mdf@theoremtitlefont%
529                 ##1}%
530               \mdf@thm@caption{#2}{#{#4}}{\csname the#2\endcsname}{##1}}%
531             }%
532           \begin{mdframed}[#1,frametitle={\strut#4\ \csname the#2\endcsname%
533             \@temptitle}]]%
534           {\end{mdframed}}}%
535         \newenvironment{#2*}[1][ ]{%
536           \ifstrempy{##1}{\let\@temptitle\relax}{\def\@temptitle{: \ ##1}}%
537           \begin{mdframed}[#1,frametitle={\strut#4\@temptitle}]]%
538           {\end{mdframed}}}%
539         }%

```

```

540     {%#5 given -- reset counter
541     \@definecounter{#2}\@newctr{#2}[#5]%
542     \expandafter\xdef\csname the#2\endcsname{\@thmcounter{#2}}%
543     \expandafter\xdef\csname the#2\endcsname{%
544         \expandafter\noexpand\csname the#5\endcsname \@thmcountersep%
545         \@thmcounter{#2}}%
546     \newenvironment{#2}[1][]{%
547         \refstepcounter{#2}%
548         \ifstrempy{##1}%
549             {\let\@temptitle\relax}%
550             {%
551                 \def\@temptitle{\mdf@theoremseparator%
552                     \mdf@theoremspace%
553                     \mdf@theoremtitlefont%
554                     ##1}%
555                 \mdf@thm@caption{#2}{\csname the#2\endcsname}{##1}}%
556             }
557     \begin{mdframed}[#1,frametitle={\strut#4\ \csname the#2\endcsname%
558         \@temptitle}]]%
559     {\end{mdframed}}%
560     \newenvironment{#2*}[1][]{%
561         \ifstrempy{##1}%
562             {\let\@temptitle\relax}%
563             {%
564                 \def\@temptitle{\mdf@theoremseparator%
565                     \mdf@theoremspace%
566                     \mdf@theoremtitlefont%
567                     ##1}%
568                 \mdf@thm@caption{#2}{\csname the#2\endcsname}{##1}}%
569             }%
570     \begin{mdframed}[#1,frametitle={\strut#4\@temptitle}]]%
571     {\end{mdframed}}%
572 }%
573 }%
574 {%#3 given -- number relationship
575     \global\@namedef{the#2}{\@nameuse{the#3}}%
576     \newenvironment{#2}[1][]{%
577         \refstepcounter{#3}%
578         \ifstrempy{##1}%
579             {\let\@temptitle\relax}%
580             {%
581                 \def\@temptitle{\mdf@theoremseparator%
582                     \mdf@theoremspace%
583                     \mdf@theoremtitlefont%
584                     ##1}%
585                 \mdf@thm@caption{#2}{\csname the#2\endcsname}{##1}}%
586             }
587     \begin{mdframed}[#1,frametitle={\strut#4\ \csname the#2\endcsname%
588         \@temptitle}]]%
589     {\end{mdframed}}%
590     \newenvironment{#2*}[1][]{%
591         \ifstrempy{##1}{\let\@temptitle\relax}{\def\@temptitle{: \ ##1}}%
592         \begin{mdframed}[#1,frametitle={\strut#4\@temptitle}]]%
593         {\end{mdframed}}%
594     }%
595 }%

```

596 }
597

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

Default definition of the frame tile used by *mdframed*. **Need a better documentation and must be improved!!!**

```
598 \newrobustcmd\mdfframedtitleenv[1]{%
599   \mdf@lrbox{\mdf@frametitlebox}%
600   \mdf@frametitlealignment%
601   \leavevmode\color{\mdf@frametitlefontcolor}%
602   \normalfont\mdf@frametitlefont{#1}

Trying to ignore last descenders of the environment.
603   \ifbool{mdf@ignorelastdescenders}%
604   {%
605     \par\strut\par
606     \unskip\unskip\setbox0=\lastbox
607     \vspace*{\dimexpr\ht\strutbox-\baselineskip\relax}%
608   }{}%
609   \par\unskip\ifvmode\nointerlineskip\hrule \@height\z@ \@width\hsize\fi%

610   \endmdf@lrbox\relax%
611   \mdf@ignorevbadness%
612   \setbox\mdf@frametitlebox=\vbox{\unvbox\mdf@frametitlebox}%
613   \mdfframetitleboxwidth=\wd\mdf@frametitlebox\relax%
614   \mdfframetitleboxheight=\ht\mdf@frametitlebox\relax%
615   \mdfframetitleboxdepth=\dp\mdf@frametitlebox\relax%
616   \mdfframetitleboxtotalheight=\dimexpr
617     \ht\mdf@frametitlebox
618     +\dp\mdf@frametitlebox%
619     +\mdf@frametitleaboveskip@length
620     +\mdf@frametitlebelowskip@length
621     \relax%
622 }
623
624 \newrobustcmd*\mdf@@frametitle{%
625   \mdfframedtitleenv{\mdf@frametitle}%
626 }
627
628 \newrobustcmd*\mdf@@frametitle@use{%
629   \parskip\z@\relax%
630   \parindent\z@\relax%
631   \offinterlineskip\relax%
632   \mdf@ignorevbadness%
633   \setbox\mdf@splitbox@one=\vbox{%
634     \unvcopy\mdf@frametitlebox\relax%
635     \mdf@frametitlerule\relax%
636     \unvbox\mdf@splitbox@one\relax%
637   }%
638   \mdf@ignorevbadness%
639   \setbox\mdf@splitbox@one=\vbox{\unvbox\mdf@splitbox@one}%
640   \mdfsetup{innertopmargin=\mdf@frametitleaboveskip@length}%
641 }
```

`\mdf@checkntheorem`

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

```

642 \newrobustcmd*\mdf@checkntheorem{%
643   \ifbool{mdf@ntheorem}%
644     {\ifundef{\theorempreskipamount}%
645       {\mdf@PackageWarning{You have not loaded ntheorem yet}}%
646       {\setlength{\theorempreskipamount}{\z@}%
647         \setlength{\theorempostskipamount}{\z@}%
648       }}%
649   {}%
650 }
```

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

Support for footnotes. See source2e.

```

651 \newrobustcmd*\mdf@footnoterule{%
652   \kern0\p@
653   \hrule \@width 1in \kern 2.6\p@}
654 \newrobustcmd*\mdf@footnoteoutput{%
655   \ifvoid\@mpfootins\else%
656     \nobreak%
657     \vskip\mdf@footnotedistance@length%
658     \normalcolor%
659     \mdf@footnoterule%
660     \unvbox\@mpfootins%
661   \fi%
662 }
663 \newrobustcmd*\mdf@footnoteinput{%
664   \def\@mpfn{mpfootnote}%
665   \def\thempfn{\thempfootnote}%
666   \c@mpfootnote\z@
667   \let\@footnotetext\@mpfootnotetext%
668 }
```

`\mdf@load@style`

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

```

669 \newrobustcmd*\mdf@load@style{%
670   \ifcase\value{mdf@globalstyle@cnt}\relax%
671     \input{md-frame-0.mdf}%
672   \or\input{md-frame-1.mdf}%
673   \or\input{md-frame-2.mdf}%
674   \or\input{md-frame-3.mdf}%
675   \else%
676     \IfFileExists{md-frame-\value{mdf@globalstyle@cnt}.mdf}%
677     {\input{md-frame-\value{mdf@globalstyle@cnt}.mdf}}%
678     {%
679       \input{md-frame-0.mdf}%
680       \mdf@PackageWarning{The style number \value{mdf@globalstyle@cnt}
681         does not exist^^J
682         mdframed ues instead style=0 \mdframedpackagename}%
683     }%
684 }
```

```

684 \fi%
685 }%
686 \mdf@load@style

```

\mdf@styledefinition

The default frame method needs special handling.

```

687 \newrobustcmd*\mdf@styledefinition{%AVOID!!!Needed for framemethod=default
688   \ifnumequal{\value{mdf@globalstyle@cnt}}{0}%
689   {\deflength{\mdf@innerlinewidth@length}{\z@}%
690    \deflength{\mdf@middlelinewidth@length}{\mdf@linewidth@length}%
691    \deflength{\mdf@outerlinewidth@length}{\z@}%
692    \let\mdf@innerlinecolor\mdf@linecolor%
693    \let\mdf@middlelinecolor\mdf@linecolor%
694    \let\mdf@outerlinecolor\mdf@linecolor%
695   }{}%
696 }

```

\detected@mdf@put@frame

Detect whether inside a non breakable environment.

```

697 \let\mdf@reserved@a\@empty
698 \newrobustcmd*\detected@mdf@put@frame{%
699   \ifmdf@nobreak%Option nobreak=true?
700   \def\mdf@reserved@a{\mdf@put@frame@standalone}%
701   \else
702   \def\mdf@reserved@a{\mdf@put@frame}%
703   \ifx\@capttype\@undefined
704   \def\mdf@reserved@a{\mdf@put@frame}%
705   \else
706   \mdf@PackageInfo{mdframed inside float ^^J
707                   mdframed uses option nobreak \mdframedpackagename}%
708   \def\mdf@reserved@a{\mdf@put@frame@standalone}%
709   \fi
710   \if@minipage%
711   \mdf@PackageInfo{mdframed inside minipage ^^J
712                   mdframed uses option nobreak \mdframedpackagename}%
713   \def\mdf@reserved@a{\mdf@put@frame@standalone}%
714   \fi%
715   \ifinner%
716   \mdf@PackageInfo{mdframed inside a box ^^J
717                   mdframed uses option nobreak \mdframedpackagename}%
718   \def\mdf@reserved@a{\mdf@put@frame@standalone}%
719   \fi%
720 \fi%
721 \mdf@reserved@a%
722 }

```

\mdframed

The user environment.

```

723 \newenvironment{mdframed}[1][[]]{%
Make everything local
724 \color@begingroup%

```

Set all options

```

725 \mdfsetup{userdefinedwidth=\linewidth,#1}%
726 \mdf@twoside@checklength%
727 \let\width\z@%
728 \let\height\z@%
729 \mdf@checkntheorem%
730 \mdf@styledefinition%
731 \mdf@footnoteinput%
732 \color{\mdf@fontcolor}%
733 \mdf@font%
734 \ifvmode\nointerlineskip\fi%
735 \mdf@trivlist{\mdf@skipabove@length}%
736 \ifdefempty{\mdf@frametitle}{\mdf@@frametitle}%

```

Special command to allow extra user definitions by the option `settings`.

```
737 \mdf@settings%
```

Start save box and save the whole contents in the box `\mdf@splitbox@one`

```

738 \mdf@lrbox{\mdf@splitbox@one}%
739 }%
740 {%

```

Trying to ignore last descenders of the environment.

```

741 \ifbool{mdf@ignorelastdescenders}%
742 {%
743 \par\strut\par
744 \unskip\unskip\setbox0=\lastbox
745 \vspace*{\dimexpr\ht\strutbox-\baselineskip\relax}%
746 }{}%
747 \par\unskip\ifvmode\nointerlineskip\hrule \@height\z@ \@width\hsize\fi%

```

End save box in relation to footnotes

```

748 \ifmdf@footnoteinside%
749 \def\mdf@reserveda{%
750 \mdf@footnoteoutput%
751 \endmdf@lrbox%
752 \ifdefempty{\mdf@frametitle}{\mdf@@frametitle@use}%
753 \detected@mdf@put@frame}%
754 \else%
755 \def\mdf@reserveda{%
756 \endmdf@lrbox%
757 \ifdefempty{\mdf@frametitle}{\mdf@@frametitle@use}%
758 \detected@mdf@put@frame%
759 \mdf@footnoteoutput%
760 }%
761 \fi%
762 \mdf@reserveda%
763 \endmdf@trivlist%

```

End group and set the command `\@doendpe` to behave like `\end{center}`

```

764 \color@endgroup\@doendpe%
765 }
766

```

```

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

```

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

```

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

```

\mdf@freepagevspace

```
805 \newrobustcmd*{\mdf@freepagevspace}{%
```

The following lines are added by an inspiration of the great package *multicol*.

```

806   \bgroup\@nobreakfalse\addpenalty\z@\egroup%added 29.5.12
807   \penalty\@M\relax\vskip 2\baselineskip\relax%
808   \penalty9999\relax\vskip -2\baselineskip\relax%
809   \penalty9999%
810   \ifdimequal{\pagegoal}{\maxdimen}%
811     {\mdf@freespace@length\vsize}%
812     {\mdf@freespace@length=\pagegoal\relax%
813       \advance\mdf@freespace@length by -\pagetotal\relax%
814       \addtolength\mdf@freespace@length{\dimexpr-\parskip\relax}\relax%

```

```
815     }%
816 }
```

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

Command used for loop

```
817 \newrobustcmd*\mdf@advancelength@horizontalmargin@sub[1]{%
818   \advance\mdf@horizontalsofbox by -\csname md f@#1@length\endcsname\relax%
819 }
```

Compute the width of the box

```
820 \newlength\mdf@horizontalsofbox
821 \newrobustcmd*\mdf@horizontalmargin@equation{%
822   \setlength{\mdf@horizontalsofbox}{\mdf@userdefinedwidth@length}%
823   \mdf@dolist{\mdf@advancelength@horizontalmargin@sub}{%
824     leftmargin,outerlinewidth,middlelinewidth,%
825     innerlinewidth,innerleftmargin,inerrightmargin,%
826     innerlinewidth,middlelinewidth,outerlinewidth,%
827     rightmargin}%
828   \notbool{mdf@leftline}%
829   {%
830     \advance\mdf@horizontalsofbox by \mdf@innerlinewidth@length\relax%
831     \advance\mdf@horizontalsofbox by \mdf@middlelinewidth@length\relax%
832     \advance\mdf@horizontalsofbox by \mdf@outerlinewidth@length\relax%
833   }{}%
834   \notbool{mdf@rightline}%
835   {%
836     \advance\mdf@horizontalsofbox by \mdf@innerlinewidth@length\relax%
837     \advance\mdf@horizontalsofbox by \mdf@middlelinewidth@length\relax%
838     \advance\mdf@horizontalsofbox by \mdf@outerlinewidth@length\relax%
839   }{}%
840   \ifdimless{\mdf@horizontalsofbox}{3cm}%
841     {\mdf@PackageWarning{You have only a width of 3cm}}{}%
842   \hsize=\mdf@horizontalsofbox%
843 }
```

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

Space in relation of horizontal lines.

```
844 \newrobustcmd*\mdf@keeplines@single{%
845   \notbool{mdf@topline}%
846   {%
847     \advance\mdf@verticalmarginwhole@length %
848       by -\mdf@innerlinewidth@length\relax%
849     \advance\mdf@verticalmarginwhole@length %
850       by -\mdf@middlelinewidth@length\relax%
851     \advance\mdf@verticalmarginwhole@length %
852       by -\mdf@outerlinewidth@length\relax%
853   }{}%
854   \notbool{mdf@bottomline}%
855   {%
856     \advance\mdf@verticalmarginwhole@length %
857       by -\mdf@innerlinewidth@length\relax%
```



```

858     \advance\mdf@verticalmarginwhole@length %
859         by -\mdf@middlelinewidth@length\relax%
860     \advance\mdf@verticalmarginwhole@length %
861         by -\mdf@outerlinewidth@length\relax%
862     }{}%
863 }

```

```

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

```

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

```

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

```

```
\mdf@reset
```

Reset changes

```

874 \protected@edef\mdf@reset{\boxmaxdepth\the\boxmaxdepth
875     \splittopskip\the\splittopskip}%

```

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

Output of `mdframed` inside a non breakable environment.

```

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

```

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

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

```

893 \def\mdf@put@frame{\relax%
894 \ifvoid\mdf@splitbox@one\relax
895   \mdf@PackageWarning{The environment is empty\MessageBreak}%
896   \let\mdf@reserved@a\relax%
897 \else
898   \setlength\mdfboundingboxwidth{\wd\mdf@splitbox@one}%
899   \mdf@print@space%
900   \mdf@freepagevspace%gives \mdf@freevspace@length
901   \mdf@PackageInfoSpace{\the\mdf@freevspace@length before the
902                         beginning of \MessageBreak
903                         the environment ending on input line \MessageBreak}%
904   \ifdimless{\mdf@freevspace@length}{2\baselineskip}
905     {%
906       \mdf@PackageInfo{Not enough space on this page}
907       \vfill\ eject%
908       \def\mdf@reserved@a{\mdf@put@frame}%
909     }{%
910       %Hier berechnung Box-Inhalt+Rahmen oben und unten
911       \setlength{\mdf@verticalmarginwhole@length}%
912         {\dimexpr\ht\mdf@splitbox@one+\dp\mdf@splitbox@one\relax}%
913       \mdf@dolist{\mdf@advancelength@verticalmarginwhole}%
914         {%
915           outerlinewidth,middlelinewidth,innerlinewidth,%
916           innertopmargin,innerbottommargin,%
917           innerlinewidth,middlelinewidth,outerlinewidth}%
918       \mdf@keeplines@single%
919       \ifdimless{\mdf@verticalmarginwhole@length}{\mdf@freevspace@length}%
920         {%passt auf Seite%
921           \begingroup\mdf@setzref\mdf@putbox@single\endgroup%Output no break
922           \let\mdf@reserved@a\relax%
923         }%
924         {%
925           \def\mdf@reserved@a{\mdf@put@frame@i}%passt nicht auf Seite
926         }
927     }%
928 \fi
929 \mdf@reserved@a%
930 }

```

`\mdf@put@frame@i`

Output of the first splitted box.

```
931 \def\mdf@put@frame@i{%Box must be splitted
```

Compute the vertical free space of the current page

```
932 \mdf@freepagevspace%gives \mdf@freevspace@length
```

Compute whether the width of the lines plus 2 \baselineskips can only be set on the current page.

```

933 \dimen@=\the\mdf@freevspace@length\relax%
934 \dimen@i=\mdf@innertopmargin@length\relax%
935 \advance\dimen@i by \mdf@innerlinewidth@length\relax%
936 \advance\dimen@i by \mdf@middlelinewidth@length\relax%
937 \advance\dimen@i by \mdf@outerlinewidth@length\relax%
938 \advance\dimen@i by 2\baselineskip\relax%
939 \ifdimless{\dimen@}{\dimen@i}%

```

force a page / column break and restart printing of the environment

```

940   {\hrule \@height\z@ \@width\hsize%
941     \vfill\eject%
942     \def\mdf@reserved@a{\mdf@put@frame}%
943   }%
The page has enough space.
944   {%
compute the needed vertical space of the first frame. Subtract the dimension of the bottom frame
945     \mdf@dolist{\mdf@advance\length@freevspace@sub}{%calculate with \dimen@
946               outerlinewidth,middlelinewidth,innerlinewidth,%
947               innertopmargin,splitbottomskip}%
Reduce vertical space if option everyline is set to true
948     \ifbool{mdf@everyline}%
949       {%
950         \ifbool{mdf@bottomline}%
951           {%
952             \advance\dimen@ by -\mdf@innerlinewidth@length%
953             \advance\dimen@ by -\mdf@middlelinewidth@length%
954             \advance\dimen@ by -\mdf@outerlinewidth@length%
955           }{}%
956         }{}%
Add vertical space if option topline is set to false
957     \notbool{mdf@topline}%
958     {%
959       \advance\dimen@ by \mdf@innerlinewidth@length%
960       \advance\dimen@ by \mdf@middlelinewidth@length%
961       \advance\dimen@ by \mdf@outerlinewidth@length%
962     }{}%
Add a length of 0.8\pageshrink. I don't know whether it's needed!
963     \advance\dimen@.8\pageshrink
Test whether the contents has enough space and the last frame will be empty
964     \ifdimless{\ht\mdf@splitbox@one+\dp\mdf@splitbox@one}{\dimen@}%
965       {\mdf@PackageWarning{You got a bad break\MessageBreak
966                           because the last box will be empty\MessageBreak
967                           you have to change it manually\MessageBreak
968                           by changing the text, the space\MessageBreak
969                           or something else}%
970       \advance\dimen@ by -1.8\baselineskip\relax%needed????????????????????}{}%
971     }{}%

    • save the original contents in a new save box,
    • set the dimension for splitting
    • ignore bad boxes and split
972     \setbox\mdf@splitbox@save=\vbox{\unvcopy\mdf@splitbox@one}%
973     \splitmaxdepth\z@ \splittopskip\mdf@splittopskip@length%
974     \mdf@ignorevbadness%
975     \setbox\mdf@splitbox@two\vsplit\mdf@splitbox@one to \dimen@
976     \setbox\mdf@splitbox@two\vbox{\unvbox\mdf@splitbox@two}%
977     \setbox\mdf@splitbox@one\vbox{\unvbox\mdf@splitbox@one}%
Test whether the splitted box fits the required dimension
978     \ifdimgreater{\ht\mdf@splitbox@two+\dp\mdf@splitbox@two}{\dimen@}%
979       {%splitted wrong
980       \mdf@PackageInfo{Box was splittet wrong^^M starting loop to iterate
981                     the splitting point\MessageBreak}%

```

restore save box \mdf@splitbox@one by the save one \mdf@splitbox@save

```

982      \setbox\mdf@splitbox@one=\vbox{\unvcopy\mdf@splitbox@save}%
Start loop until splitting fits – break after 100 attempts
983      \dimen@i=\dimen@%\relax
984      \@tempcnta=\z@\relax
985      \loop
986      \ifdim\dimexpr\ht\mdf@splitbox@two+\dp\mdf@splitbox@two\relax>\dimen@
987      \advance\dimen@i by -\p@\relax
988      \advance\@tempcnta by \@ne\relax
989      \ifnum\@tempcnta>100
990      \let\iterate\relax
991      \mdf@PackageWarning{correct box splittet fails^^M
992                          It seems you are using a non splittable
993                          contents\MessageBreak}
994      \fi
995 %      \immediate\typeout{***mdframed \string\@tempcnta=\the\@tempcnta***}
996 %      \immediate \typeout{***mdframed \string\dimen@i=\the\dimen@i***}
997      \mdf@ignorevbadness%
998      \setbox\mdf@splitbox@one=\vbox{\break\unvcopy\mdf@splitbox@save}%
999      \splitmaxdepth\z@ \splittopskip\mdf@splittopskip\length%
1000     \mdf@ignorevbadness%
1001     \setbox\mdf@splitbox@two\vsplit\mdf@splitbox@one to \dimen@i\relax%
1002     \setbox\mdf@splitbox@two\vbox{\unvbox\mdf@splitbox@two}%
1003     \setbox\mdf@splitbox@one\vbox{\unvbox\mdf@splitbox@one}%
1004     \repeat%
1005     }{}%
```

Test if the last frame is empty

```

1006     \ifvoid\mdf@splitbox@one\relax%
1007     \mdf@PackageWarning{You got a bad break because the splittet box
1008                         is empty^^M
1009                         You have to change the page settings^^M
1010                         like enlargethispage or something else^^M
1011                         the package increases do
1012                         \enlargethispage{\baselineskip}\MessageBreak}%
1013     \setbox\mdf@splitbox@one=\vbox{\unvcopy\mdf@splitbox@save}
1014     \enlargethispage{\baselineskip}%
1015     \def\mdf@reserved@a{\mdf@put@frame}%
1016     \fi%
```

Test if first splitted frame doesn't have the original with.

```

1017     \ifdim\wd\mdf@splitbox@two=\wd\mdf@splitbox@one\relax
1018     \else%
1019     \mdf@PackageInfo{You first box width is to small^^M
1020                     mdframed fixed it\MessageBreak}%
1021     \setbox\mdf@splitbox@two=\vbox%
1022     {%
1023     \hrule \@height\z@ \@width\wd\mdf@splitbox@one\relax
1024     \unvcopy\mdf@splitbox@two%
1025     }%
1026     \fi%
```

Test if the first frame is empty

```

1027     \ifvoid\mdf@splitbox@two\relax%
1028     {\hrule \@height\@size pt \@width\z@%
1029     \hrule \@height\z@ \@width\hsize}%
1030     \setbox\mdf@splitbox@one=\vbox{\unvcopy\mdf@splitbox@save}%

```

```

1031      \def\mdf@reserved@a{\mdf@put@frame}%
1032  \else%
1033      \ifdimequal{\ht\mdf@splitbox@two}{0pt}%
1034          {\hrule \@height\z@ \@width\hsize%
1035            \vfill\eject%
1036            \setbox\mdf@splitbox@one=\vbox{\unvcopy\mdf@splitbox@save}%
1037            \def\mdf@reserved@a{\mdf@put@frame}%
1038            }%
1039          {%

```

Output of the first frame

```

1040      \begingroup\mdf@@setzref\mdf@putbox@first\endgroup%
1041      \hrule \@height\z@ \@width\hsize%
1042      \vfill\eject%
1043      \def\mdf@reserved@a{\mdf@put@frame@ii}%

1044      }%
1045  \fi%
1046  }%
1047 \mdf@reserved@a%
1048 }

```

\mdf@put@frame@ii

Output of the middle and last box.

```
1049 \def\mdf@put@frame@ii{%
```

After splitting the vertical free space is `\vsize` so you can set it directly.

```
1050 \setlength{\mdf@freevspace@length}{\vsize}%
```

repeating frame title must be improved

```

1051 \ifbool{mdf@repeatframetitle}%
1052 {%

```

Remember that the first title was printed

```
1053 \toggletrue{mdf@notfirstframetitle}%
```

remove the vertical skip added by option `splittopskip` to connect the boxes

```

1054 \splitmaxdepth\z@ \splittopskip\z@
1055 \setbox\mdf@splitbox@one=\vbox{\break\unvbox\mdf@splitbox@one}%
1056 \mdf@ignorevbadness%
1057 \setbox0=\vsplit\mdf@splitbox@one to \z@\relax%
1058 \setbox\mdf@splitbox@one=\vbox{\unvbox\mdf@splitbox@one}

```

combine frame title with the contents of `mdframed`

```

1059 \setbox\mdf@splitbox@one\vbox%
1060 {%
1061     \vbox to \mdf@frametitleaboveskip@length{}
1062     \unvcopy\mdf@frametitlebox\relax%
1063     \mdf@@frametitlerule\relax%
1064     \unvbox\mdf@splitbox@one\relax%
1065     }%
1066 \setbox\mdf@splitbox@one=\vbox{\unvbox\mdf@splitbox@one}%
1067 }{}%

```

`\dimen@` is equal to the natural height of the rest

```
1068 \setlength{\dimen@}{\dimexpr\ht\mdf@splitbox@one+\dp\mdf@splitbox@one\relax}%
```

Assume no middle box – add bottom length to the natural height of the contents

```
1069 \mdf@dolist{\mdf@advancelength@freevspace@add}%
1070     {%used \dimen@
1071         innerbottommargin,innerlinewidth,middlelinewidth,outerlinewidth,%
1072     }%
```

add top length of lines if `everyline` is set to `true`

```
1073 \ifbool{mdf@everyline}%
1074     {%
1075         \ifbool{mdf@topline}%
1076             {%
1077                 \advance\dimen@ by \mdf@innerlinewidth@length\relax%
1078                 \advance\dimen@ by \mdf@middlelinewidth@length\relax%
1079                 \advance\dimen@ by \mdf@outerlinewidth@length\relax%
1080             }{}%
1081     }{}%
```

remove length of bottom if `bottomline` is set to `false`

```
1082 \notbool{mdf@bottomline}%
1083     {%
1084         \advance\dimen@ by -\mdf@innerlinewidth@length\relax%
1085         \advance\dimen@ by -\mdf@middlelinewidth@length\relax%
1086         \advance\dimen@ by -\mdf@outerlinewidth@length\relax%
1087         \relax%
1088     }{}%
```

Test whether the complete height of the frame fits on the current page

```
1089 \ifdimgreater{\dimen@}{\mdf@freevspace@length}%
1090     {%have a middle box
```

Use `\mdf@freevspace@length` to compute the splitting dimension. The conditionals `everyline`, `topline` and `bottomline` work like the test above.

```
1091     \advance\mdf@freevspace@length by -\mdf@splitbottomskip@length\relax%
1092     \ifbool{mdf@everyline}%
1093         {%
1094             \ifbool{mdf@topline}%
1095                 {%
1096                     \advance\mdf@freevspace@length by -\mdf@innerlinewidth@length\relax%
1097                     \advance\mdf@freevspace@length by -\mdf@middlelinewidth@length\relax%
1098                     \advance\mdf@freevspace@length by -\mdf@outerlinewidth@length\relax%
1099                 }{}%
1100             \ifbool{mdf@bottomline}%
1101                 {%
1102                     \advance\mdf@freevspace@length by -\mdf@innerlinewidth@length\relax%
1103                     \advance\mdf@freevspace@length by -\mdf@middlelinewidth@length\relax%
1104                     \advance\mdf@freevspace@length by -\mdf@outerlinewidth@length\relax%
1105                     \relax
1106                 }{}%
1107             }{}%
```

- save the original contents in a new save box,
- set the dimension for splitting
- ignore bad boxes and split

```
1108 \setbox\mdf@splitbox@save=\vbox{\unvcopy\mdf@splitbox@one}%
1109 \splitmaxdepth\z@ \splittopskip\mdf@splittopskip@length%
1110 \mdf@ignorevbadness%
1111 \setbox\mdf@splitbox@two\vsplit\mdf@splitbox@one to \mdf@freevspace@length
1112 \setbox\mdf@splitbox@two\vbox{\unvbox\mdf@splitbox@two}
```

```

1113      \setbox\mdf@splitbox@one\vbox{\unvbox\mdf@splitbox@one}
Test whether the splitted box fits the required dimension
1114      \ifdimgreater{\ht\mdf@splitbox@two+\dp\mdf@splitbox@two}{\dimen@}%
1115      {%splitted wrong
1116      \mdf@PackageInfo{Box was splittet wrong^^M starting loop to iterate
1117      the splitting point\MessageBreak}%
Start loop until splitting fits – break after 100 attempts
1118      \dimen@i=\mdf@freevspace@length%\relax
1119      \@tempcnta=\z@\relax
1120      \loop
1121      \ifdim\dimexpr\ht\mdf@splitbox@two+\dp\mdf@splitbox@two\relax>%
1122      \mdf@freevspace@length\relax
1123      \advance\dimen@i by -\p@\relax%
1124      \advance\@tempcnta by \one\relax%
1125 %      \immediate\typeout{***mdframed \string\@tempcnta=\the\@tempcnta***}
1126 %      \immediate \typeout{***mdframed \string\dimen@i=\the\dimen@i***}
1127      \ifnum\@tempcnta>100
1128      \let\iterate\relax%
1129      \mdf@PackageWarning{correct box splittet fails^^M
1130      It seems you are using a non splittable
1131      contents\MessageBreak}%
1132      \fi
1133      \setbox\mdf@splitbox@one=\vbox{\break\unvcopy\mdf@splitbox@save}%
1134      \splitmaxdepth\z@ \splittopskip\mdf@splittopskip@length%
1135      \mdf@ignorevbadness%
1136      \setbox\mdf@splitbox@two\vsplit\mdf@splitbox@one to \dimen@i\relax%
1137      \setbox\mdf@splitbox@two\vbox{\unvbox\mdf@splitbox@two}%
1138      \setbox\mdf@splitbox@one\vbox{\unvbox\mdf@splitbox@one}%
1139      \repeat%
1140      }{}%
Test whether last frame is empty
1141      \ifvoid\mdf@splitbox@one\relax%
1142      \mdf@PackageWarning{You got a bad break because the splittet box is
1143      empty^^M
1144      You have to change the page settings^^M
1145      like enlargethispage or something else^^M
1146      the package increases do
1147      \enlargethispage{\baselineskip}\MessageBreak}%
1148      \setbox\mdf@splitbox@one=\vbox{\unvcopy\mdf@splitbox@save}%
1149      \enlargethispage{\baselineskip}%
1150      \def\mdf@reserved@a{\mdf@put@frame@ii}%
Output of the middle frame
1151      \else
1152      \begingroup\mdf@@setzref\mdf@putbox@middle\endgroup%
1153      \hrule \@height\z@ \@width\hsize%
1154      \vfill\@eject%
1155      \def\mdf@reserved@a{\mdf@put@frame@ii}%
1156      \fi
1157      }%End middle box case
Starting output of last frame
1158      {%start last box case
1159      \ifvoid\mdf@splitbox@one
1160      \mdf@PackageWarning{You got a bad break\MessageBreak
1161      because the last split box is empty\MessageBreak

```

```

1162                                     You have to change the settings}%%
1163     \setbox\mdf@splitbox@one=\vbox%
1164         {%
1165             \unvbox\mdf@splitbox@one%
1166             \hrule \@height\z@ \@width\mdfboundingboxwidth
1167         }%
1168     \fi%
\ifvoid isn't enough – need to test the height
1169     \ifdimless{\ht\mdf@splitbox@one}{lsp}%
1170     {%
1171         \mdf@PackageWarning{You got a bad break\MessageBreak
1172                             because the last split box is empty\MessageBreak
1173                             You have to change the settings}%
1174
1175         \let\mdf@reserved@a\relax%
1176         \setbox\mdf@splitbox@one=\vbox%
1177             {%
1178                 \unvbox\mdf@splitbox@one%
1179                 \hrule \@height\z@ \@width\mdfboundingboxwidth
1180             }%
1181     }{}%
Output of the last frame
1182     \begingroup\mdf@@setzref\mdf@putbox@second\endgroup%
1183     \hrule \@height\z@ \@width\hsize%
1184     \let\mdf@reserved@a\relax%
1185     }%
1186     \mdf@reserved@a%
1187 }
1188

```

```

\mdf@test@lrb
\mdf@test@ltr
\mdf@test@ltb
\mdf@test@trb
\mdf@test@lrb
\mdf@test@lb
\mdf@test@rb
\mdf@test@tr
\mdf@test@lt
\mdf@test@lr
\mdf@test@tb
\mdf@test@l
\mdf@test@r
\mdf@test@t
\mdf@test@b
\mdf@test@noline

```

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

```

1189 %%%      -----t-----
1190 %%%      |               |
1191 %%%      |               |
1192 %%%      |               |
1193 %%%      l|               |r
1194 %%%      |               |
1195 %%%      |               |
1196 %%%      |-----|

```



```

1197 %%%          b
1198 %%Zusammenhaenge abfragen:
1199 \newrobustcmd*{\mdf@test@ltrb}%
1200     \ifboolexpr{ (bool {mdf@topline}) and (bool {mdf@bottomline})
1201                 and (bool {mdf@leftline}) and (bool {mdf@rightline})}}
1202 %3-set
1203 \newrobustcmd*{\mdf@test@ltr}%
1204     \ifboolexpr{ (bool {mdf@topline}) and not (bool {mdf@bottomline})
1205                 and (bool {mdf@leftline}) and (bool {mdf@rightline})}}
1206 \newrobustcmd*{\mdf@test@ltb}%
1207     \ifboolexpr{ (bool {mdf@topline}) and (bool {mdf@bottomline})
1208                 and (bool {mdf@leftline}) and not (bool {mdf@rightline})}}
1209 \newrobustcmd*{\mdf@test@trb}%
1210     \ifboolexpr{ (bool {mdf@topline}) and (bool {mdf@bottomline})
1211                 and not (bool {mdf@leftline}) and (bool {mdf@rightline})}}
1212 \newrobustcmd*{\mdf@test@lrb}%
1213     \ifboolexpr{ not (bool {mdf@topline}) and (bool {mdf@bottomline})
1214                 and (bool {mdf@leftline}) and (bool {mdf@rightline})}}
1215 %2-set
1216 \newrobustcmd*{\mdf@test@lb}%
1217     \ifboolexpr{ not (bool {mdf@topline}) and (bool {mdf@bottomline})
1218                 and (bool {mdf@leftline}) and not (bool {mdf@rightline})}}
1219 \newrobustcmd*{\mdf@test@rb}%
1220     \ifboolexpr{ not (bool {mdf@topline}) and (bool {mdf@bottomline})
1221                 and not (bool {mdf@leftline}) and (bool {mdf@rightline})}}
1222 \newrobustcmd*{\mdf@test@tr}%
1223     \ifboolexpr{ (bool {mdf@topline}) and not (bool {mdf@bottomline})
1224                 and not (bool {mdf@leftline}) and (bool {mdf@rightline})}}
1225 \newrobustcmd*{\mdf@test@lt}%
1226     \ifboolexpr{ (bool {mdf@topline}) and not (bool {mdf@bottomline})
1227                 and (bool {mdf@leftline}) and not (bool {mdf@rightline})}}
1228 \newrobustcmd*{\mdf@test@lr}%
1229     \ifboolexpr{ not (bool {mdf@topline}) and not (bool {mdf@bottomline})
1230                 and (bool {mdf@leftline}) and (bool {mdf@rightline})}}
1231 \newrobustcmd*{\mdf@test@tb}%
1232     \ifboolexpr{ (bool {mdf@topline}) and (bool {mdf@bottomline})
1233                 and not (bool {mdf@leftline}) and not (bool {mdf@rightline})}}
1234 %Einzellinien
1235 \newrobustcmd*{\mdf@test@l}%
1236     \ifboolexpr{ not (bool {mdf@topline}) and not (bool {mdf@bottomline})
1237                 and (bool {mdf@leftline}) and not (bool {mdf@rightline})}}
1238 \newrobustcmd*{\mdf@test@r}%
1239     \ifboolexpr{ not (bool {mdf@topline}) and not (bool {mdf@bottomline})
1240                 and not (bool {mdf@leftline}) and (bool {mdf@rightline})}}
1241 \newrobustcmd*{\mdf@test@t}%
1242     \ifboolexpr{ (bool {mdf@topline}) and not (bool {mdf@bottomline})
1243                 and not (bool {mdf@leftline}) and not (bool {mdf@rightline})}}
1244 \newrobustcmd*{\mdf@test@b}%
1245     \ifboolexpr{ not (bool {mdf@topline}) and (bool {mdf@bottomline})
1246                 and not (bool {mdf@leftline}) and not (bool {mdf@rightline})}}
1247 %keine Linien
1248 \newrobustcmd*{\mdf@test@noline}%
1249     \ifboolexpr{ not (bool {mdf@topline}) and not (bool {mdf@bottomline})
1250                 and not (bool {mdf@leftline}) and not (bool {mdf@rightline})}}
1251 \newrobustcmd*{\mdf@test@single}%
1252     \ifboolexpr{ not (test {\mdf@test@ltrb} or test {\mdf@test@ltr} or

```

```

1253      test {\mdf@test@ltb} or test {\mdf@test@trb} or
1254      test {\mdf@test@lrb} or test {\mdf@test@lb} or
1255      test {\mdf@test@rb} or test {\mdf@test@tr} or
1256      test {\mdf@test@lt} ) }}
1257 %

1258 \DisableKeyvalOption[action=warning,package=mdframed]{mdf}{framemethod}%
1259 \DisableKeyvalOption[action=warning,package=mdframed]{mdf}{xcolor}%
1260
1261 \endinput

```

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

```

1262 %% Style file for mdframed for package option 'framemethod=default'
1263 %%
1264 %% This package may be distributed under the terms of the LaTeX Project
1265 %% Public License, as described in lppl.txt in the base LaTeX distribution.
1266 %% Either version 1.0 or, at your option, any later version.
1267 %%
1268 %%
1269 %%$Id: mdframed.dtx 426 2012-06-02 12:18:56Z marco $
1270 %

```

```

\mdframed0packagename
\mdf@frame0date@svn

```

local settings

```

1271 \def\mdframed0packagename{md-frame-0}
1272 \def\mdf@frame0date@svn$#1: #2 #3 #4-#5-#6 #7 #8${#4/#5/#6\space }
1273 \ProvidesFile{md-frame-0.mdf}%
1274     [\mdf@frame0date@svn$Id: mdframed.dtx 426 2012-06-02 12:18:56Z marco $]
1275     \mdversion: \mdframed0packagename]

```

```

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

```

short command

```

1276 \def\mdf@background@default{\color{\mdf@backgroundcolor}}
1277 \def\mdf@frametitlebackground@default{\color{\mdf@frametitlebackgroundcolor}}
1278 \def\mdf@shadow@default{\color{\mdf@shadowcolor}}
1279 \def\mdf@innerlinecolor@default{\color{\mdf@innerlinecolor}}
1280 \def\mdf@middlelinecolor@default{\color{\mdf@middlelinecolor}}
1281 \def\mdf@outerlinecolor@default{\color{\mdf@outerlinecolor}}
1282 \def\mdf@frametitlerulecolor@default{\color{\mdf@frametitlerulecolor}}
1283 \let\mdf@linecolor@default\mdf@middlelinecolor@default
1284 \def\mdf@@frametitlerule{%
1285   \ifbool{mdf@frametitlerule}{%
1286     \vbox{\hsize\mdfframetitleboxwidth%
1287       \par\unskip\vskip\mdf@frametitlebelowskip@length%
1288       \rlap{\noindent\hspace*{-\mdf@innerleftmargin@length}%
1289         \mdf@frametitlerulecolor@default%
1290         \rule{\dimexpr\mdfframetitleboxwidth%
1291           +\mdf@innerleftmargin@length
1292           +\mdf@innerrightmargin@length\relax

```

```

1293         }\mdf@frametitulerulewidth@length}%
1294     }\hrule \@height\z@ \@width\hsize}%
1295 }{%
1296     \vbox{\hsize\mdfframetitleboxwidth%
1297         \par\unskip\vskip\mdf@frametitlebelowskip@length%
1298         \rlap{\noindent\hspace*{-\mdf@innerleftmargin@length}%
1299         \mdf@frametitulerulecolor@default%
1300         \rule{\dimexpr\mdfframetitleboxwidth%
1301             +\mdf@innerleftmargin@length
1302             +\mdf@innerrightmargin@length\relax
1303         }\z@}%
1304     }\hrule \@height\z@ \@width\hsize}%
1305 }%
1306 \iftoggle{mdf@notfirstframetitle}%
1307 {%
1308     \par\unskip\vskip\mdf@splittopskip@length%
1309 }%
1310 {%
1311     \par\unskip\vskip\mdf@innertopmargin@length%
1312 }%
1313 }%
1314

```

`\mdfsubtitle`

Definition of the command `\mdfsubtitle`.

```

1315 \newrobustcmd\mdfsubtitle[2][]%
1316 {%
1317     Make everything local.
1318     \begingroup
1319     \penalty-9995%set a breakpoint before the subtitle
1320     \end{macrocode}
1321 % Inside the title we don't need any \Cmd{parindent}. Next set the options of
1322 % the optional argument of \Cmd{mdfsubtitle}.
1323 % \begin{macrocode}
1324 \parindent\z@ \relax%
1325 \mdfsetup{#1}%only for subtitle options
1326 % \end{macrocode}
1327 % Save the complete subtitle inside the save box \Cmd{z@}.
1328 % \begin{macrocode}
1329 \setbox\z@=\vbox{\mdf@subtitlefont{#2}\relax}%
1330 % \end{macrocode}
1331 % Compute the width of the current line including the inner left margin and
1332 % inner right margin (using \Cmd{dimen@}. In the next step the height and the
1333 % depth of the save box will be saved in \Cmd{dimen@i}.
1334 % \begin{macrocode}
1335 \dimen@=\linewidth\relax%
1336 \advance\dimen@ by \mdf@innerleftmargin@length\relax%
1337 \advance\dimen@ by \mdf@innerrightmargin@length\relax%
1338 \dimen@i=\mdf@subtitleinneraboveskip@length\relax%
1339 \advance\dimen@i by \mdf@subtitleinnerbelowskip@length\relax%
1340 \advance\dimen@i by \ht\z@\relax%
1341 \advance\dimen@i by \dp\z@\relax%
1342 % \end{macrocode}
1343 % Test if rules should be drawn. otherwise set the line width to 0\,pt.

```

```

1343 %      \begin{macrocode}
1344 \ifbool{mdf@subtitleaboveline}{}%
1345     {\mdfsetup{subtitleabovelinewidth=\z@}}%
1346 \ifbool{mdf@subtitlebelowline}{}%
1347     {\mdfsetup{subtitlebelowlinewidth=\z@}}%
1348 %      \end{macrocode}
1349 % Start a new line with the given skip \Opt{subtitleaboveskip}.
1350 %      \begin{macrocode}
1351 \par\unskip\ifvmode\nointerlineskip\hrule \@height\z@ \@width\hsize\fi%
1352 \vskip\mdf@subtitleaboveskip@length
1353 %      \end{macrocode}
1354 % Drawing the above line of the subtitle.
1355 %      \begin{macrocode}
1356 \rlap%
1357 {%
1358     \hspace*{-\mdf@innerleftmargin@length}%
1359     \begingroup%
1360     \color{\mdf@subtitleabovelinecolor}%
1361     \rule{\dimen@}{\mdf@subtitleabovelinewidth@length}%
1362     \endgroup%
1363 }%
1364 %      \end{macrocode}
1365 % space between rule above and subtitle
1366 %      \begin{macrocode}
1367 \par\unskip\ifvmode\nointerlineskip\hrule \@height\z@ \@width\hsize\fi%
1368 \vskip\mdf@subtitleinneraboveskip@length
1369 %      \end{macrocode}
1370 % output of subtitle with a background. Must think about the \Cmd{hspace}
1371 % combination.
1372 %      \begin{macrocode}
1373 \leavevmode\rlap%
1374 {%
1375     \smash{%
1376         \hspace*{-\mdf@innerleftmargin@length}%
1377         \begingroup%
1378         \color{\mdf@subtitlebackgroundcolor}%
1379         \rule[\dimexpr-\dp\z@-\mdf@subtitleinnerbelowskip@length\relax]
1380             {\dimen@}{\dimen@i}%
1381         \endgroup%
1382     }%
1383 }%
1384 \box\z@\relax%
1385 %      \end{macrocode}
1386 % Skip after subtitle
1387 %      \begin{macrocode}
1388 \par\unskip\ifvmode\nointerlineskip\hrule \@height\z@ \@width\hsize\fi%
1389 \vskip\mdf@subtitleinnerbelowskip@length
1390 %      \end{macrocode}
1391 % Draw rule below of the subtitle.
1392 %      \begin{macrocode}
1393 \rlap%
1394 {%
1395     \hspace*{-\mdf@innerleftmargin@length}%
1396     \begingroup%
1397     \color{\mdf@subtitlebelowlinecolor}%
1398     \rule{\dimen@}{\mdf@subtitlebelowlinewidth@length}%

```

```

1399   \color@endgroup
1400 }%
1401 %   \end{macrocode}
1402 % Last skip and set a non breaking point.
1403 %   \begin{macrocode}
1404 \par\unskip\ifvmode\nointerlineskip\hrule \@height\z@ \@width\hsize\fi%
1405 \vskip\mdf@subsubtitlebelowskip@length
1406 \penalty 9995
1407 \endgroup
1408 }
1409

```

`\mdfsubsubtitle`

Definition of the command `\mdfsubsubtitle`.

```

1410 \newrobustcmd\mdfsubsubtitle[2][]%
1411 {%
1412   Make everything local.
1413   \begingroup
1414   \penalty-9995%set a breakpoint before the subsubtitle
1415   %   \end{macrocode}
1416   % Inside the title we don't need any \Cmd{parindent}. Next set the options of
1417   % the optional argument of \Cmd{mdfsubsubtitle}.
1418   %   \begin{macrocode}
1419   \parindent\z@\relax%
1420   \mdfsetup{#1}%only for subsubtitle options
1421   %   \end{macrocode}
1422   % Save the complete subsubtitle inside the save box \Cmd{z@}.
1423   %   \begin{macrocode}
1424   \setbox\z@=\vbox{\mdf@subsubtitlefont{#2}\relax}%
1425   %   \end{macrocode}
1426   % Compute the width of the current line including the inner left margin and
1427   % inner right margin (using \Cmd{dimen@}. In the next step the height and the
1428   % depth of the save box will be saved in \Cmd{dimen@i}.
1429   %   \begin{macrocode}
1430   \dimen@=\linewidth\relax%
1431   \advance\dimen@ by \mdf@innerleftmargin@length\relax%
1432   \advance\dimen@ by \mdf@innerrightmargin@length\relax%
1433   \dimen@i=\mdf@subsubtitleinneraboveskip@length\relax%
1434   \advance\dimen@i by \mdf@subsubtitleinnerbelowskip@length\relax%
1435   \advance\dimen@i by \ht\z@\relax%
1436   \advance\dimen@i by \dp\z@\relax%
1437   %   \end{macrocode}
1438   % Test if rules should be drawn. otherwise set the line width to 0\,pt.
1439   %   \begin{macrocode}
1440   \ifbool{mdf@subsubtitleaboveline}{}%
1441   {\mdfsetup{subsubtitleabovelinewidth=\z@}}%
1442   \ifbool{mdf@subsubtitlebelowline}{}%
1443   {\mdfsetup{subsubtitlebelowlinewidth=\z@}}%
1444   %   \end{macrocode}
1445   % Start a new line with the given skip \Opt{subsubtitleaboveskip}.
1446   %   \begin{macrocode}
1447   \par\unskip\ifvmode\nointerlineskip\hrule \@height\z@ \@width\hsize\fi%
1448   \vskip\mdf@subsubtitleaboveskip@length
1449   %   \end{macrocode}

```

```

1449 % Drawing the above line of the subsubtitle.
1450 %     \begin{macrocode}
1451 \rlap%
1452 {%
1453   \hspace*{-\mdf@innerleftmargin@length}%
1454   \begingroup%
1455     \color{\mdf@subsubtitleabovelinecolor}%
1456     \rule{\dimen@}{\mdf@subsubtitleabovelinewidth@length}%
1457   \endgroup%
1458 }%
1459 %     \end{macrocode}
1460 % space between rule above and subsubtitle
1461 %     \begin{macrocode}
1462 \par\unskip\ifvmode\nointerlineskip\hrule \@height\z@ \@width\hsize\fi%
1463 \vskip\mdf@subsubtitleinneraboveskip@length
1464 %     \end{macrocode}
1465 % output of subsubtitle with a background. Must think about the \Cmd{hspace}
1466 % combination.
1467 %     \begin{macrocode}
1468 \leavevmode\rlap%
1469 {%
1470   \hspace*{-\mdf@innerleftmargin@length}%
1471   \smash{%
1472     \begingroup%
1473       \color{\mdf@subsubtitlebackgroundcolor}%
1474       \rule[\dimexpr-\dp\z@-\mdf@subsubtitleinnerbelowskip@length\relax]
1475         {\dimen@}{\dimen@i}%
1476     \endgroup%
1477   }%
1478 }%
1479 \box\z@\relax%
1480 %     \end{macrocode}
1481 % Skip after subsubtitle
1482 %     \begin{macrocode}
1483 \par\unskip\ifvmode\nointerlineskip\hrule \@height\z@ \@width\hsize\fi%
1484 \vskip\mdf@subsubtitleinnerbelowskip@length
1485 %     \end{macrocode}
1486 % Draw rule below of the subsubtitle.
1487 %     \begin{macrocode}
1488 \rlap%
1489 {%
1490   \hspace*{-\mdf@innerleftmargin@length}%
1491   \begingroup%
1492     \color{\mdf@subsubtitlebelowlinecolor}%
1493     \rule{\dimen@}{\mdf@subsubtitlebelowlinewidth@length}%
1494   \endgroup%
1495 }%
1496 %     \end{macrocode}
1497 % Last skip and set a non breaking point.
1498 %     \begin{macrocode}
1499 \par\unskip\ifvmode\nointerlineskip\hrule \@height\z@ \@width\hsize\fi%
1500 \vskip\mdf@subsubtitlebelowskip@length
1501 \penalty 9995
1502 \endgroup
1503 }
1504

```

```

\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`

```

1505 \def\mdf@frame@background@single{%
1506   \ifbool{mdf@shadow}%
1507     {%
1508       \rlap%
1509       {%
1510         \smash%
1511         {%
1512           \mdf@shadow@default%
1513           \rule[\dimexpr
1514             -\mdfboundingboxdepth
1515             -\mdf@shadowsize@length
1516             \ifbool{mdf@bottomline}{-\mdf@middlelinewidth@length}{}
1517             \relax]%
1518             {\dimexpr
1519               \mdfboundingboxtotalwidth
1520               +\mdf@shadowsize@length
1521               \ifbool{mdf@rightline}{+\mdf@middlelinewidth@length}{}
1522               \relax}%
1523             {\dimexpr
1524               \mdfboundingboxtotalheight
1525               +\mdf@shadowsize@length
1526               \ifbool{mdf@bottomline}{+\mdf@middlelinewidth@length}{}
1527               \relax}%
1528             }%
1529           }%
1530         }{}%
1531       \rlap%
1532       {%
1533         \mdf@background@default%
1534         \rule[-\mdfboundingboxdepth]%
1535           {\mdfboundingboxtotalwidth}%
1536           {\mdfboundingboxtotalheight}%
1537       }%
1538     }%
1539 \def\mdf@frame@frametitlebackground@single{%
1540   \rlap%
1541   {%
1542     \mdf@frametitlebackground@default%
1543     \rule[\dimexpr
1544       -\mdfboundingboxdepth
1545       +\mdfboundingboxtotalheight
1546       -\mdfframetitleboxtotalheight
1547       \relax]%
1548       {\mdfboundingboxtotalwidth}%
1549       {\mdfframetitleboxtotalheight}%
1550     }%
1551   }%
1552 \def\mdf@frame@topline@single{%

```

```

1553 \rlap%
1554 {%
1555   \mdf@linecolor@default%
1556   \ifbool{mdf@topline}%
1557   {%
1558     \rule[\dimexpr
1559       \mdfboundingboxheight
1560       -\mdfboundingboxdepth%
1561       +\mdf@innerbottommargin@length
1562       +\mdf@innertopmargin@length
1563       \relax]%
1564     {\mdfboundingboxtotalwidth}%
1565     {\mdf@middlelinewidth@length}%
1566   }{}%
1567 }%
1568 }%
1569 \def\mdf@frame@bottomline@single{%
1570 \rlap%
1571 {%
1572   \ifbool{mdf@leftline}%
1573   {%
1574     \hspace*{-\mdf@middlelinewidth@length}%
1575   }{}%
1576   \mdf@linecolor@default%
1577   \ifbool{mdf@bottomline}%
1578   {%
1579     \rule[\dimexpr
1580       -\mdfboundingboxdepth
1581       -\mdf@middlelinewidth@length
1582       \relax]%
1583     {\dimexpr
1584       \mdfboundingboxtotalwidth
1585       \ifbool{mdf@rightline}{+\mdf@middlelinewidth@length}{}%
1586       \ifbool{mdf@leftline}{+\mdf@middlelinewidth@length}{}%
1587       \relax}%
1588     {\mdf@middlelinewidth@length}%
1589   }{}%
1590 }%
1591 }%
1592 \def\mdf@frame@leftline@single{%
1593 \llap%
1594 {%
1595   \mdf@linecolor@default%
1596   \rule[-\mdfboundingboxdepth]%
1597   {\mdf@middlelinewidth@length}%
1598   {\dimexpr
1599     \mdfboundingboxtotalheight%
1600     \ifbool{mdf@topline}{+\mdf@middlelinewidth@length}{}%
1601     \relax}%
1602 }%
1603 }%
1604 \def\mdf@frame@rightline@single{%
1605 \rlap%
1606 {%
1607   \mdf@linecolor@default%
1608   \hspace*{\mdfboundingboxwidth}%

```



```

1609 \hspace*{\mdf@innerrightmargin@length}%
1610 \rule[\dimexpr
1611     -\mdfboundingboxdepth%
1612     \relax]%
1613     {\mdf@middlelinewidth@length}%
1614     {\dimexpr
1615         \mdfboundingboxtotalheight%
1616         \ifbool{mdf@topline}{+\mdf@middlelinewidth@length}{}%
1617         \relax}%
1618     }%
1619 }%
1620 \def\mdf@putbox@single{%
1621     \ifvoid\mdf@splitbox@one\relax
1622     \else%
1623         \mdf@makebox@out%
1624         {%
1625             \mdf@makeboxalign@left%
1626             \setlength{\mdfboundingboxwidth}%
1627                 {\wd\mdf@splitbox@one}%
1628             \setlength{\mdfboundingboxtotalwidth}%
1629                 {\dimexpr
1630                     \mdfboundingboxwidth
1631                     +\mdf@innerleftmargin@length%
1632                     +\mdf@innerrightmargin@length
1633                     \relax}%
1634             \setlength{\mdfboundingboxheight}%
1635                 {\dimexpr
1636                     \ht\mdf@splitbox@one
1637                     +\dp\mdf@splitbox@one
1638                     \relax}%
1639             \setlength{\mdfboundingboxdepth}%
1640                 {\dimexpr
1641                     \dp\mdf@splitbox@one
1642                     +\mdf@innerbottommargin@length
1643                     \relax}%
1644             \setlength{\mdfboundingboxtotalheight}%
1645                 {\dimexpr
1646                     \mdfboundingboxheight
1647                     +\mdf@innertopmargin@length%
1648                     +\mdf@innerbottommargin@length
1649                     \relax}%
1650             \setlength{\mdftotallinewidth}%
1651                 {\dimexpr
1652                     \mdf@innerlinewidth@length
1653                     +\mdf@middlelinewidth@length%
1654                     +\mdf@outerlinewidth@length
1655                     \relax}%
1656             \noindent%
1657             \setlength{\@tempdima}%
1658                 {\dimexpr
1659                     \mdfboundingboxtotalwidth%
1660                     \ifbool{mdf@leftline}{+\mdf@middlelinewidth@length}{}%
1661                     \ifbool{mdf@rightline}{+\mdf@middlelinewidth@length}{}
1662                     \relax}%
1663             \mdf@makebox@in[\@tempdima]%
1664             {%

```

```

1665      \null%
1666      \ifbool{mdf@leftline}%
1667      {%
1668        \hspace*{\mdftotalllinewidth}%
1669        \mdf@frame@leftline@single%
1670      }{}%
1671      \mdf@frame@topline@single%
1672      \mdf@frame@background@single%
1673      \mdf@frame@bottomline@single%
1674      \ifdefempty{\mdf@frametitle}{\mdf@frame@frametitlebackground@single}%
1675      \hspace*{\mdf@innerleftmargin@length}%
1676      \ifbool{mdf@rightline}%
1677      {%
1678        \mdf@frame@rightline@single%
1679      }{}%
1680      {\box\mdf@splitbox@one}%
1681    }%
1682    \mdf@makeboxalign@right%
1683  }%
1684  \fi%
1685 }

```

```

\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

```

1686 \def\mdf@frame@background@first{%
1687   \ifbool{mdf@shadow}%
1688   {%
1689     \rlap%
1690     {%
1691       \smash%
1692       {%
1693         \mdf@shadow@default%
1694         \rule[\dimexpr
1695           -\mdfboundingboxdepth
1696           -\mdf@shadowsize@length
1697         \relax]{%
1698           {\dimexpr
1699             \mdfboundingboxtotalwidth
1700             +\mdf@shadowsize@length
1701             \ifbool{mdf@rightline}{+\mdf@middlelinewidth@length}{}
1702           \relax}%
1703           {\dimexpr
1704             \mdfboundingboxtotalheight
1705             +\mdf@shadowsize@length
1706           \relax}%
1707         }%
1708       }%
1709     }{}%
1710   \rlap%
1711   {%
1712     \mdf@background@default%

```

```

1713 \rule[-\mdfboundingboxdepth]%
1714 {\mdfboundingboxtotalwidth}%
1715 {\mdfboundingboxtotalheight}%
1716 }%
1717 }%
1718 \def\mdf@frame@frametitlebackground@first{%
1719 \ifbool{mdf@repeatframetitle}%
1720 {%repeating title = true
1721 \rlap%
1722 {%
1723 \mdf@frametitlebackground@default%
1724 \rule[\dimexpr
1725 -\mdfboundingboxdepth
1726 +\mdfboundingboxtotalheight
1727 -\mdfframetitleboxtotalheight
1728 \relax]%
1729 {\mdfboundingboxtotalwidth}%
1730 {\mdfframetitleboxtotalheight}%
1731 }%
1732 }%
1733 {%repeating title = false -- maybe splitted
1734 \ifdimless{\mdfframetitleboxtotalheight}{\mdfboundingboxtotalheight}%
1735 {%
1736 \rlap%
1737 {%
1738 \mdf@frametitlebackground@default%
1739 \rule[\dimexpr
1740 -\mdfboundingboxdepth
1741 +\mdfboundingboxtotalheight
1742 -\mdfframetitleboxtotalheight
1743 \relax]%
1744 {\mdfboundingboxtotalwidth}%
1745 {\mdfframetitleboxtotalheight}%
1746 }%
1747 \global\mdfframetitleboxtotalheight=-\p@\relax%
1748 }%
1749 {%
1750 \mdf@PackageWarning{You got a page break inside the title\MessageBreak
1751 Current this isn't well supported}%
1752 \rlap%
1753 {%
1754 \mdf@frametitlebackground@default%
1755 \rule[-\mdfboundingboxdepth]%
1756 {\mdfboundingboxtotalwidth}%
1757 {\mdfboundingboxtotalheight}%
1758 }%
1759 \global\mdfframetitleboxtotalheight=%
1760 \dimexpr%
1761 \mdfframetitleboxtotalheight
1762 -\mdfboundingboxheight
1763 +\mdf@frametitlebelowskip@length
1764 +.5\baselineskip-1pt
1765 % +\dp\strutbox
1766 \relax%
1767 }%
1768 }%

```

```

1769 }%
1770 \def\mdf@frame@leftline@first{%
1771   \llap%
1772   {%
1773     \mdf@linecolor@default%
1774     \rule[-\mdfboundingboxdepth]%
1775       {\mdf@middlelinewidth@length}%
1776       {\dimexpr
1777         \mdfboundingboxtotalheight%
1778         \ifbool{mdf@topline}{+\mdf@middlelinewidth@length}{}}
1779       \relax}%
1780   }%
1781 }%
1782 \def\mdf@frame@topline@first{%
1783   \rlap%
1784   {%
1785     \mdf@linecolor@default%
1786     \rule[\dimexpr
1787       \mdfboundingboxheight
1788       -\mdfboundingboxdepth
1789       +\mdf@splitbottomskip@length
1790       +\mdf@innertopmargin@length
1791       \relax]%
1792       {\mdfboundingboxtotalwidth}%
1793       {\mdf@middlelinewidth@length}%
1794   }%
1795 }
1796 \def\mdf@frame@rightline@first{%
1797   \rlap%
1798   {%
1799     \mdf@linecolor@default%
1800     \hspace*{\mdfboundingboxwidth}%
1801     \hspace*{\mdf@innerrightmargin@length}%
1802     \rule[-\mdfboundingboxdepth]%
1803       {\mdf@middlelinewidth@length}%
1804       {\dimexpr
1805         \mdfboundingboxtotalheight%
1806         \ifbool{mdf@topline}{+\mdf@middlelinewidth@length}{}}
1807       \relax}%
1808   }%
1809 }%
1810 \def\mdf@frame@bottomline@first{%
1811   \rlap%
1812   {%
1813     \ifbool{mdf@leftline}%
1814     {%
1815       \hspace*{-\mdf@middlelinewidth@length}%
1816     }{}%
1817     \mdf@linecolor@default%
1818     \ifbool{mdf@bottomline}%
1819     {%
1820       \rule[\dimexpr
1821         -\mdfboundingboxdepth
1822         -\mdf@middlelinewidth@length
1823         \relax]%
1824       {\dimexpr

```

```

1825         \mdfboundingboxtotalwidth
1826         \ifbool{mdf@rightline}{+\mdf@middlelinewidth@length}{}%
1827         \ifbool{mdf@leftline}{+\mdf@middlelinewidth@length}{%
1828         \relax}%
1829         {\mdf@middlelinewidth@length}%
1830     }{}%
1831 }%
1832 }%
1833 \def\mdf@putbox@first{%
1834     \ifvoid\mdf@splitbox@two\relax
1835     \else%
1836         \mdf@makebox@out[\linewidth]%
1837         {%
1838             \mdf@makeboxalign@left%
1839             \setlength{\mdfboundingboxwidth}%
1840                 {\wd\mdf@splitbox@two}%
1841             \setlength{\mdfboundingboxtotalwidth}%
1842                 {\dimexpr
1843                     \mdfboundingboxwidth
1844                     +\mdf@innerleftmargin@length%
1845                     +\mdf@innerrightmargin@length
1846                     \relax}%
1847             \setlength{\mdfboundingboxheight}%
1848                 {\dimexpr
1849                     \ht\mdf@splitbox@two
1850                     +\dp\mdf@splitbox@two
1851                     \relax}%
1852             \setlength{\mdfboundingboxdepth}%
1853                 {\dimexpr
1854                     \dp\mdf@splitbox@two
1855                     +\mdf@splitbottomskip@length
1856                     \relax}%
1857             \setlength{\mdfboundingboxtotalheight}%
1858                 {\dimexpr
1859                     \mdfboundingboxheight
1860                     +\mdf@innertopmargin@length%
1861                     +\mdf@splitbottomskip@length
1862                     \relax}%
1863             \setlength{\@tempdima}%
1864                 {\dimexpr
1865                     \mdfboundingboxtotalwidth%
1866                     \ifbool{mdf@leftline}{+\mdf@middlelinewidth@length}{}%
1867                     \ifbool{mdf@rightline}{+\mdf@middlelinewidth@length}{}%
1868                     \relax}%
1869             \mdf@makebox@in[\@tempdima]%
1870             {%
1871                 \null%
1872                 \ifbool{mdf@leftline}%
1873                 {%
1874                     \hspace*{\mdf@middlelinewidth@length}%
1875                     \mdf@frame@leftline@first%
1876                 }{}%
1877                 \ifbool{mdf@everyline}%
1878                 {%
1879                     \mdf@frame@bottomline@first%
1880                 }{}%

```

```

1881      \ifbool{mdf@topline}%
1882      {%
1883      \mdf@frame@topline@first%
1884      }{}%
1885      \mdf@frame@background@first%
1886      \ifdefempty{\mdf@frametitle}{}{\mdf@frame@frametitlebackground@first}%
1887      \hspace*{\mdf@innerleftmargin@length}%
1888      \ifbool{mdf@rightline}%
1889      {%
1890      \mdf@frame@rightline@first%
1891      }{}%
1892      {\box\mdf@splitbox@two}%
1893      }%
1894      \mdf@makeboxalign@right%
1895      }%
1896 \fi%
1897 }

```

```

\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

```

1898 \def\mdf@frame@background@second{%
1899   \ifbool{mdf@shadow}%
1900   {%
1901     \rlap%
1902     {%
1903       \smash%
1904       {%
1905         \mdf@shadow@default%
1906         \rule[\dimexpr
1907           -\mdfboundingboxdepth
1908           -\mdf@shadowsize@length
1909           \ifbool{mdf@bottomline}{-\mdf@middlelinewidth@length}{}
1910           \relax]%
1911         {\dimexpr
1912           \mdfboundingboxtotalwidth
1913           +\mdf@shadowsize@length
1914           \ifbool{mdf@rightline}{+\mdf@middlelinewidth@length}{}
1915           \relax}%
1916         {\dimexpr
1917           \mdfboundingboxtotalheight
1918           +\mdf@shadowsize@length
1919           \relax}%
1920         }%
1921       }%
1922     }{}%
1923   \rlap%
1924   {%
1925     \mdf@background@default%
1926     \rule[-\mdfboundingboxdepth]%
1927     {\mdfboundingboxtotalwidth}%
1928     {\mdfboundingboxtotalheight}%

```

```

1929 }%
1930 }%
1931 \def\mdf@frame@frametitlebackground@second{%
1932 \ifbool{mdf@repeatframetitle}%
1933 {%repeating title = true
1934 \rlap%
1935 {%
1936 \mdf@frametitlebackground@default%
1937 \rule[\dimexpr
1938 -\mdfboundingboxdepth
1939 +\mdfboundingboxtotalheight
1940 -\mdfframetitleboxtotalheight
1941 \relax]%
1942 {\mdfboundingboxtotalwidth}%
1943 {\mdfframetitleboxtotalheight}%
1944 }%
1945 }%
1946 {%repeating title = false -- maybe splitted
1947 \ifdimless{\mdfframetitleboxtotalheight}{\z@}%
1948 {}%
1949 {%
1950 \rlap%
1951 {%
1952 \mdf@frametitlebackground@default%
1953 \rule[\dimexpr
1954 -\mdfboundingboxdepth
1955 +\mdfboundingboxtotalheight
1956 -\mdfframetitleboxtotalheight
1957 \relax]%
1958 {\mdfboundingboxtotalwidth}%
1959 {\mdfframetitleboxtotalheight}%
1960 }%
1961 }%
1962 }%
1963 }%
1964 \def\mdf@frame@leftline@second{%
1965 \llap%
1966 {%
1967 \mdf@linecolor@default%
1968 \rule[-\mdfboundingboxdepth]%
1969 {\mdf@middlelinewidth@length}%
1970 {\dimexpr\mdfboundingboxtotalheight}%
1971 }%
1972 }%
1973 \def\mdf@frame@bottomline@second{%
1974 \rlap%
1975 {%
1976 \ifbool{mdf@leftline}%
1977 {%
1978 \hspace*{ -\mdf@middlelinewidth@length}%
1979 }{}%
1980 \mdf@linecolor@default%
1981 \rule[\dimexpr
1982 -\mdfboundingboxdepth
1983 -\mdf@middlelinewidth@length
1984 \relax]%

```

```

1985         {\dimexpr
1986             \mdfboundingboxtotalwidth
1987             \ifbool{mdf@rightline}{+\mdf@middlelinewidth@length}{ }
1988             \ifbool{mdf@leftline}{+\mdf@middlelinewidth@length}{ }
1989             \relax}%
1990         {\mdf@middlelinewidth@length}%
1991     }%
1992 }%
1993 \def\mdf@frame@rightline@second{%
1994     \rlap%
1995     {%
1996         \mdf@linecolor@default\hspace*{\mdfboundingboxwidth}%
1997         \hspace*{\mdf@innerrightmargin@length}%
1998         \rule[-\mdfboundingboxdepth]%
1999             {\mdf@middlelinewidth@length}%
2000             {\mdfboundingboxtotalheight}%
2001     }%
2002 }%
2003 \def\mdf@frame@topline@second{%
2004     \rlap%
2005     {%
2006         \ifbool{mdf@leftline}%
2007             {%
2008                 \hspace*{-\mdf@middlelinewidth@length}%
2009             }{}%
2010         \mdf@linecolor@default%
2011         \ifbool{mdf@topline}%
2012             {%
2013                 \rule[\dimexpr
2014                     \mdfboundingboxheight
2015                     -\mdfboundingboxdepth%
2016                     +\mdf@innerbottommargin@length
2017                     \relax]%
2018                 {\dimexpr
2019                     \mdfboundingboxtotalwidth
2020                     \ifbool{mdf@rightline}{+\mdf@middlelinewidth@length}{ }
2021                     \ifbool{mdf@leftline}{+\mdf@middlelinewidth@length}{ }
2022                     \relax}%
2023                 {\mdf@middlelinewidth@length}%
2024             }{}%
2025         }%
2026 }%
2027
2028 \def\mdf@putbox@second{%
2029     \ifvoid\mdf@splitbox@one\relax%
2030     \else
2031         \mdf@makebox@out%
2032         {%
2033             \mdf@makeboxalign@left%
2034             \setlength{\mdfboundingboxwidth}%
2035                 {\wd\mdf@splitbox@one}%
2036             \setlength{\mdfboundingboxtotalwidth}%
2037                 {\dimexpr
2038                     \mdfboundingboxwidth
2039                     +\mdf@innerleftmargin@length%
2040                     +\mdf@innerrightmargin@length

```



```

2041         \relax}%
2042     \setlength{\mdfboundingboxheight}%
2043         {\dimexpr
2044             \ht\mdf@splitbox@one
2045             +\dp\mdf@splitbox@one
2046             \relax}%
2047     \setlength{\mdfboundingboxdepth}%
2048         {\dimexpr
2049             \dp\mdf@splitbox@one
2050             +\mdf@innerbottommargin@length
2051             \relax}%
2052     \setlength{\mdfboundingboxtotalheight}%
2053         {\dimexpr
2054             \mdfboundingboxheight
2055             +\mdf@innerbottommargin@length
2056             \relax}%
2057     \setlength{\@tempdima}%
2058         {\dimexpr
2059             \mdfboundingboxtotalwidth%
2060             \ifbool{mdf@leftline}{+\mdf@middlelinewidth@length}{}%
2061             \ifbool{mdf@rightline}{+\mdf@middlelinewidth@length}{}%
2062             \relax}%
2063     \mdf@makebox@in[\@tempdima]%
2064     {%
2065         \null%
2066         \ifbool{mdf@leftline}%
2067             {%
2068                 \hspace*{\mdf@middlelinewidth@length}%
2069                 \mdf@frame@leftline@second%
2070             }{}%
2071         \ifbool{mdf@everyline}%
2072             {%
2073                 \mdf@frame@topline@second
2074             }{}%
2075         \mdf@frame@background@second%
2076         \ifbool{mdf@bottomline}%
2077             {%
2078                 \mdf@frame@bottomline@second%
2079             }{}%
2080         \ifdefempty{\mdf@frametitle}{\mdf@frame@frametitlebackground@second}%
2081         \hspace*{\mdf@innerleftmargin@length}%
2082         \ifbool{mdf@rightline}%
2083             {%
2084                 \mdf@frame@rightline@second%
2085             }{}%
2086         {\box\mdf@splitbox@one}%
2087     }%
2088     \mdf@makeboxalign@right%
2089 }%
2090 \fi%
2091 }%

```

```

\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

```

2092 \def\mdf@frame@leftline@middle{%
2093   \llap%
2094   {%
2095     \mdf@linecolor@default%
2096     \rule[-\mdfboundingboxdepth]%
2097       {\mdf@middlelinewidth@length}%
2098       {\mdfboundingboxtotalheight}%
2099   }%
2100 }%
2101 \def\mdf@frame@background@middle{%
2102   \ifbool{mdf@shadow}%
2103   {%
2104     \rlap%
2105     {%
2106       \smash%
2107       {%
2108         \mdf@shadow@default%
2109         \rule[\dimexpr
2110           -\mdfboundingboxdepth
2111           -\mdf@shadowsize@length
2112         \relax]%
2113         {\dimexpr
2114           \mdfboundingboxtotalwidth
2115           +\mdf@shadowsize@length
2116           \ifbool{mdf@rightline}{+\mdf@middlelinewidth@length}{}}
2117         \relax}%
2118         {\mdfboundingboxtotalheight}%
2119       }%
2120     }%
2121   }{}%
2122   \rlap%
2123   {%
2124     \mdf@background@default%
2125     \rule[-\mdfboundingboxdepth]%
2126       {\mdfboundingboxtotalwidth}%
2127       {\mdfboundingboxtotalheight}%
2128   }%
2129 }%
2130 \def\mdf@frame@frametitlebackground@middle{%
2131   \ifbool{mdf@repeatframetitle}%
2132   {%repeating title = true
2133     \rlap%
2134     {%
2135       \mdf@frametitlebackground@default%
2136       \rule[\dimexpr
2137         -\mdfboundingboxdepth
2138         +\mdfboundingboxtotalheight
2139         -\mdfframetitleboxtotalheight
2140       \relax]%
2141       {\mdfboundingboxtotalwidth}%
2142       {\mdfframetitleboxtotalheight}%
2143     }%
2144   }%
2145   {%repeating title = false -- maybe splitted
2146     \ifdimless{\mdfframetitleboxtotalheight}{\z@}%

```

```

2147     {}%
2148     {%
2149     \rlap%
2150     {%
2151     \mdf@frametitlebackground@default%
2152     \rule[\dimexpr
2153         -\mdfboundingboxdepth
2154         +\mdfboundingboxtotalheight
2155         -\mdfframetitleboxtotalheight
2156         \relax]%
2157     {\mdfboundingboxtotalwidth}%
2158     {\mdfframetitleboxtotalheight}%
2159     }%
2160     \global\mdfframetitleboxtotalheight=-\p@\relax%
2161     }%
2162     }%
2163 }%
2164 \def\mdf@frame@rightline@middle{%
2165 \rlap%
2166 {%
2167 \mdf@linecolor@default%
2168 \hspace*{\mdfboundingboxwidth}%
2169 \hspace*{\mdf@innerrightmargin@length}%
2170 \rule[-\mdfboundingboxdepth]%
2171     {\mdf@middlelinewidth@length}%
2172     {\mdfboundingboxtotalheight}%
2173 }%
2174 }%
2175 \def\mdf@frame@topline@middle{%
2176 \rlap%
2177 {%
2178 \ifbool{mdf@leftline}%
2179     {%
2180     \hspace*{-\mdf@middlelinewidth@length}%
2181     }{}%
2182 \mdf@linecolor@default%
2183 \ifbool{mdf@topline}%
2184     {%
2185     \rule[\dimexpr
2186         \mdfboundingboxtotalheight
2187         -\mdfboundingboxdepth
2188         \relax]%
2189     {\dimexpr
2190         \mdfboundingboxtotalwidth
2191         \ifbool{mdf@rightline}{+\mdf@middlelinewidth@length}{}%
2192         \ifbool{mdf@leftline}{+\mdf@middlelinewidth@length}{}
2193         \relax}%
2194     {\mdf@middlelinewidth@length}%
2195     }{}%
2196     }%
2197 }%
2198 \def\mdf@frame@bottomline@middle{%
2199 \rlap%
2200 {%
2201 \ifbool{mdf@leftline}%
2202     {%

```

```

2203     \hspace*{-\mdf@middlelinewidth@length}%
2204   }{}%
2205   \mdf@linecolor@default%
2206   \ifbool{mdf@bottomline}%
2207   {%
2208     \rule[\dimexpr
2209       -\mdf@boundingboxdepth
2210       -\mdf@middlelinewidth@length
2211       \relax]%
2212     {\dimexpr
2213       \mdf@boundingboxtotalwidth
2214       \ifbool{mdf@rightline}{+\mdf@middlelinewidth@length}{}%
2215       \ifbool{mdf@leftline}{+\mdf@middlelinewidth@length}{}
2216       \relax}%
2217     {\mdf@middlelinewidth@length}%
2218   }{}%
2219 }%
2220}%
2221
2222 \def\mdf@putbox@middle{%
2223   \ifvoid\mdf@splitbox@two\relax%
2224   \else
2225     \mdf@makebox@out%
2226     {%
2227       \mdf@makeboxalign@left%
2228       \setlength{\mdf@boundingboxwidth}%
2229         {\wd\mdf@splitbox@two}%
2230       \setlength{\mdf@boundingboxtotalwidth}%
2231         {\dimexpr
2232           \mdf@boundingboxwidth
2233           +\mdf@innerleftmargin@length%
2234           +\mdf@innerrightmargin@length
2235           \relax}%
2236       \setlength{\mdf@boundingboxheight}%
2237         {\dimexpr
2238           \ht\mdf@splitbox@two
2239           +\dp\mdf@splitbox@two
2240           \relax}%
2241       \setlength{\mdf@boundingboxdepth}%
2242         {\dimexpr
2243           \dp\mdf@splitbox@two
2244           +\mdf@splitbottomskip@length
2245           \relax}%
2246       \setlength{\mdf@boundingboxtotalheight}%
2247         {\dimexpr
2248           \mdf@boundingboxheight
2249           +\mdf@splitbottomskip@length
2250           \relax}%
2251       \setlength{\@tempdima}%
2252         {\dimexpr
2253           \mdf@boundingboxtotalwidth%
2254           \ifbool{mdf@leftline}{+\mdf@middlelinewidth@length}{}%
2255           \ifbool{mdf@rightline}{+\mdf@middlelinewidth@length}{}%
2256           \relax}%
2257       \mdf@makebox@in[\@tempdima]%
2258     {%

```

```

2259      \null%
2260      \ifbool{mdf@leftline}%
2261      {%
2262        \hspace*{\mdf@middlelinewidth@length}%
2263        \mdf@frame@leftline@middle%
2264      }{}%
2265      \mdf@frame@background@middle%
2266      \ifbool{mdf@everyline}%
2267      {%
2268        \mdf@frame@topline@middle
2269      }{}%
2270      \ifdefempty{\mdf@frametitle}{%
2271        {\mdf@frame@frametitlebackground@middle}%
2272      \ifbool{mdf@everyline}%
2273      {%
2274        \mdf@frame@bottomline@middle%
2275      }{}%
2276      \hspace*{\mdf@innerleftmargin@length}%
2277      \ifbool{mdf@rightline}%
2278      {%
2279        \mdf@frame@rightline@middle%
2280      }{}%
2281      {\box\mdf@splitbox@two}%
2282    }%
2283    \mdf@makeboxalign@right%
2284  }%
2285  \fi%
2286 }

2287 \endinput

```

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

```

2288 %% Style file for mdframed for package option 'framemethod=default'
2289 %%
2290 %% This package may be distributed under the terms of the LaTeX Project
2291 %% Public License, as described in lppl.txt in the base LaTeX distribution.
2292 %% Either version 1.0 or, at your option, any later version.
2293 %%
2294 %%
2295 %%$Id: mdframed.dtx 426 2012-06-02 12:18:56Z marco $
2296 %

```

```

\mdframedIpackagename
\mdf@frameIdate@svn

```

local settings

```

2297 \def\mdframedIpackagename{md-frame-1}
2298 \def\mdf@frameIdate@svn$#1: #2 #3 #4-#5-#6 #7 #8${#4/#5/#6\space }
2299 \ProvidesFile{md-frame-1.mdf}%
2300   [\mdf@frameIdate@svn$Id: mdframed.dtx 426 2012-06-02 12:18:56Z marco $ %
2301   \mdversion: \mdframedIpackagename]
2302 %

```

```

\mdf@tikz@settings

```

Define settings for tikz

```

2303 %Allgemeine Einstellungen fuer tikz
2304 \def\mdf@tikz@settings{%
2305 %
2306 \tikzset{mdfbox/.style={anchor=south west,%
2307                         inner sep=0pt,%
2308                         outer sep=0pt,%
2309                         \mdf@fontcolor,%
2310                         }%
2311             }% anchor der Ausgabebox ist unten links
2312 \tikzset{mdfcorners/.style={rounded corners=\mdf@roundcorner@length}}%
2313 \tikzset{mdfbackground/.style={fill=\mdf@backgroundcolor,%
2314                                draw=\mdf@backgroundcolor%
2315                                }%
2316             }%
2317 \tikzset{mdfframetitlebackground/.style=%
2318             {%
2319                 fill=\mdf@frametitlebackgroundcolor,%
2320                 draw=none,%
2321                 rounded corners={max(\mdf@roundcorner@length%
2322                                     -\mdf@innerlinewidth@length%
2323                                     -.5\mdf@middlelinewidth@length,0)%
2324                                     }%
2325             }%
2326             }%
2327 %
2328 \tikzset{mdfouterline/.style={}}%
2329 % nur wenn outerlinewidth>0 wird aussere Linie gezeichnet
2330 \ifdimgreater{\mdf@outerlinewidth@length}{\z@}
2331     {\tikzset{mdfouterline/.append style={%
2332             draw=\mdf@outerlinecolor,%
2333             line width=2\mdf@outerlinewidth@length+\mdf@middlelinewidth@length}}}%
2334 %
2335 \tikzset{mdfinnerline/.style={}}%
2336 % nur wenn innerlinewidth>0 wird innere Linie gezeichnet
2337 \ifdimgreater{\mdf@innerlinewidth@length}{\z@}
2338     {\tikzset{mdfinnerline/.append style={%
2339             draw=\mdf@innerlinecolor,%
2340             line width=2\mdf@innerlinewidth@length+\mdf@middlelinewidth@length}}}%
2341 %
2342 \tikzset{mdfshadow/.style={drop shadow={%
2343                             shadow xshift=\mdf@shadowsize@length-2pt,
2344                             shadow yshift=-\mdf@shadowsize@length+2pt,
2345                             fill=\mdf@shadowcolor,
2346                             every shadow }}}%
2347 %
2348 \mdf@tikzset@local
2349 \tikzset{mdfmiddleline/.style={}}%
2350 % nur wenn middlelinewidth>0 wird mittlere Linie gezeichnet
2351 \ifdimgreater{\mdf@middlelinewidth@length}{\z@}
2352     {\tikzset{mdfmiddleline/.append style={%
2353             preaction={draw=\mdf@middlelinecolor,%
2354                       line width=\mdf@middlelinewidth@length},%
2355             line width=\mdf@middlelinewidth@length,%
2356             tikzsetting}}%
2357     }%

```

2358 }%

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

Befehle fuer Ausgabe von Rahmen und Hintergrund

```

2359 \newrobustcmd*\mdf@tikzbox@tfl[1]{%three or four borders
2360   \clip(0,0)rectangle(\mdfboundingboxwidth,\mdfboundingboxheight);%
2361   \begin{scope}[mdfcorners]%
2362     \clip[preaction=mdfouterline]%
2363       [postaction=mdfbackground]%
2364       [postaction=mdfinnerline]#1;%
2365   \end{scope}%
2366   \path[mdfmiddleline,mdfcorners]#1;
2367 }%
2368
2369
2370
2371 \newrobustcmd*\mdf@tikzbox@otl[2]{%one or two borders
2372   \clip(0,0)rectangle(\mdfboundingboxwidth,\mdfboundingboxheight);%
2373   \begin{scope}
2374     \path[mdfouterline,mdfcorners]#1;%
2375     \clip[postaction=mdfbackground]#2;%
2376     \path[mdfinnerline,mdfcorners]#1;%
2377   \end{scope}%
2378   \path[mdfmiddleline,mdfcorners]#1;}%

```

\mdf@put@frametitlerule

frametitlerule with tikz

```

2379 \tikzset{mdfframetitlerule/.style={%
2380   draw=none,
2381   fill=\mdf@frametitlerulecolor,
2382 }%
2383 }
2384 \def\mdf@@@frametitlerule{%
2385   \ifbool{mdf@frametitlerule}{%
2386     \vbox{\hsize0pt
2387       \par\unskip\vskip\mdf@frametitlebelowskip@length
2388       \noindent\rlap{\hspace*{-\mdf@innerleftmargin@length}%
2389       \begingroup%
2390       \pgfmathsetlength{\dimen@}{\mdfframetitleboxwidth
2391         +\mdf@innerleftmargin@length
2392         +\mdf@innerrightmargin@length}%
2393       \tikz\draw[mdfframetitlerule] (0,0)%
2394         rectangle (\dimen@,\mdf@frametitlerulewidth@length);
2395       \endgroup}
2396     }%
2397   }{%
2398     \vbox{\hsize0pt
2399       \par\unskip\vskip\mdf@frametitlebelowskip@length
2400       \noindent\rlap{}
2401     }%
2402   }%
2403   \iftoggle{mdf@notfirstframetitle}%

```

```

2404     {%
2405     \par\unskip\vskip\mdf@splittopskip@length%
2406     }%
2407     {%
2408     \par\unskip\vskip\mdf@innertopmargin@length%
2409     }%
2410 }%
2411

```

\mdfsubtitle

Definition of the command `\mdfsubtitle`. Starting with the definition of the tikz style for the rule above the subtitle.

```

2412 %
2413 \tikzset{mdfsubtitleaboverule/.style={%
2414     draw=none,
2415     fill=\mdf@subtitleabovelinecolor,
2416 }%
2417 }

```

Definition of the default style of rule below the subtitle.

```

2418 \tikzset{mdfsubtitlebelowrule/.style={%
2419     draw=none,
2420     fill=\mdf@subtitlebelowlinecolor,
2421 }%
2422 }

```

Definition of the default style of the background of the subtitle.

```

2423 \tikzset{mdfsubtitlebackground/.style={%
2424     draw=\mdf@subtitlebackgroundcolor,
2425     fill=\mdf@subtitlebackgroundcolor,
2426 }%
2427 }

```

Definition of the command `\mdfsubtitle`.

```

2428 \newrobustcmd\mdfsubtitle[2][]%
2429 {%

```

Make everything local.

```

2430 \begingroup
2431 \penalty-9995%set a breakpoint before the subtitle
2432 % \end{macrocode}
2433 % Inside the title we don't need any \Cmd{parindent}. Next set the options of
2434 % the optional argument of \Cmd{mdfsubtitle}.
2435 % \begin{macrocode}
2436 \parindent\z@\relax%
2437 \mdfsetup{#1}%only for subtitle options
2438 % \end{macrocode}
2439 % Save the complete subtitle inside the save box \Cmd{z@}.
2440 % \begin{macrocode}
2441 \setbox\z@=\vbox{\mdf@subtitlefont{#2}\relax}%
2442 % \end{macrocode}
2443 % Compute the width of the current line including the inner left margin and
2444 % inner right margin (using \Cmd{dimen@}. In the nest step the height and the
2445 % depth of the save box will be saved in \Cmd{dimen@i}.
2446 % \begin{macrocode}
2447 \pgfmathsetlength{\dimen@}%
2448 {%

```



```

2449             \linewidth%
2450             +\mdf@innerleftmargin@length%
2451             +\mdf@innerrightmargin@length%
2452         }%
2453 %     \end{macrocode}
2454 % Test if rules should be drawn. otherwise set the line width to 0\,pt.
2455 %     \begin{macrocode}
2456 \ifbool{mdf@subtitleaboveline}{}%
2457     {\mdfsetup{subtitleabovelinewidth=\z@}}%
2458 \ifbool{mdf@subtitlebelowline}{}%
2459     {\mdfsetup{subtitlebelowlinewidth=\z@}}%
2460 %     \end{macrocode}
2461 % Start a new line with the given skip \Opt{subtitleaboveskip}.
2462 %     \begin{macrocode}
2463 \par\unskip\ifvmode\nointerlineskip\hrule \@height\z@ \@width\hsize\fi%
2464 \vskip\mdf@subtitleaboveskip@length
2465 %     \end{macrocode}
2466 % Drawing the above line of the subtitle.
2467 %     \begin{macrocode}
2468 \rlap%
2469 {%
2470     \hspace*{-\mdf@innerleftmargin@length}%
2471     \begingroup%
2472         \tikz\draw[mdfsubtitleaboverule] (0,0)%
2473             rectangle (\dimen@,\mdf@subtitleabovelinewidth@length);
2474     \endgroup%
2475 }%
2476 %     \end{macrocode}
2477 % space between rule above and subtitle
2478 %     \begin{macrocode}
2479 \par\unskip\ifvmode\nointerlineskip\hrule \@height\z@ \@width\hsize\fi%
2480 \vskip\mdf@subtitleinneraboveskip@length
2481 %     \end{macrocode}
2482 % output of subtitle with a background. Must think about the \Cmd{hspace}
2483 % combination.
2484 %     \begin{macrocode}
2485 \leavevmode\hspace*{-\mdf@innerleftmargin@length}%
2486 \tikz[overlay]%
2487     \draw[mdfsubtitlebackground]
2488         (0,-\mdf@subtitleinnerbelowskip@length-\dp\z@)
2489         rectangle(\dimen@,\ht\z@+\mdf@subtitleinneraboveskip@length);%
2490 \hspace*{+\mdf@innerleftmargin@length}%
2491 \box\z@\relax%
2492 %     \end{macrocode}
2493 % Skip after subtitle
2494 %     \begin{macrocode}
2495 \par\unskip\ifvmode\nointerlineskip\hrule \@height\z@ \@width\hsize\fi%
2496 \vskip\mdf@subtitleinnerbelowskip@length
2497 %     \end{macrocode}
2498 % Draw rule below of the subtitle.
2499 %     \begin{macrocode}
2500 \rlap%
2501 {%
2502     \hspace*{-\mdf@innerleftmargin@length}%
2503     \begingroup%
2504         \tikz\draw[mdfsubtitlebelowrule] (0,0)%

```

```

2505             rectangle (\dimen@,\mdf@subtitlebelowlinewidth@length);
2506   \endgroup%
2507 }%
2508 %   \end{macrocode}
2509 % Last skip and set a non breaking point.
2510 %   \begin{macrocode}
2511 \par\unskip\ifvmode\nointerlineskip\hrule \@height\z@ \@width\hsize\fi
2512 \vskip\mdf@subtitlebelowskip@length
2513 \penalty 9995
2514 \endgroup
2515 }
2516

```

\mdfsubsubtitle

Definition of the command `\mdfsubsubtitle`. Starting with the definition of the `tikz` style for the rule above the subsubtitle.

```

2517 %
2518 \tikzset{mdfsubsubtitleaboverule/.style={%
2519   draw=none,
2520   fill=\mdf@subsubtitleabovelinecolor,
2521 }%
2522 }

```

Definition of the default style of rule below the subsubtitle.

```

2523 \tikzset{mdfsubsubtitlebelowrule/.style={%
2524   draw=none,
2525   fill=\mdf@subsubtitlebelowlinecolor,
2526 }%
2527 }

```

Definition of the default style of the background of the subsubtitle.

```

2528 \tikzset{mdfsubsubtitlebackground/.style={%
2529   draw=\mdf@subsubtitlebackgroundcolor,
2530   fill=\mdf@subsubtitlebackgroundcolor,
2531 }%
2532 }

```

Definition of the command `\mdfsubsubtitle`.

```

2533 \newrobustcmd\mdfsubsubtitle[2][]%
2534 {%

```

Make everything local.

```

2535 \begingroup
2536 \penalty-9995%set a breakpoint before the subsubtitle
2537 %   \end{macrocode}
2538 % Inside the title we don't need any \Cmd{parindent}. Next set the options of
2539 % the optional argument of \Cmd{mdfsubsubtitle}.
2540 %   \begin{macrocode}
2541 \parindent\z@\relax%
2542 \mdfsetup{#1}%only for subsubtitle options
2543 %   \end{macrocode}
2544 % Save the complete subsubtitle inside the save box \Cmd{z@}.
2545 %   \begin{macrocode}
2546 \setbox\z@=\vbox{\mdf@subsubtitlefont{#2}\relax}%
2547 %   \end{macrocode}
2548 % Compute the width of the current line including the inner left margin and
2549 % inner right margin (using \Cmd{dimen@}. In the next step the height and the

```

```

2550 % depth of the save box will be saved in \Cmd{dimen@i}.
2551 % \begin{marcocode}
2552 \pgfmathsetlength{\dimen@}%
2553 {
2554     \linewidth%
2555     +\mdf@innerleftmargin@length%
2556     +\mdf@innerrightmargin@length%
2557 }%
2558 % \end{marcocode}
2559 % Test if rules should be drawn. otherwise set the line width to 0\,pt.
2560 % \begin{marcocode}
2561 \ifbool{mdf@subsubtitleaboveline}{}%
2562 {\mdfsetup{subsubtitleabovelinewidth=\z@}}%
2563 \ifbool{mdf@subsubtitlebelowline}{}%
2564 {\mdfsetup{subsubtitlebelowlinewidth=\z@}}%
2565 % \end{marcocode}
2566 % Start a new line with the given skip \Opt{subsubtitleaboveskip}.
2567 % \begin{marcocode}
2568 \par\unskip\ifvmode\nointerlineskip\hrule \@height\z@ \@width\hsize\fi%
2569 \vskip\mdf@subsubtitleaboveskip@length
2570 % \end{marcocode}
2571 % Drawing the above line of the subsubtitle.
2572 % \begin{marcocode}
2573 \rlap%
2574 {%
2575     \hspace*{-\mdf@innerleftmargin@length}%
2576     \begin{group}%
2577         \tikz\draw[mdfsubsubtitleaboverule] (0,0)%
2578             rectangle (\dimen@,\mdf@subsubtitleabovelinewidth@length);
2579     \end{group}%
2580 }%
2581 % \end{marcocode}
2582 % space between rule above and subsubtitle
2583 % \begin{marcocode}
2584 \par\unskip\ifvmode\nointerlineskip\hrule \@height\z@ \@width\hsize\fi%
2585 \vskip\mdf@subsubtitleinneraboveskip@length
2586 % \end{marcocode}
2587 % output of subsubtitle with a background. Must think about the \Cmd{hspace}
2588 % combination.
2589 % \begin{marcocode}
2590 \hspace*{-\mdf@innerleftmargin@length}%
2591 \tikz[overlay]%
2592     \draw[mdfsubsubtitlebackground]
2593         (0,-\mdf@subsubtitleinnerbelowskip@length-\dp\z@)
2594         rectangle(\dimen@,\ht\z@+\mdf@subsubtitleinneraboveskip@length);%
2595 \hspace*{+\mdf@innerleftmargin@length}%
2596 \box\z@\relax%
2597 % \end{marcocode}
2598 % Skip after subsubtitle
2599 % \begin{marcocode}
2600 \par\unskip\ifvmode\nointerlineskip\hrule \@height\z@ \@width\hsize\fi%
2601 \vskip\mdf@subsubtitleinnerbelowskip@length
2602 % \end{marcocode}
2603 % Draw rule below of the subsubtitle.
2604 % \begin{marcocode}
2605 \rlap%

```

```

2606 {%
2607   \hspace*{-\mdf@innerleftmargin@length}%
2608   \begingroup%
2609     \tikz\draw[mdfsubsubtitlebelowrule] (0,0)%
2610       rectangle (\dimen@,\mdf@subsubtitlebelowlinewidth@length);
2611   \endgroup%
2612 }%
2613 %   \end{macrocode}
2614 % Last skip and set a non breaking point.
2615 %   \begin{macrocode}
2616 \par\unskip\ifvmode\nointerlineskip\hrule \@height\z@ \@width\hsize\fi%
2617 \vskip\mdf@subsubtitlebelowskip@length
2618 \penalty 9995
2619 \endgroup
2620 }
2621

```

`\mdf@putbox@single`

Output of the non breakable contents.

```

2622 % Info zu den verwendeten Punkten:
2623 % O ist die untere linke Ecke der Mitte der middleline
2624 % P ist die obere rechte Ecke der Mitte der middleline
2625 % A ist der Punkt fuer den anchor (d.h. die untere linke Ecke) der Ausgabebox
2626 %
2627 \def\mdf@putbox@single{%
2628   \ifvoid\mdf@splitbox@one
2629   \else%
2630     \mdf@makebox@out{%
2631       \mdf@makeboxalign@left%
2632       \mdf@tikz@settings%
2633     }%
2634     \setlength\mdfboundingboxwidth{\wd\mdf@splitbox@one}%
2635     \advance\mdfboundingboxwidth by \mdf@innerleftmargin@length\relax%
2636     \advance\mdfboundingboxwidth by \mdf@innerrightmargin@length\relax%
2637     \ifbool{mdf@leftline}{%
2638       \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
2639       \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
2640       \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}}{%
2641     \ifbool{mdf@rightline}{%
2642       \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
2643       \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
2644       \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}}}%
2645 %
2646     \setlength\mdfboundingboxheight%
2647       {\dimexpr\ht\mdf@splitbox@one+\dp\mdf@splitbox@one\relax}%
2648     \advance\mdfboundingboxheight by \mdf@innertopmargin@length\relax%
2649     \advance\mdfboundingboxheight by \mdf@innerbottommargin@length\relax%
2650     \ifbool{mdf@topline}{%
2651       \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
2652       \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
2653       \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}}{%
2654     \ifbool{mdf@bottomline}{%
2655       \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
2656       \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%

```

```

2657 \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}}}%
2658 \mdf@makebox@in[\mdfboundingboxwidth]{%
2659 \null%
2660 \begin{tikzpicture}[remember picture]%
2661 \pgfmathsetlengthmacro\mdf@Ax{+\mdf@innerleftmargin@length}%
2662 \pgfmathsetlengthmacro\mdf@Ay{+\mdf@innerbottommargin@length}%
2663 \pgfmathsetlengthmacro\mdf@Ox{+0pt}%
2664 \pgfmathsetlengthmacro\mdf@Oy{+0pt}%
2665 \pgfmathsetlengthmacro\mdf@Px{+\mdfboundingboxwidth}%
2666 \pgfmathsetlengthmacro\mdf@Py{+\mdfboundingboxheight}%
2667 \ifbool{mdf@leftline}%
2668 {%
2669 \pgfmathsetlengthmacro\mdf@Ax%
2670 {\mdf@Ax+\mdf@outerlinewidth@length+
2671 \mdf@middlelinewidth@length+\mdf@innerlinewidth@length}%
2672 \pgfmathsetlengthmacro\mdf@Ox%
2673 {\mdf@Ox+\mdf@outerlinewidth@length+0.5\mdf@middlelinewidth@length}%
2674 }{}%
2675 \ifbool{mdf@rightline}%
2676 {%
2677 \pgfmathsetlengthmacro\mdf@Px%
2678 {\mdf@Px-\mdf@outerlinewidth@length-0.5\mdf@middlelinewidth@length}%
2679 }{}%
2680 \ifbool{mdf@bottomline}%
2681 {%
2682 \pgfmathsetlengthmacro\mdf@Ay%
2683 {\mdf@Ay+\mdf@outerlinewidth@length+\mdf@middlelinewidth@length
2684 +\mdf@innerlinewidth@length}%
2685 \pgfmathsetlengthmacro\mdf@Oy%
2686 {\mdf@Oy+\mdf@outerlinewidth@length+0.5\mdf@middlelinewidth@length}%
2687 }{}%
2688 \ifbool{mdf@topline}%
2689 {%
2690 \pgfmathsetlengthmacro\mdf@Py%
2691 {\mdf@Py-\mdf@outerlinewidth@length-0.5\mdf@middlelinewidth@length}%
2692 }{}%
2693 %
2694 \coordinate(0)at(\mdf@Ox,\mdf@Oy);%
2695 \coordinate(P)at(\mdf@Px,\mdf@Py);%
2696 %
2697 \ifbool{mdf@shadow}
2698 {\path[mdfshadow,mdfcorners](0) rectangle (P);}%
2699 %
2700 \begin{scope}[use as bounding box]
2701 \mdf@test@lrb{\mdf@tikzbox@tfl{(0)--(0|-P)--(P)--(P|-0)--cycle)}}}%
2702 %
2703 \mdf@test@ltb{\mdf@tikzbox@tfl{(P|-0)--(0)--(0|-P)--(P)}}}%
2704 \mdf@test@trb{\mdf@tikzbox@tfl{(0|-P)--(P)--(P|-0)--(0)}}}%
2705 \mdf@test@lrb{\mdf@tikzbox@tfl{(0)--(0|-P)--(P)--(P|-0)}}}%
2706 \mdf@test@lrb{\mdf@tikzbox@tfl{(P|-0)--(0)--(0|-P)--(P)}}}%
2707 %
2708 \mdf@test@lb{\mdf@tikzbox@otl{(P|-0)--(0)--(0|-P)}%
2709 {(P)--(P|-0)[mdfcorners]--(0)--(0|-P)}}%
2710 }{}%
2711 \mdf@test@rb{\mdf@tikzbox@otl{(P)--(P|-0)--(0)}%
2712 {(0|-P)--(P)[mdfcorners]--(P|-0)--(0)}}%

```

```

2713         }{}%
2714 \mdf@test@tr{\mdf@tikzbox@otl{(0|-P)--(P)--(P|-0)}%
2715             {(0)--(0|-P)[mdfcorners]--(P)--(P|-0)}%
2716         }{}%
2717 \mdf@test@lt{\mdf@tikzbox@otl{(0)--(0|-P)--(P)}%
2718             {(P|-0)--(0)[mdfcorners]--(0|-P)--(P)}%
2719         }{}%
2720 \mdf@test@lr{\mdf@tikzbox@otl{(0)--(0|-P)(P)--(P|-0)}%
2721             {(0)rectangle(P)}%
2722         }{}%
2723 \mdf@test@tb{\mdf@tikzbox@otl{(0)--(0|-P)(0|-P)--(P)}%
2724             {(0)rectangle(P)}%
2725         }{}%
2726 %
2727 \mdf@test@l{\mdf@tikzbox@otl{(0)--(0|-P)}%
2728             {(0)rectangle(P)}%
2729         }{}%
2730 \mdf@test@r{\mdf@tikzbox@otl{(0|-P)--(P)}%
2731             {(0)rectangle(P)}%
2732         }{}%
2733 \mdf@test@t{\mdf@tikzbox@otl{(0|-P)--(P)}%
2734             {(0)rectangle(P)}%
2735         }{}%
2736 \mdf@test@b{\mdf@tikzbox@otl{(0)--(0|-P)}%
2737             {(0)rectangle(P)}%
2738         }{}%
2739 %
2740 \mdf@test@noline{\path[mdfbackground,mdfcorners](0)rectangle(P);}{}%
2741 %
2742 %Frametitlebackground
2743 \drawbackgroundframetitle@single
2744 %
2745 \node[mdfbox]at(\mdf@Ax,\mdf@Ay){\box\mdf@splitbox@one};%output
2746 \end{scope}
2747 %HIER KOMMT EIN WEITERES MAKRO
2748 \mdf@singleextra
2749 \mdfcreateextratikz
2750 \end{tikzpicture}%
2751 }%
2752 \mdf@makeboxalign@right%
2753 }%
2754 \fi
2755 }%
2756 \def\drawbackgroundframetitle@single{%
2757 \ifdefempty{\mdf@frametitle}{}{}%
2758 \drawbackgroundframetitle@@single%
2759 }%
2760 }%
2761 \def\drawbackgroundframetitle@@single{%
2762 \begin{scope}%background frame title
2763 \ifbool{mdf@leftline}{
2764 \pgfmathsetlengthmacro\mdf@0x%
2765 {\mdf@0x+\mdf@innerlinewidth@length+0.5\mdf@middlelinewidth@length}
2766 }{}%
2767 \ifbool{mdf@rightline}{%
2768 \pgfmathsetlengthmacro\mdf@Px%

```

```

2769         {\mdf@Px-\mdf@innerlinewidth@length-0.5\mdf@middlelinewidth@length}
2770     }{}%
2771 \ifbool{mdf@topline}{%
2772     \pgfmathsetlengthmacro\mdf@Py%
2773         {\mdf@Py-\mdf@innerlinewidth@length-0.5\mdf@middlelinewidth@length}
2774     }{}%
2775     \pgfmathsetlengthmacro\mdf@Fy
2776         {\mdf@Py-\mdfframetitleboxtotalheight}
2777     \path[mdfframetitlebackground]
2778         (\mdf@0x,\mdf@Fy) -- (\mdf@0x,\mdf@Py)%
2779         --(\mdf@Px,\mdf@Py) --(\mdf@Px,\mdf@Fy);
2780 \end{scope}
2781 }

```

\mdf@putbox@first

Output of the first breakable contents.

```

2782 \def\drawbrackgroundframetitle@first{%
2783     {%
2784         \ifbool{mdf@repeatframetitle}%
2785             {%repeating title = true
2786             \begin{scope}%background frame title
2787                 \ifbool{mdf@leftline}{
2788                     \pgfmathsetlengthmacro\mdf@0x%
2789                         {\mdf@0x+\mdf@innerlinewidth@length+0.5\mdf@middlelinewidth@length}
2790                     }{}%
2791                 \ifbool{mdf@rightline}{%
2792                     \pgfmathsetlengthmacro\mdf@Px%
2793                         {\mdf@Px-\mdf@innerlinewidth@length-0.5\mdf@middlelinewidth@length}
2794                     }{}%
2795                 \ifbool{mdf@topline}{%
2796                     \pgfmathsetlengthmacro\mdf@Py%
2797                         {\mdf@Py-\mdf@innerlinewidth@length-.5\mdf@middlelinewidth@length}
2798                     }{}%
2799                     \pgfmathsetlengthmacro\mdf@Fy
2800                         {\mdf@Py-\mdfframetitleboxtotalheight}
2801                 \coordinate(P)at(\mdf@Px,\mdf@Py);%
2802                 \path[mdfframetitlebackground]
2803                     (\mdf@0x,\mdf@Fy) -- (\mdf@0x,\mdf@Py)%
2804                     --(\mdf@Px,\mdf@Py) --(\mdf@Px,\mdf@Fy);
2805                 \end{scope}
2806             }%
2807         {%
2808             \ifdefempty{\mdf@frametitle}{}%
2809             {%
2810                 \ifdimgreater{\mdfboundingboxheight}{\mdfframetitleboxtotalheight}%
2811                 {%
2812                     \drawbrackgroundframetitle@@first
2813                     \pgfmathsetlength{\global\mdfframetitleboxtotalheight}{-\p@}%
2814                     }\mdf@PackageWarning%
2815                         {You got a page break inside the frame title\MessageBreak
2816                         Currently this isn't well supported}%
2817                     \drawbrackgroundframetitle@@first
2818                     \pgfmathsetlength{\global\mdfframetitleboxtotalheight}%
2819                         {\mdfframetitleboxtotalheight}

```

```

2820             -\mdfboundingboxheight
2821             -\mdf@innerlinewidth@length
2822             -0.5\mdf@middlelinewidth@length%
2823             +\mdf@frametitlebelowskip@length
2824             +\mdf@splitbottomskip@length
2825             +\mdf@splittopskip@length
2826             +\dp\strutbox%
2827         }%
2828     }%
2829 }%
2830 }%
2831 }%
2832 }%
2833 %
2834 \def\drawbackgroundframetitle@@first{%
2835 \begin{scope}%background frame title
2836     \ifbool{mdf@leftline}{%
2837         \pgfmathsetlengthmacro\mdf@0x%
2838             {\mdf@0x+\mdf@innerlinewidth@length+0.5\mdf@middlelinewidth@length}
2839         }{}%
2840     \ifbool{mdf@rightline}{%
2841         \pgfmathsetlengthmacro\mdf@Px%
2842             {\mdf@Px-\mdf@innerlinewidth@length-0.5\mdf@middlelinewidth@length}
2843         }{}%
2844     \ifbool{mdf@topline}{%
2845         \pgfmathsetlengthmacro\mdf@Py%
2846             {\mdf@Py-\mdf@innerlinewidth@length-0.5\mdf@middlelinewidth@length}
2847         }{}%
2848         \pgfmathsetlengthmacro\mdf@Fy
2849             {max(0,\mdf@Py-\mdfframetitleboxtotalheight)}
2850         \path[mdfframetitlebackground]
2851             (\mdf@0x,\mdf@Fy) -- (\mdf@0x,\mdf@Py)%
2852             --(\mdf@Px,\mdf@Py) --(\mdf@Px,\mdf@Fy);
2853     \end{scope}%
2854 }%
2855 %
2856 \def\mdf@putbox@first{%
2857     \ifvoid\mdf@splitbox@two
2858     \else%
2859         \mdf@makebox@out{%
2860             \mdf@makeboxalign@left%
2861             \mdf@tikz@settings%
2862             \setlength\mdfboundingboxwidth{\wd\mdf@splitbox@two}%
2863             \advance\mdfboundingboxwidth by \mdf@innerleftmargin@length\relax%
2864             \advance\mdfboundingboxwidth by \mdf@innerrightmargin@length\relax%
2865             \ifbool{mdf@leftline}{%
2866                 \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
2867                 \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
2868                 \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}{}%
2869             \ifbool{mdf@rightline}{%
2870                 \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
2871                 \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
2872                 \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}{}%
2873             \setlength\mdfboundingboxheight%
2874                 {\dimexpr\ht\mdf@splitbox@two+\dp\mdf@splitbox@two\relax}%
2875             \advance\mdfboundingboxheight by \mdf@innertopmargin@length\relax%

```



```

2876 \advance\mdfboundingboxheight by \mdf@splitbottomskip@length\relax%
2877 \ifbool{mdf@topline}{%
2878 \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
2879 \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
2880 \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}}}%
2881 %%%
2882 \ifbool{mdf@everyline}{%
2883 \ifbool{mdf@bottomline}{%
2884 \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
2885 \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
2886 \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}}}%
2887 }{}%
2888 %%%
2889 %\ifdimequal{\pagegoal}{\maxdimen}{\enlargethispage{\baselineskip}}}% ???
2890 \ifdimgreater{\pagegoal-\maxdimen}{0pt}{\enlargethispage{\baselineskip}}%
2891 \mdf@makebox@in[\mdfboundingboxwidth]{%
2892 \null%
2893 \begin{tikzpicture}[remember picture]
2894 \pgfmathsetlengthmacro\mdf@Ax{+\mdf@innerleftmargin@length}%
2895 \pgfmathsetlengthmacro\mdf@Ay{+\mdf@splitbottomskip@length}%
2896 \pgfmathsetlengthmacro\mdf@Ox{+0pt}%
2897 \pgfmathsetlengthmacro\mdf@Oy{+0pt}%
2898 \pgfmathsetlengthmacro\mdf@Px{+\mdfboundingboxwidth}%
2899 \pgfmathsetlengthmacro\mdf@Py{+\mdfboundingboxheight}%
2900 \ifbool{mdf@leftline}{%
2901 {%
2902 \pgfmathsetlengthmacro\mdf@Ax%
2903 {\mdf@Ax+\mdf@outerlinewidth@length+
2904 \mdf@middlelinewidth@length+\mdf@innerlinewidth@length}%
2905 \pgfmathsetlengthmacro\mdf@Ox%
2906 {\mdf@Ox+\mdf@outerlinewidth@length+0.5\mdf@middlelinewidth@length}%
2907 }{}%
2908 \ifbool{mdf@rightline}{%
2909 \pgfmathsetlengthmacro\mdf@Px%
2910 {\mdf@Px-\mdf@outerlinewidth@length-0.5\mdf@middlelinewidth@length}%
2911 }{}%
2912 \ifbool{mdf@topline}{%
2913 \pgfmathsetlengthmacro\mdf@Py%
2914 {\mdf@Py-\mdf@outerlinewidth@length-0.5\mdf@middlelinewidth@length}%
2915 }{}%
2916 %%
2917 \ifbool{mdf@everyline}{%
2918 \ifbool{mdf@bottomline}{%
2919 {%
2920 \pgfmathsetlengthmacro\mdf@Ay%
2921 {\mdf@Ay+\mdf@outerlinewidth@length+\mdf@middlelinewidth@length
2922 +\mdf@innerlinewidth@length}%
2923 \pgfmathsetlengthmacro\mdf@Oy%
2924 {\mdf@Oy+\mdf@outerlinewidth@length+0.5\mdf@middlelinewidth@length}%
2925 }{}%
2926 }{}%
2927 %%
2928 \coordinate(0)at(\mdf@Ox,\mdf@Oy);%
2929 \coordinate(P)at(\mdf@Px,\mdf@Py);%
2930 \ifbool{mdf@shadow}
2931 {\path[mdfshadow] (0) -- (0|-P) to[mdfcorners] (P) -- (P|-0) -- (0);}%

```

```

2932 \begin{scope}[use as bounding box]
2933 %%%%%%%%%%
2934 \ifbool{mdf@everyline}{%
2935 \mdf@test@ltrb{\mdf@tikzbox@tfl{(0)--(0|-P)--(P)--(P|-0)--cycle)}}{%
2936 \mdf@test@ltb{\mdf@tikzbox@tfl{(P|-0)--(0)--(0|-P)--(P)}}{%
2937 \mdf@test@trb{\mdf@tikzbox@tfl{(0|-P)--(P)--(P|-0)--(0)}}{%
2938 \mdf@test@ltr{\mdf@tikzbox@tfl{(0)--(0|-P)--(P)--(P|-0)}}{%
2939 \mdf@test@lrb{\mdf@tikzbox@tfl{(P|-0)--(0)--(0|-P)--(P)}}{%
2940 \mdf@test@lb{\mdf@tikzbox@otl{(P|-0)--(0)--(0|-P)}}%
2941 \{(P)--(P|-0)[mdfcorners]--(0)--(0|-P)}%
2942 }{}%
2943 \mdf@test@rb{\mdf@tikzbox@otl{(P)--(P|-0)--(0)}}%
2944 \{(0|-P)--(P)[mdfcorners]--(P|-0)--(0)}%
2945 }{}%
2946 \mdf@test@tr{\mdf@tikzbox@otl{(0|-P)--(P)--(P|-0)}}%
2947 \{(0)--(0|-P)[mdfcorners]--(P)--(P|-0)}%
2948 }{}%
2949 \mdf@test@lt{\mdf@tikzbox@otl{(0)--(0|-P)--(P)}}%
2950 \{(P|-0)--(0)[mdfcorners]--(0|-P)--(P)}%
2951 }{}%
2952 \mdf@test@lr{\mdf@tikzbox@otl{(0)--(0|-P)(P)--(P|-0)}}%
2953 \{(0)rectangle(P)}%
2954 }{}%
2955 \mdf@test@tb{\mdf@tikzbox@otl{(0)--(0|-P)(0|-P)--(P)}}%
2956 \{(0)rectangle(P)}%
2957 }{}%
2958 \mdf@test@l{\mdf@tikzbox@otl{(0)--(0|-P)}}%
2959 \{(0)rectangle(P)}%
2960 }{}%
2961 \mdf@test@r{\mdf@tikzbox@otl{(0|-P)--(P)}}%
2962 \{(0)rectangle(P)}%
2963 }{}%
2964 \mdf@test@t{\mdf@tikzbox@otl{(0|-P)--(P)}}%
2965 \{(0)rectangle(P)}%
2966 }{}%
2967 \mdf@test@b{\mdf@tikzbox@otl{(0)--(0|-P)}}%
2968 \{(0)rectangle(P)}%
2969 }{}%
2970 \mdf@test@noline{\path[mdfbackground,mdfcorners](0)rectangle(P);}%
2971 }{
2972 \ifboolexpr{test {\mdf@test@ltrb} or test {\mdf@test@ltr}}%
2973 {\mdf@tikzbox@tfl{(0)--(0|-P)--(P)--(P|-0)}}%
2974 {}%
2975 \ifboolexpr{test {\mdf@test@ltb} or test {\mdf@test@lt}}%
2976 {%
2977 \mdf@tikzbox@otl{(0)--(0|-P)--(P)}
2978 \{(P|-0)--(0)[mdfcorners]--(0|-P)--(P)}
2979 }%
2980 {}%
2981 \ifboolexpr{test {\mdf@test@trb} or test {\mdf@test@tr}}%
2982 {%
2983 \mdf@tikzbox@otl{(0|-P)--(P)--(P|-0)}%
2984 \{(0)--(0|-P)[mdfcorners]--(P)--(P|-0)}}%
2985 {}%
2986 \ifboolexpr{test {\mdf@test@lrb} or test {\mdf@test@lr}}%
2987 {\mdf@tikzbox@otl{(0)--(0|-P)(P)--(P|-0)}}{(0)rectangle(P)}%

```

```

2988     {}%
2989     \ifboolexpr{test {\mdf@test@tb} or test {\mdf@test@t}}%
2990     {\mdf@tikzbox@otl{(0|-P)--(P)}{(0)rectangle(P)}}%
2991     {}%
2992     \ifboolexpr{test {\mdf@test@lb} or test {\mdf@test@l}}%
2993     {\mdf@tikzbox@otl{(0)--(0|-P)}{(0)rectangle(P)}}%
2994     {}%
2995     \ifboolexpr{test {\mdf@test@rb} or test {\mdf@test@r}}%
2996     {\mdf@tikzbox@otl{(0|-P)--(P)}{(0)rectangle(P)}}%
2997     {}%
2998     \mdf@test@b{\path[mdfbackground](0)rectangle(P);}%
2999     \mdf@test@noline{\path[mdfbackground,mdfcorners]%
3000         (0)--(0|-P)--(P)--(P|-0);}%
3001     {}%
3002 }
3003 %%%%%%%%%%
3004 \drawbackgroundframetitle@first
3005 \node[mdfbox]at(\mdf@Ax,\mdf@Ay){\box\mdf@splitbox@two};%
3006 \end{scope}
3007 %HIER KOMMT EIN WEITERES MAKRO
3008 \mdf@firstextra
3009 \mdfcreateextratikz%
3010 \end{tikzpicture}%
3011 }%
3012 \mdf@makeboxalign@right%
3013 }%
3014 \fi
3015 }%

```

\mdf@putbox@middle

Output of the middle breakable contents.

```

3016 \def\drawbackgroundframetitle@middle{%
3017 \ifdefempty{\mdf@frametitle}{}%
3018 {%
3019 \ifbool{mdf@repeatframetitle}%
3020 {%repeating title = true
3021 \begin{scope}%background frame title
3022 \ifbool{mdf@leftline}{
3023 \pgfmathsetlengthmacro\mdf@0x%
3024 {\mdf@0x+\mdf@innerlinewidth@length+0.5\mdf@middlelinewidth@length}
3025 }{}%
3026 \ifbool{mdf@rightline}{%
3027 \pgfmathsetlengthmacro\mdf@Px%
3028 {\mdf@Px-\mdf@innerlinewidth@length-0.5\mdf@middlelinewidth@length}
3029 }{}%
3030 \ifbool{mdf@everyline}%
3031 {%
3032 \ifbool{mdf@topline}{%
3033 \pgfmathsetlengthmacro\mdf@Py%
3034 {\mdf@Py-\mdf@innerlinewidth@length%
3035 -.5\mdf@middlelinewidth@length}
3036 }{}%
3037 }{}%
3038 \pgfmathsetlengthmacro\mdf@Fy

```

```

3039         {\mdf@Py-\mdfframetitleboxtotalheight}
3040     \coordinate(P)at(\mdf@Px,\mdf@Py);%
3041     \path[mdfframetitlebackground]
3042         (\mdf@0x,\mdf@Fy) -- (\mdf@0x,\mdf@Py)%
3043         --(\mdf@Px,\mdf@Py) --(\mdf@Px,\mdf@Fy);
3044     \end{scope}
3045 }%
3046 {%
3047     \ifdimless{\mdfframetitleboxtotalheight}{\z@}
3048     {}%
3049     {%
3050         \drawbrackgroundframetitle@@middle%
3051         \pgfmathsetlength{\global\mdfframetitleboxtotalheight}{-\p@}%
3052     }%
3053 }%
3054 }%
3055 }%
3056 \def\drawbrackgroundframetitle@@middle{%
3057     \begin{scope}%background frame title
3058     \ifbool{mdf@leftline}{%
3059         \pgfmathsetlengthmacro\mdf@0x%
3060             {\mdf@0x+\mdf@innerlinewidth@length+0.5\mdf@middlelinewidth@length}
3061         }{}%
3062     \ifbool{mdf@rightline}{%
3063         \pgfmathsetlengthmacro\mdf@Px%
3064             {\mdf@Px-\mdf@innerlinewidth@length-0.5\mdf@middlelinewidth@length}
3065         }{}%
3066     \pgfmathsetlengthmacro\mdf@Fy
3067         {\mdf@Py-\mdfframetitleboxtotalheight}
3068     \path[mdfframetitlebackground,rounded corners=\z@]
3069         (\mdf@0x,\mdf@Fy) -- (\mdf@0x,\mdf@Py)%
3070         --(\mdf@Px,\mdf@Py) --(\mdf@Px,\mdf@Fy);
3071     \end{scope}
3072 }%
3073 %
3074 \def\drawbrackgroundframetitle@@middle{%
3075     \begin{scope}%background frame title
3076     \ifbool{mdf@leftline}{
3077         \pgfmathsetlengthmacro\mdf@0x%
3078             {\mdf@0x+\mdf@innerlinewidth@length+0.5\mdf@middlelinewidth@length}
3079         }{}%
3080     \ifbool{mdf@rightline}{%
3081         \pgfmathsetlengthmacro\mdf@Px%
3082             {\mdf@Px-\mdf@innerlinewidth@length-0.5\mdf@middlelinewidth@length}
3083         }{}%
3084     \pgfmathsetlengthmacro\mdf@Fy
3085         {\mdf@Py-\mdfframetitleboxtotalheight}
3086     \path[mdfframetitlebackground,rounded corners=\z@]
3087         (\mdf@0x,\mdf@Fy) -- (\mdf@0x,\mdf@Py)%
3088         --(\mdf@Px,\mdf@Py) --(\mdf@Px,\mdf@Fy);
3089     \end{scope}
3090 }%
3091 \def\mdf@putbox@middle{%
3092     \ifvoid\mdf@splitbox@two
3093     \else%
3094         \mdf@makebox@out{%

```

```

3095 \mdf@makeboxalign@left%
3096 \mdf@tikz@settings%
3097 \setlength\mdfboundingboxwidth{\wd\mdf@splitbox@two}%
3098 \advance\mdfboundingboxwidth by \mdf@innerleftmargin@length\relax%
3099 \advance\mdfboundingboxwidth by \mdf@innerrightmargin@length\relax%
3100 \ifbool{mdf@leftline}{%
3101   \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
3102   \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
3103   \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}{}%
3104 \ifbool{mdf@rightline}{%
3105   \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
3106   \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
3107   \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}{}%
3108 \setlength\mdfboundingboxheight%
3109   {\dimexpr\ht\mdf@splitbox@two+\dp\mdf@splitbox@two\relax}%
3110 \advance\mdfboundingboxheight by \mdf@splitbottomskip@length\relax%
3111 %%%%%%%%%%
3112 \ifbool{mdf@everyline}{%
3113   \ifbool{mdf@topline}{%
3114     \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
3115     \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
3116     \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}{}%
3117   \ifbool{mdf@bottomline}{%
3118     \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
3119     \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
3120     \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}{}%
3121   }{}%
3122 %%%%%%%%%%
3123 \mdf@makebox@in[\mdfboundingboxwidth]{%
3124 \null%
3125 \begin{tikzpicture}[remember picture]
3126   \pgfmathsetlengthmacro\mdf@Ax{+\mdf@innerleftmargin@length}%
3127   \pgfmathsetlengthmacro\mdf@Ay{+\mdf@splitbottomskip@length}%
3128   \pgfmathsetlengthmacro\mdf@Ox{+0pt}%
3129   \pgfmathsetlengthmacro\mdf@Oy{+0pt}%
3130   \pgfmathsetlengthmacro\mdf@Px{+\mdfboundingboxwidth}%
3131   \pgfmathsetlengthmacro\mdf@Py{+\mdfboundingboxheight}%
3132   \ifbool{mdf@leftline}%
3133     {%
3134       \pgfmathsetlengthmacro\mdf@Ax%
3135         {\mdf@Ax+\mdf@outerlinewidth@length+
3136          \mdf@middlelinewidth@length+\mdf@innerlinewidth@length}%
3137       \pgfmathsetlengthmacro\mdf@Ox%
3138         {\mdf@Ox+\mdf@outerlinewidth@length+0.5\mdf@middlelinewidth@length}%
3139     }{}%
3140   \ifbool{mdf@rightline}%
3141     {%
3142       \pgfmathsetlengthmacro\mdf@Px%
3143         {\mdf@Px-\mdf@outerlinewidth@length-0.5\mdf@middlelinewidth@length}%
3144     }{}%
3145 %
3146   \ifbool{mdf@everyline}{%
3147     \ifbool{mdf@bottomline}%
3148       {%
3149         \pgfmathsetlengthmacro\mdf@Ay%
3150           {\mdf@Ay+\mdf@outerlinewidth@length+\mdf@middlelinewidth@length%

```

```

3151         +\mdf@innerlinewidth@length}%
3152     \pgfmathsetlengthmacro\mdf@0y%
3153     {\mdf@0y+\mdf@outerlinewidth@length+0.5\mdf@middlelinewidth@length}%
3154     }{}%
3155     \ifbool{mdf@topline}%
3156     {%
3157         \pgfmathsetlengthmacro\mdf@Py%
3158         {\mdf@Py-\mdf@outerlinewidth@length-0.5\mdf@middlelinewidth@length}%
3159         }{}%
3160     }{}%
3161 %%
3162     \coordinate(0)at(\mdf@0x,\mdf@0y);%
3163     \coordinate(P)at(\mdf@Px,\mdf@Py);%
3164     \ifbool{mdf@shadow}
3165     {\path[mdfshadow](0) rectangle (P);}%
3166     \begin{scope}[use as bounding box]
3167 %%%%%%%%%%
3168     \ifbool{mdf@everyline}{%
3169         \mdf@test@lrb{\mdf@tikzbox@tfl{(0)--(0|-P)--(P)--(P|-0)--cycle)}}{}%
3170         \mdf@test@ltb{\mdf@tikzbox@tfl{(P|-0)--(0)--(0|-P)--(P))}}{}%
3171         \mdf@test@trb{\mdf@tikzbox@tfl{(0|-P)--(P)--(P|-0)--(0))}}{}%
3172         \mdf@test@ltr{\mdf@tikzbox@tfl{(0)--(0|-P)--(P)--(P|-0))}}{}%
3173         \mdf@test@lrb{\mdf@tikzbox@tfl{(P|-0)--(0)--(0|-P)--(P))}}{}%
3174         \mdf@test@lb{\mdf@tikzbox@otl{(P|-0)--(0)--(0|-P))}%
3175             {(P)--(P|-0)[mdfcorners]--(0)--(0|-P))}%
3176         }{}%
3177         \mdf@test@rb{\mdf@tikzbox@otl{(P)--(P|-0)--(0))}%
3178             {(0|-P)--(P)[mdfcorners]--(P|-0)--(0))}%
3179         }{}%
3180         \mdf@test@tr{\mdf@tikzbox@otl{(0|-P)--(P)--(P|-0))}%
3181             {(0)--(0|-P)[mdfcorners]--(P)--(P|-0))}%
3182         }{}%
3183         \mdf@test@lt{\mdf@tikzbox@otl{(0)--(0|-P)--(P))}%
3184             {(P|-0)--(0)[mdfcorners]--(0|-P)--(P))}%
3185         }{}%
3186         \mdf@test@lr{\mdf@tikzbox@otl{(0)--(0|-P)(P)--(P|-0))}%
3187             {(0)rectangle(P)}%
3188         }{}%
3189         \mdf@test@tb{\mdf@tikzbox@otl{(0)--(0|-P)(0|-P)--(P))}%
3190             {(0)rectangle(P)}%
3191         }{}%
3192         \mdf@test@l{\mdf@tikzbox@otl{(0)--(0|-P))}%
3193             {(0)rectangle(P)}%
3194         }{}%
3195         \mdf@test@r{\mdf@tikzbox@otl{(0|-P)--(P))}%
3196             {(0)rectangle(P)}%
3197         }{}%
3198         \mdf@test@t{\mdf@tikzbox@otl{(0|-P)--(P))}%
3199             {(0)rectangle(P)}%
3200         }{}%
3201         \mdf@test@b{\mdf@tikzbox@otl{(0)--(0|-P))}%
3202             {(0)rectangle(P)}%
3203         }{}%
3204         \mdf@test@noline{\path[mdfbackground,mdfcorners](0)rectangle(P);}%
3205     }{
3206         \ifboolexpr{bool {mdf@leftline} and bool {mdf@rightline}}%

```

```

3207         {\mdf@tikzbox@otl{(0)--(0|-P)(P)--(P|-0)}{(0)rectangle(P)}}{}%
3208     \ifbool{bool {mdf@leftline} and not (bool {mdf@rightline})}%
3209         {\mdf@tikzbox@otl{(0)--(0|-P)}{(0)rectangle(P)}}{}%
3210     \ifbool{not (bool {mdf@leftline}) and bool {mdf@rightline}}%
3211         {\mdf@tikzbox@otl{(P)--(P|-0)}{(0)rectangle(P)}}{}%
3212     \ifbool{not (bool {mdf@leftline}) and not (bool {mdf@rightline})}%
3213         {\path[mdfbackground](0)rectangle(P);}{}%
3214 }
3215 %%%%%%%%%%
3216     \drawbackgroundframetitle@middle
3217     \node[mdfbox]at(\mdf@Ax,\mdf@Ay){\box\mdf@splitbox@two};%
3218 \end{scope}
3219 \mdf@middleextra
3220 %HIER KOMMT EIN WEITERES MAKRO
3221 \mdfcreateextratikz
3222 \end{tikzpicture}%
3223 }%
3224 \mdf@makeboxalign@right%
3225 }%
3226 \fi
3227 }%

```

\mdf@putbox@second

Output of the last breakable contents.

```

3228 \def\drawbackgroundframetitle@second{%
3229     \ifdefempty{\mdf@frametitle}{}%
3230     {%
3231         \ifbool{mdf@repeatframetitle}%
3232             {%repeating title = true
3233             \begin{scope}%background frame title
3234                 \ifbool{mdf@leftline}{
3235                     \pgfmathsetlengthmacro\mdf@0x%
3236                     {\mdf@0x+\mdf@innerlinewidth@length+0.5\mdf@middlelinewidth@length}
3237                 }{}%
3238                 \ifbool{mdf@rightline}{%
3239                     \pgfmathsetlengthmacro\mdf@Px%
3240                     {\mdf@Px-\mdf@innerlinewidth@length-0.5\mdf@middlelinewidth@length}
3241                 }{}%
3242                 \ifbool{mdf@everyline}%
3243                     {%
3244                         \ifbool{mdf@topline}{%
3245                             \pgfmathsetlengthmacro\mdf@Py%
3246                             {\mdf@Py-\mdf@innerlinewidth@length%
3247                             -.5\mdf@middlelinewidth@length}
3248                         }{}%
3249                     }{}%
3250                     \pgfmathsetlengthmacro\mdf@Fy
3251                     {\mdf@Py-\mdfframetitleboxtotalheight}
3252                     \coordinate(P)at(\mdf@Px,\mdf@Py);%
3253                     \path[mdfframetitlebackground]
3254                     (\mdf@0x,\mdf@Fy) -- (\mdf@0x,\mdf@Py)%
3255                     --(\mdf@Px,\mdf@Py) --(\mdf@Px,\mdf@Fy);
3256                     \end{scope}
3257                 }%

```



```

3258     {%
3259         \ifdimless{\mdfframetitleboxtotalheight}{\z@}
3260         {%
3261             {%
3262                 \drawbackgroundframetitle@@second%
3263             }%
3264         }%
3265     }%
3266 }%
3267 %
3268 \def\drawbackgroundframetitle@@second{%
3269     \begin{scope}%background frame title
3270     \ifbool{mdf@leftline}{
3271         \pgfmathsetlengthmacro\mdf@0x%
3272             {\mdf@0x+\mdf@innerlinewidth@length+0.5\mdf@middlelinewidth@length}
3273     }{%
3274     \ifbool{mdf@rightline}{%
3275         \pgfmathsetlengthmacro\mdf@Px%
3276             {\mdf@Px-\mdf@innerlinewidth@length-0.5\mdf@middlelinewidth@length}
3277     }{%
3278     \pgfmathsetlengthmacro\mdf@Fy
3279         {\mdf@Py-\mdfframetitleboxtotalheight}
3280     \path[mdfframetitlebackground,rounded corners=\z@]
3281         (\mdf@0x,\mdf@Fy) -- (\mdf@0x,\mdf@Py)%
3282         --(\mdf@Px,\mdf@Py) --(\mdf@Px,\mdf@Fy);
3283     \end{scope}
3284 }%
3285 \def\mdf@putbox@second{%
3286     \ifvoid\mdf@splitbox@one
3287     \else%
3288         \mdf@makebox@out{%
3289             \mdf@makeboxalign@left%
3290             \mdf@tikz@settings%
3291             \setlength\mdfboundingboxwidth{\wd\mdf@splitbox@one}%
3292             \advance\mdfboundingboxwidth by \mdf@innerleftmargin@length\relax%
3293             \advance\mdfboundingboxwidth by \mdf@innerrightmargin@length\relax%
3294             \ifbool{mdf@leftline}{%
3295                 \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
3296                 \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
3297                 \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}%
3298             \ifbool{mdf@rightline}{%
3299                 \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
3300                 \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
3301                 \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}%
3302             \setlength\mdfboundingboxheight%
3303                 {\dimexpr\ht\mdf@splitbox@one+\dp\mdf@splitbox@one\relax}%
3304             \advance\mdfboundingboxheight by \mdf@innerbottommargin@length\relax%
3305             \ifbool{mdf@bottomline}{%
3306                 \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
3307                 \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
3308                 \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}%
3309             %%%%%%%%%
3310             \ifbool{mdf@everyline}{%
3311                 \ifbool{mdf@topline}{%
3312                     \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
3313                     \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%

```



```

3314 \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax\}%
3315 }{}%
3316 %%%%%%%%%%
3317 \mdf@makebox@in[\mdfboundingboxwidth]{%
3318 \null%
3319 \begin{tikzpicture}[remember picture]
3320 \pgfmathsetlengthmacro\mdf@Ax{+\mdf@innerleftmargin@length}%
3321 \pgfmathsetlengthmacro\mdf@Ay{+\mdf@innerbottommargin@length}%
3322 \pgfmathsetlengthmacro\mdf@Ox{+0pt}%
3323 \pgfmathsetlengthmacro\mdf@Oy{+0pt}%
3324 \pgfmathsetlengthmacro\mdf@Px{+\mdfboundingboxwidth}%
3325 \pgfmathsetlengthmacro\mdf@Py{+\mdfboundingboxheight}%
3326 \ifbool{mdf@leftline}%
3327 {%
3328 \pgfmathsetlengthmacro\mdf@Ax%
3329 {\mdf@Ax+\mdf@outerlinewidth@length+
3330 \mdf@middlelinewidth@length+\mdf@innerlinewidth@length}%
3331 \pgfmathsetlengthmacro\mdf@Ox%
3332 {\mdf@Ox+\mdf@outerlinewidth@length+0.5\mdf@middlelinewidth@length}%
3333 }{}%
3334 \ifbool{mdf@rightline}%
3335 {%
3336 \pgfmathsetlengthmacro\mdf@Px%
3337 {\mdf@Px-\mdf@outerlinewidth@length-0.5\mdf@middlelinewidth@length}%
3338 }{}%
3339 \ifbool{mdf@bottomline}%
3340 {%
3341 \pgfmathsetlengthmacro\mdf@Ay%
3342 {\mdf@Ay+\mdf@outerlinewidth@length+
3343 \mdf@middlelinewidth@length+\mdf@innerlinewidth@length}%
3344 \pgfmathsetlengthmacro\mdf@Oy%
3345 {\mdf@Oy+\mdf@outerlinewidth@length+0.5\mdf@middlelinewidth@length}%
3346 }{}%
3347 %%
3348 \ifbool{mdf@everyline}{%
3349 \ifbool{mdf@topline}%
3350 {%
3351 \pgfmathsetlengthmacro\mdf@Py%
3352 {\mdf@Py-\mdf@outerlinewidth@length-0.5\mdf@middlelinewidth@length}%
3353 }{}%
3354 }{}%
3355 %%
3356 \coordinate(0)at(\mdf@Ox,\mdf@Oy);%
3357 \coordinate(P)at(\mdf@Px,\mdf@Py);%
3358 \ifbool{mdf@shadow}
3359 {%
3360 \path[mdfshadow] (0|-P) to[mdfcorners] (0)
3361 to[mdfcorners] (P|-0) -- (P) -- (0|-P);%
3362 }{}%
3363 \begin{scope}[use as bounding box]
3364 %%%%%%%%%%
3365 \ifbool{mdf@everyline}{%
3366 \mdf@test@lrb{\mdf@tikzbox@tfl{(0)--(0|-P)--(P)--(P|-0)--cycle)}}{}%
3367 \mdf@test@ltb{\mdf@tikzbox@tfl{(P|-0)--(0)--(0|-P)--(P)}}{}%
3368 \mdf@test@trb{\mdf@tikzbox@tfl{(0|-P)--(P)--(P|-0)--(0)}}{}%
3369 \mdf@test@ltr{\mdf@tikzbox@tfl{(0)--(0|-P)--(P)--(P|-0)}}{}%

```

```

3370 \mdf@test@lrb{\mdf@tikzbox@tfl{(P|-0)--(0)--(0|-P)--(P))}}}%
3371 \mdf@test@lb{\mdf@tikzbox@otl{(P|-0)--(0)--(0|-P))}%
3372 {(P)--(P|-0)[mdfcorners]--(0)--(0|-P))}%
3373 }{}%
3374 \mdf@test@rb{\mdf@tikzbox@otl{(P)--(P|-0)--(0))}%
3375 {(0|-P)--(P)[mdfcorners]--(P|-0)--(0))}%
3376 }{}%
3377 \mdf@test@tr{\mdf@tikzbox@otl{(0|-P)--(P)--(P|-0))}%
3378 {(0)--(0|-P)[mdfcorners]--(P)--(P|-0))}%
3379 }{}%
3380 \mdf@test@lt{\mdf@tikzbox@otl{(0)--(0|-P)--(P))}%
3381 {(P|-0)--(0)[mdfcorners]--(0|-P)--(P))}%
3382 }{}%
3383 \mdf@test@lr{\mdf@tikzbox@otl{(0)--(0|-P)(P)--(P|-0))}%
3384 {(0)rectangle(P))}%
3385 }{}%
3386 \mdf@test@tb{\mdf@tikzbox@otl{(0)--(0|-P)(0|-P)--(P))}%
3387 {(0)rectangle(P))}%
3388 }{}%
3389 \mdf@test@l{\mdf@tikzbox@otl{(0)--(0|-P))}%
3390 {(0)rectangle(P))}%
3391 }{}%
3392 \mdf@test@r{\mdf@tikzbox@otl{(0|-P)--(P))}%
3393 {(0)rectangle(P))}%
3394 }{}%
3395 \mdf@test@t{\mdf@tikzbox@otl{(0|-P)--(P))}%
3396 {(0)rectangle(P))}%
3397 }{}%
3398 \mdf@test@b{\mdf@tikzbox@otl{(0)--(0|-P))}%
3399 {(0)rectangle(P))}%
3400 }{}%
3401 \mdf@test@noline{\path[mdfbackground,mdfcorners](0)rectangle(P);}%
3402 }{}%
3403 \ifboolexpr{test {\mdf@test@lrb} or test {\mdf@test@lrb}}%
3404 {\mdf@tikzbox@tfl{(P|-0)--(0)--(0|-P)--(P))}%
3405 {}%
3406 \ifboolexpr{test {\mdf@test@ltb} or test {\mdf@test@lb}}%
3407 {%
3408 \mdf@tikzbox@otl{(P|-0)--(0)--(0|-P))}%
3409 {(P)--(P|-0)[mdfcorners]--(0)--(0|-P))}%
3410 }%
3411 {}%
3412 \ifboolexpr{test {\mdf@test@trb} or test {\mdf@test@rb}}%
3413 {%
3414 \mdf@tikzbox@otl{(P)--(P|-0)--(0))}%
3415 {(0|-P)--(P)[mdfcorners]--(P|-0)--(0))}%
3416 }%
3417 {}%
3418 \ifboolexpr{test {\mdf@test@ltr} or test {\mdf@test@lr}}%
3419 {\mdf@tikzbox@otl{(0)--(0|-P)(P)--(P|-0))}{(0)rectangle(P))}%
3420 {}%
3421 \ifboolexpr{test {\mdf@test@tb} or test {\mdf@test@b}}%
3422 {\mdf@tikzbox@otl{(0)--(0|-P))}{(0)rectangle(P))}%
3423 {}%
3424 \ifboolexpr{test {\mdf@test@lt} or test {\mdf@test@l}}%
3425 {\mdf@tikzbox@otl{(0)--(0|-P))}{(0)rectangle(P))}%

```

```

3426      {}%
3427      \ifboolexpr{test {\mdf@test@tr} or test {\mdf@test@r}}%
3428      {\mdf@tikzbox@otl{(0-|P)--(P)}{(0)rectangle(P)}}%
3429      {}%
3430      \mdf@test@t{\path[mdfbackground,mdfcorners](0|-P)--(0)--(0-|P)--(P);}%
3431      \mdf@test@noline{\path[mdfbackground,mdfcorners]
3432      (0|-P)--(0)--(0-|P)--(P);}%
3433      {}%
3434    }%
3435    \drawbrackgroundframetitle@second
3436    \node[mdfbox] at (\mdf@Ax,\mdf@Ay){\box\mdf@splitbox@one};%
3437    \end{scope}
3438    \mdf@secondextra
3439    %HIER KOMMT EIN WEITERES MAKRO
3440    \mdfcreateextratikz
3441    \end{tikzpicture}%
3442    }%
3443    \mdf@makeboxalign@right%
3444  }%
3445 \fi
3446 }%

3447 \endinput

```

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

```

3448 %% Style file for mdframed for package option 'framemethod=default'
3449 %%
3450 %% This package may be distributed under the terms of the LaTeX Project
3451 %% Public License, as described in lppl.txt in the base LaTeX distribution.
3452 %% Either version 1.0 or, at your option, any later version.
3453 %%
3454 %%
3455 %%$Id: mdframed.dtx 426 2012-06-02 12:18:56Z marco $
3456 %

```

```

\mdframedIIPackagename
\mdf@frameIIDate@svn

```

local settings

```

3457 \def\mdframedIIPackagename{md-frame-2}
3458 \def\mdf@frameIIDate@svn$#1: #2 #3 #4-#5-#6 #7 #8${#4/#5/#6\space }
3459 \ProvidesFile{md-frame-2.mdf}%
3460 [\mdf@frameIIDate@svn$Id: mdframed.dtx 426 2012-06-02 12:18:56Z marco $ %
3461 \mdversion: \mdframedIIPackagename]

```

```

\mdf@ptlength@to@pscode
\ptTps

```

Command to calculate a latex length to postscript

```

3462 \def\mdf@ptlength@to@pscode#1{\pst@number{#1} \pst@number\psxunit div }
3463 \def\mdf@ptlength@to@pscode@length#1{%
3464   \pst@number{\csname mdf@#1@length\endcsname}
3465   \pst@number\psxunit div\space}
3466 \let\ptTps\mdf@ptlength@to@pscode\relax
3467 \let\ptTpsL\mdf@ptlength@to@pscode@length\relax

```

```

\mdfbackgroundstyle
\mdflinestyle
\mdfframetitlestyle
\mdfframetitlebackground

```

background and line settings for pstricks

```

3468 \def\mdfpstricks@settings{%expand by \addtopsstyle
3469   \newsstyle{mdfbackgroundstyle}%
3470   {linecolor=\mdf@backgroundcolor,fillstyle=solid,%
3471     fillcolor=\mdf@backgroundcolor,linestyle=none,%
3472     ,dimen=middle,%
3473   }%
3474 %
3475 \newsstyle{mdfframetitlebackgroundstyle}{%
3476   linecolor=\mdf@frametitlebackgroundcolor,
3477   fillcolor=\mdf@frametitlebackgroundcolor,
3478   fillstyle=solid,linestyle=none,
3479   linearc=\ifdimgreater{\mdf@roundcorner@length%
3480             -\mdf@innerlinewidth@length%
3481             -.5\mdf@middlelinewidth@length}
3482   {\z@}{\dimexpr\mdf@roundcorner@length%
3483             -\mdf@innerlinewidth@length%
3484             -.5\mdf@middlelinewidth@length}{\z@},
3485 }
3486 %
3487 \newsstyle{mdfouterlinestyle}{linestyle=none}%
3488 \ifdimgreater{\mdf@outerlinewidth@length}{\z@}
3489   {\newsstyle{mdfouterlinestyle}{%
3490     linecolor=\mdf@outerlinecolor,%
3491     linewidth=\dimexpr2\mdf@outerlinewidth@length
3492               +\mdf@middlelinewidth@length\relax,
3493     dimen=middle,
3494   }}}%
3495 %
3496 \newsstyle{mdfinnerlinestyle}{linestyle=none}%
3497 \ifdimgreater{\mdf@innerlinewidth@length}{\z@}%
3498   {\newsstyle{mdfinnerlinestyle}{%
3499     linecolor=\mdf@innerlinecolor,%
3500     linewidth=\dimexpr2\mdf@innerlinewidth@length
3501               +\mdf@middlelinewidth@length\relax,
3502     dimen=middle,
3503   }}}%
3504 %
3505 \newsstyle{mdfmiddlelinestyle}{linestyle=none}%
3506 \newsstyle{mdfshadow}{shadow=true,shadowcolor=\mdf@shadowcolor,
3507   shadowsize=\mdf@shadowsize@length}%
3508 \ifdimgreater{\mdf@middlelinewidth@length}{\z@}%
3509   {\newsstyle{mdfmiddlelinestyle}{%
3510     linewidth=\mdf@middlelinewidth@length,%
3511     linecolor=\mdf@middlelinecolor,dimen=middle
3512   }}}%
3513 \mdfpstricks@appendsettings
3514 }%
3515 %
3516 \newrobustcmd*\mdf@pstricksbox@fl[2]{%four lines
3517   \psframe[style=mdfouterlinestyle](#1)(#2)%aussen=3mm

```

```

3518 \psframe[style=mdfbackgroundstyle](#1)(#2)%Hintergrund
3519 \psclip{\psframe[style=mdfmiddlelinestyle](#1)(#2)}
3520 \psframe[style=mdfinnerlinestyle](#1)(#2)%innere=3mm
3521 \endpsclip
3522 \psframe[style=mdfmiddlelinestyle](#1)(#2)%mittlere=2mm
3523 }%
3524 \newrobustcmd*\mdf@pstricksbox@tcl[1]{%three lines
3525 \psline[style=mdfouterlinestyle]#1%ausen=3mm
3526 \psline[style=mdfbackgroundstyle]#1%Hintergrund
3527 \psclip{\psline[style=mdfmiddlelinestyle]#1}
3528 \psline[style=mdfinnerlinestyle]#1%innere=3mm
3529 \endpsclip
3530 \psline[style=mdfmiddlelinestyle]#1%mittlere=2mm
3531 }%
3532 \newrobustcmd*\mdf@pstricksbox@tcl[2]{%two combined lines
3533 %%#1 background comple
3534 %%#2 line path
3535 \psline[style=mdfouterlinestyle]#2%ausen=3mm
3536 \psline[style=mdfbackgroundstyle]#2%Hintergrund
3537 \psclip{\pscustom[linestyle=none]{
3538 \psline[style=mdfmiddlelinestyle]#2
3539 \psline[linestyle=none,lineararc=0pt]#1}
3540 }
3541 \psframe[style=mdfbackgroundstyle,lineararc=0pt](mdf@0)(mdf@P)%Hintergrund
3542 \psline[style=mdfinnerlinestyle]#2%innere=3mm
3543 \endpsclip
3544 \psline[style=mdfmiddlelinestyle]#2%mittlere=2mm
3545 }%
3546 \newrobustcmd*\mdf@pstricksbox@tncl[2]{%two not combined lines
3547 \beginngroup
3548 \psset{lineararc=0pt}
3549 \psline[style=mdfouterlinestyle](mdf@0)#1%ausen=3mm
3550 \psline[style=mdfouterlinestyle](mdf@P)#2%ausen=3mm
3551 \psclip{
3552 \pscustom[linestyle=none]{%
3553 \psline[style=mdfmiddlelinestyle](mdf@0)#1%mittlere=2mm
3554 \psline[linestyle=none](mdf@0)#2
3555 \psline[style=mdfmiddlelinestyle](mdf@P)#2%mittlere=2mm
3556 \psline[linestyle=none](mdf@P)#1
3557 }%
3558 }%
3559 \psframe[style=mdfbackgroundstyle,lineararc=0pt](mdf@0)(mdf@P)%Hintergrund
3560 \psline[style=mdfinnerlinestyle](mdf@0)#1%innere=3mm
3561 \psline[style=mdfinnerlinestyle](mdf@P)#2%innere=3mm
3562 \endpsclip
3563 \psline[style=mdfmiddlelinestyle](mdf@0)#1%mittlere=2mm
3564 \psline[style=mdfmiddlelinestyle](mdf@P)#2%mittlere=2mm
3565 \endgroup
3566 }%
3567 \newrobustcmd*\mdf@pstricksbox@ol[1]{%one line
3568 \beginngroup
3569 \psset{lineararc=0pt}
3570 \psline[style=mdfouterlinestyle]#1%ausen=3mm
3571 \psline[style=mdfbackgroundstyle]#1%Hintergrund
3572 \psclip{\pscustom[linestyle=none]{
3573 \psline[style=mdfmiddlelinestyle]#1

```

```

3574         \psframe[linestyle=none,fillstyle=none,dimen=inner](mdf@0)(mdf@P)
3575     }}
3576     \psframe[style=mdfbackgroundstyle](mdf@0)(mdf@P)
3577     \psline[style=mdfinnerlinestyle]#1%innere=3mm
3578 \endpsclip
3579 \psline[style=mdfmiddlelinestyle]#1%mittlere=2mm
3580 \endgroup%
3581 }%
3582
3583 %
3584 \newpsstyle{mdfframetitrerule}{%
3585     linecolor=\mdfframetitrerulecolor,%
3586     fillcolor=\mdfframetitrerulecolor,%
3587     fillstyle=solid,dimen=outer,%
3588 }
3589 %

```

`\mdf@put@frametitrerule`

frametitrerule with pstricks

```

3590 \def\mdf@@frametitrerule{%
3591     \ifbool{mdf@frametitrerule}{%
3592         \vbox{\hsize0pt
3593             \par\unskip\vskip\mdf@frametitlebelowskip@length
3594             \noindent\rlap{%
3595                 \begingroup%
3596                 \begin{pspicture}(0,0)(0,\mdf@frametitrerulewidth@length)
3597                     \psframe[style=mdfframetitrerule]%
3598                         (!\ptTpsL{innerleftmargin} neg 0)%
3599                         (!\ptTpsL{innerrightmargin}
3600                             \ptTps{\mdfframetitleboxwidth} add
3601                             \ptTpsL{frametitrerulewidth})
3602                 \end{pspicture}
3603             \endgroup}%
3604         }%
3605     }{%
3606         \vbox{\hsize0pt
3607             \par\unskip\vskip\mdf@frametitlebelowskip@length
3608             \noindent\rlap{}
3609         }%
3610     }%
3611     \iftoggle{mdf@notfirstframetitle}%
3612     {%
3613         \par\unskip\vskip\mdf@splittopskip@length%
3614     }%
3615     {%
3616         \par\unskip\vskip\mdf@innertopmargin@length%
3617     }%
3618 }%
3619 %
3620 %
3621 %
3622 %
3623 %
3624 % \begin{macro}{mdfsubtitle}

```

```

3625 % Definition of the command \Cmd{mdfsubtitle}. Starting with the definition of
3626 % the tikz style for the rule above the subtitle.
3627 % \begin{macrocode}%
3628 \newsstyle{mdfsubtitleaboverule}{%
3629   linecolor=\mdf@subtitleabovelinecolor,
3630   fillcolor=\mdf@subtitleabovelinecolor,
3631   fillstyle=solid,dimen=outer,%
3632 }
Definition of the default style of rule below the subtitle.
3633 \newsstyle{mdfsubtitlebelowrule}{%
3634   linecolor=\mdf@subtitlebelowlinecolor,
3635   fillcolor=\mdf@subtitlebelowlinecolor,
3636   fillstyle=solid,dimen=outer,%
3637 }
Definition of the default style of the background of the subtitle.
3638 \newsstyle{mdfsubtitlebackground}{%
3639   linecolor=\mdf@subtitlebackgroundcolor,
3640   fillcolor=\mdf@subtitlebackgroundcolor,
3641   fillstyle=solid,linestyle=none,
3642 }
Definition of the command \mdfsubtitle.
3643 \newrobustcmd\mdfsubtitle[2][]%
3644 {%
Make everything local.
3645 \begingroup
3646 \penalty-9995%set a breakpoint before the subtitle
3647 % \end{macrocode}
3648 % Inside the title we don't need any \Cmd{parindent}. Next set the options of
3649 % the optional argument of \Cmd{mdfsubtitle}.
3650 % \begin{macrocode}
3651 \parindent\z@%relax%
3652 \mdfsetup{#1}%only for subtitle options
3653 % \end{macrocode}
3654 % Save the complete subtitle inside the save box \Cmd{z@}.
3655 % \begin{macrocode}
3656 \setbox\z@=\vbox{\mdf@subtitlefont{#2}\relax}%
3657 % \end{macrocode}
3658 % Compute the width of the current line including the inner left margin and
3659 % inner right margin (using \Cmd{dimen@}). In the next step the height and the
3660 % depth of the save box will be saved in \Cmd{dimen@i}.
3661 % \begin{macrocode}
3662 \dimen@=\linewidth%relax%
3663 \advance\dimen@ by \mdf@innerleftmargin@length%relax%
3664 \advance\dimen@ by \mdf@innerrightmargin@length%relax%
3665 \dimen@i=\mdf@subtitleinneraboveskip@length%relax%
3666 \advance\dimen@i by \mdf@subtitleinnerbelowskip@length%relax%
3667 \advance\dimen@i by \ht\z@%relax%
3668 \advance\dimen@i by \dp\z@%relax%
3669 % \end{macrocode}
3670 % Test if rules should be drawn. otherwise set the line width to 0\,pt.
3671 % \begin{macrocode}
3672 \ifbool{mdf@subtitleaboveline}{}%
3673   {\mdfsetup{subtitleabovelinewidth=\z@}}%
3674 \ifbool{mdf@subtitlebelowline}{}%

```

```

3675      {\mdfsetup{subtitlebelowlinewidth=\z@}}%
3676 %      \end{macrocode}
3677 % Start a new line with the given skip \Opt{subtitleaboveskip}.
3678 %      \begin{macrocode}
3679 \par\unskip\ifvmode\nointerlineskip\hrule \@height\z@ \@width\hsize\fi%
3680 \vskip\mdf@subtitleaboveskip@length
3681 %      \end{macrocode}
3682 % Drawing the above line of the subtitle.
3683 %      \begin{macrocode}
3684 \rlap%
3685 {%
3686   \hspace*{-\mdf@innerleftmargin@length}%
3687   \begin{group}%
3688     \begin{pspicture}(0,0)(\dimen@,\mdf@subtitleaboveline@length)
3689       \ifbool{mdf@subtitleaboveline}%
3690         {%
3691           \psframe[style=mdfsubtitleaboverule]%
3692             (0,0)(\dimen@,\mdf@subtitleaboveline@length)%
3693         }{}
3694       \end{pspicture}
3695     \end{group}%
3696   }%
3697 %      \end{macrocode}
3698 % space between rule above and subtitle
3699 %      \begin{macrocode}
3700 \par\unskip\ifvmode\nointerlineskip\hrule \@height\z@ \@width\hsize\fi%
3701 \vskip\mdf@subtitleinneraboveskip@length
3702 %      \end{macrocode}
3703 % output of subtitle with a background. Must think about the \Cmd{hspace}
3704 % combination.
3705 %      \begin{macrocode}
3706 \hspace*{-\mdf@innerleftmargin@length}%
3707 \begin{pspicture}%
3708   (0,0)%
3709   (0,\ht\z@)%
3710   \psframe[style=mdfsubtitlebackground]%
3711     (0,\dimexpr-\dp\z@-\mdf@subtitleinnerbelowskip@length\relax)%
3712     (\dimen@,\dimen@i)
3713 \end{pspicture}
3714 \hspace*{+\mdf@innerleftmargin@length}%
3715 \box\z@\relax%
3716 %      \end{macrocode}
3717 % Skip after subtitle
3718 %      \begin{macrocode}
3719 \par\unskip\ifvmode\nointerlineskip\hrule \@height\z@ \@width\hsize\fi%
3720 \vskip\mdf@subtitleinnerbelowskip@length
3721 %      \end{macrocode}
3722 % Draw rule below of the subtitle.
3723 %      \begin{macrocode}
3724 \rlap%
3725 {%
3726   \hspace*{-\mdf@innerleftmargin@length}%
3727   \begin{group}%
3728     \begin{pspicture}(0,0)(\dimen@,\mdf@subtitlebelowlinewidth@length)
3729       \ifbool{mdf@subtitlebelowline}%
3730         {%

```



```

3731      \psframe[style=mdfsubtitlebelowrule]%
3732      (0,0)(\dimen@,\mdf@subtitlebelowlinewidth@length)%
3733      }{}%
3734      \end{pspicture}
3735      \endgroup%
3736  }%
3737 %      \end{macrocode}
3738 % Last skip and set a non breaking point.
3739 %      \begin{macrocode}
3740 \par\unskip\ifvmode\nointerlineskip\hrule \@height\z@ \@width\hsize\fi%
3741 \vskip\mdf@subtitlebelowskip@length
3742 \penalty 9995
3743 \endgroup
3744 }
3745

```

`\mdfsubsubtitle`

Definition of the command `\mdfsubsubtitle`. Starting with the definition of the tikz style for the rule above the subsubtitle.

```

3746 %
3747 \newpsstyle{mdfsubsubtitleaboverule}{%
3748   linecolor=\mdf@subtitleabovelinecolor,
3749   fillcolor=\mdf@subtitleabovelinecolor,
3750   fillstyle=solid,dimen=outer,%
3751 }

```

Definition of the default style of rule below the subtitle.

```

3752 \newpsstyle{mdfsubsubtitlebelowrule}{%
3753   linecolor=\mdf@subtitlebelowlinecolor,
3754   fillcolor=\mdf@subtitlebelowlinecolor,
3755   fillstyle=solid,dimen=outer,%
3756 }

```

Definition of the default style of the background of the subtitle.

```

3757 \newpsstyle{mdfsubsubtitlebackground}{%
3758   linecolor=\mdf@subtitlebackgroundcolor,
3759   fillcolor=\mdf@subtitlebackgroundcolor,
3760   fillstyle=solid,linestyle=none,
3761 }

```

Definition of the command `\mdfsubsubtitle`.

```

3762 \newrobustcmd\mdfsubsubtitle[2][]%
3763 {%

```

Make everything local.

```

3764 \begingroup
3765 \penalty-9995%set a breakpoint before the subsubtitle
3766 %      \end{macrocode}
3767 % Inside the title we don't need any \Cmd{parindent}. Next set the options of
3768 % the optional argument of \Cmd{mdfsubsubtitle}.
3769 %      \begin{macrocode}
3770 \parindent\z@\relax%
3771 \mdfsetup{#1}%only for subsubtitle options
3772 %      \end{macrocode}
3773 % Save the complete subsubtitle inside the save box \Cmd{z@}.
3774 %      \begin{macrocode}
3775 \setbox\z@=\vbox{\mdf@subsubtitlefont{#2}\relax}%

```

```

3776 %      \end{macrocode}
3777 % Compute the width of the current line including the inner left margin and
3778 % inner right margin (using \Cmd{dimen@}. In the nest step the height and the
3779 % depth of the save box will be saved in \Cmd{dimen@i}.
3780 %      \begin{macrocode}
3781 \dimen@=\linewidth\relax%
3782 \advance\dimen@ by \mdf@innerleftmargin@length\relax%
3783 \advance\dimen@ by \mdf@innerrightmargin@length\relax%
3784 \dimen@i=\mdf@subsubtitleinneraboveskip@length\relax%
3785 \advance\dimen@i by \mdf@subsubtitleinnerbelowskip@length\relax%
3786 \advance\dimen@i by \ht\z@\relax%
3787 \advance\dimen@i by \dp\z@\relax%
3788 %      \end{macrocode}
3789 % Test if rules should be drawn. otherwise set the line width to 0\,pt.
3790 %      \begin{macrocode}
3791 \ifbool{mdf@subsubtitleaboveline}{}%
3792     {\mdfsetup{subsubtitleabovelinewidth=\z@}}%
3793 \ifbool{mdf@subsubtitlebelowline}{}%
3794     {\mdfsetup{subsubtitlebelowlinewidth=\z@}}%
3795 %      \end{macrocode}
3796 % Start a new line with the given skip \Opt{subsubtitleaboveskip}.
3797 %      \begin{macrocode}
3798 \par\unskip\ifvmode\nointerlineskip\hrule \@height\z@ \@width\hsize\fi%
3799 \vskip\mdf@subsubtitleaboveskip@length
3800 %      \end{macrocode}
3801 % Drawing the above line of the subsubtitle.
3802 %      \begin{macrocode}
3803 \rlap%
3804 {%
3805     \hspace*{-\mdf@innerleftmargin@length}%
3806     \begin{group}%
3807         \begin{pspicture}(0,0)(\dimen@,\mdf@subsubtitleabovelinewidth@length)
3808             \ifbool{mdf@subsubtitleaboveline}%
3809                 {%
3810                     \psframe[style=mdfsubsubtitleaboverule]%
3811                         (0,0)(\dimen@,\mdf@subsubtitleabovelinewidth@length)%
3812                 }{}
3813             \end{pspicture}
3814         \end{group}%
3815     }%
3816 %      \end{macrocode}
3817 % space between rule above and subsubtitle
3818 %      \begin{macrocode}
3819 \par\unskip\ifvmode\nointerlineskip\hrule \@height\z@ \@width\hsize\fi%
3820 \vskip\mdf@subsubtitleinneraboveskip@length
3821 %      \end{macrocode}
3822 % output of subsubtitle with a background. Must think about the \Cmd{hspace}
3823 % combination.
3824 %      \begin{macrocode}
3825 \hspace*{-\mdf@innerleftmargin@length}%
3826 \begin{pspicture}(0,-\dp\z@)(0,\dimen@i
3827     \begin{pspicture}%
3828         (0,0)%
3829         (0,\ht\z@)
3830         \psframe[style=mdfsubsubtitlebackground]%
3831             (0,\dimexpr-\dp\z@-\mdf@subsubtitleinnerbelowskip@length\relax)%

```

```

3832             (\dimen@,\dimen@i)
3833     \end{pspicture}
3834     \hspace*{+\mdf@innerleftmargin@length}%
3835     \box\z@\relax%
3836 %     \end{macrocode}
3837 % Skip after subsubtitle
3838 %     \begin{macrocode}
3839     \par\unskip\ifvmode\nointerlineskip\hrule \@height\z@ \@width\hsize\fi%
3840     \vskip\mdf@subsubtitleinnerbelowskip@length
3841 %     \end{macrocode}
3842 % Draw rule below of the subsubtitle.
3843 %     \begin{macrocode}
3844     \rlap%
3845     {%
3846     \hspace*{-\mdf@innerleftmargin@length}%
3847     \begin{pspicture}(0,0)(\dimen@,\mdf@subsubtitlebelowlinewidth@length)
3848     \ifbool{mdf@subsubtitlebelowline}%
3849     {%
3850     \psframe[style=mdfsubsubtitlebelowrule]%
3851     (0,0)(\dimen@,\mdf@subsubtitlebelowlinewidth@length)%
3852     }{}%
3853     \end{pspicture}
3854     \endgroup%
3855     }%
3856 %     \end{macrocode}
3857 % Last skip and set a non breaking point.
3858 %     \begin{macrocode}
3859     \par\unskip\ifvmode\nointerlineskip\hrule \@height\z@ \@width\hsize\fi%
3860     \vskip\mdf@subsubtitlebelowskip@length
3861     \penalty 9995
3862 \endgroup
3863 }
3864 }
3865

```

\mdf@putbox@single

Single output

```

3866 % Info zu den verwendeten Punkten:
3867 % 0 ist die untere linke Ecke der Mitte der middleline
3868 % P ist die obere rechte Ecke der Mitte der middleline
3869 % A ist der Punkt fuer den anchor (d.h. die untere linke Ecke) der Ausgabebox
3870 \def\mdf@putbox@single{%
3871     \ifvoid\mdf@splitbox@one\relax
3872     \else%
3873     \mdf@makebox@out{%
3874     \mdf@makeboxalign@left%
3875     \setlength\mdf@boundingboxwidth{\wd\mdf@splitbox@one}%
3876     \advance\mdf@boundingboxwidth by \mdf@innerleftmargin@length\relax%
3877     \advance\mdf@boundingboxwidth by \mdf@innerrightmargin@length\relax%
3878     \ifbool{mdf@leftline}{%
3879     \advance\mdf@boundingboxwidth by \mdf@innerlinewidth@length\relax%
3880     \advance\mdf@boundingboxwidth by \mdf@middlelinewidth@length\relax%
3881     \advance\mdf@boundingboxwidth by \mdf@outerlinewidth@length\relax}}{}%
3882     \ifbool{mdf@rightline}{%

```

```

3883 \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
3884 \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
3885 \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}}}%
3886 %
3887 \setlength\mdfboundingboxheight%
3888     {\dimexpr\ht\mdf@splitbox@one+\dp\mdf@splitbox@one\relax}%
3889 \advance\mdfboundingboxheight by \mdf@innerbottommargin@length\relax%
3890 \advance\mdfboundingboxheight by \mdf@innertopmargin@length\relax%
3891 \ifbool{mdf@topline}{%
3892     \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
3893     \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
3894     \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}}}%
3895 \ifbool{mdf@bottomline}{%
3896     \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
3897     \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
3898     \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}}}%
3899 %
3900 \setlength\mdftotalllinewidth{\dimexpr\mdf@innerlinewidth@length%
3901                                 +\mdf@middlelinewidth@length
3902                                 +\mdf@outerlinewidth@length\relax}%
3903 \psset{unit=1truecm}%
3904 \mdf@makebox@in[\mdfboundingboxwidth]{%
3905     \null%
3906     \begin{pspicture}(0,0)(\mdfboundingboxwidth,\mdfboundingboxheight)
3907         \mdfpstricks@settings%
3908         \psset{lineararc=\mdf@roundcorner@length, cornersize=absolut,}%
3909         \expandafter\psset\expandafter{\mdf@psset@local}%
3910         \pnode(\mdf@innerleftmargin@length,\mdf@innerbottommargin@length)
3911             {mdf@A}
3912         \pnode(0,0){mdf@0}
3913         \pnode(\mdfboundingboxwidth,\mdfboundingboxheight){mdf@P}
3914         \ifbool{mdf@leftline}%
3915             {%
3916                 \nodexn{(\mdf@A)+(\mdf@outerlinewidth@length,0)
3917                     +(\mdf@middlelinewidth@length,0)
3918                     +(\mdf@innerlinewidth@length,0)}{mdf@A}%
3919                 \nodexn{(\mdf@0)+(\mdf@outerlinewidth@length,0)
3920                     +0.5(\mdf@middlelinewidth@length,0)}{mdf@0}%
3921             }{}%
3922         \ifbool{mdf@rightline}%
3923             {%
3924                 \nodexn{(\mdf@P)-(\mdf@outerlinewidth@length,0)
3925                     -0.5(\mdf@middlelinewidth@length,0)}{mdf@P}%
3926             }{}%
3927         \ifbool{mdf@bottomline}%
3928             {%
3929                 \nodexn{(\mdf@A)+(0,\mdf@outerlinewidth@length)
3930                     +(0,\mdf@middlelinewidth@length)
3931                     +(0,\mdf@innerlinewidth@length)}{mdf@A}%
3932                 \nodexn{(\mdf@0)+(0,\mdf@outerlinewidth@length)
3933                     +0.5(0,\mdf@middlelinewidth@length)}{mdf@0}%
3934             }{}%
3935         \ifbool{mdf@topline}%
3936             {%
3937                 \nodexn{(\mdf@P)-(0,\mdf@outerlinewidth@length)
3938                     -0.5(0,\mdf@middlelinewidth@length)}{mdf@P}

```

```

3939     }{}%
3940 \ifbool{mdf@shadow}
3941     {\psframe[style=mdfshadow](mdf@0)(mdf@P)}{}
3942 %
3943 %Four lines
3944 \mdf@test@lrb{\mdf@pstricksbox@fl{mdf@0}{mdf@P}}{}
3945 %three lines
3946 \mdf@test@ltb{%
3947     \mdf@pstricksbox@tl{(mdf@P|mdf@0)(mdf@0)(mdf@0|mdf@P)(mdf@P)}{}
3948 \mdf@test@trb{%
3949     \mdf@pstricksbox@tl{(mdf@0)(mdf@P|mdf@0)(mdf@P)(mdf@0|mdf@P)}{}
3950 \mdf@test@ltr{%
3951     \mdf@pstricksbox@tl{(mdf@0)(mdf@0|mdf@P)(mdf@P)(mdf@P|mdf@0)}{}
3952 \mdf@test@lrb{%
3953     \mdf@pstricksbox@tl{(mdf@0|mdf@P)(mdf@0)(mdf@P|mdf@0)(mdf@P)}{}
3954 %two lines combined
3955 \mdf@test@lb{\mdf@pstricksbox@tcl%
3956     {(mdf@P|mdf@0)(mdf@P)(mdf@0|mdf@P)}%
3957     {(mdf@0|mdf@P)(mdf@0)(mdf@P|mdf@0)}{}
3958 \mdf@test@rb{\mdf@pstricksbox@tcl%
3959     {(mdf@P)(mdf@0|mdf@P)(mdf@0)}%
3960     {(mdf@0)(mdf@P|mdf@0)(mdf@P)}{}
3961 \mdf@test@tr{\mdf@pstricksbox@tcl%
3962     {(mdf@P|mdf@0)(mdf@0)(mdf@0|mdf@P)}%
3963     {(mdf@0|mdf@P)(mdf@P)(mdf@P|mdf@0)}{}
3964 \mdf@test@lt{\mdf@pstricksbox@tcl%
3965     {(mdf@0)(mdf@P|mdf@0)(mdf@P)}%
3966     {(mdf@0)(mdf@0|mdf@P)(mdf@P)}{}
3967 %two lines not combined combined
3968 \mdf@test@lr{\mdf@pstricksbox@tncl{(mdf@0|mdf@P)}{(mdf@P|mdf@0)}
3969     }{}
3970 \mdf@test@tb{\mdf@pstricksbox@tncl{(mdf@P|mdf@0)}{(mdf@0|mdf@P)}
3971     }{}
3972 %single line
3973 \mdf@test@l{\mdf@pstricksbox@ol{(mdf@0)(mdf@0|mdf@P)}{}
3974 \mdf@test@r{\mdf@pstricksbox@ol{(mdf@P)(mdf@P|mdf@0)}{}
3975 \mdf@test@t{\mdf@pstricksbox@ol{(mdf@P)(mdf@0|mdf@P)}{}
3976 \mdf@test@b{\mdf@pstricksbox@ol{(mdf@0)(mdf@P|mdf@0)}{}
3977 %no line
3978 \mdf@test@noline{\psframe[style=mdfbackgroundstyle](mdf@0)(mdf@P)}{}
3979 %
3980 %Frametitlebackground
3981 \drawbackgroundframetitle@single
3982 %output%
3983 \rput[bl](mdf@A){\box\mdf@splitbox@one}
3984 %
3985 \psdot(mdf@A)\uput[90](mdf@A){mdf at A}
3986 %
3987 \psdot(mdf@P)\uput[90](mdf@P){mdf at P}
3988 %
3989 \psdot(mdf@0)\uput[90](mdf@0){mdf at 0}
3990 %
3991 \endpsclip
3992 \mdf@singleextra
3993 \end{pspicture}%
3994 }%
3995 \mdf@makeboxalign@right%
3996 }%
3997 \fi

```

```

3995 }%
3996 \def\drawbackgroundframetitle@single{%
3997   \ifdefempty{\mdf@frametitle}{}%
3998     \drawbackgroundframetitle@@single%
3999   }%
4000 }%
4001 \def\drawbackgroundframetitle@@single{%
4002   \begingroup%
4003   \ifbool{mdf@leftline}{%
4004     \nodexn{(\mdf@0)+(\mdf@innerlinewidth@length,0)
4005             +0.5(\mdf@middlelinewidth@length,0)}{\mdf@0}%
4006     }{}%
4007   \ifbool{mdf@rightline}{%
4008     \nodexn{(\mdf@P)-(\mdf@innerlinewidth@length,0)
4009             -0.5(\mdf@middlelinewidth@length,0)}{\mdf@P}%
4010     }{}%
4011   \ifbool{mdf@topline}{%
4012     \nodexn{(\mdf@P)-(0,\mdf@innerlinewidth@length)
4013             -0.5(0,\mdf@middlelinewidth@length)}{\mdf@P}%
4014     }{}%
4015   \nodexn{(\mdf@P)-(0,\mdfframetitleboxtotalheight)}{\mdf@F}%
4016   \psline[style=mdfframetitlebackgroundstyle](mdf@0|mdf@F)(mdf@0|mdf@P)
4017           (mdf@P)(mdf@P|mdf@F)%
4018   \endgroup
4019 }

```

\mdf@putbox@first

First output

```

4020 \def\mdf@putbox@first{%
4021   \ifvoid\mdf@splitbox@two
4022   \else%
4023     \mdf@makebox@out{%
4024       \mdf@makeboxalign@left%
4025       %\ifbool{mdf@leftline}{\hspace*{\mdf@middlelinewidth@length}}{}%
4026       \setlength\mdfboundingboxwidth{\wd\mdf@splitbox@two}%
4027       \advance\mdfboundingboxwidth by \mdf@innerleftmargin@length\relax%
4028       \advance\mdfboundingboxwidth by \mdf@innerrightmargin@length\relax%
4029       \ifbool{mdf@leftline}{%
4030         \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
4031         \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
4032         \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}%{}%
4033       \ifbool{mdf@rightline}{%
4034         \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
4035         \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
4036         \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}%{}%
4037       \setlength\mdfboundingboxheight%
4038         {\dimexpr\ht\mdf@splitbox@two+\dp\mdf@splitbox@two\relax}%
4039       \advance\mdfboundingboxheight by \mdf@innertopmargin@length\relax%
4040       \advance\mdfboundingboxheight by \mdf@splitbottomskip@length\relax%
4041       \ifbool{mdf@topline}{%
4042         \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
4043         \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
4044         \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}%{}%
4045       %%%

```

```

4046 \ifbool{mdf@everyline}{%
4047 \ifbool{mdf@bottomline}{%
4048 \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
4049 \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
4050 \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}}}%
4051 }{}%
4052 %%%%%%%%%%
4053 \psset{linear=\mdf@roundcorner@length, cornersize=absolute}%
4054 \expandafter\psset\expandafter{\mdf@psset@local}%
4055 \mdf@makebox@in[\mdfboundingboxwidth]{%
4056 \null%
4057 \psset{unit=1truecm}%
4058 \ifdimgreater{\mdfboundingboxheight}{\vsize}
4059 {\begin{pspicture}(0,0)(\mdfboundingboxwidth,\vsize)}
4060 {\begin{pspicture}(0,0)(\mdfboundingboxwidth,\mdfboundingboxheight)}
4061 \mdfpstricks@settings%
4062 \psset{linear=\mdf@roundcorner@length, cornersize=absolut,}%
4063 \expandafter\psset\expandafter{\mdf@psset@local}%
4064 \pnode(\mdf@innerleftmargin@length,\mdf@splitbottomskip@length){mdf@A}
4065 \pnode(0,0){mdf@0}
4066 \pnode(\mdfboundingboxwidth,\mdfboundingboxheight){mdf@P}
4067 \ifbool{mdf@leftline}%
4068 {%
4069 \nodexn{(\mdf@A)+(\mdf@outerlinewidth@length,0)
4070 +(\mdf@middlelinewidth@length,0)
4071 +(\mdf@innerlinewidth@length,0)}{mdf@A}
4072 \nodexn{(\mdf@0)+(\mdf@outerlinewidth@length,0)
4073 +0.5(\mdf@middlelinewidth@length,0)}{mdf@0}
4074 }{}%
4075 \ifbool{mdf@rightline}%
4076 {%
4077 \nodexn{(\mdf@P)-(\mdf@outerlinewidth@length,0)
4078 -0.5(\mdf@middlelinewidth@length,0)}{mdf@P}
4079 }{}%
4080 \ifbool{mdf@topline}%
4081 {%
4082 \nodexn{(\mdf@P)-(0,\mdf@outerlinewidth@length)
4083 -0.5(0,\mdf@middlelinewidth@length)}{mdf@P}
4084 }{}%
4085 %%%%%%%%%%
4086 \ifbool{mdf@everyline}{%
4087 \ifbool{mdf@bottomline}%
4088 {%
4089 \nodexn{(\mdf@A)+(0,\mdf@outerlinewidth@length)
4090 +(0,\mdf@middlelinewidth@length)
4091 +(0,\mdf@innerlinewidth@length)}{mdf@A}%
4092 \nodexn{(\mdf@0)+(0,\mdf@outerlinewidth@length)
4093 +0.5(0,\mdf@middlelinewidth@length)}{mdf@0}%
4094 }{}%
4095 }{}%
4096 %%%%%%%%%%
4097 \ifbool{mdf@shadow}
4098 {\pscustom[style=mdfshadow,linestyle=none]{%
4099 \psline[linejoin=2,linecap=1,]%
4100 (\mdf@P|mdf@0)(mdf@P)(mdf@0|mdf@P)%
4101 \psline[linejoin=2,linecap=1,linear=\z@]%

```



```

4102             (mdf@0|mdf@P)(mdf@0)(mdf@P|mdf@0)
4103         \closedshadow
4104     }
4105     {}
4106 %     \psclip{
4107 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
4108     \ifbool{mdf@everyline}{%
4109         %Four lines
4110         \mdf@test@ltrb{\mdf@pstricksbox@fl{mdf@0}{mdf@P}}{}
4111         %three lines
4112         \mdf@test@ltb{%
4113             \mdf@pstricksbox@tl{(mdf@P|mdf@0)(mdf@0)(mdf@0|mdf@P)(mdf@P)}}{}
4114         \mdf@test@trb{%
4115             \mdf@pstricksbox@tl{(mdf@0)(mdf@P|mdf@0)(mdf@P)(mdf@0|mdf@P)}}{}
4116         \mdf@test@ltr{%
4117             \mdf@pstricksbox@tl{(mdf@0)(mdf@0|mdf@P)(mdf@P)(mdf@P|mdf@0)}}{}%
4118         \mdf@test@lrb{%
4119             \mdf@pstricksbox@tl{(mdf@0|mdf@P)(mdf@0)(mdf@P|mdf@0)(mdf@P)}}{}%
4120         %two lines combined
4121         \mdf@test@lb{\mdf@pstricksbox@tcl%
4122             {(mdf@P|mdf@0)(mdf@P)(mdf@0|mdf@P)}%
4123             {(mdf@0|mdf@P)(mdf@0)(mdf@P|mdf@0)}}{}
4124         \mdf@test@rb{\mdf@pstricksbox@tcl%
4125             {(mdf@P)(mdf@0|mdf@P)(mdf@0)}%
4126             {(mdf@0)(mdf@P|mdf@0)(mdf@P)}}{}
4127         \mdf@test@tr{\mdf@pstricksbox@tcl%
4128             {(mdf@P|mdf@0)(mdf@0)(mdf@0|mdf@P)}%
4129             {(mdf@0|mdf@P)(mdf@P)(mdf@P|mdf@0)}}{}
4130         \mdf@test@lt{\mdf@pstricksbox@tcl%
4131             {(mdf@0)(mdf@P|mdf@0)(mdf@P)}%
4132             {(mdf@0)(mdf@0|mdf@P)(mdf@P)}}{}
4133         %two lines not combined combined
4134         \mdf@test@lr{\mdf@pstricksbox@tncl{(mdf@0|mdf@P)}{(mdf@P|mdf@0)}}
4135         {}
4136         \mdf@test@tb{\mdf@pstricksbox@tncl{(mdf@P|mdf@0)}{(mdf@0|mdf@P)}}
4137         {}
4138         %single line
4139         \mdf@test@l{\mdf@pstricksbox@ol{(mdf@0)(mdf@0|mdf@P)}}{}
4140         \mdf@test@r{\mdf@pstricksbox@ol{(mdf@P)(mdf@P|mdf@0)}}{}
4141         \mdf@test@t{\mdf@pstricksbox@ol{(mdf@P)(mdf@0|mdf@P)}}{}
4142         \mdf@test@b{\mdf@pstricksbox@ol{(mdf@0)(mdf@P|mdf@0)}}{}
4143         %no line
4144         \mdf@test@noline{\psframe[style=mdfbackgroundstyle](mdf@0)(mdf@P)}{}%
4145     }{}
4146     %Four or Three lines
4147     \ifboolexpr{test {\mdf@test@ltrb} or test {\mdf@test@ltr}}%
4148     {\mdf@pstricksbox@tl{(mdf@0)(mdf@0|mdf@P)(mdf@P)(mdf@P|mdf@0)}}%
4149     {}%
4150     %two combined lines
4151     \ifboolexpr{test {\mdf@test@ltb} or test {\mdf@test@lt}}
4152     {\mdf@pstricksbox@tcl{(mdf@0)(mdf@P|mdf@0)(mdf@P)}%
4153     {(mdf@0)(mdf@0|mdf@P)(mdf@P)}}{}
4154     \ifboolexpr{test {\mdf@test@trb} or test {\mdf@test@tr}}%
4155     {\mdf@pstricksbox@tcl{(mdf@P|mdf@0)(mdf@0)(mdf@0|mdf@P)}%
4156     {(mdf@0|mdf@P)(mdf@P)(mdf@P|mdf@0)}}{}
4157     %two not combined lines

```



```

4158 \ifboolexpr{test {\mdf@test@lrb} or test {\mdf@test@lr}}%
4159 {\mdf@pstricksbox@tnc1{(mdf@0|mdf@P)}{(mdf@P|mdf@0)}}{}
4160 %single line
4161 \ifboolexpr{test {\mdf@test@tb} or test {\mdf@test@t}}%
4162 {\mdf@pstricksbox@ol{(mdf@P)(mdf@0|mdf@P)}}{}
4163 \ifboolexpr{test {\mdf@test@lb} or test {\mdf@test@l}}%
4164 {\mdf@pstricksbox@ol{(mdf@0)(mdf@0|mdf@P)}}{}
4165 \ifboolexpr{test {\mdf@test@rb} or test {\mdf@test@r}}%
4166 {\mdf@pstricksbox@ol{(mdf@P)(mdf@P|mdf@0)}}{}
4167 %no line
4168 \mdf@test@b{\psframe[style=mdfbackgroundstyle](mdf@0)(mdf@P)}{}%
4169 \mdf@test@noline{\psframe[style=mdfbackgroundstyle](mdf@0)(mdf@P)}{}%
4170 }%
4171 %
4172 %Frametitlebackground
4173 \drawbackgroundframetitle@first
4174 %output%
4175 \rput[bl](mdf@A){\box\mdf@splitbox@two}
4176 % \psdot(mdf@A)\uput[90](mdf@A){mdf at A}
4177 % \psdot(mdf@P)\uput[90](mdf@P){mdf at P}
4178 % \psdot(mdf@0)\uput[90](mdf@0){mdf at 0}
4179 % \endpsclip
4180 \mdf@firstextra
4181 \end{pspicture}
4182 }%
4183 \mdf@makeboxalign@right%
4184 }%
4185 \fi
4186 }%
4187 \def\drawbackgroundframetitle@first{%
4188 \ifdefempty{\mdf@frametitle}}{}%
4189 {%
4190 \ifbool{mdf@repeatframetitle}%
4191 {%repeating title = true
4192 \drawbackgroundframetitle@@@first
4193 }%
4194 {%
4195 \ifdimgreater{\mdfboundingboxheight}{\mdfframetitleboxtotalheight}%
4196 {%
4197 \drawbackgroundframetitle@@first
4198 \global\mdfframetitleboxtotalheight=-\p@%
4199 }{\mdf@PackageWarning{You got a page break inside the frame
4200 title\MessageBreak
4201 Currently this isn't well supported}%
4202 \drawbackgroundframetitle@@first
4203 \global\mdfframetitleboxtotalheight=\dimexpr
4204 \mdfframetitleboxtotalheight
4205 -\mdfboundingboxheight
4206 -\mdf@innerlinewidth@length
4207 -0.5\mdf@middlelinewidth@length%
4208 +\mdf@frametitlebelowskip@length
4209 +\mdf@splitbottomskip@length
4210 +\mdf@splittopskip@length
4211 +\dp\strutbox\relax%
4212 }%
4213 }%

```

```

4214 }%
4215 }%
4216 \def\drawbackgroundframetitle@@first{%
4217 \begingroup%
4218 \ifbool{mdf@leftline}{%
4219     \nodexn{(mdf@0)+(\mdf@innerlinewidth@length,0)
4220             +0.5(\mdf@middlelinewidth@length,0)}{mdf@0}%
4221 }{}%
4222 \ifbool{mdf@rightline}{%
4223     \nodexn{(mdf@P)-(\mdf@innerlinewidth@length,0)
4224             -0.5(\mdf@middlelinewidth@length,0)}{mdf@P}%
4225 }{}%
4226 \ifbool{mdf@topline}{%
4227     \nodexn{(mdf@P)-(0,\mdf@innerlinewidth@length)
4228             -0.5(0,\mdf@middlelinewidth@length)}{mdf@P}%
4229 }{}%
4230 \ifdimgreater{\mdfboundingboxheight}{\mdfframetitleboxtotalheight}
4231     {\nodexn{(mdf@P)-(0,\mdfframetitleboxtotalheight)}{mdf@F}}%
4232     {\nodexn{(mdf@0)}{mdf@F}}%
4233 \psline[style=mdfframetitlebackgroundstyle](mdf@0|mdf@F)(mdf@0|mdf@P)
4234                                             (mdf@P)(mdf@P|mdf@F)%
4235 \endgroup
4236 }
4237 \def\drawbackgroundframetitle@@@first{%
4238 \begingroup%
4239 \ifbool{mdf@leftline}{%
4240     \nodexn{(mdf@0)+(\mdf@innerlinewidth@length,0)
4241             +0.5(\mdf@middlelinewidth@length,0)}{mdf@0}%
4242 }{}%
4243 \ifbool{mdf@rightline}{%
4244     \nodexn{(mdf@P)-(\mdf@innerlinewidth@length,0)
4245             -0.5(\mdf@middlelinewidth@length,0)}{mdf@P}%
4246 }{}%
4247 \ifbool{mdf@topline}{%
4248     \nodexn{(mdf@P)-(0,\mdf@innerlinewidth@length)
4249             -0.5(0,\mdf@middlelinewidth@length)}{mdf@P}%
4250 }{}%
4251 \nodexn{(mdf@P)-(0,\mdfframetitleboxtotalheight)}{mdf@F}%
4252 \psline[style=mdfframetitlebackgroundstyle](mdf@0|mdf@F)(mdf@0|mdf@P)
4253                                             (mdf@P)(mdf@P|mdf@F)%
4254 \endgroup
4255 }

```

\mdf@putbox@middle

Middle output

```

4256 \def\mdf@putbox@middle{%
4257 \ifvoid\mdf@splitbox@two
4258 \else%
4259 \mdf@makebox@out{%
4260 \mdf@makeboxalign@left%
4261 % \ifbool{mdf@leftline}{\hspace*{\mdf@middlelinewidth@length}}{}%
4262 \setlength\mdfboundingboxwidth{\wd\mdf@splitbox@two}%
4263 \advance\mdfboundingboxwidth by \mdf@innerleftmargin@length\relax%
4264 \advance\mdfboundingboxwidth by \mdf@innerrightmargin@length\relax%

```

```

4265 \ifbool{mdf@leftline}{%
4266 \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
4267 \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
4268 \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}}{%
4269 \ifbool{mdf@rightline}{%
4270 \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
4271 \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
4272 \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}}{%
4273 \setlength\mdfboundingboxheight%
4274 {\dimexpr\ht\mdf@splitbox@two+\dp\mdf@splitbox@two\relax}%
4275 \advance\mdfboundingboxheight by \mdf@splitbottomskip@length\relax%
4276 %%%%%%%%%
4277 \ifbool{mdf@everyline}{%
4278 \ifbool{mdf@topline}{%
4279 \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
4280 \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
4281 \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}}{%
4282 \ifbool{mdf@bottomline}{%
4283 \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
4284 \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
4285 \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}}{%
4286 }}%
4287 %%%%%%%%%
4288 \psset{unit=1truecm}%
4289 \mdf@makebox@in[\mdfboundingboxwidth]{%
4290 \null%
4291 \ifdimgreater{\mdfboundingboxheight}{\vsize}
4292 {\begin{pspicture}(0,0)(\mdfboundingboxwidth,\vsize)}
4293 {\begin{pspicture}(0,0)(\mdfboundingboxwidth,\mdfboundingboxheight)}
4294 \mdfpstricks@settings%
4295 \psset{lineararc=0pt, cornersize=absolut,}%
4296 \expandafter\psset\expandafter{\mdf@psset@local}%
4297 %%%
4298 \pnode(\mdf@innerleftmargin@length,\mdf@splitbottomskip@length){mdf@A}
4299 \pnode(0,0){mdf@0}
4300 \pnode(\mdfboundingboxwidth,\mdfboundingboxheight){mdf@P}
4301 \ifbool{mdf@leftline}%
4302 {%
4303 \nodexn{(\mdf@A)+(\mdf@outerlinewidth@length,0)
4304 +(\mdf@middlelinewidth@length,0)
4305 +(\mdf@innerlinewidth@length,0)}}{mdf@A}
4306 \nodexn{(\mdf@0)+(\mdf@outerlinewidth@length,0)
4307 +0.5(\mdf@middlelinewidth@length,0)}}{mdf@0}
4308 }{%
4309 \ifbool{mdf@rightline}%
4310 {%
4311 \nodexn{(\mdf@P)-(\mdf@outerlinewidth@length,0)
4312 -0.5(\mdf@middlelinewidth@length,0)}}{mdf@P}
4313 }{%
4314 %
4315 %%%%%%%%%
4316 \ifbool{mdf@everyline}{%
4317 \ifbool{mdf@bottomline}%
4318 {%
4319 \nodexn{(\mdf@A)+(0,\mdf@outerlinewidth@length)
4320 +(0,\mdf@middlelinewidth@length)

```

```

4321                                     +(0,\mdf@innerlinewidth@length)){mdf@A}%
4322     \nodexn{(mdf@0)+(0,\mdf@outerlinewidth@length)
4323                                     +0.5(0,\mdf@middlelinewidth@length)){mdf@0}%
4324     }{}%
4325     \ifbool{mdf@topline}%
4326     {%
4327         \nodexn{(mdf@P)-(0,\mdf@outerlinewidth@length)
4328                 -0.5(0,\mdf@middlelinewidth@length)){mdf@P}
4329     }{}%
4330     }{}%
4331     %%%%%%%%%%
4332     %%
4333     \ifbool{mdf@shadow}
4334     {\psframe[style=mdfshadow](mdf@0)(mdf@P)}{}
4335     %%%%%%%%%%
4336     \ifbool{mdf@everyline}{%
4337         %Four lines
4338         \mdf@test@lrb{\mdf@pstricksbox@fl{mdf@0}{mdf@P}}{}
4339         %three lines
4340         \mdf@test@ltb{%
4341             \mdf@pstricksbox@tl{(mdf@P|mdf@0)(mdf@0)(mdf@0|mdf@P)(mdf@P)}{}
4342         \mdf@test@trb{%
4343             \mdf@pstricksbox@tl{(mdf@0)(mdf@P|mdf@0)(mdf@P)(mdf@0|mdf@P)}{}
4344         \mdf@test@ltr{%
4345             \mdf@pstricksbox@tl{(mdf@0)(mdf@0|mdf@P)(mdf@P)(mdf@P|mdf@0)}{}
4346         \mdf@test@lrb{%
4347             \mdf@pstricksbox@tl{(mdf@0|mdf@P)(mdf@0)(mdf@P|mdf@0)(mdf@P)}{}
4348         %two lines combined
4349         \mdf@test@lb{\mdf@pstricksbox@tcl%
4350                     {(mdf@P|mdf@0)(mdf@P)(mdf@0|mdf@P)}%
4351                     {(mdf@0|mdf@P)(mdf@0)(mdf@P|mdf@0)}{}
4352         \mdf@test@rb{\mdf@pstricksbox@tcl%
4353                     {(mdf@P)(mdf@0|mdf@P)(mdf@0)}%
4354                     {(mdf@0)(mdf@P|mdf@0)(mdf@P)}{}
4355         \mdf@test@tr{\mdf@pstricksbox@tcl%
4356                     {(mdf@P|mdf@0)(mdf@0)(mdf@0|mdf@P)}%
4357                     {(mdf@0|mdf@P)(mdf@P)(mdf@P|mdf@0)}{}
4358         \mdf@test@lt{\mdf@pstricksbox@tcl{(mdf@0)(mdf@P|mdf@0)(mdf@P)}%
4359                     {(mdf@0)(mdf@0|mdf@P)(mdf@P)}{}
4360         %two lines not combined combined
4361         \mdf@test@lr{\mdf@pstricksbox@tncl{(mdf@0|mdf@P)}{(mdf@P|mdf@0)}
4362                     {}
4363         \mdf@test@tb{\mdf@pstricksbox@tncl{(mdf@P|mdf@0)}{(mdf@0|mdf@P)}
4364                     {}
4365         %single line
4366         \mdf@test@l{\mdf@pstricksbox@ol{(mdf@0)(mdf@0|mdf@P)}{}
4367         \mdf@test@r{\mdf@pstricksbox@ol{(mdf@P)(mdf@P|mdf@0)}{}
4368         \mdf@test@t{\mdf@pstricksbox@ol{(mdf@P)(mdf@0|mdf@P)}{}
4369         \mdf@test@b{\mdf@pstricksbox@ol{(mdf@0)(mdf@P|mdf@0)}{}
4370         %no line
4371         \mdf@test@noline{\psframe[style=mdfbackgroundstyle](mdf@0)(mdf@P)}{}
4372     }{}
4373     \ifboolexpr{bool {mdf@leftline} and bool {mdf@rightline}}%
4374         {\mdf@pstricksbox@tncl{(mdf@0|mdf@P)}{(mdf@P|mdf@0)}{}
4375     \ifboolexpr{bool {mdf@leftline} and not (bool {mdf@rightline}}%
4376         {\mdf@pstricksbox@ol{(mdf@0)(mdf@0|mdf@P)}{}

```

```

4377 \ifbool{expr{not (bool {mdf@leftline}) and bool {mdf@rightline}}}%
4378 {\mdf@pstricksbox@ol{(mdf@P)(mdf@P|mdf@O)}}}%
4379 \ifbool{expr{not (bool {mdf@leftline}) and not (bool {mdf@rightline}}}%
4380 {\psframe[style=mdfbackgroundstyle](mdf@O)(mdf@P)}}}%
4381 }%
4382 %Frametitlebackground
4383 \drawbackgroundframetitle@middle
4384 %output%
4385 \rput[bl](mdf@A){\box\mdf@splitbox@two}
4386 %\psdot(mdf@A)\uput[90](mdf@A){mdf at A}
4387 %\psdot(mdf@P)\uput[90](mdf@P){mdf at P}
4388 %\psdot(mdf@O)\uput[90](mdf@O){mdf at O}
4389 \mdf@middleextra
4390 \end{pspicture}%
4391 }%
4392 \mdf@makeboxalign@right%
4393 }%
4394 \fi
4395 }%
4396 \def\drawbackgroundframetitle@middle{%
4397 \ifdefempty{\mdf@frametitle}}}%
4398 {%
4399 \ifbool{mdf@repeatframetitle}%
4400 {%repeating title = true
4401 \drawbackgroundframetitle@@@middle
4402 }%
4403 {%
4404 \ifdimless{\mdfframetitleboxtotalheight}{\z@}
4405 {}%
4406 {%
4407 \drawbackgroundframetitle@@@middle
4408 \global\mdfframetitleboxtotalheight=-\p@relax%
4409 }%
4410 }%
4411 }%
4412 }%
4413 \def\drawbackgroundframetitle@@@middle{%
4414 \begin{group}%
4415 \ifbool{mdf@leftline}%
4416 \nodexn{(mdf@O)+(\mdf@innerlinewidth@length,0)
4417 +0.5(\mdf@middlelinewidth@length,0)}{mdf@O}%
4418 }{}%
4419 \ifbool{mdf@rightline}%
4420 \nodexn{(mdf@P)-(\mdf@innerlinewidth@length,0)
4421 -0.5(\mdf@middlelinewidth@length,0)}{mdf@P}%
4422 }{}%
4423 \nodexn{(mdf@P)-(0,\mdfframetitleboxtotalheight)}{mdf@F}%
4424 \psline[style=mdfframetitlebackgroundstyle,linear=\z@]%
4425 (mdf@O|mdf@F)(mdf@O|mdf@P)(mdf@P)(mdf@P|mdf@F)%
4426 \end{group}
4427 }
4428 \def\drawbackgroundframetitle@@@middle{%
4429 \begin{group}%
4430 \ifbool{mdf@leftline}%
4431 \nodexn{(mdf@O)+(\mdf@innerlinewidth@length,0)
4432 +0.5(\mdf@middlelinewidth@length,0)}{mdf@O}%

```

```

4433     }{}%
4434 \ifbool{mdf@rightline}{%
4435     \nodexn{(mdf@P) - (\mdf@innerlinewidth@length,0)
4436     -0.5(\mdf@middlelinewidth@length,0)}{mdf@P}%
4437     }{}%
4438 \ifbool{mdf@everyline}%
4439     {%
4440     \ifbool{mdf@topline}{%
4441     \nodexn{(mdf@P) - (0,\mdf@innerlinewidth@length)
4442     -0.5(0,\mdf@middlelinewidth@length)}{mdf@P}%
4443     }{}%
4444     }{}%
4445 \nodexn{(mdf@P) - (0,\mdfframetitleboxtotalheight)}{mdf@F}%
4446 \psline[style=mdfframetitlebackgroundstyle](mdf@0|mdf@F)(mdf@0|mdf@P)
4447     (mdf@P)(mdf@P|mdf@F)%
4448 \endgroup
4449 }

```

\mdf@putbox@second

Last output

```

4450 \def\mdf@putbox@second{
4451 \ifvoid\mdf@splitbox@one
4452 \else%
4453 \mdf@makebox@out{%
4454 \mdf@makeboxalign@left%
4455 % \ifbool{mdf@leftline}{\hspace*{\mdf@middlelinewidth@length}}{}%
4456 \setlength\mdfboundingboxwidth{\wd\mdf@splitbox@one}%
4457 \advance\mdfboundingboxwidth by \mdf@innerleftmargin@length\relax%
4458 \advance\mdfboundingboxwidth by \mdf@innerrightmargin@length\relax%
4459 \ifbool{mdf@leftline}{%
4460 \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
4461 \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
4462 \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}}{}%
4463 \ifbool{mdf@rightline}{%
4464 \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
4465 \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
4466 \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}}{}%
4467 \setlength\mdfboundingboxheight%
4468     {\dimexpr\ht\mdf@splitbox@one+\dp\mdf@splitbox@one\relax}%
4469 \advance\mdfboundingboxheight by \mdf@innerbottommargin@length\relax%
4470 \ifbool{mdf@bottomline}{%
4471 \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
4472 \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
4473 \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}}{}%
4474 %%%%%%%%%%
4475 \ifbool{mdf@everyline}{%
4476 \ifbool{mdf@topline}{%
4477 \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
4478 \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
4479 \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}}{}%
4480 }{}%
4481 %%%%%%%%%%
4482 \psset{unit=1truecm}%
4483 \mdf@makebox@in[\mdfboundingboxwidth]{%

```

```

4484 \null%
4485 \begin{pspicture}(0,0)(\mdfboundingboxwidth,\mdfboundingboxheight)
4486 \mdfpstricks@settings%
4487 \psset{lineararc=\mdf@roundcorner@length, cornersize=absolut,}%
4488 \expandafter\psset\expandafter{\mdf@psset@local}%
4489 \pnode(\mdf@innerleftmargin@length,\mdf@innerbottommargin@length)
4490 {mdf@A}
4491 \pnode(0,0){mdf@0}
4492 \pnode(\mdfboundingboxwidth,\mdfboundingboxheight){mdf@P}
4493 \ifbool{mdf@leftline}%
4494 {%
4495 \nodexn{(mdf@A)+(\mdf@outerlinewidth@length,0)
4496 +(\mdf@middlelinewidth@length,0)
4497 +(\mdf@innerlinewidth@length,0)}{mdf@A}
4498 \nodexn{(mdf@0)+(\mdf@outerlinewidth@length,0)
4499 +0.5(\mdf@middlelinewidth@length,0)}{mdf@0}
4500 }{}%
4501 \ifbool{mdf@rightline}%
4502 {%
4503 \nodexn{(mdf@P)-(\mdf@outerlinewidth@length,0)
4504 -0.5(\mdf@middlelinewidth@length,0)}{mdf@P}
4505 }{}%
4506 \ifbool{mdf@bottomline}%
4507 {%
4508 \nodexn{(mdf@A)+(0,\mdf@outerlinewidth@length)
4509 +(0,\mdf@middlelinewidth@length)
4510 +(0,\mdf@innerlinewidth@length)}{mdf@A}
4511 \nodexn{(mdf@0)+(0,\mdf@outerlinewidth@length)
4512 +0.5(0,\mdf@middlelinewidth@length)}{mdf@0}
4513 }{}%
4514 %%%%%%%%%%
4515 \ifbool{mdf@everyline}{%
4516 \ifbool{mdf@topline}%
4517 {%
4518 \nodexn{(mdf@P)-(0,\mdf@outerlinewidth@length)
4519 -0.5(0,\mdf@middlelinewidth@length)}{mdf@P}
4520 }{}%
4521 }{}%
4522 %%%%%%%%%%
4523 %%
4524 \ifbool{mdf@shadow}
4525 {\pscustom[style=mdfshadow,linestyle=none]{%
4526 \psline[linejoin=2,linecap=1,](mdf@0|mdf@P)(mdf@0)%
4527 (mdf@P|mdf@0)(mdf@P)%
4528 \psline[linejoin=2,linecap=1,lineararc=\z@](mdf@0|mdf@P)(mdf@P)
4529 \closedshadow
4530 }
4531 }{}
4532 %%%%%%%%%%
4533 \ifbool{mdf@everyline}{%
4534 %Four lines
4535 \mdf@test@lrb{\mdf@pstricksbox@fl{mdf@0}{mdf@P}}{}
4536 %three lines
4537 \mdf@test@ltb{%
4538 \mdf@pstricksbox@tl{(mdf@P|mdf@0)(mdf@0)(mdf@0|mdf@P)(mdf@P)}}{}
4539 \mdf@test@trb{%

```



```

4540      \mdf@pstricksbox@tl{(mdf@0)(mdf@P|mdf@0)(mdf@P)(mdf@0|mdf@P)}}{}
4541      \mdf@test@ltr{%
4542      \mdf@pstricksbox@tl{(mdf@0)(mdf@0|mdf@P)(mdf@P)(mdf@P|mdf@0)}}{}%
4543      \mdf@test@lrb{%
4544      \mdf@pstricksbox@tl{(mdf@0|mdf@P)(mdf@0)(mdf@P|mdf@0)(mdf@P)}}{}%
4545      %two lines combined
4546      \mdf@test@lb{\mdf@pstricksbox@tcl%
4547      {(mdf@P|mdf@0)(mdf@P)(mdf@0|mdf@P)}%
4548      {(mdf@0|mdf@P)(mdf@0)(mdf@P|mdf@0)}}{}
4549      \mdf@test@rb{\mdf@pstricksbox@tcl%
4550      {(mdf@P)(mdf@0|mdf@P)(mdf@0)}%
4551      {(mdf@0)(mdf@P|mdf@0)(mdf@P)}}{}
4552      \mdf@test@tr{\mdf@pstricksbox@tcl%
4553      {(mdf@P|mdf@0)(mdf@0)(mdf@0|mdf@P)}%
4554      {(mdf@0|mdf@P)(mdf@P)(mdf@P|mdf@0)}}{}
4555      \mdf@test@lt{\mdf@pstricksbox@tcl%
4556      {(mdf@0)(mdf@P|mdf@0)(mdf@P)}%
4557      {(mdf@0)(mdf@0|mdf@P)(mdf@P)}}{}
4558      %two lines not combined combined
4559      \mdf@test@lr{\mdf@pstricksbox@tncl{(mdf@0|mdf@P)}{(mdf@P|mdf@0)}}
4560      {}
4561      \mdf@test@tb{\mdf@pstricksbox@tncl{(mdf@P|mdf@0)}{(mdf@0|mdf@P)}}
4562      {}
4563      %single line
4564      \mdf@test@l{\mdf@pstricksbox@ol{(mdf@0)(mdf@0|mdf@P)}}{}
4565      \mdf@test@r{\mdf@pstricksbox@ol{(mdf@P)(mdf@P|mdf@0)}}{}
4566      \mdf@test@t{\mdf@pstricksbox@ol{(mdf@P)(mdf@0|mdf@P)}}{}
4567      \mdf@test@b{\mdf@pstricksbox@ol{(mdf@0)(mdf@P|mdf@0)}}{}
4568      %no line
4569      \mdf@test@noline{\psframe[style=mdfbackgroundstyle](mdf@0)(mdf@P)}}{}%
4570      }{}%
4571      %Four + Three
4572      \ifboolexpr{test {\mdf@test@ltrb} or test {\mdf@test@lrb}}%
4573      {\mdf@pstricksbox@tl{(mdf@0|mdf@P)(mdf@0)(mdf@P|mdf@0)(mdf@P)}}{}%
4574      %Two combined
4575      \ifboolexpr{test {\mdf@test@ltb} or test {\mdf@test@lb}}%
4576      {\mdf@pstricksbox@tcl{(mdf@P|mdf@0)(mdf@P)(mdf@0|mdf@P)}%
4577      {(mdf@0|mdf@P)(mdf@0)(mdf@P|mdf@0)}}{}
4578      \ifboolexpr{test {\mdf@test@trb} or test {\mdf@test@rb}}%
4579      {\mdf@pstricksbox@tcl{(mdf@P)(mdf@0|mdf@P)(mdf@0)}%
4580      {(mdf@0)(mdf@P|mdf@0)(mdf@P)}}{}
4581      %Two not combined
4582      \ifboolexpr{test {\mdf@test@ltr} or test {\mdf@test@lr}}%
4583      {\mdf@pstricksbox@tncl{(mdf@0|mdf@P)}{(mdf@P|mdf@0)}}{}%
4584      %one line
4585      \ifboolexpr{test {\mdf@test@tb} or test {\mdf@test@b}}%
4586      {\mdf@pstricksbox@ol{(mdf@0)(mdf@P|mdf@0)}}{}
4587      \ifboolexpr{test {\mdf@test@lt} or test {\mdf@test@l}}%
4588      {\mdf@pstricksbox@ol{(mdf@0)(mdf@0|mdf@P)}}{}
4589      \ifboolexpr{test {\mdf@test@tr} or test {\mdf@test@r}}%
4590      {\mdf@pstricksbox@ol{(mdf@P)(mdf@P|mdf@0)}}{}
4591      %no line
4592      \mdf@test@t{\psframe[style=mdfbackgroundstyle](mdf@0)(mdf@P)}}{}%
4593      \mdf@test@noline{\psframe[style=mdfbackgroundstyle](mdf@0)(mdf@P)}}{}%
4594      }%
4595      %Frametitlebackground

```



```

4596     \drawbackgroundframetitle@second
4597     %output%
4598     \rput[bl](mdf@A){\box\mdf@splitbox@one}
4599     \mdf@secondextra
4600 %     \psdot(mdf@A)\uput[90](mdf@A){mdf at A}
4601 %     \psdot(mdf@P)\uput[90](mdf@P){mdf at P}
4602 %     \psdot(mdf@O)\uput[90](mdf@O){mdf at O}
4603     \end{pspicture}%
4604     }%
4605     \mdf@makeboxalign@right%
4606     }%
4607 \fi
4608 }%
4609 \def\drawbackgroundframetitle@second{%
4610 \ifdefempty{\mdf@frametitle}{}%
4611 {%
4612     \ifbool{mdf@repeatframetitle}%
4613     {%repeating title = true
4614         \drawbackgroundframetitle@@@second
4615     }%
4616     {%
4617         \ifdimless{\mdfframetitleboxtotalheight}{\z@}
4618         {}{%
4619             \drawbackgroundframetitle@@second
4620         }%
4621     }%
4622 }%
4623 }%
4624 \def\drawbackgroundframetitle@@second{%
4625 \begingroup%
4626 \ifbool{mdf@leftline}{%
4627     \nodexn{(mdf@O)+(\mdf@innerlinewidth@length,0)
4628         +0.5(\mdf@middlelinewidth@length,0)}{mdf@O}%
4629     }{%
4630 \ifbool{mdf@rightline}{%
4631     \nodexn{(mdf@P)-(\mdf@innerlinewidth@length,0)
4632         -0.5(\mdf@middlelinewidth@length,0)}{mdf@P}%
4633     }{%
4634 \nodexn{(mdf@P)-(0,\mdfframetitleboxtotalheight)}{mdf@F}%
4635 \psline[style=mdfframetitlebackgroundstyle,linear=\z@]{
4636     (mdf@O|mdf@F)(mdf@O|mdf@P)(mdf@P)(mdf@P|mdf@F)%
4637 \endgroup
4638 }
4639 \def\drawbackgroundframetitle@@@second{%
4640 \begingroup%
4641 \ifbool{mdf@leftline}{%
4642     \nodexn{(mdf@O)+(\mdf@innerlinewidth@length,0)
4643         +0.5(\mdf@middlelinewidth@length,0)}{mdf@O}%
4644     }{%
4645 \ifbool{mdf@rightline}{%
4646     \nodexn{(mdf@P)-(\mdf@innerlinewidth@length,0)
4647         -0.5(\mdf@middlelinewidth@length,0)}{mdf@P}%
4648     }{%
4649 \ifbool{mdf@everyline}%
4650     {%
4651         \ifbool{mdf@topline}{%

```

```

4652      \nodexn{(mdf@P) - (0,\mdf@innerlinewidth@length)
4653              -0.5(0,\mdf@middlelinewidth@length)){mdf@P}%
4654      }{}%
4655      }{}%
4656      \nodexn{(mdf@P) - (0,\mdfframetitleboxtotalheight)){mdf@F}%
4657      \psline[style=mdfframetitlebackgroundstyle](mdf@0|mdf@F)(mdf@0|mdf@P)
4658              (mdf@P)(mdf@P|mdf@F)%
4659      \endgroup
4660 }

4661 \endinput
4662 %eof

```

C. The file mdframed-example-default

```

4663 %Documentation of the package mdframed
4664 %$Id: mdframed.dtx 426 2012-06-02 12:18:56Z marco $
4665 \setcounter{errorcontextlines}{999}
4666 \documentclass[parskip=false,english,11pt]{ltxmdf}
4667 \GetIdInfo$Id: mdframed.dtx 426 2012-06-02 12:18:56Z marco $
4668      {documentation of mdframed}
4669
4670 \usepackage{showexpl}
4671 \lstset{style=lstltxmdf,explpreset={pos=b,rframe={}},}
4672
4673 \newcommand\Loadedframemethod{default}
4674 \usepackage[framemethod=\Loadedframemethod]{mdframed}
4675
4676 \title{The \Pack{mdframed} package}
4677 \subtitle{Examples for \Opt{framemethod=\Loadedframemethod}}
4678 \author{\href{mailto:marco.daniel@mada-nada.de}{Marco Daniel}}
4679 \date{\ExplFileDate}
4680 \version{\mdversion}
4681 \introduction{In this document I collect various examples for
4682              \Opt{framemethod=\Loadedframemethod}.
4683              Some presented examples are more or less exorbitant.}
4684
4685 \mdfsetup{skipabove=\topskip,skipbelow=\topskip}
4686 \newrobustcmd\ExampleText{%
4687      An \textit{inhomogeneous linear} differential equation has the form
4688      \begin{align}
4689          L[v] = f,
4690      \end{align}
4691      where  $L$  is a linear differential operator,  $v$  is
4692      the dependent variable, and  $f$  is a given non-zero
4693      function of the independent variables alone.
4694 }
4695
4696 \newcounter{examplecount}
4697 \setcounter{examplecount}{0}
4698 \renewcommand\thesubsection{}
4699 \newcommand\Examplesec[1]{%
4700 \stepcounter{examplecount}%
4701 \subsection{Example~\arabic{examplecount}~---#1\relax}%
4702 }

```

```

4703
4704 \begin{document}
4705 \maketitle
4706 \section{Loading}
4707 In the preamble only the package \Pack{mdframed} with the option
4708 \Opt{framemethod=\Loadedframemethod} is loaded. All other modifications will be
4709 done by \Cmd{mdfdefinestyle} or \Cmd{mdfsetup}.
4710
4711 {\large\color{red!50!black}
4712 \NOTE Every \Cmd{global} inside the examples is necessary to work with the
4713 package \Pack{showexpl}.}
4714
4715 \section{Examples}
4716 All examples have the following settings:
4717
4718 \begin{tltxmdfexample}
4719 \mdfsetup{skipabove=\topskip,skipbelow=\topskip}
4720 \newrobustcmd\ExampleText{%
4721 An \textit{inhomogeneous linear} differential equation
4722 has the form
4723 \begin{align}
4724 L[v] = f,
4725 \end{align}
4726 where  $L$  is a linear differential operator,  $v$  is
4727 the dependent variable, and  $f$  is a given non-zero
4728 function of the independent variables alone.
4729 }
4730 \end{tltxmdfexample}
4731 \clearpage
4732 \Examplesec{very simple}
4733 \begin{LTExample}
4734 \global\mdfdefinestyle{exampledefault}{%
4735     linecolor=red,linewidth=3pt,%
4736     leftmargin=1cm,rightmargin=1cm
4737 }
4738 \begin{mdframed}[style=exampledefault]
4739 \ExampleText
4740 \end{mdframed}
4741 \end{LTExample}
4742
4743 \Examplesec{hidden line + frame title}
4744 \begin{LTExample}
4745 \global\mdfapptodefinestyle{exampledefault}{%
4746     topline=false,rightline=true,bottomline=false}
4747 \begin{mdframed}[style=exampledefault,frametitle={Inhomogeneous linear}]
4748 \ExampleText
4749 \end{mdframed}
4750 \end{LTExample}
4751 \clearpage
4752
4753 \Examplesec{colored frame title}
4754 \begin{LTExample}
4755
4756 \global\mdfapptodefinestyle{exampledefault}{%
4757     rightline=true,innerleftmargin=10,innerrightmargin=10,
4758     frametitlerule=true,frametitlerulecolor=green,

```

```

4759   frametitlebackgroundcolor=yellow,
4760   frametitlerulewidth=2pt}
4761 \begin{mdframed}[style=exampledefault,frametitle={Inhomogeneous linear}]
4762 \ExampleText
4763 \end{mdframed}
4764 \end{LTXexample}
4765
4766 \Examplesec{framed picture which is centered}
4767 \begin{LTXexample}
4768 \begin{mdframed}[userdefinedwidth=6cm,align=center,
4769                 linecolor=blue,linewidth=4pt]
4770 \IfFileExists{donald-duck.jpg}{%
4771   {\includegraphics[width=\linewidth]{donald-duck}}}%
4772   {\rule{\linewidth}{4cm}}}%
4773 \end{mdframed}
4774 \end{LTXexample}
4775
4776 \clearpage
4777 \Examplesec{Theorem environments}
4778 \begin{LTXexample}
4779 \mdfdefinestyle{theoremstyle}{%
4780   linecolor=red,linewidth=2pt,%
4781   frametitlerule=true,%
4782   frametitlebackgroundcolor=gray!20,
4783   innertopmargin=\topskip,
4784   }
4785 \mdtheorem[style=theoremstyle]{definition}{Definition}
4786 \begin{definition}
4787 \ExampleText
4788 \end{definition}
4789 \begin{definition}[Inhomogeneous linear]
4790 \ExampleText
4791 \end{definition}
4792 \begin{definition*}[Inhomogeneous linear]
4793 \ExampleText
4794 \end{definition*}
4795 \end{LTXexample}
4796
4797
4798 \clearpage
4799 \Examplesec{theorem with separate header and the help of TikZ (complex)}
4800 \begin{LTXexample}
4801 \newcounter{theo}[section]
4802 \newenvironment{theo}[1][]{%
4803   \stepcounter{theo}%
4804   \ifstrempy{#1}%
4805     {\mdfsetup{%
4806       frametitle={%
4807         \tikz[baseline=(current bounding box.east),outer sep=0pt]
4808           \node[anchor=east,rectangle,fill=blue!20]
4809             {\strut Theorem~\thetheo};}}
4810     }%
4811   {\mdfsetup{%
4812     frametitle={%
4813       \tikz[baseline=(current bounding box.east),outer sep=0pt]
4814         \node[anchor=east,rectangle,fill=blue!20]

```

```

4815     {\strut Theorem~\thetheo:~\#1};}%
4816 }%
4817 \mdfsetup{innertopmargin=10pt,linecolor=blue!20,%
4818           linewidth=2pt,topline=true,
4819           frametitleaboveskip=\dimexpr-\ht\strutbox\relax,}
4820 \begin{mdframed}[]\relax%
4821 }\end{mdframed}}
4822 \begin{theo}[Inhomogeneous Linear]
4823 \ExampleText
4824 \end{theo}
4825
4826 \begin{theo}
4827 \ExampleText
4828 \end{theo}
4829 \end{LTXexample}
4830
4831 \clearpage
4832 \Examplesec{hide only a part of a line}
4833 The example below is inspired by the following post on StackExchange
4834 \href{http://tex.stackexchange.com/questions/24101/theorem-decorations^^A
4835       -that-stay-with-theorem-environment}%
4836     {Theorem decorations that stay with theorem environment}
4837 \begin{LTXexample}
4838 \makeatletter
4839 \newlength{\interruptlength}
4840 \setlength{\interruptlength}{2.5ex}
4841 \newrobustcmd\overlaplines{%
4842   \appto\mdf@frame@leftline@single{%
4843     \llap{\color{white}%
4844       \rule[\dimexpr-\mdfboundingboxdepth+\interruptlength\relax]{%
4845         {\mdf@middlelinewidth@length}%
4846         {\dimexpr\mdfboundingboxtotalheight%
4847           \ifbool{mdf@topline}{+\mdf@middlelinewidth@length}{}}
4848         -2\interruptlength\relax}%
4849     }%
4850   }%
4851   \appto\mdf@frame@rightline@single{%
4852     \rlap{\color{white}%
4853       \hspace*{\mdfboundingboxwidth}%
4854       \hspace*{\mdf@innerrightmargin@length}%
4855       \rule[\dimexpr-\mdfboundingboxdepth%
4856         +\interruptlength\relax]{%
4857         {\mdf@middlelinewidth@length}%
4858         {\dimexpr\mdfboundingboxtotalheight%
4859           +\ifbool{mdf@topline}{\mdf@middlelinewidth@length}{0pt}}
4860         -2\interruptlength\relax}%
4861     }%
4862   }%
4863 }
4864 \makeatother
4865 \overlaplines
4866
4867 \begin{mdframed}[linecolor=blue,linewidth=8pt]
4868 \ExampleText
4869 \end{mdframed}
4870 \end{LTXexample}

```

```

4871 \end{document}
4872 \endinput

```

D. The file mdframed-example-tikz

```

4873 %Documenation of the package mdframed
4874 %$Id: mdframed.dtx 426 2012-06-02 12:18:56Z marco $
4875 \setcounter{errorcontextlines}{999}
4876 \documentclass[parskip=false,english,11pt]{ltxmdf}
4877 \GetIdInfo$Id: mdframed.dtx 426 2012-06-02 12:18:56Z marco $
4878     {documentation of mdframed}
4879
4880
4881 \usepackage{showexpl}
4882 \lstset{style=lstltxmdf,explpreset={pos=b,rframe={}},}
4883
4884 \newcommand\Loadedframemethod{TikZ}
4885 \usepackage[framemethod=\Loadedframemethod]{mdframed}
4886
4887 \title{The \Pack{mdframed} package}
4888 \subtitle{Examples for \Opt{framemethod=\Loadedframemethod}}
4889 \author{\href{mailto:marco.daniel@mada-nada.de}{Marco Daniel}}
4890 \date{\ExplFileDate}
4891 \version{\mdversion}
4892 \introduction{In this document I collect various examples for
4893     \Opt{framemethod=\Loadedframemethod}.
4894     Some presented examples are more or less exorbitant.}
4895
4896 \mdfsetup{skipabove=\topskip,skipbelow=\topskip}
4897 \newrobustcmd\ExampleText{%
4898     An \textit{inhomogeneous linear} differential equation has the form
4899     \begin{align}
4900         L[v] &= f,
4901     \end{align}
4902     where  $L$  is a linear differential operator,  $v$  is
4903     the dependent variable, and  $f$  is a given non-zero
4904     function of the independent variables alone.
4905 }
4906
4907 \newcounter{examplecount}
4908 \setcounter{examplecount}{0}
4909 \renewcommand\thesubsection{}
4910 \newcommand\Examplesec[1]{%
4911 \stepcounter{examplecount}%
4912 \subsection{Example~\arabic{examplecount}~---~#1\relax}%
4913 }
4914
4915 \begin{document}
4916 \maketitle
4917 \section{Loading}
4918 In the preamble only the package \Pack{mdframed} with the option
4919 \Opt{framemethod=\Loadedframemethod} is loaded. All other modifications will be
4920 done by \Cmd{mdfdefinestyle} or \Cmd{mdfsetup}.
4921
4922 {\large\color{red!50!black}
4923 \NOTE Every \Cmd{global} inside the examples is necessary to work with the

```

```

4924 package \Pack{showexpl}.)
4925
4926 \section{Examples}
4927 All examples have the following settings:
4928
4929 \begin{tltxmdfexample}
4930 \mdfsetup{skipabove=\topskip,skipbelow=\topskip}
4931 \newrobustcmd\ExampleText{%
4932 An \textit{inhomogeneous linear} differential equation
4933 has the form
4934 \begin{align}
4935 L[v] = f,
4936 \end{align}
4937 where  $L$  is a linear differential operator,  $v$  is
4938 the dependent variable, and  $f$  is a given non-zero
4939 function of the independent variables alone.
4940 }
4941 \end{tltxmdfexample}
4942 \clearpage
4943 \ExampleText{round corner}
4944 \begin{LTXexample}
4945 \global\mdfdefinestyle{exampledefault}{%
4946     outerlinewidth=5pt,innerlinewidth=0pt,
4947     outerlinecolor=red,roundcorner=5pt
4948 }
4949 \begin{mdframed}[style=exampledefault]
4950 \ExampleText
4951 \end{mdframed}
4952 \end{LTXexample}
4953
4954 \Examplesec{hidden line + frame title}
4955 \begin{LTXexample}
4956 \global\mdfapptodefinestyle{exampledefault}{%
4957     topline=false,leftline=false,}
4958 \begin{mdframed}[style=exampledefault,frametitle={Inhomogeneous linear}]
4959 \ExampleText
4960 \end{mdframed}
4961 \end{LTXexample}
4962 \clearpage
4963 \Examplesec{framed picture which is centered}
4964 \begin{LTXexample}
4965 \begin{mdframed}[userdefinedwidth=6cm,align=center,
4966     linecolor=blue,middlelinewidth=4pt,roundcorner=5pt]
4967 \IfFileExists{donald-duck.jpg}%
4968 {\includegraphics[width=\linewidth]{donald-duck}}%
4969 {\rule{\linewidth}{4cm}}%
4970 \end{mdframed}
4971 \end{LTXexample}
4972
4973 \Examplesec{Gimmick}
4974 \begin{LTXexample}
4975 \mdfsetup{splitbottomskip=0.8cm,splittopskip=0cm,
4976     innerrightmargin=2cm,innertopmargin=1cm,%
4977     innerlinewidth=2pt,outerlinewidth=2pt,
4978     middlelinewidth=10pt,backgroundcolor=red,
4979     linecolor=blue,middlelinecolor=gray,

```

```

4980         tikzsetting={draw=yellow,line width=3pt,%
4981                     dashed,%
4982                     dash pattern= on 10pt off 3pt},
4983         rightline=false,bottomline=false}
4984 \begin{mdframed}
4985 \ExampleText
4986 \end{mdframed}
4987 \end{LTXexample}
4988
4989 \Examplesec{complex example with TikZ}
4990
4991 \begin{tltxmdfexample}
4992 \tikzstyle{titregris} =
4993     [draw=gray, thick, fill=white, shading = exersicetitle, %
4994     text=gray, rectangle, rounded corners, right,minimum height=.7cm]
4995
4996 \pgfdeclarehorizontalshading{exersicebackground}{100bp}
4997     {color(0bp)=(green!40); color(100bp)=(black!5)}
4998
4999 \pgfdeclarehorizontalshading{exersicetitle}{100bp}
5000     {color(0bp)=(red!40);color(100bp)=(black!5)}
5001
5002 \newcounter{exercise}
5003 \renewcommand*{\theexercise}{Exercise~\n\arabic{exercise}}
5004 \makeatletter
5005 \def\mdf@@exercisepoints{}%new mdframed key:
5006 \define@key{mdf}{exercisepoints}{%
5007     \def\mdf@@exercisepoints{#1}
5008 }
5009 \makeatother
5010
5011 \mdfdefinestyle{exercisestyle}{%
5012     outerlinewidth=1pt,innerlinewidth=0pt,
5013     roundcorner=2pt,linecolor=gray,
5014     tikzsetting={shading = exersicebackground},
5015     innertopmargin=1.2\baselineskip,
5016     skipabove={\dimexpr0.5\baselineskip+\topskip\relax},
5017     needspace=3\baselineskip,
5018     frametitlefont=\sffamily\bfseries,
5019     settings={\global\stepcounter{exercise}},
5020     singleextra={%
5021         \node[titregris,xshift=1cm] at (P-|0) %
5022         {\~\mdf@frametitlefont{\theexercise}~};
5023         \ifdefempty{\mdf@@exercisepoints}%
5024         {}%
5025         {\node[titregris,left,xshift=-1cm] at (P)%
5026         {\~\mdf@frametitlefont{\mdf@@exercisepoints points}~};}%
5027     },
5028     firstextra={%
5029         \node[titregris,xshift=1cm] at (P-|0) %
5030         {\~\mdf@frametitlefont{\theexercise}~};
5031         \ifdefempty{\mdf@@exercisepoints}%
5032         {}%
5033         {\node[titregris,left,xshift=-1cm] at (P)%
5034         {\~\mdf@frametitlefont{\mdf@@exercisepoints points}~};}%
5035     },

```



```

5036 }
5037 \begin{mdframed}[style=exercisestyle,]
5038 \ExampleText
5039 \end{mdframed}
5040
5041 \begin{mdframed}[style=exercisestyle,exercisepoints=10]
5042 \ExampleText
5043 \end{mdframed}
5044 \end{tltxmdfexample}
5045 \clearpage
5046 \Examplesec{Theorem environments}
5047 \begin{LTXexample}
5048 \mdfdefinestyle{theoremstyle}{%
5049     linecolor=red,linewidth=2pt,%
5050     frametitlerule=true,%
5051     apptotikzsetting={\tikzset{mdfframetitlebackground/.append style={%
5052         shade,left color=white, right color=blue!20}}},
5053     frametitlerulecolor=green!60,
5054     frametitlerulewidth=1pt,
5055     innertopmargin=\topskip,
5056 }
5057 \mdtheorem[style=theoremstyle]{definition}{Definition}
5058 \begin{definition}[Inhomogeneous linear]
5059 \ExampleText
5060 \end{definition}
5061 \begin{definition*}[Inhomogeneous linear]
5062 \ExampleText
5063 \end{definition*}
5064 \end{LTXexample}
5065
5066 \end{document}
5067 \endinput

```

E. The file *mdframed-example-pstricks*

```

5068 %Documentation of the package mdframed
5069 %$Id: mdframed.dtx 426 2012-06-02 12:18:56Z marco $
5070 \setcounter{errorcontextlines}{999}
5071 \documentclass[parskip=false,english,11pt]{ltxmdf}
5072 \GetIdInfo$Id: mdframed.dtx 426 2012-06-02 12:18:56Z marco $
5073     {documentation of mdframed}
5074
5075 \lstDeleteShortInline{[]}
5076 \newcommand\Loadedframemethod{PSTricks}
5077 \usepackage[framemethod=\Loadedframemethod]{mdframed}
5078
5079 \usepackage{showexpl}
5080 \lstset{style=lstltxmdf,explpreset={pos=b,rframe={}},}
5081
5082 \title{The \Pack{mdframed} package}
5083 \subtitle{Examples for \Opt{framemethod=\Loadedframemethod}}
5084 \author{\href{mailto:marco.daniel@mada-nada.de}{Marco Daniel}}
5085 \date{\ExplFileDate}
5086 \version{\mdversion}
5087 \introduction{In this document I collect various examples for
5088     \Opt{framemethod=\Loadedframemethod}.

```

```

5089         Some presented examples are more or less exorbitant.}
5090
5091 \mdfsetup{skipabove=\topskip,skipbelow=\topskip}
5092 \newrobustcmd\ExampleText{%
5093     An \textit{inhomogeneous linear} differential equation has the form
5094     \begin{align}
5095         L[v] = f,
5096     \end{align}
5097     where  $L$  is a linear differential operator,  $v$  is
5098     the dependent variable, and  $f$  is a given non-zero
5099     function of the independent variables alone.
5100 }
5101
5102 \newcounter{examplecount}
5103 \setcounter{examplecount}{0}
5104 \renewcommand\thesubsection{}
5105 \newcommand\Examplesec[1]{%
5106 \stepcounter{examplecount}%
5107 \subsection{Example~\arabic{examplecount}~---~#1\relax}%
5108 }
5109
5110 \begin{document}
5111 \maketitle
5112 \section{Loading}
5113 In the preamble only the package \Pack{mdframed} with the option
5114 \Opt{framemethod=\Loadedframemethod} is loaded. All other modifications will be
5115 done by \Cmd{mdfdefinestyle} or \Cmd{mdfsetup}.
5116
5117 {\large\color{red!50!black}
5118 \NOTE Every \Cmd{global} inside the examples is necessary to work with the
5119 package \Pack{showexpl}.}
5120 X
5121 \section{Examples}
5122 All examples have the following settings:
5123
5124 \begin{tltxmdfexample}
5125 \mdfsetup{skipabove=\topskip,skipbelow=\topskip}
5126 \newrobustcmd\ExampleText{%
5127 An \textit{inhomogeneous linear} differential equation
5128 has the form
5129 \begin{align}
5130 L[v] = f,
5131 \end{align}
5132 where  $L$  is a linear differential operator,  $v$  is
5133 the dependent variable, and  $f$  is a given non-zero
5134 function of the independent variables alone.
5135 }
5136 \end{tltxmdfexample}
5137 \clearpage
5138
5139 \Examplesec{very simple}
5140 \begin{LTExample}
5141 \global\mdfdefinestyle{exampledefault}{%
5142     linecolor=red,middlelinewidth=3pt,%
5143     leftmargin=1cm,rightmargin=1cm
5144 }

```

```

5145 \begin{mdframed}[style=exampledefault,roundcorner=5]
5146 \ExampleText
5147 \end{mdframed}
5148 \end{LTXexample}
5149
5150 \Examplesec{hidden line + frame title}
5151 \begin{LTXexample}
5152 \global\mdfapptodefinestyle{exampledefault}{%
5153   topline=false,rightline=false,bottomline=false,
5154   frametitlerule=true,innertopmargin=6pt,
5155   outerlinewidth=6pt,outerlinecolor=blue,
5156   pstricksappsetting={\addtopsstyle{mdfouterlinestyle}{linestyle=dashed}},
5157   innerlinecolor=yellow,innerlinewidth=5pt}%
5158 \begin{mdframed}[style=exampledefault,frametitle={Inhomogeneous linear}]
5159 \ExampleText
5160 \end{mdframed}
5161 \end{LTXexample}
5162
5163 \clearpage
5164
5165 \Examplesec{Dash Lines}
5166 \begin{LTXexample}
5167 \global\mdfdefinestyle{exampledefault}{%
5168   pstrickssetting={linestyle=dashed,},linecolor=red,linewidth=5pt}
5169 \begin{mdframed}[style=exampledefault,]
5170 \ExampleText
5171 \end{mdframed}
5172 \end{LTXexample}
5173
5174 \Examplesec{Double Lines}
5175 \begin{LTXexample}
5176 \global\mdfdefinestyle{exampledefault}{%
5177   pstrickssetting={doubleline=true,doublesep=6pt},
5178   linecolor=red,linewidth=5pt,middlelinewidth=4pt}
5179 \begin{mdframed}[style=exampledefault,]
5180 \ExampleText
5181 \end{mdframed}
5182 \end{LTXexample}
5183
5184 \Examplesec{Shadow frame}
5185 \begin{LTXexample}
5186 \newmdenv[shadow=true,
5187   shadowsize=11pt,
5188   linewidth=8pt,
5189   frametitlerule=true,
5190   roundcorner=10pt,
5191   ]{myshadowbox}
5192 \begin{myshadowbox}[frametitle={Inhomogeneous linear}]
5193 \ExampleText
5194 \end{myshadowbox}
5195 \end{LTXexample}
5196 \end{document}
5197 \endinput

```

F. The file *mdframed-example-texsx*

```

5198 %Documentation of the package mdframed
5199 %$Id: mdframed.dtx 426 2012-06-02 12:18:56Z marco $
5200 \setcounter{errorcontextlines}{999}
5201 \documentclass[parskip=false,english,11pt,lipsum=true]{ltxmdf}
5202 \GetIdInfo$Id: mdframed.dtx 426 2012-06-02 12:18:56Z marco $
5203         {documentation of mdframed}
5204
5205
5206 \usepackage{showexpl}
5207 \lstset{style=lstltxmdf,explpreset={pos=b,rframe={}}},}
5208 \usepackage{tikz}
5209 \usetikzlibrary{calc,arrows,shadings,shadows}
5210 \newcommand\Loadedframemethod{tikz}
5211 \usepackage[framemethod=\Loadedframemethod]{mdframed}
5212
5213 \title{The \Pack{mdframed} package}
5214 \subtitle{Examples for \Opt{framemethod=\Loadedframemethod}}
5215 \author{\href{mailto:marco.daniel@mada-nada.de}{Marco Daniel}}
5216 \date{\ExplFileDate}
5217 \version{\mdversion}
5218 \introduction{In this document I collect various examples for
5219         \Opt{framemethod=\Loadedframemethod}.
5220         Some presented examples are more or less exorbitant.}
5221
5222 \mdfsetup{skipabove=\topskip,skipbelow=\topskip}
5223 \newrobustcmd\ExampleText{%
5224     An \textit{inhomogeneous linear} differential equation has the form
5225     \begin{align}
5226         L[v] &= f,
5227     \end{align}
5228     where  $L$  is a linear differential operator,  $v$  is
5229     the dependent variable, and  $f$  is a given non-zero
5230     function of the independent variables alone.
5231 }
5232
5233 \newcounter{examplecount}
5234 \setcounter{examplecount}{0}
5235 \renewcommand\thesubsection{}
5236 \newcommand\Examplesec[1]{%
5237 \stepcounter{examplecount}%
5238 \subsection{Example~\arabic{examplecount}~---~\relax}%
5239 }
5240
5241 \begin{document}
5242 \maketitle
5243 \section{Loading}
5244 In the preamble only the package \Pack{mdframed} with the option
5245 \Opt{framemethod=\Loadedframemethod} is loaded. All other modifications will be
5246 done by \Cmd{mdfdefinestyle} or \Cmd{mdfsetup}.
5247
5248 {\large\color{red!50!black}
5249 \NOTE Every \Cmd{global} inside the examples is necessary to work with the
5250 package \Pack{showexpl}.}
5251
5252 \section{Examples}
5253 All examples have the following settings:

```

```

5254
5255 \begin{tltxmdfexample}
5256 \mdfsetup{skipabove=\topskip,skipbelow=\topskip}
5257 \newrobustcmd\ExampleText{%
5258 An \textit{inhomogeneous linear} differential equation
5259 has the form
5260 \begin{align}
5261 L[v] = f,
5262 \end{align}
5263 where  $L$  is a linear differential operator,  $v$  is
5264 the dependent variable, and  $f$  is a given non-zero
5265 function of the independent variables alone.
5266 }
5267 \end{tltxmdfexample}
5268 \clearpage
5269 \Examplesec{Package listings}
5270 The example below is inspired by the following post on StackExchange
5271 \href{http://tex.stackexchange.com/questions/27673/background-overflows-^^A
5272     when-using-rounded-corners-for-listings-package-listings}%
5273     {Background overflows when using rounded corners for listings
5274     (package: 'listings')}
5275
5276 Here the solution which can be decorate as usual.
5277
5278 \begin{tltxmdfexample}[moretexcs={BeforeBeginEnvironment,AfterEndEnvironment},
5279     morekeywords={lstlisting}]
5280 \BeforeBeginEnvironment{lstlisting}{%
5281     \begin{mdframed}[<modification>%
5282     \vspace{-0.7em}]
5283 \AfterEndEnvironment{lstlisting}{%
5284     \vspace{-0.5em}%
5285     \end{mdframed}}
5286 \end{tltxmdfexample}
5287
5288 With the new command \Cmd{surroundwithmdframed} you can use
5289 \begin{tltxmdfexample}[moretexcs={BeforeBeginEnvironment,AfterEndEnvironment},
5290     morekeywords={lstlisting}]
5291 \surroundwithmdframed{listings}
5292 \end{tltxmdfexample}
5293
5294 \Examplesec{Package multicol}
5295 How I wrote in \enquote{Known Problems} you can't combine \Pack{multicol} with
5296 \Pack{mdframed}. In a simple way without any breaks you can use:
5297 \begin{LTExample}
5298 \begin{multicols}{2}
5299 \lipsum[1]
5300 \begin{mdframed}
5301 \ExampleText
5302 \end{mdframed}
5303 \lipsum[2]
5304 \end{multicols}
5305 \end{LTExample}
5306 \clearpage
5307 \twocolumn[\Examplesec{Working in twocolumn mode}]
5308 \begin{tltxmdfexample}
5309 \twocolumn[%

```

```

5310 \Examplesec{Working in
5311         twocolumn mode}]
5312 \lipsum[1]\lipsum[2]
5313 \begin{mdframed}[%
5314     leftmargin=10pt,%
5315     rightmargin=10pt,%
5316     linecolor=red,
5317     backgroundcolor=yellow]
5318 \ExampleText
5319 \end{mdframed}
5320 \lipsum[2]
5321 \end{tltxmdfexample}
5322 \lipsum[1]\lipsum[2]
5323 \begin{mdframed}[leftmargin=10pt,%
5324                 rightmargin=10pt,%
5325                 linecolor=red,
5326                 backgroundcolor=yellow]
5327 \ExampleText
5328 \end{mdframed}
5329 \lipsum[2]
5330 \clearpage
5331 \onecolumn
5332 \Examplesec{Working inside enumerate}
5333 \begin{LTXexample}
5334 Text Text Text Text Text Text Text Text
5335 \begin{enumerate}
5336 \item in the following \ldots
5337     \begin{mdframed}[linecolor=blue,linewidth=2]
5338         \ExampleText
5339     \end{mdframed}
5340 \item \lipsum[2]
5341 \end{enumerate}
5342 Text Text Text Text Text Text
5343 \end{LTXexample}
5344 \clearpage
5345 \Examplesec{Position a specific symbol at a line}
5346 \begin{LTXexample}
5347 \tikzset{
5348     warningsymbol/.style={
5349         rectangle,draw=red,
5350         fill=white,scale=1,
5351         overlay}}
5352 \mdfdefinestyle{warning}{%
5353     hidealllines=true,leftline=true,
5354     skipabove=12,skipbelow=12pt,
5355     innertopmargin=0.4em,%
5356     innerbottommargin=0.4em,%
5357     innerrightmargin=0.7em,%
5358     rightmargin=0.7em,%
5359     innerleftmargin=1.7em,%
5360     leftmargin=0.7em,%
5361     middlelinewidth=.2em,%
5362     linecolor=red,%
5363     fontcolor=red,%
5364     firstextra={\path let \p1=(P), \p2=(0) in ($(\x2,0)+0.5*(0,\y1)$)
5365                 node[warningsymbol] {\$}};,%

```

```

5366 secondextra={\path let \p1=(P), \p2=(0) in ($(\x2,0)+0.5*(0,\y1)$)
5367             node[warningsymbol] {\$};},%
5368 middleextra={\path let \p1=(P), \p2=(0) in ($(\x2,0)+0.5*(0,\y1)$)
5369             node[warningsymbol] {\$};},%
5370 singleextra={\path let \p1=(P), \p2=(0) in ($(\x2,0)+0.5*(0,\y1)$)
5371             node[warningsymbol] {\$};},%
5372 }
5373 \begin{mdframed}[style=warning]
5374 \ExampleText
5375 \end{mdframed}
5376 \end{LTXexample}
5377
5378 \clearpage
5379 \Examplesec{digression-environement inspired by Tobias Weh}
5380 \begin{lstlisting}
5381 \usetikzlibrary{calc,arrows}
5382 \tikzset{
5383   excursus arrow/.style={%
5384     line width=2pt,
5385     draw=gray!40,
5386     rounded corners=2ex,
5387   },
5388   excursus head/.style={
5389     fill=white,
5390     font=\bfseries\sffamily,
5391     text=gray!80,
5392     anchor=base west,
5393   },
5394 }
5395 \mdfdefinestyle{digressionarrows}{%
5396   singleextra={%
5397     \path let \p1=(P), \p2=(0) in (\x2,\y1) coordinate (Q);
5398     \path let \p1=(Q), \p2=(0) in (\x1,{(\y1-\y2)/2}) coordinate (M);
5399     \path [excursus arrow, round cap-to]
5400       ($ (0)+(5em,0ex)$) -| (M) |- %
5401       ($ (Q)+(12em,0ex)$) .. controls +(0:16em) and +(185:6em) .. %
5402       ++(23em,2ex);
5403     \node [excursus head] at ($ (Q)+(2.5em,-0.75pt)$) {Digression}};},
5404   firstextra={%
5405     \path let \p1=(P), \p2=(0) in (\x2,\y1) coordinate (Q);
5406     \path [excursus arrow,-to]
5407       (0) |- %
5408       ($ (Q)+(12em,0ex)$) .. controls +(0:16em) and +(185:6em) .. %
5409       ++(23em,2ex);
5410     \node [excursus head] at ($ (Q)+(2.5em,-2pt)$) {Digression}};},
5411   secondextra={%
5412     \path let \p1=(P), \p2=(0) in (\x2,\y1) coordinate (Q);
5413     \path [excursus arrow,round cap-]
5414       ($ (0)+(5em,0ex)$) -| (Q)};},
5415   middleextra={%
5416     \path let \p1=(P), \p2=(0) in (\x2,\y1) coordinate (Q);
5417     \path [excursus arrow]
5418       (0) -- (Q)};},
5419   middlelinewidth=2.5em,middlelinecolor=white,
5420   hidealllines=true,topline=true,
5421   innertopmargin=0.5ex,

```

```

5422   innerbottommargin=2.5ex,
5423   innerrightmargin=2pt,
5424   innerleftmargin=2ex,
5425   skipabove=0.87\baselineskip,
5426   skipbelow=0.62\baselineskip,
5427 }
5428
5429 \begin{mdframed}[style=digressionarrows]
5430     \ExampleText
5431 \end{mdframed}
5432 \end{lstlisting}
5433
5434 \tikzset{
5435     excursus arrow/.style={%
5436         line width=2pt,
5437         draw=gray!40,
5438         rounded corners=2ex,
5439     },
5440     excursus head/.style={
5441         fill=white,
5442         font=\bfseries\sffamily,
5443         text=gray!80,
5444         anchor=base west,
5445     },
5446 }
5447 \mdfdefinestyle{digressionarrows}{%
5448     singleextra={%
5449         \path let \p1=(P), \p2=(O) in (\x2,\y1) coordinate (Q);
5450         \path let \p1=(Q), \p2=(O) in (\x1,{(\y1-\y2)/2}) coordinate (M);
5451         \path [excursus arrow, round cap-to]
5452             ($ (O)+(5em,0ex)$) -| (M) |- %
5453             ($ (Q)+(12em,0ex)$) .. controls +(0:16em) and +(185:6em) .. %
5454             ++(23em,2ex);
5455         \node [excursus head] at ($ (Q)+(2.5em,-0.75pt)$) {Digression}};
5456     firstextra={%
5457         \path let \p1=(P), \p2=(O) in (\x2,\y1) coordinate (Q);
5458         \path [excursus arrow,-to]
5459             (O) |- %
5460             ($ (Q)+(12em,0ex)$) .. controls +(0:16em) and +(185:6em) .. %
5461             ++(23em,2ex);
5462         \node [excursus head] at ($ (Q)+(2.5em,-2pt)$) {Digression}};
5463     secondextra={%
5464         \path let \p1=(P), \p2=(O) in (\x2,\y1) coordinate (Q);
5465         \path [excursus arrow,round cap-]
5466             ($ (O)+(5em,0ex)$) -| (Q)};
5467     middleextra={%
5468         \path let \p1=(P), \p2=(O) in (\x2,\y1) coordinate (Q);
5469         \path [excursus arrow]
5470             (O) -- (Q)};
5471     middlelinewidth=2.5em,middlelinecolor=white,
5472     hidealllines=true,topline=true,
5473     innertopmargin=0.5ex,
5474     innerbottommargin=2.5ex,
5475     innerrightmargin=2pt,
5476     innerleftmargin=2ex,
5477     skipabove=0.87\baselineskip,

```



```

5478     skipbelow=0.62\baselineskip,
5479 }
5480
5481 \begin{mdframed}[style=digressionarrows]
5482     \ExampleText
5483 \end{mdframed}
5484
5485 \Examplesec{Theorem style shading background}
5486 \begin{LTXexample}
5487 %\usetikzlibrary{shadings,shadows}% loaded in the header
5488 \mdtheorem[%
5489     apptotikzsetting={\tikzset{mdfbackground/.append style =%
5490                             {top color=yellow!40!white,
5491                             bottom color=yellow!80!black},
5492                             mdfframetitlebackground/.append style =%
5493                             {top color=purple!40!white,
5494                             bottom color=purple!80!black}
5495                             },
5496     },
5497     ,roundcorner=10pt,middlelinewidth=2pt,
5498     shadow=true,frametitlerule=true,frametitlerulewidth=4pt,
5499     innertopmargin=10pt,%
5500 ]{alternativtheorem}{Theorem}
5501 \begin{alternativtheorem}[Inhomogeneous linear]
5502 \ExampleText
5503 \end{alternativtheorem}
5504 \end{LTXexample}
5505 \end{document}
5506 \endinput

```

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