

The `mdframed` package¹

auto-split frame environment

Marco Daniel, Elke Schubert

1.8

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

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

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

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

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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 = yelloww   ,%
    outerlinecolor = blue        ,%
    innertopmargin = \topskip    ,%
    splittopskip   = \topskip    ,%
    ntheorem       = true        ,%
    skipabove      = \baselineskip ,%
    skipbelow      = \baselineskip ]
{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.

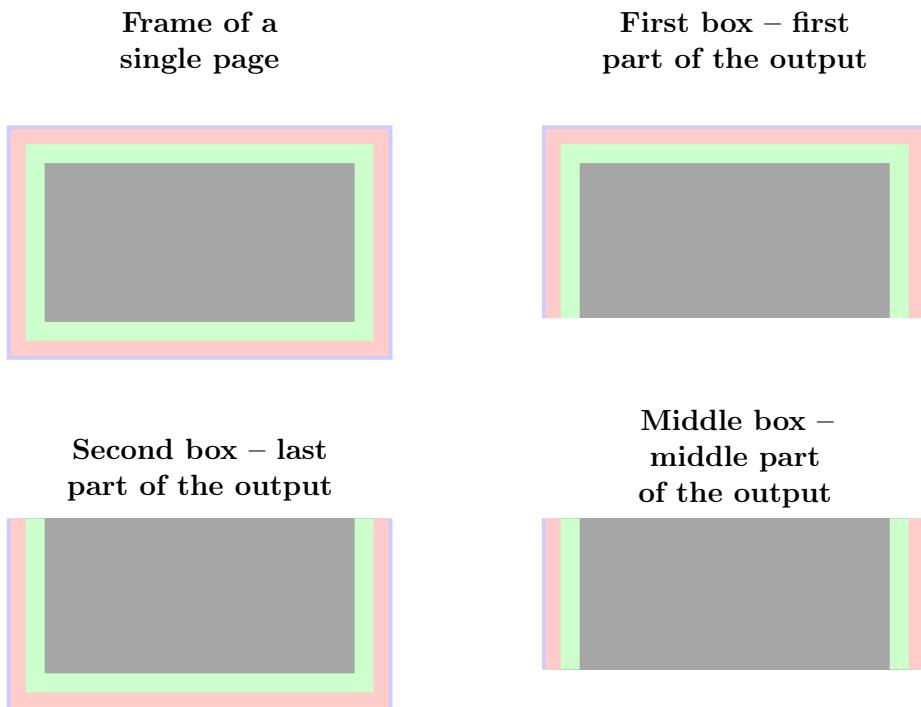


Figure 1: The basic frames

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
\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`.

```
The distance is \hspace{\mdflength{innerleftmargin}}
\the\mdflength{innerleftmargin}
```

The result will be:

The distance is 10.0pt

\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 usage 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 The sole exception is the option `framemethod` which must given as an optional argument of `\usepackage`.

\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:

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

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

`\mdfapptodefestyle`

This command 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`

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
<code>LATEX</code> -commands	<code>default</code> , <code>tex</code> , <code>latex</code> , <code>none</code> , <code>0</code>
<code>TikZ</code>	<code>tikz</code> , <code>pgf</code> , <code>1</code>
<code>PSTricks</code>	<code>pstricks</code> , <code>ps</code> , <code>postscript</code> , <code>2</code>

FYI

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

³Thanks to Martin Scharrer and Enrico Gregorio:

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

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.

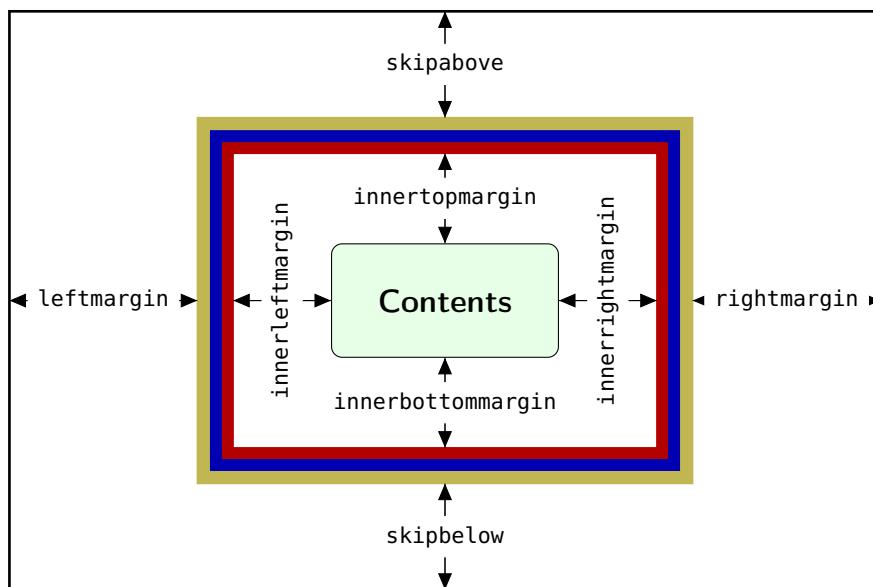


Figure 2: adjustable lengths of `mdframed`

`skipabove`

`default=0 pt`

Sets an additional skip above the frame.

`skipbelow`

`default=0 pt`

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=0 pt`

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.

`innersrightmargin` 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=`\linewidth`

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=`0pt`

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

`innermargin` default=`0pt`

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

`splittopskip` default=`0pt`

Sets the length of the skip above the split part of the environment.

`splitbottomskip` default=`0pt`

Sets the length of the skip below the split part of the environment.

`linewidth` default=`0.4pt`

Sets the width of the line around the environment.

This works only with `framemethod=default`.

`roundcorner` default=`0pt`

Sets the size of the radius of the corners of the frames.

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

`innerlinewidth` default=`0pt`

Sets the width of the inner line around the environment.

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

`outerlinewidth` default=`0pt`

Sets the width of the outer line around the environment.

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

`middlelinewidth` default=`0.4pt`

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.

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

5.2.3. General options

<code>everyline</code>	default=false
Allows to draw a bottom and a top line at splitted frames.	
<code>font</code>	default={}
Sets the font of the environment.	
<code>ntheorem</code>	default=false
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 0 pt.	
<code>nobreak</code>	default=false
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>	default=true
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>	default=0 pt
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>	default=none
This option allows the user to commit some macros. An example is shown in the example files.	
<code>align</code>	default=left
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 	

- `center`.

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

`ignorelastdescenders` default=false

Try to ignore the last descenders of the environment `mdframed`. 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](#)

`draft` default=false

Activate the draft mode for the package. This option is useful for `framemethod=tikz` which clips the contents related to the surrounded frame. The options is motivated by the question [mdframed+tikz to display overfullrule at tex.stackexchange](#).

`shadow` default=false

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

`shadowsize` default=8pt

Specify the size of the shadow.

`shadowcolor` default=black!50

Specify the color of the shadow.

`pstrickssetting` default={}

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

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

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

This works only with `framemethod=PSTricks`.

`tikzsetting` default={}

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.

<code>frametitle</code>	default= <code>none</code>
The environment gets a title. To set a title use <code>frametitle={The Title of the frame}</code> as an option of the environment.	
<code>frametitlefont</code>	default= <code>\normalfont\bfseries</code>
Sets the format of the <code>frametitle</code> .	
<code>frametitlealignment</code>	default= <code>\raggedleft</code>
Align the <code>frametitle</code> . This option must be set via <code>\mdfsetup</code> .	
<code>frametitlerule</code>	default= <code>false</code>
Set this key to <code>true</code> to get a line between the frame title and the text.	
<code>frametitlerulewidth</code>	default= <code>.2 pt</code>
Sets the width of the line between the text and the title of <code>mdframed</code> .	
<code>frametitleaboveskip</code>	default= <code>5 pt</code>
Sets the skip of the frame title to the margin above of <code>mdframed</code> .	
<code>frametitlebelowskip</code>	default= <code>5 pt</code>
Sets the skip of the frame title to the rule of the frame title.	
<code>frametitlebackgroundcolor</code>	default= <code>backgroundcolor</code>
Sets the color of the background of the frametitle	
<code>repeatframetitle</code>	default= <code>false</code>
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.

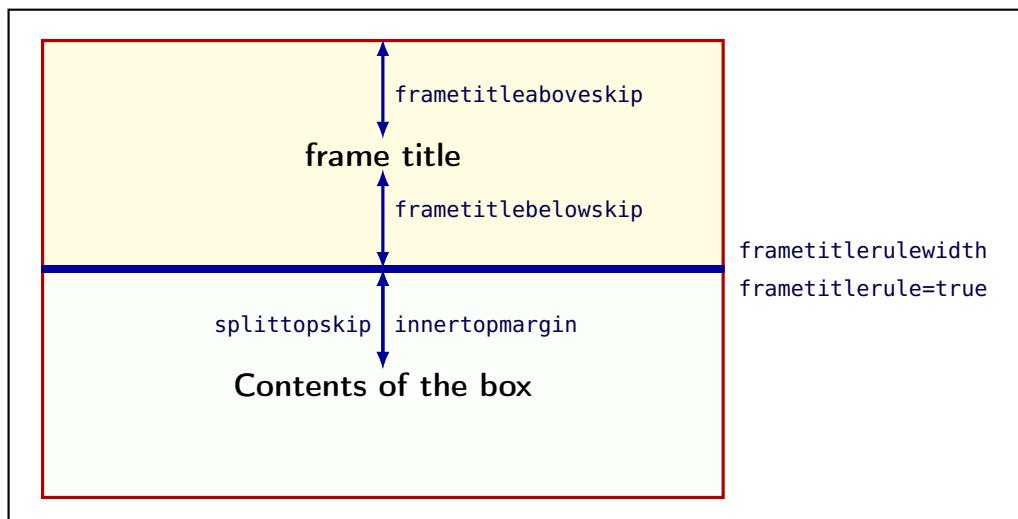


Figure 3: Behavior of the lengths if `frametitle` is used

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

`subtitleaboveline`

default=false

Decide to draw a line above the subtitle.

`subtitlebelowline`

default=false

Decide to draw a line below the subtitle.

`subtitlefont`

default=\normalfont\bfseries

Sets the font for subtitles.

`subtitlebackgroundcolor`

default=white

Sets the background color of the subtitle between the above and below line.

`subtitleabovelinecolor`

default=black

Sets the line color of the line above.

`subtitlebelowlinecolor`

default=black

Sets the line color of the line below.

`subtitleabovelinewidth`

default=0.8pt

Sets the line width of the line above.

`subtitlebelowlinewidth`

default=0.6pt

Sets the line width of the line below.

`subtitleaboveskip`

default=\baselineskip

Sets the skip before the subtitle line above will be drawn.

`subtitlebelowskip`

default=1.2\baselineskip

Sets the skip after the subtitle line below is drawn.

`subtitleinneraboveskip`

default=0.5\baselineskip

Sets the skip after the line above and the subtitle itself.

`subtitleinnerbelowskip`

default=0.5\baselineskip

Sets the skip after the subtitle and the line below.

5.5.2. Options related to the title of level 2

<code>subsubtitleaboveline</code>	default=false
Decide to draw a line above the subsubtitle.	
<code>subtitlebelowline</code>	default=false
Decide to draw a line below the subsubtitle.	
<code>subsubtitlefont</code>	default=\normalfont
Sets the font for subsubtitles.	
<code>subsubtitlebackgroundcolor</code>	default=white
Sets the background color of the subsubtitle between the above and below line.	
<code>subsubtitleabovelinecolor</code>	default=black
Sets the line color of the line above.	
<code>subsubtitlebelowlinecolor</code>	default=black
Sets the line color of the line below.	
<code>subsubtitleabovelinewidth</code>	default=0.8 pt
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>subsubtitlebeforeskip</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>subsubtitleinnerbeforeskip</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
\end{lemma}
```

So far there is no `\renewmdtheoremenv!`

`\mdtheorem`

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

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

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

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

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

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

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

`theoremseparator`

default={::}

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

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

7. Errors, Warnings and Messages

The package `mdframed` provides different errors, warnings and messages in the `log`-file. Some L^AT_EX-editors like T_EXMaker or T_EXStudio have a special tab for errors and warnings but not for messages. So you should look in the `log-File` itself.

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

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

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

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

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

Unknown **framemethod** **mdframed**

The input string for the option **framemethod** is unkown. See section 5.1.

You have not loaded **ntheorem** yet

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

You have only a width of 3cm

The package **mdframed** calculates the width of the contents based on the given options. If the width of the contents is smaller than 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@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 `\@capttype` global. To work with the package `picins` you can use the following hack.

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

3. `mdframed` can't handle the option `allowframebreaks` of the class `beamer`.
4. A nested `mdframed` environment can't be splitted.

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.

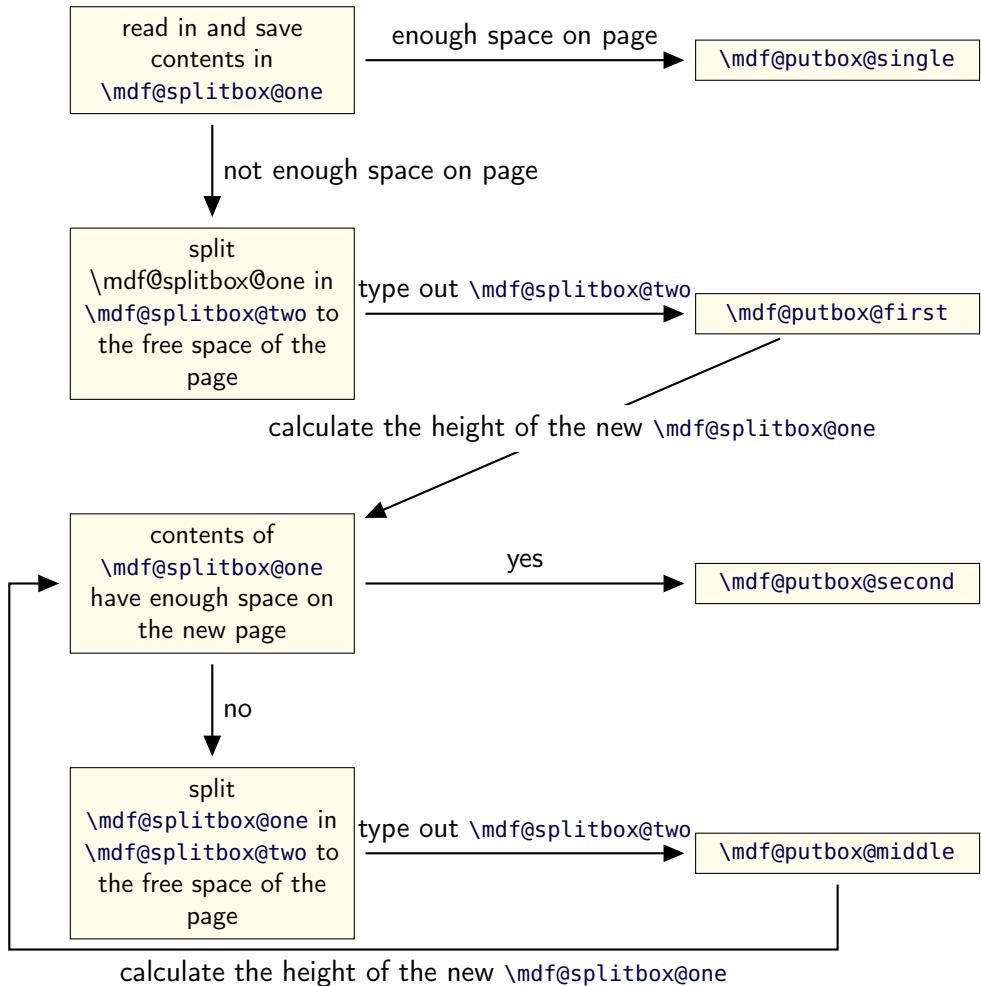


Figure 4: Setting the contents of `mdframed`

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 L^AT_EX how to set the contents of `mdframed`.

`\mdf@putbox@singl` 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@singl{\box\mdf@splitbox@one}
\makeatother
```

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

```
\makeatletter
\def\mdf@putbox@singl{\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@singl{%
\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 1.8 submitted 09 Mar 2013

- fixed bugs (e.g. related to `\parskip` of KOMA)
- allow margin notes with `framemethod=tikz`
- fixed some typos

Version 1.6d submitted 21 Sep 2012

- fixed bugs
- added option `draft`

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

Version 1.0b submitted 9 Dec 2011

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

Version 1.0 submitted 13 Nov 2011

- add option `userdefinedwidth`
- add option `align`
- add option `apptotikzsetting`
- create new command `\mdfapptodefinestyle`
- changed internal algorithm
- removed calc instead using ε-TEX `\dimexpr`
- expand documentation
- trying to fixe problems with `xcolor`
- fixed bug with `framemethod=pstricks`
- create file

`mdframed-example-default` • create file `mdframed-example-tikz` • create file `mdframed-example-pstricks` • create file `mdframed-example-texsx` (`texsx` stands for tex stackexchange)

Version 0.9g submitted 08 Oct 2011

- fixed documentation • added small footnote compatibility

Version 0.9f submitted 04 Oct 2011

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

Version 0.9e submitted 11 Sep 2011

- working with `twoside` modus

Version 0.9d submitted 10 Sep 2011

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

Version 0.9b submitted 7 Sep 2011

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

Version 0.9a submitted 5 Sep 2011

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

Version 0.9 submitted 4 Sep 2011

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

Version 0.8a

- fixes bugs • fixes documentation

Version 0.8 submitted 22 Aug 2011

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

Version 0.7a submitted 6 August 2011

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

Version 0.6a submitted 22 Dec 2010

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

B. Implementation

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

B.1. The Explanation of mdframed.sty

```
\mdversion
\mdframedpackagename
\mdfmaindate
```

Set package information

```
1 \def\mdversion{1.8}
2 \def\mdframedpackagename{mdframed}
3 \def\mdfmaindate{2013/03/09}
4 \def\mdfrevision{      172}% Done by github: git rev-list HEAD | wc -l

5 \NeedsTeXFormat{LaTeX2e}
6 \ProvidesPackage{mdframed}%
7   [\mdfmaindate\ %
8   \mdversion: \mdframedpackagename]
```

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

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

```
9 \newcommand*\mdf@PackageError[1]{\PackageError{\mdframedpackagename}{#1}}
10 \newcommand*\mdf@PackageWarning[1]{\PackageWarning{\mdframedpackagename}{#1}}
11 \newcommand*\mdf@PackageInfo[1]{\PackageInfo{\mdframedpackagename}{#1}}
12 \newcommand*\mdf@LoadFile@IfExist[1]{%
13   \IfFileExists{#1.sty}{%
14     \RequirePackage{#1}%
15   }{%
16     \mdf@PackageWarning{The file #1 does not exist\MessageBreak
17                           but needed by \mdframedpackagename\MessageBreak
18                           see documentation fo further information
19   }%
20 }
21 }
```

Loading required packages

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

Set the family and the prefix of all options.

```
27 \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>}`

```

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

`\mdf@dolist`

Loop used by `mdframed`.

```
44 \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>}
45 \newrobustcmd*{\mdf@option@length}[2]{%
46   \expandafter\newlength\csname mdf@#1@length\endcsname%
47   \expandafter\setlength\csname mdf@#1@length\endcsname{#2}%
48 }
```

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

```

49 \newrobustcmd*{\mdf@define@key@length}[1]{%
50   \define@key{mdf}{#1}{%
51     \def\@tempa{##1}%
52     \mdf@iflength{\@tempa}{%
53       {\csxdef{mdfl@#1}{\the\mdf@templen}}%
54       {\csxdef{mdfl@#1}{\the\mdf@templen}}%
55       \setlength{\csname mdf@#1@length\endcsname}{\csname mdf@#1\endcsname}%
56     }%
57 }
```

`\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 `==`.

```

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

```
63   \mdf@define@key@length{\#1}%
64 }
```

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

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

```
65 \def\mdf@do@stringoption#1{%
66   \mdf@stringoption@doubledo#1\@nil%
67 }
68 \def\mdf@stringoption@doubledo#1==#2\@nil{%
69   \expandafter\gdef\csname mdf@#1\endcsname{\#2}%
70   \define@key{mdf}{#1}{%
71     \csdef{mdf@#1}{##1}%
72   }%
73 }
```

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

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

```
74 \def\mdf@do@booloption#1{%
75   \mdf@booloption@doubledo#1\@nil%
76 }
77 \def\mdf@booloption@doubledo#1==#2\@nil{%
78   \newbool{mdf@#1}\setbool{mdf@#1}{#2}%
79   \define@key{mdf}{#1}[#2]{%
80     \setbool{mdf@#1}{##1}%
81   }%
82 }
```

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

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

```
83 \def\mdf@do@alignoption#1{%
84   \mdf@alignoption@tripledo#1\@nil%
85 }
86 \def\mdf@alignoption@tripledo#1==#2==#3\@nil{%
87   \csdef{mdf@align@#1@left}{\null\hspace*{\#2}}%
88   \csdef{mdf@align@#1@right}{\hspace*{\#3}\null}%
89 }
```

Start declaration of options

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

Only provide to be backward compatible

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

```

98  \ifcase\value{mdf@globalstyle@cnt}\relax
99    \or\mdf@LoadFile@IfExist{tikz}%=1
100   \or\mdf@LoadFile@IfExist{pstricks-add}%=2
101   \or\defcounter{mdf@globalstyle@cnt}{2}%=3
102     \mdf@LoadFile@IfExist{pst-node}%
103     \or\mdf@LoadFile@IfExist{pst-node}%=4
104   \else%>4
105     \mdf@PackageWarning{Unknown global style \value{mdf@globalstyle@cnt}}%
106   \fi%
107 }

```

`\mdf@framemethod`

Defining the global option `framemethod`.

```

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

112 \define@key{mdf}{framemethod}[default]{%
113   \lowercase{\def\mdf@tempa{\#1}}%lowercase not expandable
114   \forcsvlist{\listadd\mdf@framemethod@i}{default,tex,latex,none,0}
115   \forcsvlist{\listadd\mdf@framemethod@ii}{pgf,tikz,1}
116   \forcsvlist{\listadd\mdf@framemethod@iii}{pstricks,ps,2,postscript}
117   \xifinlist{\mdf@tempa}{\mdf@framemethod@i}%
118     {\def\mdf@@framemethod{default}\defcounter{mdf@globalstyle@cnt}{0}}%
119     {\xifinlist{\mdf@tempa}{\mdf@framemethod@ii}%
120       {\def\mdf@@framemethod{tikz}\defcounter{mdf@globalstyle@cnt}{1}}%
121       {\xifinlist{\mdf@tempa}{\mdf@framemethod@iii}%
122         {\def\mdf@@framemethod{pstricks}\defcounter{mdf@globalstyle@cnt}{2}}%
123         {\mdf@LoadFile@IfExist{\#1}}%
124       }%
125     }%
126   \ifcase\value{mdf@globalstyle@cnt}\relax%
127     \or\mdf@LoadFile@IfExist{tikz}%=1
128     \or\mdf@LoadFile@IfExist{pst-node}%=2
129     \or\mdf@LoadFile@IfExist{pst-node}%=3
130   \fi%
131 }

```

`\mdf@do@lengthoption`

Here the declaration of all length options.

```

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

```

```

143 {outermargin==\z@},%
144 {innermargin==\z@},%
145 {linewidth==0.4pt},%
146 {innerlinewidth==\z@},%
147 {middlelinewidth==\expandafter\mdf@linewidth@length},%
148 {outerlinewidth==\z@},%
149 {roundcorner==\z@},%
150 {footenotedistance==\medskipamount},%
151 {userdefinedwidth==\linewidth},%
152 {frametitleaboveskip==5pt},%
153 {frametitlebelowskip==5pt},%
154 {frametitlerulewidth==.2pt},%
155 {frametitleleftmargin==10pt},%
156 {frametitlerightmargin==10pt},%
157 {shadowsize==8pt},%
158 {extratopheight==\z@},%
159 %%%%%%%%%%%%%%%%
160 % %%subtitle / subsubtitle added 29.05.12% %
161 %%%%%%%%%%%%%%%%
162 {subtitleabovelinewidth==.8pt},%
163 {subtitlebelowlinewidth==.6pt},%
164 {subtitleaboveskip==\baselineskip},%
165 {subtitlebelowskip==1.2\baselineskip},%
166 {subtitleinneraboveskip==.5\baselineskip},%
167 {subtitleinnerbelowskip==.5\baselineskip},%
168 %%%%%%%%%%%%%%%%
169 {subsubtitleabovelinewidth==.8pt},%
170 {subsubtitlebelowlinewidth==.6pt},%
171 {subsubtitleaboveskip==\baselineskip},%
172 {subsubtitlebelowskip==1.2\baselineskip},%
173 {subsubtitleinneraboveskip==.5\baselineskip},%
174 {subsubtitleinnerbelowskip==.5\baselineskip},%
175 }

```

\mdf@do@lengthoption

Here the declaration of the string options.

```

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

```

```

194 {printheight==none},%
195 {alignment=={}},%
196 {frametitlealignment=={}},%
197 {theoremseparator=={:}},%
198 {theoremcountersep=={.}},%
199 {theoremtitlefont=={}},%
200 {theoremspace=={\space}},%
201 {singleextra=={}},
202 {firstextra=={}},
203 {middleextra=={}},
204 {secondextra=={}},
205 % %%%%%%%%%%%%%%%%
206 % %%subtitle / subsubtitle added 29.05.12%% %
207 % %%%%%%%%%%%%%%%%
208 {subtitlefont==\normalfont\bfseries},%
209 {subsubtitlefont==\normalfont},%
210 {subtitlebackgroundcolor==white},%
211 {subsubtitlebackgroundcolor==white},%
212 {subtitleabovelinecolor==black},%
213 {subtitlebelowlinecolor==black},%
214 {subsubtitleabovelinecolor==black},%
215 {subsubtitlebelowlinecolor==black},%
216 }

```

\mdf@do@booloption

Here the declaration of all bool options.

```

217 \mdf@do@list{\mdf@do@booloption}{%
218   {ntheorem==false},%
219   {topline==true},%
220   {leftline==true},%
221   {bottomline==true},%
222   {rightline==true},%
223   {frametitletopline==true},%
224   {frametitleleftline==true},%
225   {frametitlebottomline==true},%
226   {frametitlerightline==true},%
227   {frametitlerule==false},%
228   {nobreak==false},%
229   {footnoteinside==true},%
230   {usetwoside==true},%
231   {repeatframetitle==false},%Noch nicht richtig implementiert
232   {shadow==false},%
233   {everyline==false},%
234   {ignorelastdescenders==false},%
235 % %%%%%%%%%%%%%%%%
236 % %%subtitle / subsubtitle added 29.05.12%% %
237 % %%%%%%%%%%%%%%%%
238   {subtitleaboveline==false},
239   {subtitlebelowline==false},
240   {subsubtitleaboveline==false},
241   {subsubtitlebelowline==false},
242   {draft==false},
243   {suppressfirstparskip==true},
244 }

```

```

245 %%special boolflag hidealllines:
246 \newbool{mdf@hidealllines}%
247 \define@key{mdf}{hidealllines}[false]{%
248   \setbool{mdf@hidealllines}{#1}%
249   \ifbool{mdf@hidealllines}{%
250     \kvsetkeys{mdf}{leftline=false,topline=false,%
251                 rightline=false,bottomline=false}%
252   }{}%
253 }

```

\mdf@do@alignoption

Here the declaration of all align options.

```

254 \mdf@do@list{\mdf@do@alignoption}{%
255   {left==\mdf@leftmargin@length==\z@},%
256   {center==\fill==\fill},%
257   {right==\fill==\mdf@rightmargin@length},%
258   {outer==\fill==\mdf@rightmargin@length},%not supported yet
259   {outer==\mdf@leftmargin@length==\fill},%not supported yet
260 }

```

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

Set the alignment.

```

261 \newcommand*\mdf@align{}%
262 \newcommand*\mdf@makeboxalign@left{\null\hspace*{\mdf@leftmargin@length}}%
263 \newcommand*\mdf@makeboxalign@right{}%
264 \define@key{mdf}{align}[left]{%
265   \ifcsundef{mdf@align@#1@left}{%
266     \mdf@PackageWarning{Unknown alignment #1\MessageBreak}%
267     \letcs{\mdf@makeboxalign@left}{\mdf@align@left@left}%
268     \letcs{\mdf@makeboxalign@right}{\mdf@align@left@right}%
269   }{%
270     \def{\mdf@makeboxalign@left}{\csuse{\mdf@align@#1@left}}%
271     \def{\mdf@makeboxalign@right}{\csuse{\mdf@align@#1@right}}%
272   }%
273 }

```

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

Option to pass options to tikz or pstricks

```

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

```

```

283 \def\mdf@psset@local{#1}
284 }
285 \def\mdfpstricks@appendsettings{}
286 \define@key{mdf}{pstricksappsetting}{%
287 \def\mdfpstricks@appendsettings{#1}%
288 }
```

\mdf@xcolor

Problem width xcolor. This part must be reworked!

```

289 \def\mdf@xcolor{}
290 \define@key{mdf}{xcolor}[]{%
291 \def\@tempa{#1}%
292 \@ifpackageloaded{xcolor}{%
293 \let\mdf@xcolor\empty %ignoriere die Eingabe der Optionen
294 \def\@tempa{}%
295 }{}%
296 \ifx\relax\@tempa\relax\else
297 \PassOptionsToPackage{\mdf@xcolor}{xcolor}%
298 \RequirePackage{xcolor}%
299 \fi%
300 }%
```

\mdf@needspace

Defining the option needspace

```

301 \define@key{mdf}{needspace}[{\z@}]{%
302 \begingroup%
303 \setlength{\dimen@}{#1}%
304 \vskip\z@\@plus\dimen@%
305 \penalty -100\vskip\z@\@plus -\dimen@%
306 \vskip\dimen@%
307 \penalty 9999%
308 \vskip -\dimen@%
309 \vskip\z@skip % hide the previous |\vskip| from |\addvspace|
310 \endgroup%
311 }%

312 \DeclareDefaultOption{%
313 \mdf@PackageError{Unknown Option '\CurrentOption' for mdframed}%
314 \ProcessKeyvalOptions*\relax
```

\mdfsetup

Short form of \setkeys{mdf}

```
315 \newrobustcmd*{\mdfsetup}{\kvsetkeys{mdf}}
```

\mdf@style

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

```

316 \define@key{mdf}{style}{%
317 \ifcsundef{mdf@definedstyle@#1}{%
318 \mdf@PackageWarning{Unknown definedstyle #1^}}
```

```

319          You have to define a style ^]
320          via \string\mdfdefinedstyle\MessageBreak
321      }%
322  }%
323  {\expandafter\expandafter\expandafter\mdfsetup\expandafter%
324   \expandafter\expandafter{\csname mdf@definestyle@\#1\endcsname}%
325 }%

```

`\mdf@print@space`

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

```

326 \let\mdf@PackageNoInfo@gobble
327 \newrobustcmd*\mdf@ifstrequal@expand{%
328 \expandafter\ifstrequal\expandafter{\mdf@printheight}%
329 }
330 \newrobustcmd*\mdf@print@space{%
331 %case "none"
332 \mdf@ifstrequal@expand{none}{\def\mdf@tempa{NoInfo}}{%
333 %case "info"
334 \mdf@ifstrequal@expand{info}{\def\mdf@tempa{Info}}{%
335 %case "warning"
336 \mdf@ifstrequal@expand{warning}{\def\mdf@tempa{Warning}}{%
337 %case "unknown"
338 \mdf@PackageWarning{Unknown key for printheight=\mdf@printheight^^J
339           use none, info or warning}%
340 \def\mdf@tempa{none}%
341 }%
342 }%
343 }%
344 \def\mdf@PackageInfoSpace{\csname mdf@Package\mdf@tempa\endcsname}%
345 }

```

`\new...`

Initialize all commands and length which will we used later

```

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

```

```

366
367 \newlength\mdftotallinewidth
368
369 \newlength\mdfboundingboxwidth
370 \newlength\mdfboundingboxtotalwidth
371
372 \newlength\mdfboundingboxheight
373 \newlength\mdfboundingboxdepth
374 \newlength\mdfboundingboxtotalheight
375
376 \newlength\mdf@freevspace@length
377 \newlength\mdf@horizontalwidthofbox@length
378 \newlength\mdf@verticalmarginhole@length
379
380 \newtoggle{mdf@notfirstframetitle}%
381 \togglefalse{mdf@notfirstframetitle}%
382
383
384 % Command to expand the tikz code. (see md-frame-1.mdf)
385 \newrobustcmd\mdfcREATEextratikz{}%
386

```

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

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

```

387 \def\mdf@lrbox#1{%
388 %%patch to work with amsthm
389   \mdf@patchamsthm
390 %%end patch
391   \edef\mdf@restoreparams{%
392     \parindent=\the\parindent\relax \parskip=\the\parskip\relax}%
393   \setbox#1\vbox\bgrouP%
394   \color@begingroup%
395     \mdf@horizontalmargin@equation%
396     \columnwidth=\hsize%
397     \textwidth=\hsize%
398     \let\if@nobreak\iffalse%
399     \let\if@noskipsec\iffalse%
400     \let\par\@@par%
401     \let\-\@dischypH%
402     \let\'\@acci\let\'\@accii\let\=\@acciii%
403     \parindent\z@\parskip\z@skip%
404     \linewidth\hsize%
405     \totallleftmargin\z@%
406     \leftskip\z@skip \rightskip\z@skip \rightskip\z@skip%
407     \parfillskip\@flushglue \lineskip\normalineskip%
408     \baselineskip\normalbaselineskip%
409 %% \sloppy%
410     \let\\@normalcr%
411     \mdf@restoreparams\relax%
412     \afterindentfalse%
413     \afterheading%
414 }
415
416 \def\endmdf@lrbox{\color@endgroup\egroup}

```

417

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

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

```
418 \newrobustcmd*\mdf@ignorevbadness{%
419   \edef\mdf@currentvbadness{\the\vbadness}%
420   \vbadness=\@M%
421   \afterassignment\mdf@restorevbadness}
422 \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`.

```
423 \@ifpackageloaded{amsthm}%
424 {%
425   \newrobustcmd\mdf@patchamsthm{%
426     \let\mdf@deferred@thm@head\deferred@thm@head
427     \pretocmd{\deferred@thm@head}{\inlabelfalse}%
428       {\mdf@PackageInfo{mdframed detected package amsthm ^^J
429         changed the theorem header of amsthm\MessageBreak}%
430     }{%
431       \mdf@PackageError{mdframed detected package amsthm ^^J
432         changed the theorem header of amsthm
433         failed\MessageBreak}%
434     }%
435   }%
436 }{\let\mdf@patchamsthm\relax}%
```

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

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

```
437 \def\mdf@trivlist#1{%
438   \edef\x{\topsep=\the\topsep\relax\partopsep=\the\partopsep\relax\parsep=\the\parsep\relax}%
439   \setlength{\topsep}{#1}%
440   \partopsep\z@%
441   \parsep\z@%
442   \nmbrlstfalse%
443   \trivlist%
444   \labelwidth\z@%
445   \leftmargin\z@%
446   \itemindent\z@%
447   \let\itemlabel\empty%
448   \def\makelabel##1{##1}%
449   \item\relax\x\relax\leavevmode\hrule\height\z@\width\linewidth\relax%
450 %% \item\mbox{} relax% second version
451 %% \item\relax\x% first Version
452 }
453 \let\endmdf@trivlist\endtrivlist
454 \patchcmd\endmdf@trivlist\endparentenv\mdf@endparentenv{%
455   \wlog{^J***** mdframed patching \string\endmdf@trivlist}%
}
```

```

456 \wlog{^^J***** -- success*****^^J}%
457 }{%
458 \wlog{^^J***** mdframed patching \string\endmdf@trivlist}%
459 \wlog{^^J***** -- failed*****^^J}%
460 }
461 \def\mdf@endparentenv{%
462 \addpenalty\@endparpenalty\addvspace\mdf@skipbelow@length\@endpentrue}
463

```

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

```

464 \newrobustcmd*\mdf@makebox@out[2][\linewidth]{%
465 \noindent\hb@xt@\z@{%
466 \noindent\makebox[\dimexpr #1\relax][l]{#2}%
467 \hss}%
468 }%
469 \newrobustcmd*\mdf@makebox@in[2][\mdf@userdefinedwidth@length]{%
470 \noindent\makebox[\dimexpr #1\relax][l]{#2}%
471 }

```

```
\mdfdefinestyle
\mdfapptodefinestyle
```

See explanation of this commands in the main documentation.

```

472 \newrobustcmd*\mdfdefinestyle[2]{%
473 \csdef{mdf@definestyle@#1}{#2}%
474 }
475 \newrobustcmd*\mdfapptodefinestyle[2]{%
476 \ifcsundef{mdf@definestyle@#1}%
477 {\mdf@PackageWarning{Unknown style #1}}%
478 {\csappto{mdf@definestyle@#1}{,#2}}%
479 }

```

```
\mdflength
\surroundwithmdframed
```

Helper macros to work with mdframed

```

480 \newrobustcmd*\{\mdflength}[1]{\csuse{mdf@#1@length}}
481
482 \newrobustcmd*\{\surroundwithmdframed}[2][]{%
483 \BeforeBeginEnvironment{#2}{\begin{mdframed}[#1]}%
484 \AfterEndEnvironment{#2}{\end{mdframed}}%
485 }

```

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

Defining of the new environment definitions.

```

486 \newrobustcmd*\newmdenv[2][]{%
487 \newenvironment{#2}{%

```

```

488     \mdfsetup{#1}%
489     \begin{mdframed}%
490     }{%
491     \end{mdframed}%
492   }%
493 }
494 \newrobustcmd*\renewmdenv[2][]{%
495   \expandafter\let\csname #2\endcsname\relax%
496   \expandafter\let\csname end#2\endcsname\relax%
497   \newmdenv[#1]{#2}%
498 }

```

Definitions of the standard Theorems surrounded by `mdframed`.

```

499 \DeclareDocumentCommand\newmdtheoremenv{0{} m o m o }{%
500   \ifboolexpr{ test {\IfNoValueTF {#3}} and test {\IfNoValueTF {#5}} }{%
501     \newtheorem{#2}{#4}%
502     \IfValueTF{#3}{\newtheorem{#2}[#3]{#4}}{}%
503     \IfValueTF{#5}{\newtheorem{#2}{#4}[#5]}{}%
504   }%
505   \BeforeBeginEnvironment{#2}{%
506     \begin{mdframed}[#1]%
507   \AfterEndEnvironment{#2}{%
508     \end{mdframed}}%
509 }

```

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

```

510 \newrobustcmd*\mdf@thm@caption[2]{}%
511 \AtBeginDocument{%
512   \@ifpackageloaded{ntheorem}{%
513     \renewrobustcmd*\mdf@thm@caption{\thm@thmcaption}{}%
514   }

```

Defining a complete new theorem set by `mdframed`

```

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

```

```

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

```

```

596      \begin{mdframed}[\#1,frametitle={\strut#4@\temptitle}]%
597      {\end{mdframed}}%
598  }%
599 }%
600 }%
601

```

```

\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!!!**

```

602 \newrobustcmd\mdfframedtitleenv[1]{%
603     \mdf@lrbox{\mdf@frametitlebox}%
604     \mdf@frametitlealignment%
605     \leavevmode\color{\mdf@frametitlefontcolor}%
606     \normalfont\mdf@frametitlefont{\#1}

```

Trying to ignore last descenders of the environment.

```

607     \ifbool{\mdf@ignorelastdescenders}{%
608         {%
609             \par\strut\par
610             \unskip\unskip\setbox0=\lastbox
611             \vspace*{\dimexpr\ht\strutbox-\baselineskip\relax}%
612         }{}%
613         \par\unskip\ifvmode\nointerlineskip\hrule\@height\z@\@width\hsize\fi%
614
615         \endmdf@lrbox\relax%
616         \mdf@ignorevbadness%
617         \setbox\mdf@frametitlebox=\vbox{\unvbox\mdf@frametitlebox}%
618         \mdfframetitleboxwidth=\wd\mdf@frametitlebox\relax%
619         \mdfframetitleboxheight=\ht\mdf@frametitlebox\relax%
620         \mdfframetitleboxdepth=\dp\mdf@frametitlebox\relax%
621         \mdfframetitleboxtotalheight=\dimexpr
622                         \ht\mdf@frametitlebox
623                         +\dp\mdf@frametitlebox%
624                         +\mdf@frametitleaboveskip@length
625                         +\mdf@frametitlebelowskip@length
626                         \relax%
627     }
628 \newrobustcmd*\mdf@frametitle{%
629     \mdfframedtitleenv{\mdf@frametitle}%
630 }
631
632 \newrobustcmd*\mdf@@frametitle@use{%
633     \parskip\z@\relax%
634     \parindent\z@\relax%
635     \mdf@ignorevbadness%
636     \setbox\mdf@splitbox@one=\vbox{%
637         \offinterlineskip\relax%
638         \unvcopy\mdf@frametitlebox\relax%
639         \mdf@frametitlerule\relax%
640         \unvbox\mdf@splitbox@one\relax%
641     }%

```

```

642  \mdf@ignorevbadness%
643  \setbox\mdf@splitbox@one=\vbox{\unvbox\mdf@splitbox@one}%
644  \mdfsetup{innertopmargin=\mdf@frametitleaboveskip@length}%
645 }

```

`\mdf@checkntheorem`

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

```

646 \newrobustcmd*\mdf@checkntheorem{%
647   \ifbool{mdf@ntheorem}{%
648     {\ifundef{\theorempreskipamount}{%
649       {\mdf@PackageWarning{You have not loaded ntheorem yet}}{%
650         {\setlength{\theorempreskipamount}{\z@}}{%
651           \setlength{\theorempostskipamount}{\z@}}{%
652             }{%
653           }{}}{%
654         }
655       }
656     }
657   }
658 }

```

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

Support for footnotes. See source2e.

```

655 \newrobustcmd*\mdf@footnoterule{%
656   \kern0\p@%
657   \hrule\@width 1in \kern 2.6\p@}
658 \newrobustcmd*\mdf@footnoteoutput{%
659   \ifvoid\@mpfootins\else{%
660     \nobreak%
661     \vskip\mdf@footnotedistance@length%
662     \normalcolor%
663     \mdf@footnoterule%
664     \unvbox\@mpfootins%
665   }\fi%
666 }
667 \newrobustcmd*\mdf@footnoteinput{%
668   \def\@mpfn{\mpfootnote}%
669   \def\thempfn{\thempfootnote}%
670   \c@mpfootnote\z@%
671   \let\@footnotetext\@mpfootnotetext%
672 }

```

`\mdf@load@style`

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

```

673 \newrobustcmd*\mdf@load@style{%
674 \ifcase\value{mdf@globalstyle@cnt}\relax%
675   \input{md-frame-0.mdf}%
676   \or\input{md-frame-1.mdf}%
677   \or\input{md-frame-2.mdf}%
678   \or\input{md-frame-3.mdf}%
679 \else%
680   \IfFileExists{md-frame-\value{mdf@globalstyle@cnt}.mdf}{%
681     {\input{md-frame-\value{mdf@globalstyle@cnt}.mdf}}{%
682   }
683 }
684 }

```

```

682   {%
683     \input{md-frame-0.mdf}%
684     \mdf@PackageWarning{The style number \value{mdf@globalstyle@cnt}%
685                           does not exist^^J
686                           mdframed uses instead style=0 \mdframedpackagename}%
687   }%
688 \fi%
689 }%
690 \mdf@load@style

```

`\mdf@styledefinition`

The default frame method needs special handling.

```

691 \newrobustcmd*\mdf@styledefinition{\AVOID!!!Needed for framemethod=default
692   \ifnumequal{\value{mdf@globalstyle@cnt}}{0}{%
693     {\def\length{\mdf@innerlinewidth@length}{\z@}%
694      \def\length{\mdf@middlelinewidth@length}{\mdf@linewidth@length}%
695      \def\length{\mdf@outerlinewidth@length}{\z@}%
696      \let\mdf@innerlinecolor\mdf@linecolor%
697      \let\mdf@middlelinecolor\mdf@linecolor%
698      \let\mdf@outerlinecolor\mdf@linecolor%
699    }{}%
700 }

```

`\detected@mdf@put@frame`

Detect whether inside a non breakable environment.

```

701 \let\mdf@reserved@a@\empty
702 \newrobustcmd*\detected@mdf@put@frame{%
703   \ifmdf@nobreak%Option nobreak=true?
704     \def\mdf@reserved@a{\mdf@put@frame@standalone}%
705   \else
706     \def\mdf@reserved@a{\mdf@put@frame}%
707     \ifx@\capttype@\undefined
708       \def\mdf@reserved@a{\mdf@put@frame}%
709     \else
710       \mdf@PackageInfo{mdframed inside float ^^J
711                               mdframed uses option nobreak \mdframedpackagename}%
712       \def\mdf@reserved@a{\mdf@put@frame@standalone}%
713   \fi
714   \if@minipage%
715     \mdf@PackageInfo{mdframed inside minipage ^^J
716                               mdframed uses option nobreak \mdframedpackagename}%
717     \def\mdf@reserved@a{\mdf@put@frame@standalone}%
718   \fi%
719   \ifinner%
720     \mdf@PackageInfo{mdframed inside a box ^^J
721                               mdframed uses option nobreak \mdframedpackagename}%
722     \def\mdf@reserved@a{\mdf@put@frame@standalone}%
723   \fi%
724 \fi%
725 \mdf@reserved@a%
726 }

```

\mdf@envdepth

Setting up a counter for the depth of the environment. Nesting of two `mdframed` environments isn't recommended but I am trying to support the basic rules.

```
727 \newcount\mdf@envdepth \mdf@envdepth=0
728 \@definecounter{mdf@env@i}
729 \@definecounter{mdf@env@ii}
```

\mdframed

The user environment.

```
730 \newenvironment{mdframed}[1][]{%
```

Make everything local

```
731 \color@begingroup%
```

Set all options

```
732 \mdfsetup{userdefinedwidth=\linewidth,#1}%
733 \mdf@twoside@checklength%
734 \let\width\z@%
735 \let\height\z@%
736 \mdf@checkntheorem%
```

Draft mode

```
737 \ifbool{mdf@draft}{%
738   {%
739     \ifdimgreater{\overfullrule}{0pt}{}{\setlength\overfullrule{5pt}}%
740   }%
741 }
```

Nesting environments and provide an extra counter.

```
741 \ifnum\mdf@envdepth >\tw@ \atodeep\else
742   \advance\mdf@envdepth\@ne
743   \edef\mdf@depthctr{\mdf@env@\romannumeral\the\mdf@envdepth}%
744 \fi

745 \mdf@styledefinition%
746 \mdf@footnoteinput%
747 \color{\mdf@fontcolor}%
748 \mdf@font%
749 \ifvmode\nointerlineskip\fi%
750 \mdf@trivlist{\mdf@skipabove@length}%
751 \ifdefempty{\mdf@frametitle}{}{\mdf@frametitle}%
```

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

```
752 \mdf@settings%
```

`\parskip` is added to the first skip. Here the first skip will be removed from the length `innertopmargin`. See <http://tex.stackexchange.com/questions/100570/why-is-parskip-half-messing-up-the-spacing-in-mdframed>

```
753 \ifbool{mdf@suppressfirstparskip}{\addtolength{\mdf@innertopmargin@length}{-\parskip}}{}
```

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

```
754 \mdf@lrbox{\mdf@splitlex@one}%
755 }%
756 {%
```

Trying to ignore last descenders of the environment.

```
757 \ifbool{mdf@ignorelastdescenders}{%
758   {%
759     \par\strut\par
760     \unskip\unskip\setbox0=\lastbox
```

```

761      \vspace*{\dimexpr\ht\strutbox-\baselineskip\relax}%
762      }{}}%
763      \par\unskip\ifvmode\nointerlineskip\hrule\@height\z@\@width\hsize\fi%
End save box in relation to footnotes
764      \ifmdf@footnoteinside%
765          \def\mdf@reserveda{%
766              \mdf@footnoteoutput%
767              \endmdf@lrbox%
768              \ifdefempty{\mdf@frametitle}{}{\mdf@@frametitle@use}%
769              \detected@mdf@put@frame}%
770      \else%
771          \def\mdf@reserveda{%
772              \endmdf@lrbox%
773              \ifdefempty{\mdf@frametitle}{}{\mdf@@frametitle@use}%
774              \detected@mdf@put@frame%
775              \mdf@footnoteoutput%
776          }%
777      \fi%
778      \mdf@reserveda%
779      \endmdf@trivlist%
End group and set the command \doendpe to behave like \end{center}
780 \color@endgroup\doendpe%
781 }
782

```

```
\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.

```

783 \newtoggle{md:checktwoside}
784 \settoggle{md:checktwoside}{false}
785 \newrobustcmd*\mdf@twoside@checklength{%
786     \if@twoside
787         \ifboole{mdf@usetwoside}{%
788             {\mdf@PackageInfo{mdframed works in twoside mode}%
789             \settoggle{md:checktwoside}{true}%
790             \setlength\mdf@rightmargin@length{\mdf@outermargin@length}%
791             \setlength\mdf@leftmargin@length{\mdf@innermargin@length}%
792         }%
793         {\mdf@PackageInfo{mdframed inside twoside mode but\MessageBreak
794             works with oneside mode}%
795             \settoggle{md:checktwoside}{false}%
796         }%
797     \fi%
798 }
799
800 \newcounter{mdf@zref@counter}%keine doppelten laebes
801 \zref@newprop*[mdf@pagevalue][0]{\number\value{page}}
802 \zref@addprop{\ZREF@mainlist}{mdf@pagevalue}
803 \newrobustcmd*\mdf@zref@label{%
804     \stepcounter{mdf@zref@counter}
```

```

805   \zref@label{mdf@pagelabel-\number\value{mdf@zref@counter}}%
806 }
807 \newrobustcmd*\if@mdf@pageodd{%
808   \zref@refused{mdf@pagelabel-\the\value{mdf@zref@counter}}%
809   \ifodd\zref@extract{mdf@pagelabel-\the\value{mdf@zref@counter}}%
810     {mdf@pagevalue}%
811   \setlength\mdf@rightmargin@length{\mdf@outermargin@length}%
812   \setlength\mdf@leftmargin@length{\mdf@innermargin@length}%
813 \else
814   \setlength\mdf@rightmargin@length{\mdf@innermargin@length}%
815   \setlength\mdf@leftmargin@length{\mdf@outermargin@length}%
816 \fi%
817 }
818 \newrobustcmd*\mdf@setzref{%
819   \iftoggle{md:checktwoside}{\mdf@zref@label\if@mdf@pageodd}{}%
820 }

```

`\mdf@freepagevspace`

```
821 \newrobustcmd*\mdf@freepagevspace{%
```

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

```

822   \bgroup\nobreakfalse\addpenalty\z@\egroup%added 29.5.12
823   \penalty\@M\relax\vskip 2\baselineskip\relax%
824   \penalty9999\relax\vskip -2\baselineskip\relax%
825   \penalty9999%
826   \ifdim\equal{\pagegoal}{\maxdimen}%
827     {\mdf@freevspace@length\vsiz}%
828     {\mdf@freevspace@length=\pagegoal\relax%
829      \advance\mdf@freevspace@length by -\pagetotal\relax%
830      \addtolength\mdf@freevspace@length{\dimexpr-\parskip\relax}\relax}%
831   }%
832 }
```

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

Command used for loop

```

833 \newrobustcmd*\mdf@advancelength@horizontalmargin@sub[1]{%
834   \advance\mdf@horizontalspaceofbox by -\csname mdf@#1@length\endcsname\relax%
835 }
```

Compute the width of the box

```

836 \newlength\mdf@horizontalspaceofbox
837 \newrobustcmd*\mdf@horizontalmargin@equation{%
838   \setlength{\mdf@horizontalspaceofbox}{\mdf@userdefinedwidth@length}%
839   \mdf@doelist{\mdf@advancelength@horizontalmargin@sub}{%
840     leftmargin,outerlinewidth,middlelinewidth,%
841     innerlinewidth,innerleftmargin,inerrightmargin,%
842     innerlinewidth,middlelinewidth,outerlinewidth,%
843     rightmargin}%
844   \notbool{mdf@leftline}%
845   {}%
```

```

846      \advance\mdf@horizontal spaceofbox by \mdf@inner linewidth@length\relax%
847      \advance\mdf@horizontal spaceofbox by \mdf@middle linewidth@length\relax%
848      \advance\mdf@horizontal spaceofbox by \mdf@outer linewidth@length\relax%
849  }{}}%
850 \notbool{\mdf@rightline}{%
851   {%
852     \advance\mdf@horizontal spaceofbox by \mdf@inner linewidth@length\relax%
853     \advance\mdf@horizontal spaceofbox by \mdf@middle linewidth@length\relax%
854     \advance\mdf@horizontal spaceofbox by \mdf@outer linewidth@length\relax%
855   }{}}%
856 \ifdimless{\mdf@horizontal spaceofbox}{3cm}{%
857   {\PackageWarning{\You have only a width of 3cm}}{}}%
858 \hsize=\mdf@horizontal spaceofbox%
859 }

```

`\mdf@keeplines@single`

Space in relation of horizontal lines.

```

860 \newrobustcmd*\mdf@keeplines@single{%
861   \notbool{\mdf@topline}{%
862     {%
863       \advance\mdf@vertical marginhole@length %
864         by -\mdf@inner linewidth@length\relax%
865       \advance\mdf@vertical marginhole@length %
866         by -\mdf@middle linewidth@length\relax%
867       \advance\mdf@vertical marginhole@length %
868         by -\mdf@outer linewidth@length\relax%
869     }{}}%
870 \notbool{\mdf@bottomline}{%
871   {%
872     \advance\mdf@vertical marginhole@length %
873       by -\mdf@inner linewidth@length\relax%
874     \advance\mdf@vertical marginhole@length %
875       by -\mdf@middle linewidth@length\relax%
876     \advance\mdf@vertical marginhole@length %
877       by -\mdf@outer linewidth@length\relax%
878   }{}}%
879 }

```

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

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

```

880 \newrobustcmd*\mdf@advancelength@verticalmarginhole[1]{%
881   \advance\mdf@vertical marginhole@length %
882     by \csname mdf@#1@length\endcsname\relax%
883 }%
884 \newrobustcmd*\mdf@advancelength@freevspace@sub[1]{%
885   \advance\dimen@ by -\csname mdf@#1@length\endcsname\relax%
886 }%
887 \newrobustcmd*\mdf@advancelength@freevspace@add[1]{%
888   \advance\dimen@ by \csname mdf@#1@length\endcsname\relax%
889 }

```

Reset changes

```
890 \protected@edef\mdf@reset{\boxmaxdepth\the\boxmaxdepth
891           \splittopskip\the\splittopskip}%
```

Output of **mdframed** inside a non breakable environment.

```
892 \newrobustcmd*\mdf@put@frame@standalone{\relax%
893   \ifvoid\mdf@splitbox@one\relax
894     \mdf@PackageWarning{The environment is empty\MessageBreak}%
895     \let\mdf@reserved@a\relax%
896   \else
897     %Hier berechnung Box-Inhalt+Rahmen oben und unten
898     \setlength{\mdf@verticalmarginwhole@length}{%
899       \dimexpr\ht\mdf@splitbox@one+\dp\mdf@splitbox@one\relax}%
900     \mdf@dolist{\mdf@advancelength@verticalmarginwhole}{%
901       outerlinewidth,middlelinewidth,innerlinewidth,%  

902       innertopmargin,innerbottommargin,innerlinewidth,%  

903       middlelinewidth,outerlinewidth}%
904     \mdf@keeplines@single%
905     \def\mdf@reserved@a{\mdf@putbox@singl}%
906   \fi
907   \mdf@reserved@a%
908 }
```

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

```
909 \def\mdf@put@frame{\relax%
910 \ifvoid\mdf@splitbox@one\relax
911   \mdf@PackageWarning{The environment is empty\MessageBreak}%
912   \let\mdf@reserved@a\relax%
913 \else
914   \setlength\mdfboundingboxwidth{\wd\mdf@splitbox@one}%
915   \mdf@print@space%
916   \mdf@freevpagevspace%gives \mdf@freevspace@length
917   \mdf@PackageInfoSpace{\the\mdf@freevspace@length before the
918     beginning of \MessageBreak
919     the environment ending on input line \MessageBreak}%
920   \ifdimless{\mdf@freevspace@length}{2\baselineskip}
921     {%
922       \mdf@PackageInfo{Not enough space on this page}
923       \vfill\eject%
924       \def\mdf@reserved@a{\mdf@put@frame}%
925     }{%
926       %Hier berechnung Box-Inhalt+Rahmen oben und unten
927       \setlength{\mdf@verticalmarginwhole@length}{%
928         \dimexpr\ht\mdf@splitbox@one+\dp\mdf@splitbox@one\relax}%
929       \mdf@dolist{\mdf@advancelength@verticalmarginwhole}{%
930         {%
931           outerlinewidth,middlelinewidth,innerlinewidth,%
```

```

932         innertopmargin,innerbottommargin,%
933         innerlinewidth,middlelinewidth,outerlinewidth}%
934     \mdf@keeplines@single%
935     \ifdimless{\mdf@verticalmarginwhole@length}{\mdf@freevspace@length}%
936         {%
937             \begingroup\mdf@setzref\mdf@putbox@single\endgroup%Output no break
938             \let\mdf@reserved@a\relax%
939         }%
940         {%
941             \def\mdf@reserved@a{\mdf@put@frame@i}%
942             passt nicht auf Seite
943         }%
944     }%
945 \mdf@reserved@a%
946 }

```

`\mdf@put@frame@i`

Output of the first splitted box.

```

947 \def\mdf@put@frame@i{%
Box must be splitted
Compute the vertical free space of the current page

```

948 \mdf@freepagevspace%gives \mdf@freevspace@length

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

```

949 \dimen@=\the\mdf@freevspace@length\relax%
950 \dimen@i=\mdf@innertopmargin@length\relax%
951 \advance\dimen@i by \mdf@innerlinewidth@length\relax%
952 \advance\dimen@i by \mdf@middlelinewidth@length\relax%
953 \advance\dimen@i by \mdf@outerlinewidth@length\relax%
954 \advance\dimen@i by 2\baselineskip\relax%
955 \ifdimless{\dimen@}{\dimen@i}%

```

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

```

956 {\hrule \height\z@ \width\hsize%
957 \vfill\eject%
958 \def\mdf@reserved@a{\mdf@put@frame}%
959 }%

```

The page has enough space.

```

960 {%
compute the needed vertical space of the first frame. Subtract the dimension of the bottom frame

```

```

961 \mdf@dolist{\mdf@advancelength@freevspace@sub}{%
calculate with \dimen@
962 outerlinewidth,middlelinewidth,innerlinewidth,%
963 innertopmargin,splitbottomskip}%

```

Reduce vertical space if option `everyline` is set to `true`

```

964 \ifbool{mdf@everyline}%
965 {%
966 \ifbool{mdf@bottomline}%
967 {%
968 \advance\dimen@ by -\mdf@innerlinewidth@length%
969 \advance\dimen@ by -\mdf@middlelinewidth@length%
970 \advance\dimen@ by -\mdf@outerlinewidth@length%
971 }{}%
972 }{}%

```

Add vertical space if option `topline` is set to `false`

```
973 \notbool{mdf@topline}%
974   {%
975     \advance\dimen@ by \mdf@innerlinewidth@length%
976     \advance\dimen@ by \mdf@middlelinewidth@length%
977     \advance\dimen@ by \mdf@outerlinewidth@length%
978   }{}
```

Add a length of 0.8\pagesshrink . I don't know whether it's needed!

```
979 \advance\dimen@.8\pagesshrink
```

Test whether the contents has enough space and the last frame will be empty

```
980 \ifdimless{\ht\mdf@splitbox@one+\dp\mdf@splitbox@one}{\dimen@}%
981   {\mdf@PackageWarning{You got a bad break\MessageBreak
982     because the last box will be empty\MessageBreak
983     you have to change it manually\MessageBreak
984     by changing the text, the space\MessageBreak
985     or something else}%
986   \advance\dimen@ by -1.8\baselineskip\relax%needed?????????????????????
987 }
```

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

```
988 \setbox\mdf@splitbox@save=\vbox{\unvcopy\mdf@splitbox@one}%
989 \splitmaxdepth\z@\splittopskip\mdf@splittopskip@length%
990 \mdf@ignorevbadness%
991 \setbox\mdf@splitbox@two\vsplit\mdf@splitbox@one to \dimen@%
992 \setbox\mdf@splitbox@two\vbox{\unvbox\mdf@splitbox@two}%
993 \setbox\mdf@splitbox@one\vbox{\unvbox\mdf@splitbox@one}%
```

Test whether the splitted box fits the required dimension

```
994 \ifdimgreater{\ht\mdf@splitbox@two+\dp\mdf@splitbox@two}{\dimen@}%
995   {%
996     \mdf@PackageInfo{Box was splitted wrong^^J
997       starting loop to iterate
998       the splitting point\MessageBreak}%
999 }
```

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

```
999 \setbox\mdf@splitbox@one=\vbox{\unvcopy\mdf@splitbox@save}%
```

Start loop until splitting fits – break after 100 attempts

```
1000 \dimen@i=\dimen@% \relax
1001 @tempcnta=\z@ \relax
1002 \loop
1003   \ifdim\dimexpr\ht\mdf@splitbox@two+\dp\mdf@splitbox@two\relax>\dimen@
1004     \advance\dimen@i by -\p@\relax
1005     \advance@tempcnta by \@ne \relax
1006   %% \wlog{***mdframed \string\@tempcnta=\the\@tempcnta***}
1007   %% \wlog{***mdframed \string\dimen@i=\the\dimen@i***}
1008   \mdf@ignorevbadness%
1009   \setbox\mdf@splitbox@one=\vbox{\unvcopy\mdf@splitbox@save}%
1010   \splitmaxdepth\z@\splittopskip\mdf@splittopskip@length%
1011   \mdf@ignorevbadness%
1012   \setbox\mdf@splitbox@two\vsplit\mdf@splitbox@one to \dimen@i\relax%
1013   \setbox\mdf@splitbox@two\vbox{\unvbox\mdf@splitbox@two}%
1014   \setbox\mdf@splitbox@one\vbox{\unvbox\mdf@splitbox@one}%
1015   \ifnum@tempcnta>100
```

```

1016         \let\iterate\relax
1017         \mdf@PackageWarning{correct box splittet fails^^J
1018                         It seems you are using a non splittable
1019                         contents\MessageBreak}
1020         \setbox\mdf@splitbox@one=\vbox{\unvcopy\mdf@splitbox@save}%
1021         \setbox\mdf@splitbox@two=\vbox{}%
1022         \def\mdf@reserved@a{\mdf@put@frame}%
1023     \fi
1024     \repeat%
1025 }{}%
```

Test if the last frame is empty

```

1026 \ifvoid\mdf@splitbox@one\relax%
1027   \mdf@PackageWarning{You got a bad break because the splittet box
1028     is empty^^J
1029     You have to change the page settings^^J
1030     like \enlargethispage or something else^^J
1031     the package increases do
1032       \enlargethispage{\baselineskip}\MessageBreak}%
1033   \setbox\mdf@splitbox@one=\vbox{\unvcopy\mdf@splitbox@save}%
1034   \enlargethispage{\baselineskip}%
1035   \def\mdf@reserved@a{\mdf@put@frame}%
1036 \fi%
```

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

```

1037 \ifdim\wd\mdf@splitbox@two=\wd\mdf@splitbox@one\relax
1038 \else%
1039   \mdf@PackageInfo{You first box width is to small^^J
1040     mdframed fixed it\MessageBreak}%
1041   \setbox\mdf@splitbox@two=\vbox{%
1042     \%
1043     \hrule \height\z@\width\mdfboundingboxwidth\relax
1044     \unvcopy\mdf@splitbox@two%
1045   }%
1046 \fi%
```

Test if the first frame is empty

```

1047 \ifvoid\mdf@splitbox@two\relax%
1048   {\hrule \height\f@size \width\z@%
1049   \hrule \height\z@\width\hsize}%
1050   \setbox\mdf@splitbox@one=\vbox{\unvcopy\mdf@splitbox@save}%
1051   \def\mdf@reserved@a{\mdf@put@frame}%
1052 \else%
1053   \ifdim\ht\mdf@splitbox@two=0pt%
1054     {\hrule \height\z@\width\hsize%
1055     \vfill\eject%
1056     \setbox\mdf@splitbox@one=\vbox{\unvcopy\mdf@splitbox@save}%
1057     \def\mdf@reserved@a{\mdf@put@frame}%
1058   }%
1059 }
```

Output of the first frame

```

1060   \begingroup\mdf@@setzref\mdf@putbox@first\endgroup%
1061   \hrule \height\z@\width\hsize%
1062   \vfill\eject%
1063   \def\mdf@reserved@a{\mdf@put@frame@ii}%

1064 }%
1065 \fi%
```

```

1066    }%
1067 \mdf@reserved@a%
1068 }

```

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

Output of the middle and last box.

```
1069 \def\mdf@put@frame@ii{%
```

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

```
1070 \setlength{\mdf@freevspace@length}{\vsize}%

```

repeating frame title must be improved

```
1071 \ifbool{mdf@repeatframetitle}{%
1072   {%

```

Remember that the first title was printed

```
1073   \toggletrue{mdf@notfirstframetitle}%

```

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

```
1074   \splitmaxdepth{z@ \splittopskip{z@%
1075     \setbox\mdf@splitbox@one=\vbox{\break\unvbox\mdf@splitbox@one}%
1076     \mdf@ignorevbadness%
1077     \setbox\mdf@splitbox@one=\vsplit\mdf@splitbox@one to \z@\relax%
1078     \setbox\mdf@splitbox@one=\vbox{\unvbox\mdf@splitbox@one}%

```

combine frame title with the contents of mdframed

```
1079   \setbox\mdf@splitbox@one\vbox{%
1080     {%
1081       \vbox to \mdf@frametitleaboveskip@length{}%
1082         \unvcopy\mdf@frametitlebox\relax%
1083         \mdf@frametitlerule\relax%
1084         \unvbox\mdf@splitbox@one\relax%
1085     }%
1086   \setbox\mdf@splitbox@one=\vbox{\unvbox\mdf@splitbox@one}%
1087 }{%

```

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

```
1088 \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

```
1089 \mdf@dolist{\mdf@advancelength@freevspace@add}{%
1090   {%
1091     \innerbottommargin,\innerlinewidth,\middlelinewidth,\outerlinewidth,%
1092   }%

```

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

```
1093 \ifbool{mdf@everyline}{%
1094   {%
1095     \ifbool{mdf@topline}{%
1096       {%
1097         \advance\dimen@ by \mdf@innerlinewidth@length\relax%
1098         \advance\dimen@ by \mdf@middlelinewidth@length\relax%
1099         \advance\dimen@ by \mdf@outerlinewidth@length\relax%
1100       }{%
1101     }{%
1102   }{%
1103 }
```

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

```
1102 \notbool{\mdf@bottomline}{%
1103   {%

```

```

1104     \advance\dimen@ by -\mdf@innerlinewidth@length\relax%
1105     \advance\dimen@ by -\mdf@middlelinewidth@length\relax%
1106     \advance\dimen@ by -\mdf@outerlinewidth@length\relax%
1107     \relax%
1108 }{}}%

```

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

```

1109 \ifdimgreater{\dimen@}{\mdf@freevspace@length}%
1110   {%

```

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

```

1111   \advance\mdf@freevspace@length by -\mdf@splitbottomskip@length\relax%
1112   \ifbool{\mdf@everyline}%
1113     {%
1114       \ifbool{\mdf@topline}%
1115         {%
1116           \advance\mdf@freevspace@length by -\mdf@innerlinewidth@length\relax%
1117           \advance\mdf@freevspace@length by -\mdf@middlelinewidth@length\relax%
1118           \advance\mdf@freevspace@length by -\mdf@outerlinewidth@length\relax%
1119         }{}}%
1120   \ifbool{\mdf@bottomline}%
1121     {%
1122       \advance\mdf@freevspace@length by -\mdf@innerlinewidth@length\relax%
1123       \advance\mdf@freevspace@length by -\mdf@middlelinewidth@length\relax%
1124       \advance\mdf@freevspace@length by -\mdf@outerlinewidth@length\relax%
1125       \relax%
1126     }{}}%
1127 }{}}%

```

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

```

1128 \setbox\mdf@splitbox@save=\vbox{\unvcopy\mdf@splitbox@one}%
1129 \splitmaxdepth\z@\splittopskip\mdf@splittopskip@length%
1130 \mdf@ignorebadness%
1131 \setbox\mdf@splitbox@two\vsplit\mdf@splitbox@one to \mdf@freevspace@length%
1132 \setbox\mdf@splitbox@two\vbox{\unvbox\mdf@splitbox@two}%
1133 \setbox\mdf@splitbox@one\vbox{\unvbox\mdf@splitbox@one}%

```

Test whether the splitted box fits the required dimension

```

1134 \ifdimgreater{\ht\mdf@splitbox@two+\dp\mdf@splitbox@two}%
1135   {\mdf@freevspace@length}%
1136   {%
1137     \mdf@PackageInfo{Box was splitted wrong^J%
1138                   starting loop to iterate%
1139                   the splitting point\MessageBreak}%

```

Start loop until splitting fits – break after 100 attempts

```

1140   \dimen@i=\mdf@freevspace@length\relax%
1141   \tempcnta=\z@\relax%
1142   \loop%
1143     \ifdim\dimexpr\ht\mdf@splitbox@two+\dp\mdf@splitbox@two\relax>%
1144       \mdf@freevspace@length\relax%
1145       \advance\dimen@i by -\p@\relax%
1146       \advance\tempcnta by \ne\relax%
1147     \wlog{***mdframed \string\@tempcnta=\the\@tempcnta***}%
1148     \wlog{***mdframed \string\dimen@i=\the\dimen@i***}%

```

```

1149      \ifnum@\tempccta>100
1150          \let\iterate\relax%
1151          \mdf@PackageWarning{correct box splittet fails^^J
1152                          It seems you are using a non splittable
1153                          contents\MessageBreak}%
1154      \fi
1155      \mdf@ignorevbadness%
1156      \setbox\mdf@splitbox@one=\vbox{\unvcopy\mdf@splitbox@save}%
1157      \splitmaxdepth\z@\ \splittopskip\mdf@splittopskip@length%
1158      \mdf@ignorevbadness%
1159      \setbox\mdf@splitbox@two\vsplit\mdf@splitbox@one to \dimen@i\relax%
1160      \setbox\mdf@splitbox@two\vbox{\unvbox\mdf@splitbox@two}%
1161      \setbox\mdf@splitbox@one\vbox{\unvbox\mdf@splitbox@one}%
1162      \repeat%
1163  }{}%

```

Test whether last frame is empty

```

1164  \ifvoid\mdf@splitbox@one\relax%
1165      \mdf@PackageWarning{You got a bad break because the splittet box is
1166          empty^^J
1167          You have to change the page settings^^J
1168          like enlargethispage or something else^^J
1169          the package increases do
1170          \enlargethispage{\baselineskip}\MessageBreak}%
1171      \setbox\mdf@splitbox@one=\vbox{\unvcopy\mdf@splitbox@save}%
1172      \enlargethispage{\baselineskip}%
1173      \def\mdf@reserved@a{\mdf@put@frame@ii}%

```

Output of the middle frame

```

1174  \else
1175 % Test if first splitted frame doesn't have the original with.
1176 % \begin{macrocode}
1177  \setbox\mdf@splitbox@two=\vbox%
1178      {%
1179          \hrule \@height\z@\ \@width\mdfboundingboxwidth\relax
1180          \unvcopy\mdf@splitbox@two%
1181      }%
1182  \begingroup\mdf@setzref\mdf@putbox@middle\endgroup%
1183  \hrule \@height\z@\ \@width\hsize%
1184  \vfill\eject%
1185  \def\mdf@reserved@a{\mdf@put@frame@ii}%
1186  \fi
1187 }%End middle box case

```

Starting output of last frame

```

1188  %>start last box case
1189  \ifvoid\mdf@splitbox@one
1190      \mdf@PackageWarning{You got a bad break\MessageBreak
1191                      because the last split box is empty\MessageBreak
1192                      You have to change the settings}%%
1193      \setbox\mdf@splitbox@one=\vbox%
1194      {%
1195          \unvbox\mdf@splitbox@one%
1196          \hrule \@height\z@\ \@width\mdfboundingboxwidth
1197      }%
1198  \fi%

```

```
\ifvoid isn't enough – need to test the height
1199     \ifdimless{\ht\mdf@splitbox@one}{1sp}%
1200         {%
1201             \mdf@PackageWarning{You got a bad break\MessageBreak
1202                 because the last split box is empty\MessageBreak
1203                 You have to change the settings}%
1204
1205         \let\mdf@reserved@a\relax%
1206         \setbox\mdf@splitbox@one=\vbox%
1207             {%
1208                 \unvbox\mdf@splitbox@one%
1209                 \hrule \@height\z@\@width\mdfboundingboxwidth
1210             }%
1211     }{}%
1212
Output of the last frame
1212     \begingroup\mdf@setzref\mdf@putbox@second\endgroup%
1213     \hrule \@height\z@\@width\hsize%
1214     \let\mdf@reserved@a\relax%
1215     }%
1216     \mdf@reserved@a%
1217 }
1218
```

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

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

```
1219 %%% t_____
1220 %%% | |
1221 %%% | |
1222 %%% | |
1223 %%% l| | r
1224 %%% | |
1225 %%% | |
1226 %%% |-----|
1227 %%% b
1228 %%Zusammenhaenge abfragen:
1229 \newrobustcmd*\mdf@test@ltrb{%
1230     \ifboolexpr{ (bool {\mdf@test@topline}) and (bool {\mdf@test@bottomline})
1231             and (bool {\mdf@test@leftline}) and (bool {\mdf@test@rightline}))}
1232 %3-set
1233 \newrobustcmd*\mdf@test@ltr{%
```

```

1234     \ifboolexpr{ (bool {mdf@topline}) and not (bool {mdf@bottomline})
1235                     and (bool {mdf@leftline}) and (bool {mdf@rightline}))}
1236 \newrobustcmd*\mdf@test@ltb{%
1237     \ifboolexpr{ (bool {mdf@topline}) and (bool {mdf@bottomline})
1238                     and (bool {mdf@leftline}) and not (bool {mdf@rightline}))}
1239 \newrobustcmd*\mdf@test@trb{%
1240     \ifboolexpr{ (bool {mdf@topline}) and (bool {mdf@bottomline})
1241                     and not (bool {mdf@leftline}) and (bool {mdf@rightline}))}
1242 \newrobustcmd*\mdf@test@lrb{%
1243     \ifboolexpr{ not (bool {mdf@topline}) and (bool {mdf@bottomline})
1244                     and (bool {mdf@leftline}) and (bool {mdf@rightline}))}
1245 %2-set
1246 \newrobustcmd*\mdf@test@lb{%
1247     \ifboolexpr{ not (bool {mdf@topline}) and (bool {mdf@bottomline})
1248                     and (bool {mdf@leftline}) and not (bool {mdf@rightline}))}
1249 \newrobustcmd*\mdf@test@rb{%
1250     \ifboolexpr{ not (bool {mdf@topline}) and (bool {mdf@bottomline})
1251                     and not (bool {mdf@leftline}) and (bool {mdf@rightline}))}
1252 \newrobustcmd*\mdf@test@tr{%
1253     \ifboolexpr{ (bool {mdf@topline}) and not (bool {mdf@bottomline})
1254                     and not (bool {mdf@leftline}) and (bool {mdf@rightline}))}
1255 \newrobustcmd*\mdf@test@lt{%
1256     \ifboolexpr{ (bool {mdf@topline}) and not (bool {mdf@bottomline})
1257                     and (bool {mdf@leftline}) and not (bool {mdf@rightline}))}
1258 \newrobustcmd*\mdf@test@lr{%
1259     \ifboolexpr{ not (bool {mdf@topline}) and not (bool {mdf@bottomline})
1260                     and (bool {mdf@leftline}) and (bool {mdf@rightline}))}
1261 \newrobustcmd*\mdf@test@tb{%
1262     \ifboolexpr{ (bool {mdf@topline}) and (bool {mdf@bottomline})
1263                     and not (bool {mdf@leftline}) and not (bool {mdf@rightline}))}
1264 %Einzellinien
1265 \newrobustcmd*\mdf@test@l{%
1266     \ifboolexpr{ not (bool {mdf@topline}) and not (bool {mdf@bottomline})
1267                     and (bool {mdf@leftline}) and not (bool {mdf@rightline}))}
1268 \newrobustcmd*\mdf@test@r{%
1269     \ifboolexpr{ not (bool {mdf@topline}) and not (bool {mdf@bottomline})
1270                     and not (bool {mdf@leftline}) and (bool {mdf@rightline}))}
1271 \newrobustcmd*\mdf@test@t{%
1272     \ifboolexpr{ (bool {mdf@topline}) and not (bool {mdf@bottomline})
1273                     and not (bool {mdf@leftline}) and not (bool {mdf@rightline}))}
1274 \newrobustcmd*\mdf@test@b{%
1275     \ifboolexpr{ not (bool {mdf@topline}) and (bool {mdf@bottomline})
1276                     and not (bool {mdf@leftline}) and not (bool {mdf@rightline}))}
1277 %keine Linien
1278 \newrobustcmd*\mdf@test@noline{%
1279     \ifboolexpr{ not (bool {mdf@topline}) and not (bool {mdf@bottomline})
1280                     and not (bool {mdf@leftline}) and not (bool {mdf@rightline}))}
1281 \newrobustcmd*\mdf@test@singl{%
1282     \ifboolexpr{ not (test {\mdf@test@lrb} or test {\mdf@test@ltr} or
1283                     test {\mdf@test@ltb} or test {\mdf@test@trb} or
1284                     test {\mdf@test@lrb} or test {\mdf@test@lb} or
1285                     test {\mdf@test@rb} or test {\mdf@test@tr} or
1286                     test {\mdf@test@lt} ) }}
1287 %
1288 \DisableKeyvalOption[action=warning,package=mdframed]{mdf}{framemethod}%

```

```

1289 \DisableKeyvalOption[action=warning,package=mdframed]{mdf}{xcolor}%
1290
1291 \endinput

```

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

```

1292 %% Style file for mdframed for package option 'framemethod=default'
1293 %%
1294 %% This package may be distributed under the terms of the LaTeX Project
1295 %% Public License, as described in lppl.txt in the base LaTeX distribution.
1296 %% Either version 1.0 or, at your option, any later version.
1297 %%

```

`\mdframed0packagename`

local settings

```

1298 \def\mdframed0packagename{md-frame-0}
1299 \ProvidesFile{md-frame-0.mdf}%
1300   [\mdfmaindate\ %
1301   \mdversion: \mdframed0packagename]

```

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

short command

```

1302 \def\mdf@background@default{\color{\mdf@backgroundcolor}}
1303 \def\mdf@frametitlebackground@default{\color{\mdf@frametitlebackgroundcolor}}
1304 \def\mdf@shadow@default{\color{\mdf@shadowcolor}}
1305 \def\mdf@innerlinecolor@default{\color{\mdf@innerlinecolor}}
1306 \def\mdf@middlelinecolor@default{\color{\mdf@middlelinecolor}}
1307 \def\mdf@outerlinecolor@default{\color{\mdf@outerlinecolor}}
1308 \def\mdf@frametitlerulecolor@default{\color{\mdf@frametitlerulecolor}}
1309 \let\mdf@linecolor@default\mdf@middlelinecolor@default
1310 \def\mdf@@frametitlerule{%
1311   \ifbool{\mdf@frametitlerule}{%
1312     \vbox{\hsize\mdfframetitleboxwidth%
1313       \par\unskip\vskip\mdf@frametitlebelowskip@length%
1314       \rlap{\noindent\hspace*{-\mdf@innerleftmargin@length}%
1315         \mdf@frametitlerulecolor@default%
1316         \rule{\dimexpr\mdfframetitleboxwidth%
1317           +\mdf@innerleftmargin@length%
1318           +\mdf@innerrightmargin@length\relax%
1319           }{\mdf@frametitlerulewidth@length}%
1320         }\hrule\@height\z@\@width\hsize}%
1321   }{%
1322     \vbox{\hsize\mdfframetitleboxwidth%
1323       \par\unskip\vskip\mdf@frametitlebelowskip@length%
1324       \rlap{\noindent\hspace*{-\mdf@innerleftmargin@length}%
1325         \mdf@frametitlerulecolor@default%
1326         \rule{\dimexpr\mdfframetitleboxwidth%
1327           +\mdf@innerleftmargin@length%
1328           +\mdf@innerrightmargin@length\relax%
1329           }{\z@}%
1330         }\hrule\@height\z@\@width\hsize}%
1331   }

```

```

1332 \iftoggle{mdf@notfirstframetitle}%
1333   {%
1334     \par\unskip\vskip\mdf@splittopskip@length%
1335   }%
1336   {%
1337     \par\unskip\vskip\mdf@innertopmargin@length%
1338   }%
1339 }%
1340

```

`\mdfsubtitle`

Definition of the command `\mdfsubtitle`.

```

1341 \newrobustcmd{\mdfsubtitle[2][]}{%
1342 {%
  Make everything local.
1343 \begingroup
1344 \penalty-9995%set a breakpoint before the subtitle
1345 % \end{macrocode}
1346 % Inside the title we don't need any \Cmd{parindent}. Next set the options of
1347 % the optional argument of \Cmd{mdfsubtitle}.
1348 % \begin{macrocode}
1349 \parindent\z@\relax%
1350 \mdfsetup{#1}%only for subtitle options
1351 % \end{macrocode}
1352 % Save the complete subtitle inside the save box \Cmd{z@}.
1353 % \begin{macrocode}
1354 \setbox\z@=\vbox{\mdf@subtitlefont{#2}\relax}%
1355 % \end{macrocode}
1356 % Compute the width of the current line including the inner left margin and
1357 % inner right margin (using \Cmd{dimen@}). In the next step the height and the
1358 % depth of the save box will be saved in \Cmd{dimen@i}.
1359 % \begin{macrocode}
1360 \dimen@=\linewidth\relax%
1361 \advance\dimen@ by \mdf@innerleftmargin@length\relax%
1362 \advance\dimen@ by \mdf@innerrightmargin@length\relax%
1363 \dimen@i=\mdf@subtitleinneraboveskip@length\relax%
1364 \advance\dimen@i by \mdf@subtitleinnerbelowskip@length\relax%
1365 \advance\dimen@i by \ht\z@\relax%
1366 \advance\dimen@i by \dp\z@\relax%
1367 % \end{macrocode}
1368 % Test if rules should be drawn. otherwise set the line width to 0\,pt.
1369 % \begin{macrocode}
1370 \ifbool{mdf@subtitleaboveline}{}{%
1371   {\mdfsetup{subtitleabovelinewidth=\z@}}%
1372 \ifbool{mdf@subtitlebelowline}{}{%
1373   {\mdfsetup{subtitlebelowlinewidth=\z@}}%
1374 % \end{macrocode}
1375 % Start a new line with the given skip \Opt{subtitleaboveskip}.
1376 % \begin{macrocode}
1377 \par\unskip\ifvmode\nointerlineskip\hrule\@height\z@\@width\hsize\fi%
1378 \vskip\mdf@subtitleaboveskip@length
1379 % \end{macrocode}
1380 % Drawing the above line of the subtitle.
1381 % \begin{macrocode}

```

```

1382 \rlap%
1383 {%
1384   \hspace*{-\mdf@innerleftmargin@length}%
1385   \begingroup%
1386     \color{\mdf@subtitleabovelinecolor}%
1387     \rule{\dimen@\{\mdf@subtitleabovelinewidth@length}%
1388   \endgroup%
1389 }%
1390 % \end{macrocode}
1391 % space between rule above and subtitle
1392 % \begin{macrocode}
1393 \par\unskip\ifvmode\nointerlineskip\hrule \atheight\z@ \atwidth\hsize\fi%
1394 \vskip\mdf@subtitleinneraboveskip@length
1395 % \end{macrocode}
1396 % output of subtitle with a background. Must think about the \Cmd{hspace}%
1397 % combination.
1398 % \begin{macrocode}
1399 \leavevmode\rlap%
1400 {%
1401   \smash{%
1402     \hspace*{-\mdf@innerleftmargin@length}%
1403     \begingroup%
1404       \color{\mdf@subtitlebackgroundcolor}%
1405       \rule[\dimexpr-\dp\z@-\mdf@subtitleinnerbelowskip@length\relax]{\dimen@}{\dimen@i}%
1406     \endgroup%
1407   }%
1408 }%
1409 }%
1410 \box\z@\relax%
1411 % \end{macrocode}
1412 % Skip after subtitle
1413 % \begin{macrocode}
1414 \par\unskip\ifvmode\nointerlineskip\hrule \atheight\z@ \atwidth\hsize\fi%
1415 \vskip\mdf@subtitleinnerbelowskip@length
1416 % \end{macrocode}
1417 % Draw rule below of the subtitle.
1418 % \begin{macrocode}
1419 \rlap%
1420 {%
1421   \hspace*{-\mdf@innerleftmargin@length}%
1422   \begingroup%
1423     \color{\mdf@subtitlebelowlinecolor}%
1424     \rule{\dimen@\{\mdf@subtitlebelowlinewidth@length}%
1425   \color@endgroup%
1426 }%
1427 % \end{macrocode}
1428 % Last skip and set a non breaking point.
1429 % \begin{macrocode}
1430 \par\unskip\ifvmode\nointerlineskip\hrule \atheight\z@ \atwidth\hsize\fi%
1431 \vskip\mdf@subtitlebelowskip@length
1432 \penalty 9995
1433 \endgroup
1434 }
1435

```

\mdfsubsubtitle

Definition of the command `\mdfsubsubtitle`.

```

1436 \newrobustcmd\mdfsubsubtitle[2][]%
1437 {%
  Make everything local.
1438 \begingroup
1439 \penalty-9995%set a breakpoint before the subsubtitle
1440 % \end{macrocode}
1441 % Inside the title we don't need any \Cmd{parindent}. Next set the options of
1442 % the optional argument of \Cmd{mdfsubsubtitle}.
1443 % \begin{macrocode}
1444 \parindent\z@\relax%
1445 \mdfsetup{#1}%only for subsubtitle options
1446 % \end{macrocode}
1447 % Save the complete subsubtitle inside the save box \Cmd{z@}.
1448 % \begin{macrocode}
1449 \setbox\z@=\vbox{\mdf@subsubtitlefont{#2}\relax}%
1450 % \end{macrocode}
1451 % Compute the width of the current line including the inner left margin and
1452 % inner right margin (using \Cmd{dimen@}). In the next step the height and the
1453 % depth of the save box will be saved in \Cmd{dimen@i}.
1454 % \begin{macrocode}
1455 \dimen@=\linewidth\relax%
1456 \advance\dimen@ by \mdf@innerleftmargin@length\relax%
1457 \advance\dimen@ by \mdf@innerrightmargin@length\relax%
1458 \dimen@i=\mdf@subsubtitleinneraboveskip@length\relax%
1459 \advance\dimen@i by \mdf@subsubtitleinnerbelowskip@length\relax
1460 \advance\dimen@i by \ht\z@\relax%
1461 \advance\dimen@i by \dp\z@\relax%
1462 % \end{macrocode}
1463 % Test if rules should be drawn. otherwise set the line width to 0\,pt.
1464 % \begin{macrocode}
1465 \ifbool{\mdf@subsubtitleaboveline}{}{%
1466   {\mdfsetup{subsubtitleabovelinewidth=\z@}}%
1467 \ifbool{\mdf@subsubtitlebelowline}{}{%
1468   {\mdfsetup{subsubtitlebelowlinewidth=\z@}}%
1469 % \end{macrocode}
1470 % Start a new line with the given skip \Opt{subsubtitleaboveskip}.
1471 % \begin{macrocode}
1472 \par\unskip\ifvmode\nointerlineskip\hrule\@height\z@\@width\hsize\fi%
1473 \vskip\mdf@subsubtitleaboveskip@length
1474 % \end{macrocode}
1475 % Drawing the above line of the subsubtitle.
1476 % \begin{macrocode}
1477 \rlap{%
1478 {%
1479   \hspace*{-\mdf@innerleftmargin@length}%
1480   \begingroup%
1481     \color{\mdf@subsubtitleabovelinecolor}%
1482     \rule{\dimen@}{\mdf@subsubtitleabovelinewidth@length}%
1483   \endgroup%
1484 }%
1485 % \end{macrocode}
1486 % space between rule above and subsubtitle
1487 % \begin{macrocode}
1488 \par\unskip\ifvmode\nointerlineskip\hrule\@height\z@\@width\hsize\fi%

```

```

1489  \vskip\mdf@subsubtitleinneraboveskip@length
1490 %      \end{macrocode}
1491 % output of subsubtitle with a background. Must think about the \Cmd{hspace}
1492 % combination.
1493 %      \begin{macrocode}
1494 \leavevmode\rlap%
1495 {%
1496   \hspace*{-\mdf@innerleftmargin@length}%
1497   \smash{%
1498     \begingroup%
1499       \color{\mdf@subsubtitlebackgroundcolor}%
1500       \rule[\dimexpr-\dp\z@-\mdf@subtitleinnerbelowskip@length\relax]{\dimen@}{\dimen@i}%
1501     \endgroup%
1502   }%
1503 }%
1504 }%
1505 \box\z@\relax%
1506 %      \end{macrocode}
1507 % Skip after subsubtitle
1508 %      \begin{macrocode}
1509 \par\unskip\ifvmode\nointerlineskip\hrule \@height\z@ \@width\hsize\fi%
1510 \vskip\mdf@subsubtitleinnerbelowskip@length
1511 %      \end{macrocode}
1512 % Draw rule below of the subsubtitle.
1513 %      \begin{macrocode}
1514 \rlap{%
1515 {%
1516   \hspace*{-\mdf@innerleftmargin@length}%
1517   \begingroup%
1518     \color{\mdf@subsubtitlebelowlinecolor}%
1519     \rule{\dimen@}{\mdf@subsubtitlebelowlinewidth@length}%
1520   \endgroup%
1521 }%
1522 %      \end{macrocode}
1523 % Last skip and set a non breaking point.
1524 %      \begin{macrocode}
1525 \par\unskip\ifvmode\nointerlineskip\hrule \@height\z@ \@width\hsize\fi%
1526 \vskip\mdf@subsubtitlebelowskip@length
1527 \penalty 9995
1528 \endgroup
1529 }
1530

```

```
\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

```

1531 \def\mdf@frame@background@single{%
1532   \ifbool{mdf@shadow}{%
1533     {%
1534       \rlap{%
1535         {%
```

```

1536   \smash%
1537   {%
1538     \mdf@shadow@default%
1539     \rule[\dimexpr
1540       -\mdfboundingboxdepth
1541       -\mdf@shadowsize@length
1542       \ifbool{\mdf@bottomline}{-\mdf@middlinewidth@length}{}]
1543     {\relax}%
1544     {\dimexpr
1545       \mdfboundingboxtotalwidth
1546       +\mdf@shadowsize@length
1547       \ifbool{\mdf@rightline}{+\mdf@middlinewidth@length}{}}
1548     {\relax}%
1549     {\dimexpr
1550       \mdfboundingboxtotalheight
1551       +\mdf@shadowsize@length
1552       \ifbool{\mdf@bottomline}{+\mdf@middlinewidth@length}{}}
1553     {\relax}%
1554   }%
1555   }%
1556 }{%
1557 \rlap{%
1558   {%
1559     \mdf@background@default%
1560     \rule[-\mdfboundingboxdepth]{\mdfboundingboxtotalwidth}{\mdfboundingboxtotalheight}%
1562   }%
1563 }%
1564 }%
1565 \def\mdf@frame@frametitlebackground@single{%
1566   \rlap{%
1567   {%
1568     \mdf@frametitlebackground@default%
1569     \rule[\dimexpr
1570       -\mdfboundingboxdepth
1571       +\mdfboundingboxtotalheight
1572       -\mdffframetitleboxtotalheight
1573     {\relax}%
1574       {\mdfboundingboxtotalwidth}%
1575       {\mdffframetitleboxtotalheight}%
1576   }%
1577 }%
1578 \def\mdf@frame@topline@single{%
1579   \rlap{%
1580   {%
1581     \mdf@linecolor@default%
1582     \ifbool{\mdf@topline}{%
1583       {%
1584         \rule[\dimexpr
1585           \mdfboundingboxheight
1586           -\mdfboundingboxdepth%
1587           +\mdf@innerbottommargin@length
1588           +\mdf@innertopmargin@length
1589         {\relax}%
1590           {\mdfboundingboxtotalwidth}%
1591           {\mdf@middlinewidth@length}%
1592     }%
1593   }%
1594 }%
1595 }%

```

```

1592      }{}}%
1593    }%
1594 }%
1595 \def\mdf@frame@bottomline@single{%
1596   \rlap{%
1597     {%
1598       \ifbool{\mdf@leftline}{%
1599         {%
1600           \hspace*{-\mdf@middlelinewidth@length}%
1601         }{}}%
1602       \mdf@linecolor@default%
1603       \ifbool{\mdf@bottomline}{%
1604         {%
1605           \rule[\dimexpr
1606             -\mdfboundingboxdepth
1607             -\mdf@middlelinewidth@length
1608           \relax]{\dimexpr
1609             \mdfboundingboxtotalwidth
1610             \ifbool{\mdf@rightline}{+\mdf@middlelinewidth@length}{}}{}}%
1611         \ifbool{\mdf@leftline}{+\mdf@middlelinewidth@length}{}}{}}%
1612         \relax{}}%
1613       {\mdf@middlelinewidth@length}%
1614     }{}}%
1615   }{}}%
1616 }%
1617 }%
1618 \def\mdf@frame@leftline@single{%
1619   \llap{%
1620     {%
1621       \mdf@linecolor@default%
1622       \rule[-\mdfboundingboxdepth]{\mdf@middlelinewidth@length}{}}%
1623       \dimexpr
1624         \mdfboundingboxtotalheight%
1625         \ifbool{\mdf@topline}{+\mdf@middlelinewidth@length}{}}{}}%
1626       \relax{}}%
1627     }{}}%
1628   }{}}%
1629 }%
1630 \def\mdf@frame@rightline@single{%
1631   \rlap{%
1632     {%
1633       \mdf@linecolor@default%
1634       \hspace*{\mdfboundingboxwidth}%
1635       \hspace*{\mdf@innerrightmargin@length}%
1636       \rule[\dimexpr
1637         -\mdfboundingboxdepth]{\dimexpr
1638           \mdf@middlelinewidth@length}{}}{}}%
1639       \dimexpr
1640         \mdfboundingboxtotalheight%
1641         \ifbool{\mdf@topline}{+\mdf@middlelinewidth@length}{}}{}}%
1642       \relax{}}%
1643     }{}}%
1644   }{}}%
1645 }%
1646 \def\mdf@putbox@single{%
1647   \ifvoid\mdf@splitbox@one\relax

```

```

1648 \else%
1649   \mdf@makebox@out%
1650   {%
1651     \mdf@makeboxalign@left%
1652     \setlength{\mdfboundingboxwidth}{%
1653       {\wd\mdf@splitbox@one}%
1654     \setlength{\mdfboundingboxtotalwidth}{%
1655       {\dimexpr
1656         \mdfboundingboxwidth
1657         +\mdf@innerleftmargin@length%
1658         +\mdf@innerrightmargin@length
1659       \relax}%
1660     \setlength{\mdfboundingboxheight}{%
1661       {\dimexpr
1662         \ht\mdf@splitbox@one
1663         +\dp\mdf@splitbox@one
1664       \relax}%
1665     \setlength{\mdfboundingboxdepth}{%
1666       {\dimexpr
1667         \dp\mdf@splitbox@one
1668         +\mdf@innerbottommargin@length
1669       \relax}%
1670     \setlength{\mdfboundingboxtotalheight}{%
1671       {\dimexpr
1672         \mdfboundingboxheight
1673         +\mdf@innertopmargin@length%
1674         +\mdf@innerbottommargin@length
1675       \relax}%
1676     \setlength{\mdftotallinewidth}{%
1677       {\dimexpr
1678         \mdf@innerlinewidth@length
1679         +\mdf@middles linewidth@length%
1680         +\mdf@outerlinewidth@length
1681       \relax}%
1682     \noindent%
1683     \setlength{\@tempdima}{%
1684       {\dimexpr
1685         \mdfboundingboxtotalwidth%
1686         \ifbool{\mdf@leftline}{+\mdf@middles linewidth@length}{}%
1687         \ifbool{\mdf@rightline}{+\mdf@middles linewidth@length}{}%
1688       \relax}%
1689     \mdf@makebox@in[\@tempdima]%
1690     {%
1691       \null%
1692       \ifbool{\mdf@leftline}{%
1693         {%
1694           \hspace*{\mdftotallinewidth}%
1695           \mdf@frame@leftline@single%
1696         }{%
1697           \mdf@frame@topline@single%
1698           \mdf@frame@background@single%
1699           \mdf@frame@bottomline@single%
1700           \ifempty{\mdf@frametitle}{}{\mdf@frame@frametitlebackground@single}%
1701           \hspace*{\mdf@innerleftmargin@length}%
1702           \ifbool{\mdf@rightline}{%
1703             {%

```

```

1704      \mdf@frame@rightline@singl%
1705      }{}}%
1706      {\box\mdf@splitbox@one}%
1707      }%
1708      \mdf@makeboxalign@right%
1709      }%
1710 \fi%
1711 }

```

```

\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

```

1712 \def\mdf@frame@background@first{%
1713   \ifbool{\mdf@shadow}{%
1714     {%
1715       \rlap{%
1716         {%
1717           \smash{%
1718             {%
1719               \mdf@shadow@default%
1720               \rule[\dimexpr
1721                 -\mdfboundingboxdepth
1722                 -\mdf@shadowsize@length
1723               \relax]{%
1724                 \dimexpr
1725                   \mdfboundingboxtotalwidth
1726                   +\mdf@shadowsize@length
1727                   \ifbool{\mdf@rightline}{+\mdf@middleslinewidth@length}{}%
1728               \relax}%
1729               \dimexpr
1730                 \mdfboundingboxtotalheight
1731                 +\mdf@shadowsize@length
1732               \relax}%
1733             }%
1734           }%
1735         }{}}%
1736       \rlap{%
1737         {%
1738           \mdf@background@default%
1739           \rule[-\mdfboundingboxdepth]{%
1740             \mdfboundingboxtotalwidth}{%
1741             \mdfboundingboxtotalheight}%
1742         }%
1743     }%
1744   \def\mdf@frametitlebackground@first{%
1745     \ifbool{\mdf@repeatframetitle}{%
1746       {%
1747         \rlap{%
1748           {%
1749             \mdf@frametitlebackground@default%
1750             \rule[\dimexpr
1751               -\mdfboundingboxdepth

```

```

1752         +\mdfboundingboxtotalheight
1753         -\mdfframetitleboxtotalheight
1754         \relax]%
1755         {\mdfboundingboxtotalwidth}%
1756         {\mdfframetitleboxtotalheight}%
1757     }%
1758 }%
1759 {%-repeating title = false -- maybe splitted
1760 \ifdimless{\mdfframetitleboxtotalheight}{\mdfboundingboxtotalheight}%
1761 {%
1762   \rlap{%
1763     {%
1764       \mdf@frametitlebackground@default%
1765       \rule[\dimexpr
1766           -\mdfboundingboxdepth
1767           +\mdfboundingboxtotalheight
1768           -\mdfframetitleboxtotalheight
1769           \relax]%
1770           {\mdfboundingboxtotalwidth}%
1771           {\mdfframetitleboxtotalheight}%
1772     }%
1773     \global\mdfframetitleboxtotalheight=-\p@\relax%
1774   }%
1775 {%
1776   \mdf@PackageWarning{You got a page break inside the title\MessageBreak
1777   Current this isn't well supported}%
1778   \rlap{%
1779     {%
1780       \mdf@frametitlebackground@default%
1781       \rule[-\mdfboundingboxdepth]%
1782         {\mdfboundingboxtotalwidth}%
1783         {\mdfboundingboxtotalheight}%
1784     }%
1785     \global\mdfframetitleboxtotalheight=%
1786     \dimexpr%
1787       \mdfframetitleboxtotalheight
1788       -\mdfboundingboxheight
1789       +\mdf@frametitlebelowskip@length
1790       +.5\baselineskip-1pt
1791     +\dp\strutbox
1792     \relax%
1793   }%
1794 }%
1795 }%
1796 \def\mdf@frame@leftline@first{%
1797   \llap{%
1798     {%
1799       \mdf@linecolor@default%
1800       \rule[-\mdfboundingboxdepth]%
1801         {\mdf@middlelinewidth@length}%
1802         \dimexpr
1803           \mdfboundingboxtotalheight%
1804           \ifbool{\mdf@topline}{+\mdf@middlelinewidth@length}{}%
1805         \relax}%
1806   }%
1807 }%

```

```

1808 \def\mdf@frame@topline@first{%
1809   \rlap{%
1810   {%
1811     \mdf@linecolor@default%
1812     \rule[\dimexpr
1813       \mdfboundingboxheight
1814       -\mdfboundingboxdepth
1815       +\mdf@splitbottomskip@length
1816       +\mdf@innertopmargin@length
1817       \relax]%
1818       {\mdfboundingboxtotalwidth}%
1819       {\mdf@middles linewidth@length}%
1820   }%
1821 }
1822 \def\mdf@frame@rightline@first{%
1823   \rlap{%
1824   {%
1825     \mdf@linecolor@default%
1826     \hspace*{\mdfboundingboxwidth}%
1827     \hspace*{\mdf@innerrightmargin@length}%
1828     \rule[-\mdfboundingboxdepth]{%
1829       {\mdf@middles linewidth@length}%
1830       {\dimexpr
1831         \mdfboundingboxtotalheight%
1832         \ifbool{\mdf@topline}{+\mdf@middles linewidth@length}{}%
1833         \relax}%
1834   }%
1835 }%
1836 \def\mdf@frame@bottomline@first{%
1837   \rlap{%
1838   {%
1839     \ifbool{\mdf@leftline}{%
1840       {%
1841         \hspace*{-\mdf@middles linewidth@length}%
1842       }{%
1843         \mdf@linecolor@default%
1844         \ifbool{\mdf@bottomline}{%
1845           {%
1846             \rule[\dimexpr
1847               -\mdfboundingboxdepth
1848               -\mdf@middles linewidth@length
1849               \relax]%
1850             {\dimexpr
1851               \mdfboundingboxtotalwidth
1852               \ifbool{\mdf@rightline}{+\mdf@middles linewidth@length}{}%
1853               \ifbool{\mdf@leftline}{+\mdf@middles linewidth@length}{}%
1854               \relax}%
1855             {\mdf@middles linewidth@length}%
1856           }{%
1857         }%
1858       }%
1859     \def\mdf@putbox@first{%
1860       \ifvoid\mdf@splitbox@two\relax
1861       \else%
1862         \mdf@makebox@out[\linewidth]%
1863       {%

```

```

1864   \mdf@makeboxalign@left%
1865   \setlength{\mdfboundingboxwidth}
1866     {\wd\mdf@splitbox@two}%
1867   \setlength{\mdfboundingboxtotalwidth}{%
1868     {\dimexpr
1869       \mdfboundingboxwidth
1870       +\mdf@innerleftmargin@length%
1871       +\mdf@innerrightmargin@length
1872     \relax}%
1873   \setlength{\mdfboundingboxheight}{%
1874     {\dimexpr
1875       \ht\mdf@splitbox@two
1876       +\dp\mdf@splitbox@two
1877     \relax}%
1878   \setlength{\mdfboundingboxdepth}{%
1879     {\dimexpr
1880       \dp\mdf@splitbox@two
1881       +\mdf@splitbottomskip@length
1882     \relax}%
1883   \setlength{\mdfboundingboxtotalheight}{%
1884     {\dimexpr
1885       \mdfboundingboxheight
1886       +\mdf@innertopmargin@length%
1887       +\mdf@splitbottomskip@length
1888     \relax}%
1889   \setlength{\@tempdima}{%
1890     {\dimexpr
1891       \mdfboundingboxtotalwidth%
1892       \ifbool{\mdf@leftline}{+\mdf@middleslinewidth@length}{}%
1893       \ifbool{\mdf@rightline}{+\mdf@middleslinewidth@length}{}%
1894     \relax}%
1895   \mdf@makebox@in[\@tempdima]%
1896   {%
1897     \null%
1898     \ifbool{\mdf@leftline}{%
1899       {%
1900         \hspace*{\mdf@middleslinewidth@length}%
1901         \mdf@frame@leftline@first%
1902       }{}%
1903     \ifbool{\mdf@everyline}{%
1904       {%
1905         \mdf@frame@bottomline@first%
1906       }{}%
1907     \ifbool{\mdf@topline}{%
1908       {%
1909         \mdf@frame@topline@first%
1910       }{}%
1911     \mdf@frame@background@first%
1912     \ifdefempty{\mdf@frametitle}{}{\mdf@frame@frametitlebackground@first}%
1913     \hspace*{\innerleftmargin@length}%
1914     \ifbool{\mdf@rightline}{%
1915       {%
1916         \mdf@frame@rightline@first%
1917       }{}%
1918     \box\mdf@splitbox@two}%
1919   }%

```

```

1920      \mdf@makeboxalign@right%
1921      }%
1922 \fi%
1923 }

```

```

\mdf@putbox@second
\mdf@frame@background@second
\mdf@frame@leftline@second
\mdf@frame@bottomline@second
\mdf@frame@rightline@second

```

The last frame of a splitted contents of mdframed

```

1924 \def\mdf@frame@background@second{%
1925   \ifbool{\mdf@shadow}{%
1926     {%
1927       \rlap{%
1928         {%
1929           \smash{%
1930             {%
1931               \mdf@shadow@default{%
1932                 \rule[\dimexpr{%
1933                   -\mdfboundingboxdepth
1934                   -\mdf@shadowsize@length
1935                   \ifbool{\mdf@bottomline}{-\mdf@middlelinewidth@length}{}}
1936                   \relax}]{%
1937                     \dimexpr{%
1938                       \mdfboundingboxtotalwidth
1939                       +\mdf@shadowsize@length
1940                       \ifbool{\mdf@rightline}{+\mdf@middlelinewidth@length}{}}
1941                   \relax}%
1942                 {\dimexpr{%
1943                   \mdfboundingboxtotalheight
1944                   +\mdf@shadowsize@length
1945                   \relax}%
1946                 }%
1947               }%
1948             }{%
1949               \rlap{%
1950                 {%
1951                   \mdf@background@default{%
1952                     \rule[-\mdfboundingboxdepth]{%
1953                       {\mdfboundingboxtotalwidth}%
1954                       {\mdfboundingboxtotalheight}%
1955                     }%
1956               }%
1957 \def\mdf@frametitlebackground@second{%
1958   \ifbool{\mdf@repeatframetitle}{%
1959     {%
1960       \rlap{%
1961         {%
1962           \mdf@frametitlebackground@default{%
1963             \rule[\dimexpr{%
1964               -\mdfboundingboxdepth
1965               +\mdfboundingboxtotalheight
1966               -\mdffframetitleboxtotalheight
1967             \relax}]{%

```

```

1968      {\mdfboundingboxtotalwidth}%
1969      {\mdfframetitleboxtotalheight}%
1970  }%
1971 }%
1972 {%-repeating title = false -- maybe splitted
1973 \ifdimless{\mdfframetitleboxtotalheight}{\z@}%
1974 {}%
1975 {%
1976 \rlap{%
1977 {%
1978 \mdf@frametitlebackground@default%
1979 \rule[\dimexpr
1980         -\mdfboundingboxdepth
1981         +\mdfboundingboxtotalheight
1982         -\mdfframetitleboxtotalheight
1983             \relax]%
1984         {\mdfboundingboxtotalwidth}%
1985         {\mdfframetitleboxtotalheight}%
1986     }%
1987 }%
1988 }%
1989 }%
1990 \def\mdf@frame@leftline@second{%
1991 \rlap{%
1992 {%
1993 \mdf@linecolor@default%
1994 \rule[-\mdfboundingboxdepth]{\mdf@middlelinewidth@length}{%
1995     {\dimexpr\mdfboundingboxtotalheight}%
1996 }%
1997 }%
1998 }%
1999 \def\mdf@frame@bottomline@second{%
2000 \rlap{%
2001 {%
2002 \ifbool{\mdf@leftline}{%
2003     \hspace*{-\mdf@middlelinewidth@length}%
2004 }{}%
2005 \mdf@linecolor@default%
2006 \rule[\dimexpr
2007         -\mdfboundingboxdepth
2008         -\mdf@middlelinewidth@length
2009     ]%
2010         \relax}%
2011     {\dimexpr
2012         \mdfboundingboxtotalwidth
2013         \ifbool{\mdf@rightline}{+\mdf@middlelinewidth@length}{}%
2014         \ifbool{\mdf@leftline}{+\mdf@middlelinewidth@length}{}%
2015     \relax}%
2016     {\mdf@middlelinewidth@length}%
2017 }%
2018 }%
2019 \def\mdf@frame@rightline@second{%
2020 \rlap{%
2021 {%
2022 \mdf@linecolor@default\hspace*{\mdfboundingboxwidth}%
2023 \hspace*{\mdf@innerrightmargin@length}%

```

```

2024   \rule[-\mdfboundingboxdepth]{\mdf@middlelinewidth@length}{\mdfboundingboxtotalheight}%
2025   {\mdf@middlelinewidth@length}%
2026   {\mdfboundingboxtotalheight}%
2027 }%
2028 }%
2029 \def\mdf@frame@topline@second{%
2030   \rlap{%
2031   {%
2032     \ifbool{\mdf@leftline}{%
2033       {%
2034         \hspace*{-\mdf@middlelinewidth@length}%
2035       }{}%
2036     \mdf@linecolor@default%
2037     \ifbool{\mdf@topline}{%
2038       {%
2039         \rule[\dimexpr
2040           \mdfboundingboxheight
2041           -\mdfboundingboxdepth%
2042           +\mdf@innerbottommargin@length
2043         \relax]%
2044         {\dimexpr
2045           \mdfboundingboxtotalwidth
2046           \ifbool{\mdf@rightline}{+\mdf@middlelinewidth@length}{}%
2047           \ifbool{\mdf@leftline}{+\mdf@middlelinewidth@length}{}%
2048         \relax}%
2049         {\mdf@middlelinewidth@length}%
2050       }{}%
2051     }%
2052   }%
2053
2054 \def\mdf@putbox@second{%
2055   \ifvoid\mdf@splitbox@one\relax%
2056   \else
2057     \mdf@makebox@out{%
2058       {%
2059         \mdf@makeboxalign@left%
2060         \setlength{\mdfboundingboxwidth}{%
2061           {\wd\mdf@splitbox@one}%
2062         \setlength{\mdfboundingboxtotalwidth}{%
2063           {\dimexpr
2064             \mdfboundingboxwidth
2065             +\mdf@innerleftmargin@length%
2066             +\mdf@innersrightmargin@length
2067           \relax}%
2068         \setlength{\mdfboundingboxheight}{%
2069           {\dimexpr
2070             \ht\mdf@splitbox@one
2071             +\dp\mdf@splitbox@one
2072           \relax}%
2073         \setlength{\mdfboundingboxdepth}{%
2074           {\dimexpr
2075             \dp\mdf@splitbox@one
2076             +\mdf@innerbottommargin@length
2077           \relax}%
2078         \setlength{\mdfboundingboxtotalheight}{%
2079           {\dimexpr

```

```

2080           \mdfboundingboxheight
2081           +\mdf@innerbottommargin@length
2082           \relax}%
2083 \setlength{\@tempdima}{%
2084   \dimexpr
2085     \mdfboundingboxtotalwidth%
2086     \ifboolexpr{\mdf@leftline}{+\mdf@middles linewidth@length}{}%
2087     \ifboolexpr{\mdf@rightline}{+\mdf@middles linewidth@length}{}%
2088   \relax}%
2089 \mdf@makebox@in[\@tempdima]%
2090 {%
2091   \null%
2092   \ifboolexpr{\mdf@leftline}{%
2093     {%
2094       \hspace*{\mdf@middles linewidth@length}%
2095       \mdf@frame@leftline@second%
2096     }{%
2097     \ifboolexpr{\mdf@everyline}{%
2098       {%
2099         \mdf@frame@topline@second%
2100       }{%
2101         \mdf@frame@background@second%
2102       \ifboolexpr{\mdf@bottomline}{%
2103         {%
2104           \mdf@frame@bottomline@second%
2105         }{%
2106         \ifdefempty{\mdf@frametitle}{}{\mdf@frame@frametitlebackground@second}%
2107         \hspace*{\mdf@innerleftmargin@length}%
2108         \ifboolexpr{\mdf@rightline}{%
2109           {%
2110             \mdf@frame@rightline@second%
2111           }{%
2112             {\box\mdf@splitbox@one}%
2113           }%
2114           \mdf@makeboxalign@right%
2115         }%
2116       \fi%
2117     }%
2118 \mdf@putbox@middle
2119 \mdf@frame@background@middle
2120 \mdf@frame@leftline@middle
2121 \mdf@frame@rightline@middle

```

The last frame of a splitted contents of mdframed

```

2118 \def\mdf@frame@leftline@middle{%
2119   \llap{%
2120   {%
2121     \mdf@linecolor@default%
2122     \rule[-\mdfboundingboxdepth]{\mdf@middles linewidth@length}{\mdfboundingboxtotalheight}%
2123   }%
2124 }%
2125 }%
2126 }%
2127 \def\mdf@frame@background@middle{%
2128   \ifboolexpr{\mdf@shadow}{%

```

```

2129  {%
2130    \rlap{%
2131      {%
2132        \smash{%
2133          {%
2134            \mdf@shadow@default%
2135            \rule[\dimexpr
2136              -\mdfboundingboxdepth
2137              -\mdf@shadowsize@length
2138              \relax]{\dimexpr
2139                \mdfboundingboxtotalwidth
2140                +\mdf@shadowsize@length
2141                \ifbool{\mdf@rightline}{+\mdf@middlelinewidth@length}{}}
2142              \relax}{\dimexpr
2143                \mdfboundingboxtotalheight}%
2144          }%
2145        }%
2146      }{%
2147    }{%
2148    \rlap{%
2149      {%
2150        \mdf@background@default%
2151        \rule[-\mdfboundingboxdepth]{\mdfboundingboxtotalwidth}{\mdfboundingboxtotalheight}%
2152      }%
2153    }%
2154  }%
2155 }%
2156 \def\mdf@frame@frametitlebackground@middle{%
2157   \ifbool{\mdf@repeatframetitle}{%
2158     {%
2159       \rlap{%
2160         {%
2161           \mdf@frametitlebackground@default%
2162           \rule[\dimexpr
2163             -\mdfboundingboxdepth
2164             +\mdfboundingboxtotalheight
2165             -\mdffframetitleboxtotalheight
2166             \relax]{\dimexpr
2167               \mdfboundingboxtotalwidth}{\mdffframetitleboxtotalheight}%
2168           }%
2169         }%
2170       }{%
2171         {%
2172           \ifdimless{\mdffframetitleboxtotalheight}{\z@}{%
2173             {}%
2174           }{%
2175             \rlap{%
2176               {%
2177                 \mdf@frametitlebackground@default%
2178                 \rule[\dimexpr
2179                   -\mdfboundingboxdepth
2180                   +\mdfboundingboxtotalheight
2181                   -\mdffframetitleboxtotalheight
2182                   \relax]{\dimexpr
2183                     \mdfboundingboxtotalwidth}{\mdffframetitleboxtotalheight}%
2184                 }%
2185               }%
2186             }%
2187           }%
2188         }%
2189       }%
2190     }%
2191   }%
2192 }
```

```

2185     }%
2186     \global\mdfframetitleboxtotalheight=\p@\\relax%
2187   }%
2188   }%
2189 }%
2190 \def\mdf@frame@rightline@middle{%
2191   \rlap{%
2192     {%
2193       \mdf@linecolor@default%
2194       \hspace*\{\mdfboundingboxwidth\}%
2195       \hspace*\{\mdf@innerrightmargin@length\}%
2196       \rule[-\mdfboundingboxdepth]{\mdf@middlelinewidth@length}{\mdfboundingboxtotalheight}%
2197     }%
2198   }%
2199 }%
2200 }%
2201 \def\mdf@frame@topline@middle{%
2202   \rlap{%
2203     {%
2204       \ifbool{\mdf@leftline}{%
2205         {%
2206           \hspace*{-\mdf@middlelinewidth@length}%
2207         }{}%
2208       \mdf@linecolor@default%
2209       \ifbool{\mdf@topline}{%
2210         {%
2211           \rule[\dimexpr
2212             \mdfboundingboxtotalheight
2213             -\mdfboundingboxdepth
2214             \relax]{\dimexpr
2215               \mdfboundingboxtotalwidth
2216               \ifbool{\mdf@rightline}{+\mdf@middlelinewidth@length}{}%
2217               \ifbool{\mdf@leftline}{+\mdf@middlelinewidth@length}{}%
2218             \relax}{\mdf@middlelinewidth@length}%
2219         }{}%
2220       }{}%
2221     }{}%
2222   }%
2223 }%
2224 \def\mdf@frame@bottomline@middle{%
2225   \rlap{%
2226     {%
2227       \ifbool{\mdf@leftline}{%
2228         {%
2229           \hspace*{-\mdf@middlelinewidth@length}%
2230         }{}%
2231       \mdf@linecolor@default%
2232       \ifbool{\mdf@bottomline}{%
2233         {%
2234           \rule[\dimexpr
2235             -\mdfboundingboxdepth
2236             -\mdf@middlelinewidth@length
2237             \relax]{\dimexpr
2238               \mdfboundingboxtotalwidth
2239               \ifbool{\mdf@rightline}{+\mdf@middlelinewidth@length}{}%}
2240         }{}%
2241       }{}%
2242     }{}%
2243   }%
2244 }%

```

```

2241           \ifboolex{\mdf@leftline}{+\mdf@middlelinewidth@length}{}%
2242             \relax}%
2243             {\mdf@middlelinewidth@length}%
2244           }{}%
2245         }%
2246     }%
2247   }%
2248 \def\mdf@putbox@middle{%
2249   \ifvoid\mdf@splitbox@two\relax%
2250   \else
2251     \mdf@makebox@out%
2252     {%
2253       \mdf@makeboxalign@left%
2254       \setlength{\mdfboundingboxwidth}
2255         {\wd\mdf@splitbox@two}%
2256       \setlength{\mdfboundingboxtotalwidth}%
2257         {\dimexpr
2258           \mdfboundingboxwidth
2259             +\mdf@innerleftmargin@length%
2260             +\mdf@innerrightmargin@length
2261             \relax}%
2262       \setlength{\mdfboundingboxheight}
2263         {\dimexpr
2264           \ht\mdf@splitbox@two
2265             +\dp\mdf@splitbox@two
2266             \relax}%
2267       \setlength{\mdfboundingboxdepth}%
2268         {\dimexpr
2269           \dp\mdf@splitbox@two
2270             +\mdf@splitbottomskip@length
2271             \relax}%
2272       \setlength{\mdfboundingboxtotalheight}%
2273         {\dimexpr
2274           \mdfboundingboxheight
2275             +\mdf@splitbottomskip@length
2276             \relax}%
2277       \setlength{\@tempdima}%
2278         {\dimexpr
2279           \mdfboundingboxtotalwidth%
2280             \ifboolex{\mdf@leftline}{+\mdf@middlelinewidth@length}{}%
2281             \ifboolex{\mdf@rightline}{+\mdf@middlelinewidth@length}{}%
2282             \relax}%
2283     \mdf@makebox@in[\@tempdima]%
2284     {%
2285       \null%
2286       \ifboolex{\mdf@leftline}{%
2287         {%
2288           \hspace*{\mdf@middlelinewidth@length}%
2289           \mdf@frame@leftline@middle%
2290         }{}%
2291       \mdf@frame@background@middle%
2292       \ifboolex{\mdf@everyline}{%
2293         {%
2294           \mdf@frame@topline@middle
2295         }{}%
2296       \ifdefempty{\mdf@frametitle}{}%

```

```

2297           {\mdf@frame@frametitlebackground@middle}%
2298           \ifbool{\mdf@everyline}{%
2299             {%
2300               \mdf@frame@bottomline@middle%
2301             }{}}%
2302             \hspace*{\mdf@innerleftmargin@length}%
2303             \ifbool{\mdf@rightline}{%
2304               {%
2305                 \mdf@frame@rightline@middle%
2306               }{}}%
2307               {\box\mdf@splitbox@two}%
2308             }%
2309             \mdf@makeboxalign@right%
2310           }%
2311         \fi%
2312       }%
2313 \endinput

```

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

```

2314 %% Style file for mdframed for package option 'framemethod=tikz'
2315 %%
2316 %% This package may be distributed under the terms of the LaTeX Project
2317 %% Public License, as described in lppl.txt in the base LaTeX distribution.
2318 %% Either version 1.0 or, at your option, any later version.
2319 %%
2320 %

```

`\mdframedIpackagename`

```

local settings
2321 \def\mdframedIpackagename{md-frame-1}
2322 \ProvidesFile{md-frame-1.mdf}%
2323   [\mdfmaindate\ %
2324   \mdversion: \mdframedIpackagename]
2325 %

```

`\mdf@tikz@settings`

```

Define settings for tikz
2326 %Allgemeine Einstellungen fuer tikz
2327 \def\mdf@tikz@settings{%
2328 %
2329 %% \mdf@testdraftmode%
2330 \tikzset{mdfbox/.style={anchor=south west,%
2331           inner sep=0pt,%
2332           outer sep=0pt,%
2333           \mdf@fontcolor,%
2334         }%
2335         }% anchor der Ausgabebox ist unten links
2336 \tikzset{mdfcorners/.style={rounded corners=\mdf@roundcorner@length}}%
2337 \tikzset{mdfbackground/.style={fill=\mdf@backgroundcolor,%
2338           draw=\mdf@backgroundcolor%
2339         }%

```

```

2340      }%
2341  \tikzset{mdfframetitlebackground/.style=%
2342          {%
2343              fill=\mdf@frametitlebackgroundcolor,%
2344              draw=none,%
2345              rounded corners={max(\mdf@roundcorner@length%
2346                  -\mdf@innerlinewidth@length%
2347                  -.5\mdf@middles linewidth@length,0)}%
2348          }%
2349      }%
2350  }%
2351 %
2352 \tikzset{mdfouternline/.style={}%
2353 % nur wenn outerlinewidth>0 wird aussere Linie gezeichnet
2354 \ifdimgreater{\mdf@outerlinewidth@length}{\z@}%
2355     {\tikzset{mdfouternline/.append style={%
2356         draw=\mdf@outerlinecolor,%
2357         line width=2\mdf@outerlinewidth@length+\mdf@middles linewidth@length}}}{}}%
2358 %
2359 \tikzset{mdfinnerline/.style={}%
2360 % nur wenn innerlinewidth>0 wird innere Linie gezeichnet
2361 \ifdimgreater{\mdf@innerlinewidth@length}{\z@}%
2362     {\tikzset{mdfinnerline/.append style={%
2363         draw=\mdf@innerlinecolor,%
2364         line width=2\mdf@innerlinewidth@length+\mdf@middles linewidth@length}}}{}}%
2365 %
2366 \tikzset{mdfshadow/.style={drop shadow=%
2367             shadow xshift=\mdf@shadowsize@length-2pt,
2368             shadow yshift=-\mdf@shadowsize@length+2pt,
2369             fill=\mdf@shadowcolor,
2370             every shadow }}}%
2371 %
2372 \mdf@tikzset@local
2373 \tikzset{mdfmiddleline/.style={}%
2374 % nur wenn middles linewidth>0 wird mittlere Linie gezeichnet
2375 \ifdimgreater{\mdf@middles linewidth@length}{\z@}%
2376     {\tikzset{mdfmiddleline/.append style={%
2377         preaction={draw=\mdf@middles linewidthcolor,%
2378             line width=\mdf@middles linewidth@length},%
2379         line width=\mdf@middles linewidth@length,%
2380         tikzsetting}}}{}}%
2381 }{}%
2382 }%

```

```

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

```

Befehle fuer Ausgabe von Rahmen und Hintergrund

```

2383 \newrobustcmd*\mdf@tikzbox@tfl[1]{%three or four borders
2384     \clip(0,0)rectangle(\mdfboundingboxwidth,\mdfboundingboxheight);%
2385     \begin{scope}[mdfcorners]%
2386         \clip[preaction=mdfouternline]%
2387             [postaction=mdfbackground]%
2388             [postaction=mdfinnerline]#1;%
2389     \end{scope}%

```

```

2390   \path[mdfmiddleline,mdfcorners]#1;
2391 }%
2392
2393
2394
2395 \newrobustcmd*\mdf@tikzbox@otl[2]{%one or two borders
2396   \clip(0,0)rectangle(\mdfboundingboxwidth,\mdfboundingboxheight);%
2397   \begin{scope}
2398     \path[mdfouterline,mdfcorners]#1;%
2399     \clip[postaction=mdfbackground]#2;%
2400     \path[mdfinnerline,mdfcorners]#1;%
2401   \end{scope}%
2402   \path[mdfmiddleline,mdfcorners]#1;}%

```

`\mdf@testdraftmode`

draftmode test

```

2403 %%\newrobustcmd*\mdf@testdraftmode{%
2404 %% \ifbooleq{\mdf@draft}{%
2405 %%   {%
2406 %%     \renewrobustcmd*\mdf@tikzbox@tfl[1]{%three or four borders
2407 %%       \path(0,0)rectangle(\mdfboundingboxwidth,\mdfboundingboxheight);%
2408 %%       \begin{scope}[mdfcorners]{%
2409 %%         \clip[preaction=mdfouterline]{%
2410 %%           [postaction=mdfbackground]{%
2411 %%             [postaction=mdfinnerline]##1;%
2412 %%           }%
2413 %%         \path[mdfmiddleline,mdfcorners]##1;%
2414 %%       }%
2415 %%     \renewrobustcmd*\mdf@tikzbox@otl[2]{%one or two borders
2416 %%       \path(0,0)rectangle(\mdfboundingboxwidth,\mdfboundingboxheight);%
2417 %%       \begin{scope}
2418 %%         \path[mdfouterline,mdfcorners]##1;%
2419 %%         \clip[postaction=mdfbackground]##2;%
2420 %%         \path[mdfinnerline,mdfcorners]##1;%
2421 %%       \end{scope}%
2422 %%       \path[mdfmiddleline,mdfcorners]##1;}%
2423 %%     }%
2424 %%   }{%
2425 %%     \ifdim\overfullrule>0pt{%
2426 %%       \renewrobustcmd*\mdf@tikzbox@tfl[1]{%three or four borders
2427 %%         \path(0,0)rectangle(\mdfboundingboxwidth,\mdfboundingboxheight);%
2428 %%         \begin{scope}[mdfcorners]{%
2429 %%           \clip[preaction=mdfouterline]{%
2430 %%             [postaction=mdfbackground]{%
2431 %%               [postaction=mdfinnerline]##1;%
2432 %%             }%
2433 %%           \path[mdfmiddleline,mdfcorners]##1;%
2434 %%         }%
2435 %%       \renewrobustcmd*\mdf@tikzbox@otl[2]{%one or two borders
2436 %%         \path(0,0)rectangle(\mdfboundingboxwidth,\mdfboundingboxheight);%
2437 %%         \begin{scope}
2438 %%           \path[mdfouterline,mdfcorners]##1;%
2439 %%           \clip[postaction=mdfbackground]##2;%
2440 %%           \path[mdfinnerline,mdfcorners]##1;}%

```

```

2441 %%      \end{scope}%
2442 %%      \path[mdfmiddleline,mdfcorners]##1;%
2443 %%      }%
2444 %%      }{}}%
2445 %%      }%
2446 %%}

```

`\mdf@put@frametitlerule`

frametitlerule with tikz

```

2447 \tikzset{mdfframetitlerule/.style={%
2448   draw=none,
2449   fill=\mdf@frametitlerulecolor,
2450 }%
2451 }
2452 \def\mdf@@frametitlerule{%
2453   \ifbool{\mdf@frametitlerule}{%
2454     \vbox{\hsize0pt
2455       \par\unskip\vskip\mdf@frametitlebeforeskip@length
2456       \noindent\rloop{\hspace*{-\mdf@innerleftmargin@length}%
2457         \begingroup%
2458           \pgfmathsetlength{\dimen@}{\mdfframetitleboxwidth
2459             +\mdf@innerleftmargin@length
2460             +\mdf@innersrightmargin@length}%
2461           \tikz\draw[mdfframetitlerule] (0,0)%
2462             rectangle (\dimen@,\mdf@frametitlerulewidth@length);
2463         \endgroup}
2464     }%
2465   }{%
2466     \vbox{\hsize0pt
2467       \par\unskip\vskip\mdf@frametitlebeforeskip@length
2468       \noindent\rloop{}%
2469     }%
2470   }%
2471 \iftoggle{\mdf@notfirstframetitle}{%
2472   {%
2473     \par\unskip\vskip\mdf@splittopskip@length%
2474   }%
2475   {%
2476     \par\unskip\vskip\mdf@innertopmargin@length%
2477   }%
2478 }%
2479

```

`\mdfsubtitle`

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

```

2480 %
2481 \tikzset{mdfsubtitleaboverule/.style={%
2482   draw=none,
2483   fill=\mdf@subtitleabovelinecolor,
2484 }%
2485 }

```

Definition of the default style of rule below the subtitle.

```
2486 \tikzset{mdfsubtitlebelowrule/.style={%
2487   draw=none,
2488   fill=\mdf@subtitlebelowlinecolor,
2489 }%
2490 }
```

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

```
2491 \tikzset{mdfsubtitlebackground/.style={%
2492   draw=\mdf@subtitlebackgroundcolor,
2493   fill=\mdf@subtitlebackgroundcolor,
2494 }%
2495 }
```

Definition of the command `\mdfsubtitle`.

```
2496 \newrobustcmd\mdfsubtitle[2][]%
2497 {%
```

Make everything local.

```
2498 \begingroup
2499 \penalty-9995%set a breakpoint before the subtitle
2500 % \end{macrocode}
2501 % Inside the title we don't need any \Cmd{parindent}. Next set the options of
2502 % the optional argument of \Cmd{mdfsubtitle}.
2503 % \begin{macrocode}
2504 \parindent\z@\relax%
2505 \mdfsetup{#1}only for subtitle options
2506 % \end{macrocode}
2507 % Save the complete subtitle inside the save box \Cmd{z@}.
2508 % \begin{macrocode}
2509 \setbox\z@=\vbox{\mdf@subtitlefont{#2}\relax}%
2510 % \end{macrocode}
2511 % Compute the width of the current line including the inner left margin and
2512 % inner right margin (using \Cmd{dimen@}. In the next step the height and the
2513 % depth of the save box will be saved in \Cmd{dimen@i}.
2514 % \begin{macrocode}
2515 \pgfmathsetlength{\dimen@}%
2516   {%
2517     \linewidth%
2518     +\mdf@innerleftmargin@length%
2519     +\mdf@innerrightmargin@length%
2520   }%
2521 % \end{macrocode}
2522 % Test if rules should be drawn. otherwise set the line width to 0\pt.
2523 % \begin{macrocode}
2524 \ifbool{mdf@subtitleaboveline}{}{%
2525   {\mdfsetup{subtitleabovelinewidth=\z@}}%
2526 \ifbool{mdf@subtitlebelowline}{}{%
2527   {\mdfsetup{subtitlebelowlinewidth=\z@}}%
2528 % \end{macrocode}
2529 % Start a new line with the given skip \Opt{subtitleaboveskip}.
2530 % \begin{macrocode}
2531 \par\unskip\ifvmode\nointerlineskip\hrule\@height\z@ \@width\hsize\fi%
2532 \vskip\mdf@subtitleaboveskip@length
2533 % \end{macrocode}
2534 % Drawing the above line of the subtitle.
2535 % \begin{macrocode}
2536 \rlap%
```

```

2537 {%
2538   \hspace*{-\mdf@innerleftmargin@length}%
2539   \begingroup%
2540     \tikz\draw[mdfsubtitleaboverule] (0,0)%
2541       rectangle (\dimen@,\mdf@subtitleabovelinewidth@length);%
2542   \endgroup%
2543 }%
2544 %      \end{macrocode}
2545 % space between rule above and subtitle
2546 %      \begin{macrocode}
2547 \par\unskip\ifvmode\nointerlineskip\hrule \@height\z@\@width\hsize\fi%
2548 \vskip\mdf@subtitleinneraboveskip@length
2549 %      \end{macrocode}
2550 % output of subtitle with a background. Must think about the \Cmd{hspace}%
2551 % combination.
2552 %      \begin{macrocode}
2553 \leavevmode\hspace*{-\mdf@innerleftmargin@length}%
2554 \tikz[overlay]%
2555   \draw[mdfsubtitlebackground]
2556     (0,-\mdf@subtitleinnerbelowskip@length-\dp\z@)
2557     rectangle(\dimen@,\ht\z@+\mdf@subtitleinneraboveskip@length);%
2558 \hspace*{+\mdf@innerleftmargin@length}%
2559 \box\z@\relax%
2560 %      \end{macrocode}
2561 % Skip after subtitle
2562 %      \begin{macrocode}
2563 \par\unskip\ifvmode\nointerlineskip\hrule \@height\z@\@width\hsize\fi%
2564 \vskip\mdf@subtitleinnerbelowskip@length
2565 %      \end{macrocode}
2566 % Draw rule below of the subtitle.
2567 %      \begin{macrocode}
2568 \rlap{%
2569 {%
2570   \hspace*{-\mdf@innerleftmargin@length}%
2571   \begingroup%
2572     \tikz\draw[mdfsubtitlebelowrule] (0,0)%
2573       rectangle (\dimen@,\mdf@subtitlebelowlinewidth@length);%
2574   \endgroup%
2575 }%
2576 %      \end{macrocode}
2577 % Last skip and set a non breaking point.
2578 %      \begin{macrocode}
2579 \par\unskip\ifvmode\nointerlineskip\hrule \@height\z@\@width\hsize\fi%
2580 \vskip\mdf@subtitlebelowskip@length
2581 \penalty 9995
2582 \endgroup
2583 }
2584

```

\mdfsubsubtitle

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

```

2585 %
2586 \tikzset{mdfsubsubtitleaboverule/.style={%
2587   draw=none,

```

```

2588   fill=\mdf@subsubtitleabovelinecolor,
2589 }%
2590 }

```

Definition of the default style of rule below the subsubtitle.

```

2591 \tikzset{mdfsubsubtitlebelowrule/.style={%
2592   draw=none,
2593   fill=\mdf@subsubtitlebelowlinecolor,
2594 }%
2595 }

```

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

```

2596 \tikzset{mdfsubsubtitlebackground/.style={%
2597   draw=\mdf@subsubtitlebackgroundcolor,
2598   fill=\mdf@subsubtitlebackgroundcolor,
2599 }%
2600 }

```

Definition of the command `\mdfsubsubtitle`.

```

2601 \newrobustcmd\mdfsubsubtitle[2][]%
2602 {%

```

Make everything local.

```

2603 \begingroup
2604 \penalty-9995%set a breakpoint before the subsubtitle
2605 % \end{macrocode}
2606 % Inside the title we don't need any \Cmd{parindent}. Next set the options of
2607 % the optional argument of \Cmd{mdfsubsubtitle}.
2608 % \begin{macrocode}
2609 \parindent\z@\relax%
2610 \mdfsetup{#1}%only for subsubtitle options
2611 % \end{macrocode}
2612 % Save the complete subsubtitle inside the save box \Cmd{z@}.
2613 % \begin{marcocode}
2614 \setbox\z@=\vbox{\mdf@subsubtitlefont{#2}\relax}%
2615 % \end{macrocode}
2616 % Compute the width of the current line including the inner left margin and
2617 % inner right margin (using \Cmd{dimen@}. In the next step the height and the
2618 % depth of the save box will be saved in \Cmd{dimen@i}.
2619 % \begin{marcocode}
2620 \pgfmathsetlength{\dimen@}%
2621   {%
2622     \linewidth%
2623     +\mdf@innerleftmargin@length%
2624     +\mdf@innerrightmargin@length%
2625   }%
2626 % \end{macrocode}
2627 % Test if rules should be drawn. otherwise set the line width to 0\pt.
2628 % \begin{macrocode}
2629 \ifbool{mdf@subsubtitleaboveline}{}%
2630   {\mdfsetup{subsubtitleabovelinewidth=\z@}}%
2631 \ifbool{mdf@subsubtitlebelowline}{}%
2632   {\mdfsetup{subsubtitlebelowlinewidth=\z@}}%
2633 % \end{macrocode}
2634 % Start a new line with the given skip \Opt{subsubtitleaboveskip}.
2635 % \begin{macrocode}
2636 \par\vunskip\ifvmode\nointerlineskip\hrule\@height\z@\@width\hsize\fi%
2637 \vskip\mdf@subsubtitleaboveskip@length

```

```

2638 %      \end{macrocode}
2639 % Drawing the above line of the subsubtitle.
2640 %      \begin{macrocode}
2641 \rlap%
2642 {%
2643 \hspace*{-\mdf@innerleftmargin@length}%
2644 \begingroup%
2645 \tikz\draw[mdfsubsubtitleaboverule] (0,0)%
2646 rectangle (\dimen@,\mdf@subsubtitleabovelinewidth@length);
2647 \endgroup%
2648 }%
2649 %      \end{macrocode}
2650 % space between rule above and subsubtitle
2651 %      \begin{macrocode}
2652 \par\unskip\ifvmode\nointerlineskip\hrule \atheight\z@ \atwidth\hsize\fi%
2653 \vskip\mdf@subsubtitleinneraboveskip@length
2654 %      \end{macrocode}
2655 % output of subsubtitle with a background. Must think about the \Cmd{hspace}
2656 % combination.
2657 %      \begin{macrocode}
2658 \hspace*{-\mdf@innerleftmargin@length}%
2659 \tikz[overlay]%
2660 \draw[mdfsubsubtitlebackground]
2661 (0,-\mdf@subsubtitleinnerbelowskip@length-\dp\z@)
2662 rectangle(\dimen@,\ht\z@+\mdf@subsubtitleinneraboveskip@length);%
2663 \hspace*{+\mdf@innerleftmargin@length}%
2664 \box\z@\relax%
2665 %      \end{macrocode}
2666 % Skip after subsubtitle
2667 %      \begin{macrocode}
2668 \par\unskip\ifvmode\nointerlineskip\hrule \atheight\z@ \atwidth\hsize\fi%
2669 \vskip\mdf@subsubtitleinnerbelowskip@length
2670 %      \end{macrocode}
2671 % Draw rule below of the subsubtitle.
2672 %      \begin{macrocode}
2673 \rlap%
2674 {%
2675 \hspace*{-\mdf@innerleftmargin@length}%
2676 \begingroup%
2677 \tikz\draw[mdfsubsubtitlebelowrule] (0,0)%
2678 rectangle (\dimen@,\mdf@subsubtitlebelowlinewidth@length);
2679 \endgroup%
2680 }%
2681 %      \end{macrocode}
2682 % Last skip and set a non breaking point.
2683 %      \begin{macrocode}
2684 \par\unskip\ifvmode\nointerlineskip\hrule \atheight\z@ \atwidth\hsize\fi%
2685 \vskip\mdf@subsubtitlebelowskip@length
2686 \penalty 9995
2687 \endgroup
2688 }
2689

```

`\mdf@putbox@single`

Output of the non breakable contents.

```

2690 % Info zu den verwendeten Punkten:
2691 % O ist die untere linke Ecke der Mitte der middleline
2692 % P ist die obere rechte Ecke der Mitte der middleline
2693 % A ist der Punkt fuer den anchor (d.h. die untere linke Ecke) der Ausgabebox
2694 %
2695 \def\mdf@putbox@single{%
2696   \ifvoid\mdf@splitbox@one
2697   \else%
2698     \mdf@makebox@out{%
2699       \mdf@makeboxalign@left%
2700       \mdf@tikz@settings%
2701   %
2702     \setlength\mdfboundingboxwidth{\wd\mdf@splitbox@one}%
2703     \advance\mdfboundingboxwidth by \mdf@innerleftmargin@length\relax%
2704     \advance\mdfboundingboxwidth by \mdf@innerrightmargin@length\relax%
2705     \ifbool{\mdf@leftline}{%
2706       \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
2707       \advance\mdfboundingboxwidth by \mdf@middles linewidth@length\relax%
2708       \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}{}%
2709     \ifbool{\mdf@rightline}{%
2710       \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
2711       \advance\mdfboundingboxwidth by \mdf@middles linewidth@length\relax%
2712       \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}{}%
2713 %
2714   \setlength\mdfboundingboxheight{%
2715     \dimexpr\ht\mdf@splitbox@one+\dp\mdf@splitbox@one\relax}%
2716   \advance\mdfboundingboxheight by \mdf@innertopmargin@length\relax%
2717   \advance\mdfboundingboxheight by \mdf@innerbottommargin@length\relax%
2718   \ifbool{\mdf@topline}{%
2719     \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
2720     \advance\mdfboundingboxheight by \mdf@middles linewidth@length\relax%
2721     \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}{}%
2722   \ifbool{\mdf@bottomline}{%
2723     \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
2724     \advance\mdfboundingboxheight by \mdf@middles linewidth@length\relax%
2725     \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}{}%
2726   \mdf@makebox@in[\mdfboundingboxwidth]%
2727   \null%
2728   \begin{tikzpicture}[remember picture]
2729     \pgfmathsetlengthmacro\mdf@Ax{+\mdf@innerleftmargin@length}%
2730     \pgfmathsetlengthmacro\mdf@Ay{+\mdf@innerbottommargin@length}%
2731     \pgfmathsetlengthmacro\mdf@Ox{+0pt}%
2732     \pgfmathsetlengthmacro\mdf@Oy{+0pt}%
2733     \pgfmathsetlengthmacro\mdf@Px{+\mdfboundingboxwidth}%
2734     \pgfmathsetlengthmacro\mdf@Py{+\mdfboundingboxheight}%
2735     \ifbool{\mdf@leftline}{%
2736       {%
2737         \pgfmathsetlengthmacro\mdf@Ax{%
2738           {\mdf@Ax+\mdf@outerlinewidth@length+}%
2739           \mdf@middles linewidth@length+\mdf@innerlinewidth@length}%
2740         \pgfmathsetlengthmacro\mdf@Ox{%
2741           {\mdf@Ox+\mdf@outerlinewidth@length+0.5\mdf@middles linewidth@length}%
2742       }{}}%
2743     \ifbool{\mdf@rightline}{%
2744       {%
2745

```

```

2745      \pgfmathsetlengthmacro\mdf@Px%
2746          {\mdf@Px-\mdf@outerlinewidth@length-0.5\mdf@middlelinewidth@length}%
2747      }{}%
2748 \ifbool{\mdf@bottomline}%
2749     {%
2750       \pgfmathsetlengthmacro\mdf@Ay%
2751       {\mdf@Ay+\mdf@outerlinewidth@length+\mdf@middlelinewidth@length}%
2752       +\mdf@innerlinewidth@length}%
2753       \pgfmathsetlengthmacro\mdf@Oy%
2754       {\mdf@Oy+\mdf@outerlinewidth@length+0.5\mdf@middlelinewidth@length}%
2755     }{}%
2756 \ifbool{\mdf@topline}%
2757     {%
2758       \pgfmathsetlengthmacro\mdf@Py%
2759       {\mdf@Py-\mdf@outerlinewidth@length-0.5\mdf@middlelinewidth@length}%
2760     }{}%
2761 %
2762 \coordinate(0)at(\mdf@Ox,\mdf@Oy);%
2763 \coordinate(P)at(\mdf@Px,\mdf@Py);%
2764 %
2765 \ifbool{\mdf@shadow}%
2766   {\path[\mdfshadow,\mdfcorners](0) rectangle (P);}{}%
2767 %
2768 \begin{scope}
2769 \begin{scope}[use as bounding box]
2770   \mdf@test@lrb{\mdf@tikzbox@tfl{(0)--(0|-P)--(P)--(P|-0)--cycle}}{}%
2771 %
2772   \mdf@test@ltb{\mdf@tikzbox@tfl{(P|-0)--(0)--(0|-P)--(P)}}{}%
2773   \mdf@test@trb{\mdf@tikzbox@tfl{(0|-P)--(P)--(P|-0)--(0)}}{}%
2774   \mdf@test@ltr{\mdf@tikzbox@tfl{(0)--(0|-P)--(P)--(P|-0)}}{}%
2775   \mdf@test@lrb{\mdf@tikzbox@tfl{(P|-0)--(0)--(0|P)--(P)}}{}%
2776 %
2777   \mdf@test@lb{\mdf@tikzbox@otl{(P|-0)--(0)--(0|-P)}%
2778           {(P)--(P|-0)[\mdfcorners]--(0)--(0|-P)}}{}%
2779   \mdf@test@rb{\mdf@tikzbox@otl{(P)--(P|-0)--(0)}%
2780           {(0|-P)--(P)[\mdfcorners]--(P|-0)--(0)}}{}%
2781   \mdf@test@tr{\mdf@tikzbox@otl{(0|-P)--(P)--(P|-0)}%
2782           {(0)--(0|-P)[\mdfcorners]--(P)--(P|-0)}}{}%
2783   \mdf@test@tr{\mdf@tikzbox@otl{(0|-P)--(P)--(P|-0)}%
2784           {(0)--(0|-P)[\mdfcorners]--(P)--(P|-0)}}{}%
2785   \mdf@test@lt{\mdf@tikzbox@otl{(0)--(0|-P)--(P)}%
2786           {(P|-0)--(0)[\mdfcorners]--(0|-P)--(P)}}{}%
2787   \mdf@test@lr{\mdf@tikzbox@otl{(0)--(0|-P)(P)--(P|-0)}%
2788           {(0)rectangle(P)}}{}%
2789   \mdf@test@tb{\mdf@tikzbox@otl{(0)--(0|-P)(0|-P)--(P)}%
2790           {(0)rectangle(P)}}{}%
2791   \mdf@test@l{\mdf@tikzbox@otl{(0)--(0|-P)}%
2792           {(0)rectangle(P)}}{}%
2793   \mdf@test@r{\mdf@tikzbox@otl{(0|-P)--(P)}%
2794           {(0)rectangle(P)}}{}%
2795 %
2796   \mdf@test@l{\mdf@tikzbox@otl{(0)--(0|-P)}%
2797           {(0)rectangle(P)}}{}%
2798   \mdf@test@r{\mdf@tikzbox@otl{(0|-P)--(P)}%
2799           {(0)rectangle(P)}}{}%
2800

```

```

2801      }{}%
2802      \mdf@test@t{\mdf@tikzbox@otl{(0|-P)--(P)}%
2803                      {(0)rectangle(P)}%
2804                      }{}%
2805      \mdf@test@b{\mdf@tikzbox@otl{(0)--(0-|P)}%
2806                      {(0)rectangle(P)}%
2807                      }{}%
2808 %
2809      \mdf@test@noline{\path[mdfbackground,mdfcorners](0)rectangle(P);}{}%
2810 %
2811      %Frametitlebackground
2812      \drawbackgroundframetitle@single
2813  \end{scope}
2814 %
2815      \node[mdfbox]at(\mdf@Ax,\mdf@Ay){\box\mdf@splitbox@one};%output
2816  \end{scope}
2817  %HIER KOMMT EIN WEITERES MAKRO
2818  \mdf@singlextra
2819  \mdfcreateextratikz
2820  \end{tikzpicture}%
2821  }%
2822  \mdf@makeboxalign@right%
2823 }%
2824 \fi
2825 }%
2826 \def\drawbackgroundframetitle@single{%
2827 \ifdefempty{\mdf@frametitle}{}{%
2828   \drawbackgroundframetitle@single%
2829 }%
2830 }%
2831 \def\drawbackgroundframetitle@@single{%
2832   \begin{scope}%background frame title
2833     \ifbool{\mdf@leftline}{%
2834       \pgfmathsetlengthmacro\mdf@0x%
2835       {\mdf@0x+\mdf@innerlinewidth@length+0.5\mdf@middle linewidth@length}%
2836     }{}%
2837     \ifbool{\mdf@rightline}{%
2838       \pgfmathsetlengthmacro\mdf@Px%
2839       {\mdf@Px-\mdf@innerlinewidth@length-0.5\mdf@middle linewidth@length}%
2840     }{}%
2841     \ifbool{\mdf@topline}{%
2842       \pgfmathsetlengthmacro\mdf@Py%
2843       {\mdf@Py-\mdf@innerlinewidth@length-0.5\mdf@middle linewidth@length}%
2844     }{}%
2845     \pgfmathsetlengthmacro\mdf@Fy%
2846     {\mdf@Py-\mdfframetitleboxtotalheight}%
2847     \path[mdfframetitlebackground]
2848       (\mdf@0x,\mdf@Fy) -- (\mdf@0x,\mdf@Py)%
2849       --(\mdf@Px,\mdf@Py) --(\mdf@Px,\mdf@Fy);%
2850   \end{scope}
2851 }

```

`\mdf@putbox@first`

Output of the first breakable contents.

```

2852 \def\drawbackgroundframetitle@first{%
2853   {%
2854     \ifbool{mdf@repeatframetitle}{%
2855       {%
2856         \repeating title = true
2857         \begin{scope}%
2858           \ifbool{mdf@leftline}{%
2859             \pgfmathsetlengthmacro\mdf@0x{%
2860               {\mdf@0x+\mdf@innerlinewidth@length+0.5\mdf@middle linewidth@length}}%
2861             }{%
2862             \ifbool{mdf@rightline}{%
2863               \pgfmathsetlengthmacro\mdf@Px{%
2864                 {\mdf@Px-\mdf@innerlinewidth@length-0.5\mdf@middle linewidth@length}}%
2865               }{%
2866               \ifbool{mdf@topline}{%
2867                 \pgfmathsetlengthmacro\mdf@Py{%
2868                   {\mdf@Py-\mdf@innerlinewidth@length-.5\mdf@middle linewidth@length}}%
2869                 }{%
2870                   \pgfmathsetlengthmacro\mdf@Fy{%
2871                     {\mdf@Py-\mdfframetitleboxtotalheight}}%
2872                   \coordinate(P)at(\mdf@Px,\mdf@Py);%
2873                   \path[mdfframetitlebackground]{%
2874                     (\mdf@0x,\mdf@Fy) -- (\mdf@0x,\mdf@Py)%
2875                     --(\mdf@Px,\mdf@Py) --(\mdf@Px,\mdf@Fy);%
2876                   }%
2877                 }%
2878               \ifdefempty{\mdf@frametitle}{%
2879                 {%
2880                   \ifdimgreater{\mdfboundingboxheight}{\mdfframetitleboxtotalheight}{%
2881                     {%
2882                       \drawbackgroundframetitle@@first
2883                       \pgfmathsetlength{\global\mdfframetitleboxtotalheight}{-\p0}%
2884                     }{\mdf@PackageWarning{%
2885                         {You got a page break inside the frame title\MessageBreak
2886                           Currently this isn't well supported}}%
2887                         \drawbackgroundframetitle@first
2888                         \pgfmathsetlength{\global\mdfframetitleboxtotalheight}{%
2889                           {\mdfframetitleboxtotalheight
2890                             -\mdfboundingboxheight
2891                             -\mdf@innerlinewidth@length
2892                             -0.5\mdf@middle linewidth@length%
2893                             +\mdf@frametitlebelowskip@length
2894                             +\mdf@splitbottomskip@length
2895                             +\mdf@splittopskip@length
2896                             -\dp\strutbox}%
2897                         }%
2898                     }%
2899                   }%
2900                 }%
2901               }%
2902             }%
2903           }%
2904         \def\drawbackgroundframetitle@@first{%
2905           \begin{scope}%
2906             \ifbool{mdf@leftline}{%
2907               \pgfmathsetlengthmacro\mdf@0x{%

```

```

2908      {\mdf@0x+\mdf@innerlinewidth@length+0.5\mdf@middlelinewidth@length}
2909      }{}%
2910      \ifbool{mdf@rightline}{}%
2911          \pgfmathsetlengthmacro{\mdf@Px}{%
2912              {\mdf@Px-\mdf@innerlinewidth@length-0.5\mdf@middlelinewidth@length}}
2913          }{}%
2914      \ifbool{mdf@topline}{}%
2915          \pgfmathsetlengthmacro{\mdf@Py}{%
2916              {\mdf@Py-\mdf@innerlinewidth@length-0.5\mdf@middlelinewidth@length}}
2917          }{}%
2918          \pgfmathsetlengthmacro{\mdf@Fy}{%
2919              {max(0,\mdf@Py-\mdfframetitleboxtotalheight)}}
2920          \path[mdfframetitlebackground]
2921              (\mdf@0x,\mdf@Fy) -- (\mdf@0x,\mdf@Py)%
2922              --(\mdf@Px,\mdf@Py) --(\mdf@Px,\mdf@Fy);
2923      \end{scope}%
2924 }%
2925 %
2926 \def\mdf@putbox@first{%
2927     \ifvoid\mdf@splitbox@two
2928     \else%
2929         \mdf@makebox@out{%
2930             \mdf@makeboxalign@left%
2931             \mdf@tikz@settings%
2932             \setlength\mdfboundingboxwidth{\wd\mdf@splitbox@two}%
2933             \advance\mdfboundingboxwidth by \mdf@innerleftmargin@length\relax%
2934             \advance\mdfboundingboxwidth by \mdf@innersrightmargin@length\relax%
2935             \ifbool{mdf@leftline}{}%
2936                 \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
2937                 \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
2938                 \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}{}%
2939         \ifbool{mdf@rightline}{}%
2940             \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
2941             \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
2942             \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}{}%
2943         \setlength\mdfboundingboxheight{%
2944             {\dimexpr\ht\mdf@splitbox@two+\dp\mdf@splitbox@two\relax}%
2945             \advance\mdfboundingboxheight by \mdf@innertopmargin@length\relax%
2946             \advance\mdfboundingboxheight by \mdf@splitbottomskip@length\relax%
2947             \ifbool{mdf@topline}{}%
2948                 \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
2949                 \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
2950                 \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}{}%
2951 %%%%%%%%
2952         \ifbool{mdf@everyline}{}%
2953             \ifbool{mdf@bottomline}{}%
2954                 \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
2955                 \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
2956                 \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}{}%
2957             }{}%
2958 %%%%%%%
2959     \ifdimequal{\pagegoal}{\maxdimen}{\enlargethispage{\baselineskip}}{}% ???
2960     \ifdimgreater{\pagegoal-\maxdimen}{0pt}{}{\enlargethispage{\baselineskip}}%
2961     \mdf@makebox@in[\mdfboundingboxwidth]%
2962     \null%
2963     \begin{tikzpicture}[remember picture]

```

```

2964 \pgfmathsetlengthmacro{\mdf@Ax}{+\mdf@innerleftmargin@length}%
2965 \pgfmathsetlengthmacro{\mdf@Ay}{+\mdf@splitbottomskip@length}%
2966 \pgfmathsetlengthmacro{\mdf@Ox}{+0pt}%
2967 \pgfmathsetlengthmacro{\mdf@Oy}{+0pt}%
2968 \pgfmathsetlengthmacro{\mdf@Px}{+\mdfboundingboxwidth}%
2969 \pgfmathsetlengthmacro{\mdf@Py}{+\mdfboundingboxheight}%
2970 \ifbool{\mdf@leftline}{%
2971   {%
2972     \pgfmathsetlengthmacro{\mdf@Ax}{%
2973       {\mdf@Ax+\mdf@outerlinewidth@length+%
2974         \mdf@middle linewidth@length+\mdf@innerlinewidth@length}%
2975     \pgfmathsetlengthmacro{\mdf@Ox}{%
2976       {\mdf@Ox+\mdf@outerlinewidth@length+0.5\mdf@middle linewidth@length}%
2977     }{}}%
2978   \ifbool{\mdf@rightline}{%
2979     \pgfmathsetlengthmacro{\mdf@Px}{%
2980       {\mdf@Px-\mdf@outerlinewidth@length-0.5\mdf@middle linewidth@length}%
2981     }{}}%
2982   \ifbool{\mdf@topline}{%
2983     \pgfmathsetlengthmacro{\mdf@Py}{%
2984       {\mdf@Py-\mdf@outerlinewidth@length-0.5\mdf@middle linewidth@length}%
2985     }{}}%
2986 %%%
2987 \ifbool{\mdf@everyline}{%
2988   \ifbool{\mdf@bottomline}{%
2989     {%
2990       \pgfmathsetlengthmacro{\mdf@Ay}{%
2991         {\mdf@Ay+\mdf@outerlinewidth@length+\mdf@middle linewidth@length}%
2992         +\mdf@innerlinewidth@length}%
2993       \pgfmathsetlengthmacro{\mdf@Oy}{%
2994         {\mdf@Oy+\mdf@outerlinewidth@length+0.5\mdf@middle linewidth@length}%
2995     }{}}%
2996   }{}}%
2997 %%%
2998 \coordinate(0)at(\mdf@Ox,\mdf@Oy);%
2999 \coordinate(P)at(\mdf@Px,\mdf@Py);%
3000 \ifbool{\mdf@shadow}{%
3001   \path[\mdfshadow] (0) -- (0|-P) to[\mdfcorners] (P) -- (P|-0) -- (0);}{%
3002 \begin{scope}
3003   \begin{scope}[use as bounding box]
3004 %%%%%%%%
3005   \ifbool{\mdf@everyline}{%
3006     \mdf@test@lrb{\mdf@tikzbox@tfl{(0)--(0|-P)--(P)--(P|-0)--cycle}}{%
3007     \mdf@test@ltb{\mdf@tikzbox@tfl{(P|-0)--(0)--(0|-P)--(P)}}{%
3008     \mdf@test@trb{\mdf@tikzbox@tfl{(0|-P)--(P)--(P|-0)--(0)}}{%
3009     \mdf@test@ltr{\mdf@tikzbox@tfl{(0)--(0|-P)--(P)--(P|-0)}}{%
3010     \mdf@test@lrb{\mdf@tikzbox@tfl{(P|-0)--(0)--(0|-P)--(P)}}{%
3011     \mdf@test@lb{\mdf@tikzbox@otl{(P|-0)--(0)--(0|-P)}{%
3012       {(P)--(P|-0)[\mdfcorners]--(0)--(0|-P)}}{%
3013     }{}}%
3014     \mdf@test@rb{\mdf@tikzbox@otl{(P)--(P|-0)--(0)}{%
3015       {(0|-P)--(P)[\mdfcorners]--(P|-0)--(0)}}{%
3016     }{}}%
3017     \mdf@test@tr{\mdf@tikzbox@otl{(0|-P)--(P)--(P|-0)}{%
3018       {(0)--(0|-P)[\mdfcorners]--(P)--(P|-0)}}{%
3019     }{}}%

```

```

3020   \mdf@test@lt{\mdf@tikzbox@otl{(0)--(0|-P)--(P)}%
3021                               {(P|-0)--(0)[mdfcorners]--(0|-P)--(P)}%
3022                           }{}%
3023   \mdf@test@lr{\mdf@tikzbox@otl{(0)--(0|-P)(P)--(P|-0)}%
3024                               {(0)rectangle(P)}%
3025                           }{}%
3026   \mdf@test@tb{\mdf@tikzbox@otl{(0)--(0-|P)(0|-P)--(P)}%
3027                               {(0)rectangle(P)}%
3028                           }{}%
3029   \mdf@test@l{\mdf@tikzbox@otl{(0)--(0|-P)}%
3030                               {(0)rectangle(P)}%
3031                           }{}%
3032   \mdf@test@r{\mdf@tikzbox@otl{(0-|P)--(P)}%
3033                               {(0)rectangle(P)}%
3034                           }{}%
3035   \mdf@test@t{\mdf@tikzbox@otl{(0|-P)--(P)}%
3036                               {(0)rectangle(P)}%
3037                           }{}%
3038   \mdf@test@b{\mdf@tikzbox@otl{(0)--(0-|P)}%
3039                               {(0)rectangle(P)}%
3040                           }{}%
3041   \mdf@test@noline{\path[mdfbg,mdfcorners](0)rectangle(P);}{}%
3042 }{
3043   \ifboolexpr{test {\mdf@test@ltrb} or test {\mdf@test@ltr}}{%
3044     {\mdf@tikzbox@tfl{(0)--(0|-P)--(P)--(P|-0)}}%
3045   }{}%
3046   \ifboolexpr{test {\mdf@test@ltb} or test {\mdf@test@lt}}{%
3047     {%
3048       \mdf@tikzbox@otl{(0)--(0|-P)--(P)}%
3049           {(P|-0)--(0)[mdfcorners]--(0|-P)--(P)}%
3050     }%
3051   }{}%
3052   \ifboolexpr{test {\mdf@test@trb} or test {\mdf@test@tr}}{%
3053     {%
3054       \mdf@tikzbox@otl{(0-|P)--(P)--(P-|0)}%
3055           {(0)--(0|-P)[mdfcorners]--(P)--(P|-0)}}%
3056     }%
3057   \ifboolexpr{test {\mdf@test@lrb} or test {\mdf@test@lr}}{%
3058     {\mdf@tikzbox@otl{(0)--(0|-P)(P)--(P|-0)}{(0)rectangle(P)}}%
3059   }{}%
3060   \ifboolexpr{test {\mdf@test@tb} or test {\mdf@test@t}}{%
3061     {\mdf@tikzbox@otl{(0|-P)--(P)}{(0)rectangle(P)}}%
3062   }{}%
3063   \ifboolexpr{test {\mdf@test@lb} or test {\mdf@test@l}}{%
3064     {\mdf@tikzbox@otl{(0)--(0|-P)}{(0)rectangle(P)}}%
3065   }{}%
3066   \ifboolexpr{test {\mdf@test@rb} or test {\mdf@test@r}}{%
3067     {\mdf@tikzbox@otl{(0-|P)--(P)}{(0)rectangle(P)}}%
3068   }{}%
3069   \mdf@test@b{\path[mdfbg](0)rectangle(P);}{}%
3070   \mdf@test@noline{\path[mdfbg,mdfcorners]%
3071                               (0)--(0|-P)--(P)--(P|-0);}{}%
3072   }{}%
3073 }%
3074 %%%%%%%%%%%%%%
3075 \drawbackgroundframetitle@first

```

```

3076     \end{scope}
3077     \node[mdfbox]at(\mdf@Ax,\mdf@Ay){\box\mdf@splitbox@two};%
3078   \end{scope}
3079   %HIER KOMMT EIN WEITERES MAKRO
3080   \mdf@firstextra
3081   \mdfcreateextratikz%
3082   \end{tikzpicture}%
3083 }
3084 \mdf@makeboxalign@right%
3085 }%
3086 \fi
3087 }%

```

`\mdf@putbox@middle`

Output of the middle breakable contents.

```

3088 \def\drawbackgroundframetitle@middle{%
3089   \ifdefempty{\mdf@frametitle}{}{%
3090     {%
3091       \ifbool{\mdf@repeatframetitle}{%
3092         {%
3093           \begin{scope}%background frame title
3094             \ifbool{\mdf@leftline}{%
3095               \pgfmathsetlengthmacro{\mdf@0x}{%
3096                 {\mdf@0x+\mdf@innerlinewidth@length+0.5\mdf@middlelinewidth@length}%
3097               }{}%
3098             \ifbool{\mdf@rightline}{%
3099               \pgfmathsetlengthmacro{\mdf@Px}{%
3100                 {\mdf@Px-\mdf@innerlinewidth@length-0.5\mdf@middlelinewidth@length}%
3101               }{}%
3102             \ifbool{\mdf@everyline}{%
3103               {%
3104                 \ifbool{\mdf@topline}{%
3105                   \pgfmathsetlengthmacro{\mdf@Py}{%
3106                     {\mdf@Py-\mdf@innerlinewidth@length}%
3107                     - .5\mdf@middlelinewidth@length}%
3108                   }{}%
3109                 }{}%
3110               \pgfmathsetlengthmacro{\mdf@Fy}{%
3111                 {\mdf@Py-\mdfframetitleboxtotalheight}%
3112               \coordinate(P)at(\mdf@Px,\mdf@Py);%
3113               \path[mdfframetitlebackground]
3114                 (\mdf@0x,\mdf@Fy) -- (\mdf@0x,\mdf@Py)%
3115                 -- (\mdf@Px,\mdf@Py) -- (\mdf@Px,\mdf@Fy);%
3116             }%
3117           }%
3118         }%
3119         \ifdimless{\mdfframetitleboxtotalheight}{\z@}%
3120           {}%
3121           {%
3122             \drawbackgroundframetitle@middle%
3123             \pgfmathsetlength{\global\mdfframetitleboxtotalheight}{-\p@}%
3124           }%
3125         }%
3126       }%

```

```

3127 }%
3128 \def\drawbackgroundframetitle@@middle{%
3129   \begin{scope} %background frame title
3130     \ifbool{mdf@leftline}{%
3131       \pgfmathsetlengthmacro\mdf@0x%
3132         {\mdf@0x+\mdf@innerlinewidth@length+0.5\mdf@middlelinewidth@length}
3133     }{}%
3134     \ifbool{mdf@rightline}{%
3135       \pgfmathsetlengthmacro\mdf@Px%
3136         {\mdf@Px-\mdf@innerlinewidth@length-0.5\mdf@middlelinewidth@length}
3137     }{}%
3138     \pgfmathsetlengthmacro\mdf@Fy%
3139       {\mdf@Py-\mdfframetitleboxtotalheight}
3140     \path[mdfframetitlebackground, rounded corners=\z@]
3141       (\mdf@0x,\mdf@Fy) -- (\mdf@0x,\mdf@Py)%
3142       --(\mdf@Px,\mdf@Py) --(\mdf@Px,\mdf@Fy);
3143   \end{scope}
3144 }%
3145 %
3146 \def\drawbackgroundframetitle@@middle{%
3147   \begin{scope} %background frame title
3148     \ifbool{mdf@leftline}{%
3149       \pgfmathsetlengthmacro\mdf@0x%
3150         {\mdf@0x+\mdf@innerlinewidth@length+0.5\mdf@middlelinewidth@length}
3151     }{}%
3152     \ifbool{mdf@rightline}{%
3153       \pgfmathsetlengthmacro\mdf@Px%
3154         {\mdf@Px-\mdf@innerlinewidth@length-0.5\mdf@middlelinewidth@length}
3155     }{}%
3156     \pgfmathsetlengthmacro\mdf@Fy%
3157       {\mdf@Py-\mdfframetitleboxtotalheight}
3158     \path[mdfframetitlebackground, rounded corners=\z@]
3159       (\mdf@0x,\mdf@Fy) -- (\mdf@0x,\mdf@Py)%
3160       --(\mdf@Px,\mdf@Py) --(\mdf@Px,\mdf@Fy);
3161   \end{scope}
3162 }%
3163 \def\mdf@putbox@middle{%
3164   \ifvoid\mdf@splitbox@two
3165     \else%
3166       \mdf@makebox@out{%
3167         \mdf@makeboxalign@left%
3168         \mdf@tikz@settings%
3169         \setlength\mdfboundingboxwidth{\wd\mdf@splitbox@two}%
3170         \advance\mdfboundingboxwidth by \mdf@innerleftmargin@length\relax%
3171         \advance\mdfboundingboxwidth by \mdf@innerrightmargin@length\relax%
3172         \ifbool{mdf@leftline}{%
3173           \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
3174           \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
3175           \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}{}%
3176         \ifbool{mdf@rightline}{%
3177           \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
3178           \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
3179           \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}{}%
3180         \setlength\mdfboundingboxheight{%
3181           \dimexpr\ht\mdf@splitbox@two+\dp\mdf@splitbox@two\relax}%
3182         \advance\mdfboundingboxheight by \mdf@splitbottomskip@length\relax%
3183       }%
3184     }%
3185   }%
3186 }
```

```

3183 %%%%%%
3184   \ifbool{mdf@everyline}{%
3185     \ifbool{mdf@topline}{%
3186       \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
3187       \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
3188       \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax{}{}%
3189     \ifbool{mdf@bottomline}{%
3190       \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
3191       \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
3192       \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax{}{}%
3193     }{}%
3194 %%%%%%
3195   \mdf@makebox[in[\mdfboundingboxwidth]{%
3196     \null%
3197     \begin{tikzpicture}[remember picture]
3198       \pgfmathsetlengthmacro\mdf@Ax{+\mdf@innerleftmargin@length}%
3199       \pgfmathsetlengthmacro\mdf@Ay{+\mdf@splitbottomskip@length}%
3200       \pgfmathsetlengthmacro\mdf@Ox{+0pt}%
3201       \pgfmathsetlengthmacro\mdf@Oy{+0pt}%
3202       \pgfmathsetlengthmacro\mdf@Px{+\mdfboundingboxwidth}%
3203       \pgfmathsetlengthmacro\mdf@Py{+\mdfboundingboxheight}%
3204     \ifbool{mdf@leftline}{%
3205       {%
3206         \pgfmathsetlengthmacro\mdf@Ax%
3207           {\mdf@Ax+\mdf@outerlinewidth@length+%
3208            \mdf@middlelinewidth@length+\mdf@innerlinewidth@length}%
3209         \pgfmathsetlengthmacro\mdf@Ox%
3210           {\mdf@Ox+\mdf@outerlinewidth@length+0.5\mdf@middlelinewidth@length}%
3211       }{}%
3212     \ifbool{mdf@rightline}{%
3213       {%
3214         \pgfmathsetlengthmacro\mdf@Px%
3215           {\mdf@Px-\mdf@outerlinewidth@length-0.5\mdf@middlelinewidth@length}%
3216       }{}%
3217 %%%
3218   \ifbool{mdf@everyline}{%
3219     \ifbool{mdf@bottomline}{%
3220       {%
3221         \pgfmathsetlengthmacro\mdf@Ay%
3222           {\mdf@Ay+\mdf@outerlinewidth@length+\mdf@middlelinewidth@length%
3223             +\mdf@innerlinewidth@length}%
3224         \pgfmathsetlengthmacro\mdf@Oy%
3225           {\mdf@Oy+\mdf@outerlinewidth@length+0.5\mdf@middlelinewidth@length}%
3226       }{}%
3227     \ifbool{mdf@topline}{%
3228       {%
3229         \pgfmathsetlengthmacro\mdf@Py%
3230           {\mdf@Py-\mdf@outerlinewidth@length-0.5\mdf@middlelinewidth@length}%
3231       }{}%
3232     }{}%
3233 %%%
3234   \coordinate(0)at(\mdf@Ox,\mdf@Oy);%
3235   \coordinate(P)at(\mdf@Px,\mdf@Py);%
3236   \ifbool{mdf@shadow}{%
3237     {\path[mdfshadow](0) rectangle (P);}{}%
3238   \begin{scope}

```

```

3239 \begin{scope}[use as bounding box]
3240 %%%%%%
3241 \ifbool{mdf@everyline}{%
3242   \mdf@test@lrb{\mdf@tikzbox@tfl{(0)--(0|-P)--(P)--(P|-0)--cycle}}{}%
3243   \mdf@test@ltb{\mdf@tikzbox@tfl{(P|-0)--(0)--(0|-P)--(P)}}{}%
3244   \mdf@test@trb{\mdf@tikzbox@tfl{(0|-P)--(P)--(P|-0)--(0)}}{}%
3245   \mdf@test@ltr{\mdf@tikzbox@tfl{(0)--(0|-P)--(P)--(P|-0)}}{}%
3246   \mdf@test@lrb{\mdf@tikzbox@tfl{(P|-0)--(0)--(0|-P)--(P)}}{}%
3247   \mdf@test@lb{\mdf@tikzbox@otl{(P|-0)--(0)--(0|-P)}%
3248           {(P)--(P|-0)[mdfcorners]--(0)--(0|-P)}}{}%
3249 }{}%
3250 \mdf@test@rb{\mdf@tikzbox@otl{(P)--(P|-0)--(0)}%
3251           {(0|-P)--(P)[mdfcorners]--(P|-0)--(0)}}{}%
3252 }{}%
3253 \mdf@test@tr{\mdf@tikzbox@otl{(0-|P)--(P)--(P|-0)}%
3254           {(0)--(0|-P)[mdfcorners]--(P)--(P|-0)}}{}%
3255 }{}%
3256 \mdf@test@lt{\mdf@tikzbox@otl{(0)--(0|-P)--(P)}%
3257           {(P|-0)--(0)[mdfcorners]--(0|-P)--(P)}}{}%
3258 }{}%
3259 \mdf@test@lr{\mdf@tikzbox@otl{(0)--(0|-P)(P)--(P|-0)}%
3260           {(0)rectangle(P)}}{}%
3261 }{}%
3262 \mdf@test@tb{\mdf@tikzbox@otl{(0)--(0-|P)(0|-P)--(P)}%
3263           {(0)rectangle(P)}}{}%
3264 }{}%
3265 \mdf@test@l{\mdf@tikzbox@otl{(0)--(0|-P)}%
3266           {(0)rectangle(P)}}{}%
3267 }{}%
3268 \mdf@test@r{\mdf@tikzbox@otl{(0-|P)--(P)}%
3269           {(0)rectangle(P)}}{}%
3270 }{}%
3271 \mdf@test@t{\mdf@tikzbox@otl{(0|-P)--(P)}%
3272           {(0)rectangle(P)}}{}%
3273 }{}%
3274 \mdf@test@b{\mdf@tikzbox@otl{(0)--(0-|P)}%
3275           {(0)rectangle(P)}}{}%
3276 }{}%
3277 \mdf@test@noline{\path[mdfbg,mdfcorners](0)rectangle(P);}{}%
3278 }{%
3279   \ifboolexpr{bool {mdf@leftline} and bool {mdf@rightline}}{%
3280     {\mdf@tikzbox@otl{(0)--(0|-P)(P)--(P|-0)}{(0)rectangle(P)}}{}%
3281   }{%
3282     \ifboolexpr{bool {mdf@leftline} and not (bool {mdf@rightline})}{%
3283       {\mdf@tikzbox@otl{(0)--(0|-P)}{(0)rectangle(P)}}{}%
3284     }{%
3285       \ifboolexpr{not (bool {mdf@leftline}) and bool {mdf@rightline}}{%
3286         {\mdf@tikzbox@otl{(P)--(P|-0)}{(0)rectangle(P)}}{}%
3287       }{%
3288         \ifboolexpr{not (bool {mdf@leftline}) and not (bool {mdf@rightline})}{%
3289           {\path[mdfbg](0)rectangle(P);}{}%
3290         }{%
3291           \drawbackgroundframetitle@middle
3292         }%
3293       }%
3294     }%
3295   }%
3296 }%
3297 %%%%%%
3298 \end{scope}
3299 \node[mdfbox] at (\mdf@Ax,\mdf@Ay){\box\mdf@splitbox@two};%
3300 \end{scope}
3301 \mdf@middleextra
3302 %HIER KOMMT EIN WEITERES MAKRO

```

```

3295     \mdfc@createextratikz
3296     \end{tikzpicture}%
3297   }%
3298   \mdf@makebox@align@right%
3299 }%
3300 \fi
3301 }%

```

`\mdf@putbox@second`

Output of the last breakable contents.

```

3302 \def\drawbackgroundframetitle@second{%
3303   \ifdef\empty{\mdf@frametitle}{}
3304   {%
3305     \ifbool{\mdf@repeatframetitle}{%
3306       {\%repeating title = true
3307         \begin{scope}%
3308           \ifbool{\mdf@leftline}{%
3309             \pgfmathsetlengthmacro{\mdf@0x}{%
3310               {\mdf@0x+\mdf@innerlinewidth@length+0.5\mdf@middle linewidth@length}%
3311             }%
3312           \ifbool{\mdf@rightline}{%
3313             \pgfmathsetlengthmacro{\mdf@Px}{%
3314               {\mdf@Px-\mdf@innerlinewidth@length-0.5\mdf@middle linewidth@length}%
3315             }%
3316           \ifbool{\mdf@everyline}{%
3317             {%
3318               \ifbool{\mdf@topline}{%
3319                 \pgfmathsetlengthmacro{\mdf@Py}{%
3320                   {\mdf@Py-\mdf@innerlinewidth@length}%
3321                   -.5\mdf@middle linewidth@length}%
3322                 }%
3323               }%
3324             \pgfmathsetlengthmacro{\mdf@Fy}{%
3325               {\mdf@Py-\mdfframetitlebox@totalheight}%
3326             \coordinate(P) at (\mdf@Px,\mdf@Py);%
3327             \path[\mdfframetitlebackground]{%
3328               (\mdf@0x,\mdf@Fy) -- (\mdf@0x,\mdf@Py)%
3329               -- (\mdf@Px,\mdf@Py) -- (\mdf@Px,\mdf@Fy);%
3330             }%
3331           }%
3332         {%
3333           \ifdimless{\mdfframetitlebox@totalheight}{\z@}{%
3334             {}%
3335             {%
3336               \drawbackgroundframetitle@second%
3337             }%
3338           }%
3339         }%
3340       }%
3341     }%
3342   \def\drawbackgroundframetitle@@second{%
3343     \begin{scope}%
3344       \ifbool{\mdf@leftline}{%
3345         \pgfmathsetlengthmacro{\mdf@0x}{%

```

```

3346      {\mdf@0x+\mdf@innerlinewidth@length+0.5\mdf@middlelinewidth@length}
3347      }{}%
3348 \ifbool{mdf@rightline}{}%
3349   \pgfmathsetlengthmacro{\mdf@Px}{%
3350     {\mdf@Px-\mdf@innerlinewidth@length-0.5\mdf@middlelinewidth@length}}
3351   }{}%
3352   \pgfmathsetlengthmacro{\mdf@Fy}{%
3353     {\mdf@Py-\mdfframetitleboxtotalheight}}
3354   \path[mdfframetitlebackground, rounded corners=\z@]
3355     (\mdf@0x,\mdf@Fy) -- (\mdf@0x,\mdf@Py)%
3356     -- (\mdf@Px,\mdf@Py) -- (\mdf@Px,\mdf@Fy);
3357 \end{scope}
3358 }%
3359 \def\mdf@putbox@second{%
3360   \ifvoid\mdf@splitbox@one
3361   \else%
3362     \mdf@makebox@out{%
3363       \mdf@makeboxalign@left%
3364       \mdf@tikz@settings%
3365       \setlength\mdfboundingboxwidth{\wd\mdf@splitbox@one}%
3366       \advance\mdfboundingboxwidth by \mdf@innerleftmargin@length\relax%
3367       \advance\mdfboundingboxwidth by \mdf@innerrightmargin@length\relax%
3368       \ifbool{mdf@leftline}{}%
3369         \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
3370         \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
3371         \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}{}%
3372     \ifbool{mdf@rightline}{}%
3373       \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
3374       \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
3375       \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}{}%
3376     \setlength\mdfboundingboxheight{%
3377       {\dimexpr\ht\mdf@splitbox@one+\dp\mdf@splitbox@one\relax}%
3378       \advance\mdfboundingboxheight by \mdf@innerbottommargin@length\relax%
3379     \ifbool{mdf@bottomline}{}%
3380       \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
3381       \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
3382       \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}{}%
3383 %%%%%%%%
3384   \ifbool{mdf@everyline}{}%
3385   \ifbool{mdf@topline}{}%
3386     \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
3387     \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
3388     \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}{}%
3389   }{}%
3390 %%%%%%%
3391 \mdf@makebox@in[\mdfboundingboxwidth]{%
3392 \null%
3393 \begin{tikzpicture}[remember picture]
3394   \pgfmathsetlengthmacro{\mdf@Ax}{+\mdf@innerleftmargin@length}%
3395   \pgfmathsetlengthmacro{\mdf@Ay}{+\mdf@innerbottommargin@length}%
3396   \pgfmathsetlengthmacro{\mdf@Ox}{+0pt}%
3397   \pgfmathsetlengthmacro{\mdf@Oy}{+0pt}%
3398   \pgfmathsetlengthmacro{\mdf@Px}{+\mdfboundingboxwidth}%
3399   \pgfmathsetlengthmacro{\mdf@Py}{+\mdfboundingboxheight}%
3400   \ifbool{mdf@leftline}{}%
3401   {%

```

```

3402      \pgfmathsetlengthmacro{\mdf@Ax}{%
3403          {\mdf@Ax+\mdf@outerlinewidth@length+%
3404          \mdf@middlelinewidth@length+\mdf@innerlinewidth@length}%
3405      \pgfmathsetlengthmacro{\mdf@Ox}{%
3406          {\mdf@Ox+\mdf@outerlinewidth@length+0.5\mdf@middlelinewidth@length}%
3407      }{}}%
3408  \ifbool{\mdf@rightline}{%
3409      {%
3410          \pgfmathsetlengthmacro{\mdf@Px}{%
3411              {\mdf@Px-\mdf@outerlinewidth@length-0.5\mdf@middlelinewidth@length}%
3412          }{}}%
3413  \ifbool{\mdf@bottomline}{%
3414      {%
3415          \pgfmathsetlengthmacro{\mdf@Ay}{%
3416              {\mdf@Ay+\mdf@outerlinewidth@length+%
3417              \mdf@middlelinewidth@length+\mdf@innerlinewidth@length}%
3418          \pgfmathsetlengthmacro{\mdf@Oy}{%
3419              {\mdf@Oy+\mdf@outerlinewidth@length+0.5\mdf@middlelinewidth@length}%
3420          }{}}%
3421  %%%
3422  \ifbool{\mdf@everyline}{%
3423      \ifbool{\mdf@topline}{%
3424          {%
3425              \pgfmathsetlengthmacro{\mdf@Py}{%
3426                  {\mdf@Py-\mdf@outerlinewidth@length-0.5\mdf@middlelinewidth@length}%
3427          }{}}%
3428      }{}}%
3429  %%%
3430  \coordinate(0)at(\mdf@Ox,\mdf@Oy);%
3431  \coordinate(P)at(\mdf@Px,\mdf@Py);%
3432  \ifbool{\mdf@shadow}{%
3433      {%
3434          \path[\mdfshadow] (0|-P) to[\mdfcorners] (0)
3435                      to[\mdfcorners] (P|-0) -- (P) -- (0|-P);%
3436      }{}}%
3437  \begin{scope}
3438      \begin{scope}[use as bounding box]
3439  %%%%%%%%
3440  \ifbool{\mdf@everyline}{%
3441      \mdf@test@ltrb{\mdf@tikzbox@tfl{(0)--(0|-P)--(P)--(P|-0)--cycle}}{}}%
3442  \mdf@test@ltb{\mdf@tikzbox@tfl{(P|-0)--(0)--(0|-P)--(P)}}{}}%
3443  \mdf@test@trb{\mdf@tikzbox@tfl{(0|-P)--(P)--(P|-0)--(0)}}{}}%
3444  \mdf@test@ltr{\mdf@tikzbox@tfl{(0)--(0|-P)--(P)--(P|-0)}}{}}%
3445  \mdf@test@lrb{\mdf@tikzbox@tfl{(P|-0)--(0)--(0|-P)--(P)}}{}}%
3446  \mdf@test@lb{\mdf@tikzbox@otl{(P|-0)--(0)--(0|-P)}%
3447                      {(P)--(P|-0)[\mdfcorners]--(0)--(0|-P)}}{}}%
3448      }{}}%
3449  \mdf@test@rb{\mdf@tikzbox@otl{(P)--(P|-0)--(0)}%
3450                      {(0|-P)--(P)[\mdfcorners]--(P|-0)--(0)}}{}}%
3451      }{}}%
3452  \mdf@test@tr{\mdf@tikzbox@otl{(0|-P)--(P)--(P|-0)}%
3453                      {(0)--(0|-P)[\mdfcorners]--(P)--(P|-0)}}{}}%
3454      }{}}%
3455  \mdf@test@lt{\mdf@tikzbox@otl{(0)--(0|-P)--(P)}%
3456                      {(P|-0)--(0)[\mdfcorners]--(0|-P)--(P)}}{}}%
3457      }{}}%

```

```

3458 \mdf@test@lr{\mdf@tikzbox@otl{(0)--(0|-P)(P)--(P|-0)}%
3459                                     {(0)rectangle(P)}%
3460                                     }{}}%
3461 \mdf@test@tb{\mdf@tikzbox@otl{(0)--(0|-P)(0|-P)--(P)}%
3462                                     {(0)rectangle(P)}%
3463                                     }{}}%
3464 \mdf@test@l{\mdf@tikzbox@otl{(0)--(0|-P)}%
3465                                     {(0)rectangle(P)}%
3466                                     }{}}%
3467 \mdf@test@r{\mdf@tikzbox@otl{(0|-P)--(P)}%
3468                                     {(0)rectangle(P)}%
3469                                     }{}}%
3470 \mdf@test@t{\mdf@tikzbox@otl{(0|-P)--(P)}%
3471                                     {(0)rectangle(P)}%
3472                                     }{}}%
3473 \mdf@test@b{\mdf@tikzbox@otl{(0)--(0-|P)}%
3474                                     {(0)rectangle(P)}%
3475                                     }{}}%
3476 \mdf@test@noline{\path[mdfbackground,mdfcorners](0)rectangle(P);}{}}%
3477 }{%
3478 \ifboolexpr{test {\mdf@test@ltrb} or test {\mdf@test@lrb}}{%
3479   {\mdf@tikzbox@tfl{(P-|0)--(0)--(0-|P)--(P)}}%
3480   }{%
3481 \ifboolexpr{test {\mdf@test@ltb} or test {\mdf@test@lb}}{%
3482   {%
3483     \mdf@tikzbox@otl{(P-|0)--(0)--(0-|P)}%
3484     {(P)--(P|-0)[mdfcorners]--(0)--(0|-P)}%
3485   }{%
3486   }{%
3487 \ifboolexpr{test {\mdf@test@trb} or test {\mdf@test@rb}}{%
3488   {%
3489     \mdf@tikzbox@otl{(P)--(P|-0)--(0)}%
3490     {(0|-P)--(P)[mdfcorners]--(P|-0)--(0)}%
3491   }{%
3492   }{%
3493 \ifboolexpr{test {\mdf@test@ltr} or test {\mdf@test@lr}}{%
3494   {\mdf@tikzbox@otl{(0)--(0|-P)(P)--(P|-0)}{(0)rectangle(P)}}%
3495   }{%
3496 \ifboolexpr{test {\mdf@test@tb} or test {\mdf@test@b}}{%
3497   {\mdf@tikzbox@otl{(0)--(0-|P)}{(0)rectangle(P)}}%
3498   }{%
3499 \ifboolexpr{test {\mdf@test@lt} or test {\mdf@test@l}}{%
3500   {\mdf@tikzbox@otl{(0)--(0|-P)}{(0)rectangle(P)}}%
3501   }{%
3502 \ifboolexpr{test {\mdf@test@tr} or test {\mdf@test@r}}{%
3503   {\mdf@tikzbox@otl{(0-|P)--(P)}{(0)rectangle(P)}}%
3504   }{%
3505 \mdf@test@t{\path[mdfbackground,mdfcorners](0|-P)--(0)--(0-|P)--(P);}{}}%
3506 \mdf@test@noline{\path[mdfbackground,mdfcorners]%
3507                           (0|-P)--(0)--(0-|P)--(P);}{}}%
3508                                     }{}}%
3509 }{%
3510 \drawbackgroundframetitle@second
3511 \end{scope}
3512 \node[mdfbox] at (\mdf@Ax,\mdf@Ay){\box\mdf@splitbox@one};%
3513 \end{scope}

```

```

3514     \mdf@secondextra
3515     %HIER KOMMT EIN WEITERES MAKRO
3516     \mdfcreateextratikz
3517     \end{tikzpicture}%
3518   }%
3519   \mdf@makeboxalign@right%
3520 }%
3521 \fi
3522 }%
3523 \endinput

```

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

```

3524 %% Style file for mdframed for package option 'framemethod=pstricks'
3525 %
3526 %% This package may be distributed under the terms of the LaTeX Project
3527 %% Public License, as described in lppl.txt in the base LaTeX distribution.
3528 %% Either version 1.0 or, at your option, any later version.
3529 %
3530 %

```

`\mdframedIIpackagename`

local settings

```

3531 \def\mdframedIIpackagename{md-frame-2}
3532 \ProvidesFile{md-frame-2.mdf}%
3533   [\mdfmaindate\ %
3534   \mdversion: \mdframedIIpackagename]

```

`\mdf@ptlength@to@pscode`
`\ptTps`

Command to calculate a latex length to postscript

```

3535 \def\mdf@ptlength@to@pscode#1{\pst@number{#1} \pst@number\psxunit div }
3536 \def\mdf@ptlength@to@pscode@length#1{%
3537   \pst@number{\csname mdf@#1@length\endcsname}%
3538   \pst@number\psxunit div\space}
3539 \let\ptTps\mdf@ptlength@to@pscode\relax
3540 \let\ptTpsL\mdf@ptlength@to@pscode@length\relax

```

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

background and line settings for pstricks

```

3541 \def\mdfpstricks@settings{\expandafter\addtopsstyle
3542   \newpsstyle{mdfbackgroundstyle}{%
3543     linecolor=\mdf@backgroundcolor,fillstyle=solid,%
3544     fillcolor=\mdf@backgroundcolor,linestyle=none,%
3545     ,dimen=middle,%
3546   }%
3547 %
3548 \newpsstyle{mdfframetitlebackgroundstyle}{%

```

```

3549     linecolor=\mdf@frametitlebackgroundcolor,
3550     fillcolor=\mdf@frametitlebackgroundcolor,
3551     fillstyle=solid,linestyle=none,
3552     linearc=\ifdimgreater{\mdf@roundcorner@length%
3553                         -\mdf@innerlinewidth@length%
3554                         -.5\mdf@middlelinewidth@length}{%
3555             {\z@}{\dimexpr\mdf@roundcorner@length%
3556                         -\mdf@innerlinewidth@length%
3557                         -.5\mdf@middlelinewidth@length}{\z@},%
3558         }%
3559     %
3560     \newpsstyle{mdfouterlinestyle}{linestyle=none}%
3561     \ifdimgreater{\mdf@outerlinewidth@length}{\z@}%
3562         {\newpsstyle{mdfouterlinestyle}{%
3563             linecolor=\mdf@outerlinecolor,%
3564             linewidth=\dimexpr2\mdf@outerlinewidth@length%
3565                         +\mdf@middlelinewidth@length\relax,
3566             dimen=middle,
3567         }{}%
3568     %
3569     \newpsstyle{mdfinnerlinestyle}{linestyle=none}%
3570     \ifdimgreater{\mdf@innerlinewidth@length}{\z@}%
3571         {\newpsstyle{mdfinnerlinestyle}{%
3572             linecolor=\mdf@innerlinecolor,%
3573             linewidth=\dimexpr2\mdf@innerlinewidth@length%
3574                         +\mdf@middlelinewidth@length\relax,
3575             dimen=middle,
3576         }{}%
3577     %
3578     \newpsstyle{mdfmiddlelinestyle}{linestyle=none}%
3579     \newpsstyle{mdfshadow}{shadow=true,shadowcolor=\mdf@shadowcolor,
3580                         shadowsize=\mdf@shadowsize@length}%
3581     \ifdimgreater{\mdf@middlelinewidth@length}{\z@}%
3582         {\newpsstyle{mdfmiddlelinestyle}{%
3583             linewidth=\mdf@middlelinewidth@length,%
3584             linecolor=\mdf@middlelinecolor,dimen=middle
3585         }{}%
3586 \mdfpstricks@appendsettings
3587 }%
3588 %
3589 \newrobustcmd*\mdf@pstricksbox@fl[2]{%four lines
3590   \psframe[style=mdfouterlinestyle](#1)(#2)%aussen=3mm
3591   \psframe[style=mdfbackgroundstyle](#1)(#2)%Hintergrund
3592   \psclip{\psframe[style=mdfmiddlelinestyle](#1)(#2)}
3593   \psframe[style=mdfinnerlinestyle](#1)(#2)%innere=3mm
3594   \endpsclip
3595   \psframe[style=mdfmiddlelinestyle](#1)(#2)%mittlere=2mm
3596 }%
3597 \newrobustcmd*\mdf@pstricksbox@tl[1]{%three lines
3598   \psline[style=mdfouterlinestyle]#1%aussen=3mm
3599   \psline[style=mdfbackgroundstyle]#1%Hintergrund
3600   \psclip{\psline[style=mdfmiddlelinestyle]#1}
3601   \psline[style=mdfinnerlinestyle]#1%innere=3mm
3602   \endpsclip
3603   \psline[style=mdfmiddlelinestyle]#1%mittlere=2mm
3604 }%

```

```

3605 \newrobustcmd*\mdf@pstricksbox@tcl[2]{%two combined lines
3606 %%#1 background comple
3607 %%#2 line path
3608 \psline[style=mdfouterlinestyle]#2@aussen=3mm
3609 \psline[style=mdfbackgroundstyle]#2%Hintergrund
3610 \psclip{\pscustom[linestyle=none]{
3611     \psline[style=mdfmiddlelinestyle]#2
3612     \psline[linestyle=none,linearc=0pt]#1}
3613 }
3614 \psframe[style=mdfbackgroundstyle,linearc=0pt](mdf@0)(mdf@P)%Hintergrund
3615 \psline[style=mdfinnerlinestyle]#2@innere=3mm
3616 \endpsclip
3617 \psline[style=mdfmiddlelinestyle]#2@mittlere=2mm
3618 }%
3619 \newrobustcmd*\mdf@pstricksbox@tncl[2]{%two not combined lines
3620 \begingroup
3621 \psset{linearc=0pt}
3622 \psline[style=mdfouterlinestyle](mdf@0)#1@aussen=3mm
3623 \psline[style=mdfouterlinestyle](mdf@P)#2@aussen=3mm
3624 \psclip{
3625     \pscustom[linestyle=none]{%
3626         \psline[style=mdfmiddlelinestyle](mdf@0)#1@mittlere=2mm
3627         \psline[linestyle=none](mdf@0)#2
3628         \psline[style=mdfmiddlelinestyle](mdf@P)#2@mittlere=2mm
3629         \psline[linestyle=none](mdf@P)#1}
3630     }%
3631 }%
3632 \psframe[style=mdfbackgroundstyle,linearc=0pt](mdf@0)(mdf@P)%Hintergrund
3633 \psline[style=mdfinnerlinestyle](mdf@0)#1@innere=3mm
3634 \psline[style=mdfinnerlinestyle](mdf@P)#2@innere=3mm
3635 \endpsclip
3636 \psline[style=mdfmiddlelinestyle](mdf@0)#1@mittlere=2mm
3637 \psline[style=mdfmiddlelinestyle](mdf@P)#2@mittlere=2mm
3638 \endgroup
3639 }%
3640 \newrobustcmd*\mdf@pstricksbox@ol[1]{%one line
3641 \begingroup
3642 \psset{linearc=0pt}
3643 \psline[style=mdfouterlinestyle]#1@aussen=3mm
3644 \psline[style=mdfbackgroundstyle]#1%Hintergrund
3645 \psclip{\pscustom[linestyle=none]{
3646     \psline[style=mdfmiddlelinestyle]#1
3647     \psframe[linestyle=none,fillstyle=none,dimen=inner](mdf@0)(mdf@P)
3648     }%
3649     \psframe[style=mdfbackgroundstyle](mdf@0)(mdf@P)
3650     \psline[style=mdfinnerlinestyle]#1@innere=3mm
3651 \endpsclip
3652 \psline[style=mdfmiddlelinestyle]#1@mittlere=2mm
3653 \endgroup%
3654 }%
3655 %
3656 %
3657 \newpsstyle{mdfframetitlerule}{%
3658   linecolor=\mdf@frametitlerulecolor,%
3659   fillcolor=\mdf@frametitlerulecolor,%
3660   fillstyle=solid,dimen=outer,%

```

```
3661 }
3662 %
```

\mdf@put@frametitlerule

frametitlerule with pstricks

```
3663 \def\mdf@@frametitlerule{%
3664   \ifbool{mdf@frametitlerule}{%
3665     \vbox{\hsize0pt
3666       \par\unskip\vskip\mdf@frametitlebelowskip@length
3667       \noindent\rlap{%
3668         \begingroup%
3669           \begin{pspicture}(0,0)(0,\mdf@frametitlerulewidth@length)
3670             \psframe[style=mdfframetitlerule]%
3671               (!\ptTpsL{innerleftmargin} neg 0)%
3672               (!\ptTpsL{innerrightmargin}
3673                 \ptTps{\mdfframetitleboxwidth} add
3674                 \ptTpsL{frametitlerulewidth})
3675           \end{pspicture}
3676         \endgroup}%
3677       }%
3678     }{%
3679       \vbox{\hsize0pt
3680         \par\unskip\vskip\mdf@frametitlebelowskip@length
3681         \noindent\rlap{}%
3682       }%
3683     }%
3684   \iftoggle{mdf@notfirstframetitle}{%
3685     {%
3686       \par\unskip\vskip\mdf@splittopskip@length%
3687     }%
3688     {%
3689       \par\unskip\vskip\mdf@innertopmargin@length%
3690     }%
3691   }%
3692 %
3693 %
3694 %
3695 %
3696 %
3697 % \begin{macro}{mdfsubtitle}
3698 % Definition of the command \Cmd{mdfsubtitle}. Starting with the definition of
3699 % the tikz style for the rule above the subtitle.
3700 % \begin{macrocode}%
3701 \newpsstyle{mdfsubtitleaboverule}{%
3702   linecolor=\mdf@subtitleabovelinecolor,
3703   fillcolor=\mdf@subtitleabovelinecolor,
3704   fillstyle=solid,dimen=outer,%
3705 }
```

Definition of the default style of rule below the subtitle.

```
3706 \newpsstyle{mdfsubtitlebelowrule}{%
3707   linecolor=\mdf@subtitlebelowlinecolor,
3708   fillcolor=\mdf@subtitlebelowlinecolor,
3709   fillstyle=solid,dimen=outer,%
3710 }
```

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

```
3711 \newpsstyle{mdfsubtitlebackground}{%
3712   linecolor=\mdf@subtitlebackgroundcolor,
3713   fillcolor=\mdf@subtitlebackgroundcolor,
3714   fillstyle=solid,linestyle=none,
3715 }
```

Definition of the command `\mdfsubtitle`.

```
3716 \newrobustcmd\mdfsubtitle[2][]%
3717 {%
```

Make everything local.

```
3718 \begingroup
3719 \penalty-9995%set a breakpoint before the subtitle
3720 % \end{macrocode}
3721 % Inside the title we don't need any \Cmd{parindent}. Next set the options of
3722 % the optional argument of \Cmd{mdfsubtitle}.
3723 % \begin{macrocode}
3724 \parindent\z@\relax%
3725 \mdfsetup{#1}%only for subtitle options
3726 % \end{macrocode}
3727 % Save the complete subtitle inside the save box \Cmd{z@}.
3728 % \begin{macrocode}
3729 \setbox\z@=\vbox{\mdf@subtitlefont{#2}\relax}%
3730 % \end{macrocode}
3731 % Compute the width of the current line including the inner left margin and
3732 % inner right margin (using \Cmd{dimen@}. In the next step the height and the
3733 % depth of the save box will be saved in \Cmd{dimen@i}.
3734 % \begin{macrocode}
3735 \dimen@=\linewidth\relax%
3736 \advance\dimen@ by \mdf@innerleftmargin@length\relax%
3737 \advance\dimen@ by \mdf@innerrightmargin@length\relax%
3738 \dimen@i=\mdf@subtitleinneraboveskip@length\relax%
3739 \advance\dimen@i by \mdf@subtitleinnerbelowskip@length\relax%
3740 \advance\dimen@i by \ht\z@\relax%
3741 \advance\dimen@i by \dp\z@\relax%
3742 % \end{macrocode}
3743 % Test if rules should be drawn. otherwise set the line width to 0\,pt.
3744 % \begin{macrocode}
3745 \ifbool{mdf@subtitleaboveline}{}{%
3746   {\mdfsetup{subtitleabovelinewidth=\z@}}%
3747 \ifbool{mdf@subtitlebelowline}{}{%
3748   {\mdfsetup{subtitlebelowlinewidth=\z@}}%
3749 % \end{macrocode}
3750 % Start a new line with the given skip \Opt{subtitleaboveskip}.
3751 % \begin{macrocode}
3752 \par\unskip\ifvmode\nointerlineskip\hrule\@height\z@ \@width\hsize\fi%
3753 \vskip\mdf@subtitleaboveskip@length
3754 % \end{macrocode}
3755 % Drawing the above line of the subtitle.
3756 % \begin{macrocode}
3757 \rlap{%
3758 {%
3759 \hspace*{-\mdf@innerleftmargin@length}%
3760 \begingroup%
3761 \begin{pspicture}(0,0)(\dimen@,\mdf@subtitleabovelinewidth@length)
3762 \ifbool{mdf@subtitleaboveline}{%
```

```

3763      {%
3764      \psframe[style=mdfsubtitleaboverule]%
3765          (0,0)(\dimen@,\mdf@subtitleabovelinewidth@length)%
3766      }{}%
3767      \end{pspicture}%
3768      \endgroup%
3769 }% 
3770 %     \end{macrocode}
3771 % space between rule above and subtitle
3772 %     \begin{macrocode}
3773 \par\unskip\ifvmode\nointerlineskip\hrule \atheight\z@\atwidth\hsize\fi%
3774 \vskip\mdf@subtitleinneraboveskip@length
3775 %     \end{macrocode}
3776 % output of subtitle with a background. Must think about the \Cmd{hspace}%
3777 % combination.
3778 %     \begin{macrocode}
3779 \hspace*{-\mdf@innerleftmargin@length}%
3780 \begin{pspicture}%
3781 (0,0)%
3782 (0,\ht\z@)
3783 \psframe[style=mdfsubtitlebackground]%
3784 (0,\dimexpr-\dp\z@-\mdf@subtitleinnerbelowskip@length\relax)%
3785 (\dimen@,\dimen@i)
3786 \end{pspicture}%
3787 \hspace*{+\mdf@innerleftmargin@length}%
3788 \box\z@\relax%
3789 %     \end{macrocode}
3790 % Skip after subtitle
3791 %     \begin{macrocode}
3792 \par\unskip\ifvmode\nointerlineskip\hrule \atheight\z@\atwidth\hsize\fi%
3793 \vskip\mdf@subtitleinnerbelowskip@length
3794 %     \end{macrocode}
3795 % Draw rule below of the subtitle.
3796 %     \begin{macrocode}
3797 \rlap{%
3798 {%
3799 \hspace*{-\mdf@innerleftmargin@length}%
3800 \begingroup%
3801 \begin{pspicture}(0,0)(\dimen@,\mdf@subtitlebelowlinewidth@length)
3802 \ifbool{\mdf@subtitlebelowline}{%
3803 {%
3804 \psframe[style=mdfsubtitlebelowrule]%
3805 (0,0)(\dimen@,\mdf@subtitlebelowlinewidth@length)%
3806 }{}%
3807 \end{pspicture}%
3808 \endgroup%
3809 }%
3810 %     \end{macrocode}
3811 % Last skip and set a non breaking point.
3812 %     \begin{macrocode}
3813 \par\unskip\ifvmode\nointerlineskip\hrule \atheight\z@\atwidth\hsize\fi%
3814 \vskip\mdf@subtitlebelowskip@length
3815 \penalty 9995
3816 \endgroup
3817 }
3818

```

`\mdfsubsubtitle`

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

```
3819 %
3820 \newpsstyle{mdfsubsubtitleaboverule}{%
3821   linecolor=\mdf@subtitleabovelinecolor,
3822   fillcolor=\mdf@subtitleabovelinecolor,
3823   fillstyle=solid,dimen=outer,%
```

```
3824 }
```

Definition of the default style of rule below the subtitle.

```
3825 \newpsstyle{mdfsubsubtitlebelowrule}{%
3826   linecolor=\mdf@subtitlebelowlinecolor,
3827   fillcolor=\mdf@subtitlebelowlinecolor,
3828   fillstyle=solid,dimen=outer,%
```

```
3829 }
```

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

```
3830 \newpsstyle{mdfsubsubtitlebackground}{%
3831   linecolor=\mdf@subtitlebackgroundcolor,
3832   fillcolor=\mdf@subtitlebackgroundcolor,
3833   fillstyle=solid,linestyle=none,
```

```
3834 }
```

Definition of the command `\mdfsubsubtitle`.

```
3835 \newrobustcmd\mdfsubsubtitle[2][]%
3836 {%
```

Make everything local.

```
3837 \begingroup
3838 \penalty-9995%set a breakpoint before the subsubtitle
3839 % \end{macrocode}
3840 % Inside the title we don't need any \Cmd{parindent}. Next set the options of
3841 % the optional argument of \Cmd{mdfsubsubtitle}.
3842 % \begin{macrocode}
3843 \parindent\z@\relax%
3844 \mdfsetup{#1}%only for subsubtitle options
3845 % \end{macrocode}
3846 % Save the complete subsubtitle inside the save box \Cmd{z@}.
3847 % \begin{macrocode}
3848 \setbox\z@=\vbox{\mdf@subsubtitlefont{#2}\relax}%
3849 % \end{macrocode}
3850 % Compute the width of the current line including the inner left margin and
3851 % inner right margin (using \Cmd{dimen@}. In the next step the height and the
3852 % depth of the save box will be saved in \Cmd{dimen@i}.
3853 % \begin{macrocode}
3854 \dimen@=\ linewidth\relax%
3855 \advance\dimen@ by \mdf@innerleftmargin@length\relax%
3856 \advance\dimen@ by \mdf@innerrightmargin@length\relax%
3857 \dimen@i=\mdf@subsubtitleinneraboveskip@length\relax%
3858 \advance\dimen@i by \mdf@subsubtitleinnerbelowskip@length\relax%
3859 \advance\dimen@i by \ht\z@\relax%
3860 \advance\dimen@i by \dp\z@\relax%
3861 % \end{macrocode}
3862 % Test if rules should be drawn. otherwise set the line width to 0\,pt.
3863 % \begin{macrocode}
3864 \ifboole{mdf@subsubtitleaboveline}{}%
```

```

3865      {\mdfsetup{subsubtitleabovewidth=\z@}%
3866  \ifbool{mdf@subsubtitlebelowline}{%
3867      {\mdfsetup{subsubtitlebelowwidth=\z@}%
3868  \end{macrocode}
3869 % Start a new line with the given skip \Opt{subsubtitleaboveskip}.
3870 % \begin{macrocode}
3871 \par\unskip\ifvmode\nointerlineskip\hrule \@height\z@ \@width\hsize\fi%
3872 \vskip\mdf@subsubtitleaboveskip@length
3873 % \end{macrocode}
3874 % Drawing the above line of the subsubtitle.
3875 % \begin{macrocode}
3876 \rlap{%
3877 {%
3878 \hspace*{-\mdf@innerleftmargin@length}%
3879 \begingroup{%
3880 \begin{pspicture}(0,0)(\dimen@,\mdf@subsubtitleabovewidth@length)
3881 \ifbool{mdf@subsubtitleaboveline}{%
3882 {%
3883 \psframe[style=mdfsubsubtitleaboverule]%
3884 (0,0)(\dimen@,\mdf@subsubtitleabovewidth@length)%
3885 }{}%
3886 \end{pspicture}
3887 \endgroup%
3888 }%
3889 % \end{macrocode}
3890 % space between rule above and subsubtitle
3891 % \begin{macrocode}
3892 \par\unskip\ifvmode\nointerlineskip\hrule \@height\z@ \@width\hsize\fi%
3893 \vskip\mdf@subsubtitleinneraboveskip@length
3894 % \end{macrocode}
3895 % output of subsubtitle with a background. Must think about the \Cmd{hspace}
3896 % combination.
3897 % \begin{macrocode}
3898 \hspace*{-\mdf@innerleftmargin@length}%
3899 \begin{pspicture}(0,-\dp\z@)(0,\dimen@i
3900 \begin{pspicture}%
3901 (0,0)%
3902 (0,\ht\z@)
3903 \psframe[style=mdfsubsubtitlebackground]%
3904 (0,\dimexpr-\dp\z@-\mdf@subsubtitleinnerbelowskip@length\relax)%
3905 (\dimen@,\dimen@i)
3906 \end{pspicture}
3907 \hspace*{+\mdf@innerleftmargin@length}%
3908 \box\z@\relax%
3909 % \end{macrocode}
3910 % Skip after subsubtitle
3911 % \begin{macrocode}
3912 \par\unskip\ifvmode\nointerlineskip\hrule \@height\z@ \@width\hsize\fi%
3913 \vskip\mdf@subsubtitleinnerbelowskip@length
3914 % \end{macrocode}
3915 % Draw rule below of the subsubtitle.
3916 % \begin{macrocode}
3917 \rlap{%
3918 {%
3919 \hspace*{-\mdf@innerleftmargin@length}%
3920 \begingroup{%

```

```

3921 \begin{pspicture}(0,0)(\dimen@,\mdf@subsubtitlebelowlinewidth@length)
3922 \ifbool{\mdf@subsubtitlebelowline}%
3923 {%
3924 \psframe[style=\mdf@subsubtitlebelowrule]%
3925 (0,0)(\dimen@,\mdf@subsubtitlebelowlinewidth@length)%
3926 }{}%
3927 \end{pspicture}
3928 \endgroup%
3929 }%
3930 % \end{macrocode}
3931 % Last skip and set a non breaking point.
3932 % \begin{macrocode}
3933 \par\unskip\ifvmode\nointerlineskip\hrule \atheight\z@\atwidth\hsize\fi%
3934 \vskip\mdf@subsubtitlebeforeskip@length
3935 \penalty 9995
3936 \endgroup
3937 }
3938

```

\mdf@putbox@single

Single output

```

3939 % Info zu den verwendeten Punkten:
3940 % O ist die untere linke Ecke der Mitte der middleline
3941 % P ist die obere rechte Ecke der Mitte der middleline
3942 % A ist der Punkt fuer den anchor (d.h. die untere linke Ecke) der Ausgabebox
3943 \def\mdf@putbox@single{%
3944 \ifvoid\mdf@splitbox@one\relax
3945 \else%
3946 \mdf@makebox@out{%
3947 \mdf@makeboxalign@left%
3948 \setlength\mdfboundingboxwidth{\wd\mdf@splitbox@one}%
3949 \advance\mdfboundingboxwidth by \mdf@innerleftmargin@length\relax%
3950 \advance\mdfboundingboxwidth by \mdf@innerrightmargin@length\relax%
3951 \ifbool{\mdf@leftline}{%
3952 \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
3953 \advance\mdfboundingboxwidth by \mdf@middle linewidth@length\relax%
3954 \advance\mdfboundingboxwidth by \mdf@outer linewidth@length\relax}{}%
3955 \ifbool{\mdf@rightline}{%
3956 \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
3957 \advance\mdfboundingboxwidth by \mdf@middle linewidth@length\relax%
3958 \advance\mdfboundingboxwidth by \mdf@outer linewidth@length\relax}{}%
3959 %
3960 \setlength\mdfboundingboxheight{%
3961 \dimexpr\ht\mdf@splitbox@one+\dp\mdf@splitbox@one\relax}%
3962 \advance\mdfboundingboxheight by \mdf@innerbottommargin@length\relax%
3963 \advance\mdfboundingboxheight by \mdf@innertopmargin@length\relax%
3964 \ifbool{\mdf@topline}{%
3965 \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
3966 \advance\mdfboundingboxheight by \mdf@middle linewidth@length\relax%
3967 \advance\mdfboundingboxheight by \mdf@outer linewidth@length\relax}{}%
3968 \ifbool{\mdf@bottomline}{%
3969 \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
3970 \advance\mdfboundingboxheight by \mdf@middle linewidth@length\relax%
3971 \advance\mdfboundingboxheight by \mdf@outer linewidth@length\relax}{}%

```

```

3972 %
3973 \setlength\mdftotallinewidth{\dimexpr\mdf@innerlinewidth@length%
3974                                     +\mdf@middlelinewidth@length
3975                                     +\mdf@outerlinewidth@length\relax}%
3976 \psset{unit=1truecm}%
3977 \mdf@makebox@in[\mdfboundingboxwidth]{%
3978   \null%
3979   \begin{pspicture}(0,0)(\mdfboundingboxwidth,\mdfboundingboxheight)
3980     \mdfpstricks@settings%
3981     \psset{linearc=\mdf@roundcorner@length,cornersize=absolut,}%
3982     \expandafter\psset\expandafter{\mdf@psset@local}%
3983     \pnode(\mdf@innerleftmargin@length,\mdf@innerbottommargin@length)
3984       {\mdf@A}
3985     \pnode(0,0){\mdf@0}
3986     \pnode(\mdfboundingboxwidth,\mdfboundingboxheight){\mdf@P}
3987     \ifbool{\mdf@leftline}{%
3988       {%
3989         \nodexn{(\mdf@A)+(\mdf@outerlinewidth@length,0)}
3990           +(\mdf@middlelinewidth@length,0)
3991           +(\mdf@innerlinewidth@length,0)}{\mdf@A}%
3992         \nodexn{(\mdf@0)+(\mdf@outerlinewidth@length,0)}
3993           +0.5(\mdf@middlelinewidth@length,0)}{\mdf@0}%
3994       }{}%
3995     \ifbool{\mdf@rightline}{%
3996       {%
3997         \nodexn{(\mdf@P) - (\mdf@outerlinewidth@length,0)}
3998           -0.5(\mdf@middlelinewidth@length,0)}{\mdf@P}%
3999       }{}%
4000     \ifbool{\mdf@bottomline}{%
4001       {%
4002         \nodexn{(\mdf@A)+(0,\mdf@outerlinewidth@length)}
4003           +(0,\mdf@middlelinewidth@length)
4004           +(0,\mdf@innerlinewidth@length)}{\mdf@A}%
4005         \nodexn{(\mdf@0)+(0,\mdf@outerlinewidth@length)}
4006           +0.5(0,\mdf@middlelinewidth@length)}{\mdf@0}%
4007       }{}%
4008     \ifbool{\mdf@topline}{%
4009       {%
4010         \nodexn{(\mdf@P) - (0,\mdf@outerlinewidth@length)}
4011           -0.5(0,\mdf@middlelinewidth@length)}{\mdf@P}%
4012       }{}%
4013     \ifbool{\mdf@shadow}{%
4014       {\psframe[style=mdfshadow](\mdf@0)(\mdf@P)}{}%
4015     }%
4016     \psclip{%
4017       %Four lines
4018       \mdf@test@lrb{\mdfpstricksbox@fl{\mdf@0}{\mdf@P}}{}%
4019       %three lines
4020       \mdf@test@ltb{%
4021         \mdf@pstricksbox@tl{(\mdf@P|\mdf@0)(\mdf@0)(\mdf@0|\mdf@P)(\mdf@P)}}{}%
4022       \mdf@test@trb{%
4023         \mdf@pstricksbox@tl{(\mdf@0)(\mdf@P|\mdf@0)(\mdf@P)(\mdf@0|\mdf@P)}}{}%
4024       \mdf@test@ltr{%
4025         \mdf@pstricksbox@tl{(\mdf@0)(\mdf@0|\mdf@P)(\mdf@P)(\mdf@P|\mdf@0)}}{}%
4026       \mdf@test@lrb{%
4027         \mdf@pstricksbox@tl{(\mdf@0|\mdf@P)(\mdf@0)(\mdf@P|\mdf@0)(\mdf@P)}}{}%
4028       %two lines combined
4029     }%

```

```

4028     \mdf@test@lb{\mdf@pstricksbox@tcl%
4029         {(\mdf@P|\mdf@0)(\mdf@P)(\mdf@0|\mdf@P)}%
4030         {(\mdf@0|\mdf@P)(\mdf@0)(\mdf@P|\mdf@0)}}{}}
4031     \mdf@test@rb{\mdf@pstricksbox@tcl%
4032         {(\mdf@P)(\mdf@0|\mdf@P)(\mdf@0)}%
4033         {(\mdf@0)(\mdf@P|\mdf@0)(\mdf@P)}}{}}
4034     \mdf@test@tr{\mdf@pstricksbox@tcl%
4035         {(\mdf@P|\mdf@0)(\mdf@0)(\mdf@0|\mdf@P)}%
4036         {(\mdf@0|\mdf@P)(\mdf@P)(\mdf@P|\mdf@0)}}{}}
4037     \mdf@test@lt{\mdf@pstricksbox@tcl%
4038         {(\mdf@0)(\mdf@P|\mdf@0)(\mdf@P)}%
4039         {(\mdf@0)(\mdf@0|\mdf@P)(\mdf@P)}}{}}
4040     %two lines not combined combined
4041     \mdf@test@lr{\mdf@pstricksbox@tncl{(\mdf@0|\mdf@P)}{(\mdf@P|\mdf@0)}%
4042         }{}}
4043     \mdf@test@tb{\mdf@pstricksbox@tncl{(\mdf@P|\mdf@0)}{(\mdf@0|\mdf@P)}%
4044         }{}}
4045     %single line
4046     \mdf@test@l{\mdf@pstricksbox@ol{(\mdf@0)(\mdf@0|\mdf@P)}}{}}
4047     \mdf@test@r{\mdf@pstricksbox@ol{(\mdf@P)(\mdf@P|\mdf@0)}}{}}
4048     \mdf@test@t{\mdf@pstricksbox@ol{(\mdf@P)(\mdf@0|\mdf@P)}}{}}
4049     \mdf@test@b{\mdf@pstricksbox@ol{(\mdf@0)(\mdf@P|\mdf@0)}}{}}
4050     %no line
4051     \mdf@test@noline{\psframe[style=mdfbackgroundstyle](\mdf@0)(\mdf@P)}{}}
4052 %
4053     %Frametitlebackground
4054     \drawbackgroundframetitle@single
4055     %output%
4056     \rput[bl](\mdf@A){\box\mdf@splitbox@one}
4057     \psdot(\mdf@A)\uput[90](\mdf@A){\mdf at A}
4058     \psdot(\mdf@P)\uput[90](\mdf@P){\mdf at P}
4059     \psdot(\mdf@0)\uput[90](\mdf@0){\mdf at 0}
4060 %
4061     \endpsclip
4062     \mdf@singleextra
4063     \end{pspicture}%
4064 %
4065     \mdf@makeboxalign@right%
4066 %
4067     \fi
4068 }%
4069 \def\drawbackgroundframetitle@single{%
4070   \ifdefempty{\mdf@frametitle}{}{%
4071     \drawbackgroundframetitle@single%
4072   }%
4073 }%
4074 \def\drawbackgroundframetitle@@single{%
4075   \begingroup%
4076   \ifbool{\mdf@leftline}{%
4077     \nodexn{(\mdf@0)+(\mdf@innerlinewidth@length,0)}%
4078     +0.5(\mdf@middlelinewidth@length,0){\mdf@0}%
4079   }{}%
4080   \ifbool{\mdf@rightline}{%
4081     \nodexn{(\mdf@P)-(\mdf@innerlinewidth@length,0)}%
4082     -0.5(\mdf@middlelinewidth@length,0){\mdf@P}%
4083   }{}%

```

```

4084 \ifbool{mdf@topline}{%
4085   \nodexn{(\mdf@P)-(0,\mdf@innerlinewidth@length)
4086           -0.5(0,\mdf@middlelinewidth@length)}{\mdf@P}%
4087 }{}%
4088 \nodexn{(\mdf@P)-(0,\mdfframetitleboxtotalheight)}{\mdf@F}%
4089 \psline[style=mdfframetitlebackgroundstyle](\mdf@O|\mdf@F)(\mdf@O|\mdf@P)%
4090                               (\mdf@P)(\mdf@P|\mdf@F)%
4091 \endgroup
4092 }

```

\mdf@putbox@first

First output

```

4093 \def\mdf@putbox@first{%
4094   \ifvoid\mdf@splitbox@two
4095   \else%
4096     \mdf@makebox@out{%
4097       \mdf@makeboxalign@left%
4098       \%ifbool{mdf@leftline}{\hspace*\{\mdf@middlelinewidth@length\}}{}%
4099       \setlength\mdfboundingboxwidth{\wd\mdf@splitbox@two}%
4100       \advance\mdfboundingboxwidth by \mdf@innerleftmargin@length\relax%
4101       \advance\mdfboundingboxwidth by \mdf@innerrightmargin@length\relax%
4102       \%ifbool{mdf@leftline}{%
4103         \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
4104         \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
4105         \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}{}%
4106       \%ifbool{mdf@rightline}{%
4107         \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
4108         \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
4109         \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}{}%
4110       \setlength\mdfboundingboxheight{%
4111         \dimexpr\ht\mdf@splitbox@two+\dp\mdf@splitbox@two\relax}%
4112       \advance\mdfboundingboxheight by \mdf@innertopmargin@length\relax%
4113       \advance\mdfboundingboxheight by \mdf@splitbottomskip@length\relax%
4114       \%ifbool{mdf@topline}{%
4115         \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
4116         \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
4117         \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}{}%
4118 %%%%%%%%
4119       \%ifbool{mdf@everyline}{%
4120         \%ifbool{mdf@bottomline}{%
4121           \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
4122           \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
4123           \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}{}%
4124       }{}%
4125 %%%%%%%%
4126       \psset{linearc=\mdf@roundcorner@length,cornersize=absolute}%
4127       \expandafter\psset\expandafter{\mdf@psset@local}%
4128       \mdf@makebox@in[\mdfboundingboxwidth]{%
4129         \null%
4130         \psset{unit=1truecm}%
4131         \%ifdimgreater{\mdfboundingboxheight}{\vsize}%
4132           {\begin{pspicture}(0,0)(\mdfboundingboxwidth,\vsize)}
4133           {\begin{pspicture}(0,0)(\mdfboundingboxwidth,\mdfboundingboxheight)}
4134             \mdfpstricks@settings%

```

```

4135      \psset{linearc=\mdf@roundcorner@length,cornersize=absolut,}%
4136      \expandafter\psset\expandafter{\mdf@psset@local}%
4137      \pnode(\mdf@innerleftmargin@length,\mdf@splitbottomskip@length){mdf@A}
4138      \pnode(0,0){mdf@0}
4139      \pnode(\mdfboundingboxwidth,\mdfboundingboxheight){mdf@P}
4140      \ifbool{mdf@leftline}%
4141          {%
4142              \nodexn{(\mdf@A)+(\mdf@outerlinewidth@length,0)
4143                  +(\mdf@middlelinewidth@length,0)
4144                  +(\mdf@innerlinewidth@length,0)}{mdf@A}
4145              \nodexn{(\mdf@0)+(\mdf@outerlinewidth@length,0)
4146                  +0.5(\mdf@middlelinewidth@length,0)}{mdf@0}
4147          }{}%
4148      \ifbool{mdf@rightline}%
4149          {%
4150              \nodexn{(\mdf@P)-(\mdf@outerlinewidth@length,0)
4151                  -0.5(\mdf@middlelinewidth@length,0)}{mdf@P}
4152          }{}%
4153      \ifbool{mdf@topline}%
4154          {%
4155              \nodexn{(\mdf@P)-(0,\mdf@outerlinewidth@length)
4156                  -0.5(0,\mdf@middlelinewidth@length)}{mdf@P}
4157          }{}%
4158 %%%%%%%%
4159      \ifbool{mdf@everyline}%
4160          \ifbool{mdf@bottomline}%
4161              {%
4162                  \nodexn{(\mdf@A)+(0,\mdf@outerlinewidth@length)
4163                      +(0,\mdf@middlelinewidth@length)
4164                      +(0,\mdf@innerlinewidth@length)}{mdf@A}%
4165                  \nodexn{(\mdf@0)+(\mdf@outerlinewidth@length)
4166                      +0.5(\mdf@middlelinewidth@length)}{mdf@0}%
4167              }{}%
4168          }{}%
4169 %%%%%%%
4170      \ifbool{mdf@shadow}%
4171          {\pscustom[style=mdfshadow,linestyle=none]{%
4172              \psline[linejoin=2,linecap=1,]{%
4173                  (\mdf@P|\mdf@0)(\mdf@P)(\mdf@0|\mdf@P)%
4174                  \psline[linejoin=2,linecap=1,linearcc=\z@]{%
4175                      (\mdf@0|\mdf@P)(\mdf@0)(\mdf@P|\mdf@0)
4176                      \closedshadow
4177                  }
4178          }{}}
4179 %      \psclip{%
4180 %%%%%%%
4181      \ifbool{mdf@everyline}%
4182          %Four lines
4183          \mdf@test@ltrb{\mdf@pstricksbox@fl{mdf@0}{mdf@P}}{}%
4184          %three lines
4185          \mdf@test@ltb{%
4186              \mdf@pstricksbox@tl{(\mdf@P|\mdf@0)(\mdf@0)(\mdf@0|\mdf@P)(\mdf@P)}}{}%
4187          \mdf@test@trb{%
4188              \mdf@pstricksbox@tl{(\mdf@0)(\mdf@P|\mdf@0)(\mdf@P)(\mdf@0|\mdf@P)}}{}%
4189          \mdf@test@ltr{%
4190              \mdf@pstricksbox@tl{(\mdf@0)(\mdf@0|\mdf@P)(\mdf@P)(\mdf@P|\mdf@0)}}{}%

```

```

4191      \mdf@test@lrb{%
4192          \mdf@pstricksbox@tl{(\mdf@0|\mdf@P)(\mdf@0)(\mdf@P|\mdf@0)(\mdf@P)}{}%
4193      %two lines combined
4194      \mdf@test@lb{\mdf@pstricksbox@tcl{%
4195          {(\mdf@P|\mdf@0)(\mdf@P)(\mdf@0|\mdf@P)}%{%
4196          {(\mdf@0|\mdf@P)(\mdf@0)(\mdf@P|\mdf@0)}{}%
4197      \mdf@test@rb{\mdf@pstricksbox@tcl{%
4198          {(\mdf@P)(\mdf@0|\mdf@P)(\mdf@0)}%{%
4199          {(\mdf@0)(\mdf@P|\mdf@0)(\mdf@P)}{}%
4200      \mdf@test@tr{\mdf@pstricksbox@tcl{%
4201          {(\mdf@P|\mdf@0)(\mdf@0)(\mdf@0|\mdf@P)}%{%
4202          {(\mdf@0|\mdf@P)(\mdf@P)(\mdf@P|\mdf@0)}{}%
4203      \mdf@test@lt{\mdf@pstricksbox@tcl{%
4204          {(\mdf@0)(\mdf@P|\mdf@0)(\mdf@P)}%{%
4205          {(\mdf@0)(\mdf@0|\mdf@P)(\mdf@P)}{}%
4206      %two lines not combined combined
4207      \mdf@test@lr{\mdf@pstricksbox@tncl{(\mdf@0|\mdf@P)}{(\mdf@P|\mdf@0)}%
4208          }{}%
4209      \mdf@test@tb{\mdf@pstricksbox@tncl{(\mdf@P|\mdf@0)}{(\mdf@0|\mdf@P)}%
4210          }{}%
4211      %single line
4212      \mdf@test@l{\mdf@pstricksbox@ol{(\mdf@0)(\mdf@0|\mdf@P)}{}%
4213      \mdf@test@r{\mdf@pstricksbox@ol{(\mdf@P)(\mdf@P|\mdf@0)}{}%
4214      \mdf@test@t{\mdf@pstricksbox@ol{(\mdf@P)(\mdf@0|\mdf@P)}{}%
4215      \mdf@test@b{\mdf@pstricksbox@ol{(\mdf@0)(\mdf@P|\mdf@0)}{}%
4216      %no line
4217      \mdf@test@noline{\psframe[style=mdfbackgroundstyle](\mdf@0)(\mdf@P)}{}%
4218  }{%
4219      %Four or Three lines
4220      \ifboolexpr{test {\mdf@test@ltrb} or test {\mdf@test@ltr}}{%
4221          {\mdf@pstricksbox@tl{(\mdf@0)(\mdf@0|\mdf@P)(\mdf@P)(\mdf@P|\mdf@0)}%{%
4222          {}%
4223      %two combined lines
4224      \ifboolexpr{test {\mdf@test@ltb} or test {\mdf@test@lt}}{%
4225          {\mdf@pstricksbox@tcl{(\mdf@0)(\mdf@P|\mdf@0)(\mdf@P)}%{%
4226          {(\mdf@0)(\mdf@0|\mdf@P)(\mdf@P)}{}%
4227      \ifboolexpr{test {\mdf@test@trb} or test {\mdf@test@tr}}{%
4228          {\mdf@pstricksbox@tcl{(\mdf@P|\mdf@0)(\mdf@0)(\mdf@0|\mdf@P)}%{%
4229          {(\mdf@0|\mdf@P)(\mdf@P)(\mdf@P|\mdf@0)}{}%
4230      %two not combined lines
4231      \ifboolexpr{test {\mdf@test@lrb} or test {\mdf@test@lr}}{%
4232          {\mdf@pstricksbox@tncl{(\mdf@0|\mdf@P)}{(\mdf@P|\mdf@0)}{}%
4233      %single line
4234      \ifboolexpr{test {\mdf@test@tb} or test {\mdf@test@t}}{%
4235          {\mdf@pstricksbox@ol{(\mdf@P)(\mdf@0|\mdf@P)}{}%
4236      \ifboolexpr{test {\mdf@test@lb} or test {\mdf@test@l}}{%
4237          {\mdf@pstricksbox@ol{(\mdf@0)(\mdf@0|\mdf@P)}{}%
4238      \ifboolexpr{test {\mdf@test@rb} or test {\mdf@test@r}}{%
4239          {\mdf@pstricksbox@ol{(\mdf@P)(\mdf@P|\mdf@0)}{}%
4240      %no line
4241      \mdf@test@b{\psframe[style=mdfbackgroundstyle](\mdf@0)(\mdf@P)}{}%
4242      \mdf@test@noline{\psframe[style=mdfbackgroundstyle](\mdf@0)(\mdf@P)}{}%
4243  }%
4244 %
4245 %
4246 %Frametitlebackground
        \drawbackgroundframetitle@first

```

```

4247   %output%
4248   \rput[bl](mdf@A){\box\mdf@splitbox@two}
4249 %     \psdot(mdf@A)\uput[90](mdf@A){mdf at A}
4250 %     \psdot(mdf@P)\uput[90](mdf@P){mdf at P}
4251 %     \psdot(mdf@O)\uput[90](mdf@O){mdf at O}
4252 %   \endpsclip
4253   \mdf@firstextra
4254   \end{pspicture}
4255 }%
4256 \mdf@makeboxalign@right%
4257 }%
4258 \fi
4259 }%
4260 \def\drawbackgroundframetitle@first{%
4261 \ifempty{\mdf@frametitle}{}{%
4262 {%
4263 \ifbool{\mdf@repeatframetitle}{%
4264 {%
4265 \repeating title = true
4266 \drawbackgroundframetitle@@first
4267 }%
4268 {%
4269 \ifdimgreater{\mdfboundingboxheight}{\mdfframetitleboxtotalheight}{%
4270 {%
4271 \drawbackgroundframetitle@first
4272 \global\mdfframetitleboxtotalheight=-\p@%
4273 }{\mdf@PackageWarning{You got a page break inside the frame
4274 title\MessageBreak
4275 Currently this isn't well supported}%
4276 \drawbackgroundframetitle@first
4277 \global\mdfframetitleboxtotalheight=\dimexpr
4278 \mdfframetitleboxtotalheight
4279 -\mdfboundingboxheight
4280 -\mdf@innerlinewidth@length
4281 -0.5\mdf@middlelinewidth@length%
4282 +\mdf@frametitlebelowskip@length
4283 +\mdf@splitbottomskip@length
4284 +\mdf@splittopskip@length
4285 +\dp\strutbox\relax%
4286 }%
4287 }%
4288 }%
4289 \def\drawbackgroundframetitle@@first{%
4290 \begingroup%
4291 \ifbool{\mdf@leftline}{%
4292 \nodexn{(\mdf@O)+(\mdf@innerlinewidth@length,0)
4293 +0.5(\mdf@middlelinewidth@length,0)}{\mdf@O}%
4294 }{%
4295 \ifbool{\mdf@rightline}{%
4296 \nodexn{(\mdf@P) - (\mdf@innerlinewidth@length,0)
4297 -0.5(\mdf@middlelinewidth@length,0)}{\mdf@P}%
4298 }{%
4299 \ifbool{\mdf@topline}{%
4300 \nodexn{(\mdf@P) - (0,\mdf@innerlinewidth@length)
4301 -0.5(0,\mdf@middlelinewidth@length)}{\mdf@P}%
4302 }{%

```

```

4303 \ifdimgreater{\mdfboundingboxheight}{\mdfframetitleboxtotalheight}
4304   {\nodexn{(\mdf@P)-(0,\mdfframetitleboxtotalheight)}{\mdf@F}}%
4305   {\nodexn{(\mdf@O)}{\mdf@F}}%
4306   \psline[style=mdfframetitlebackgroundstyle](\mdf@O|\mdf@F)(\mdf@O|\mdf@P)
4307                                     (\mdf@P)(\mdf@P|\mdf@F)%
4308 \endgroup
4309 }
4310 \def\drawbackgroundframetitle@@@first{%
4311 \begingroup%
4312 \ifbool{\mdf@leftline}{%
4313   \nodexn{(\mdf@O)+(\mdf@innerlinewidth@length,0)}
4314     +0.5(\mdf@middlelinewidth@length,0)}{\mdf@O}%
4315 }{}%
4316 \ifbool{\mdf@rightline}{%
4317   \nodexn{(\mdf@P)-(\mdf@innerlinewidth@length,0)}
4318     -0.5(\mdf@middlelinewidth@length,0)}{\mdf@P}%
4319 }{}%
4320 \ifbool{\mdf@topline}{%
4321   \nodexn{(\mdf@P)-(0,\mdf@innerlinewidth@length)}
4322     -0.5(0,\mdf@middlelinewidth@length)}{\mdf@P}%
4323 }{}%
4324 \nodexn{(\mdf@P)-(0,\mdfframetitleboxtotalheight)}{\mdf@F}%
4325 \psline[style=mdfframetitlebackgroundstyle](\mdf@O|\mdf@F)(\mdf@O|\mdf@P)
4326                                     (\mdf@P)(\mdf@P|\mdf@F)%
4327 \endgroup
4328 }

```

\mdf@putbox@middle

Middle output

```

4329 \def\mdf@putbox@middle{%
4330 \ifvoid\mdf@splitbox@two
4331 \else%
4332   \mdf@makebox@out{%
4333     \mdf@makeboxalign@left%
4334 %     \ifbool{\mdf@leftline}{\hspace*{\mdf@middlelinewidth@length}}{}%
4335     \setlength\mdfboundingboxwidth{\wd\mdf@splitbox@two}%
4336     \advance\mdfboundingboxwidth by \mdf@innerleftmargin@length\relax%
4337     \advance\mdfboundingboxwidth by \mdf@innerrightmargin@length\relax%
4338   \ifbool{\mdf@leftline}{%
4339     \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
4340     \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
4341     \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}{}%
4342   \ifbool{\mdf@rightline}{%
4343     \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
4344     \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
4345     \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}{}%
4346   \setlength\mdfboundingboxheight{%
4347     \dimexpr\ht\mdf@splitbox@two+\dp\mdf@splitbox@two\relax}%
4348   \advance\mdfboundingboxheight by \mdf@splitbottomskip@length\relax%
4349 %%%%%%%%
4350   \ifbool{\mdf@everyline}{%
4351     \ifbool{\mdf@topline}{%
4352       \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
4353       \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%

```

```

4354     \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax{}%
4355     \ifbooleq{\mdf@bottomline}{%
4356         \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
4357         \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
4358         \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax{}%
4359     }{}%
4360 %%%%%%
4361     \psset{unit=1truecm}%
4362     \mdf@makebox@in[\mdfboundingboxwidth]{%
4363         \null%
4364         \ifdimgreater{\mdfboundingboxheight}{\vsize}%
4365             {\begin{pspicture}(0,0)(\mdfboundingboxwidth,\vsize)}%
4366             {\begin{pspicture}(0,0)(\mdfboundingboxwidth,\mdfboundingboxheight)}%
4367             \mdfpstricks@settings%
4368             \psset{lineararc=0pt,cornersize=absolut,}%
4369             \expandafter\psset\expandafter{\mdf@psset@local}%
4370             %%%
4371             \pnode(\mdf@innerleftmargin@length,\mdf@splitbottomskip@length){\mdf@A}%
4372             \pnode(0,0){\mdf@0}%
4373             \pnode(\mdfboundingboxwidth,\mdfboundingboxheight){\mdf@P}%
4374             \ifbooleq{\mdf@leftline}{%
4375                 {%
4376                     \nodexn{(\mdf@A)+(\mdf@outerlinewidth@length,0)}%
4377                         +(\mdf@middlelinewidth@length,0)%
4378                         +(\mdf@innerlinewidth@length,0)}{\mdf@A}%
4379                     \nodexn{(\mdf@0)+(\mdf@outerlinewidth@length,0)}%
4380                         +0.5(\mdf@middlelinewidth@length,0)}{\mdf@0}%
4381                 }{}%
4382             \ifbooleq{\mdf@rightline}{%
4383                 {%
4384                     \nodexn{(\mdf@P)-(\mdf@outerlinewidth@length,0)}%
4385                         -0.5(\mdf@middlelinewidth@length,0)}{\mdf@P}%
4386                 }{}%
4387             %%%
4388 %%%%%%
4389             \ifbooleq{\mdf@everyline}{%
4390                 \ifbooleq{\mdf@bottomline}{%
4391                     {%
4392                         \nodexn{(\mdf@A)+(0,\mdf@outerlinewidth@length)}%
4393                             +(0,\mdf@middlelinewidth@length)%
4394                             +(0,\mdf@innerlinewidth@length)}{\mdf@A}%
4395                         \nodexn{(\mdf@0)+(0,\mdf@outerlinewidth@length)}%
4396                             +0.5(0,\mdf@middlelinewidth@length)}{\mdf@0}%
4397                     }{}%
4398                 \ifbooleq{\mdf@topline}{%
4399                     {%
4400                         \nodexn{(\mdf@P)-(0,\mdf@outerlinewidth@length)}%
4401                             -0.5(0,\mdf@middlelinewidth@length)}{\mdf@P}%
4402                     }{}%
4403                 }{}%
4404 %%%%%%
4405             %%%
4406             \ifbooleq{\mdf@shadow}{%
4407                 {\psframe[style=\mdfshadow](\mdf@0)(\mdf@P)}{}%
4408 %%%%%%
4409             \ifbooleq{\mdf@everyline}{%

```

```

4410      %Four lines
4411      \mdf@test@lrb{\mdf@pstricksbox@fl{mdf@0}{mdf@P}}{}%
4412      %three lines
4413      \mdf@test@ltb{%
4414          \mdf@pstricksbox@tl{((mdf@P|mdf@0) (mdf@0) (mdf@0|mdf@P) (mdf@P))}{}%
4415      \mdf@test@trb{%
4416          \mdf@pstricksbox@tl{((mdf@0) (mdf@P|mdf@0) (mdf@P) (mdf@0|mdf@P))}{}%
4417      \mdf@test@ltr{%
4418          \mdf@pstricksbox@tl{((mdf@0) (mdf@0|mdf@P) (mdf@P) (mdf@P|mdf@0))}{}%
4419      \mdf@test@lrb{%
4420          \mdf@pstricksbox@tl{((mdf@0|mdf@P) (mdf@0) (mdf@P|mdf@0) (mdf@P))}{}%
4421      %two lines combined
4422      \mdf@test@lb{\mdf@pstricksbox@tcl{%
4423          {((mdf@P|mdf@0) (mdf@P) (mdf@0|mdf@P))}{}%
4424          {((mdf@0|mdf@P) (mdf@0) (mdf@P|mdf@0))}{}%
4425      \mdf@test@rb{\mdf@pstricksbox@tcl{%
4426          {((mdf@P) (mdf@0|mdf@P) (mdf@0))}%
4427          {((mdf@0) (mdf@P|mdf@0) (mdf@P))}{}%
4428      \mdf@test@tr{\mdf@pstricksbox@tcl{%
4429          {((mdf@P|mdf@0) (mdf@0) (mdf@0|mdf@P))}%
4430          {((mdf@0|mdf@P) (mdf@P) (mdf@P|mdf@0))}{}%
4431      \mdf@test@lt{\mdf@pstricksbox@tcl{((mdf@0) (mdf@P|mdf@0) (mdf@P))}%
4432          {((mdf@0) (mdf@0|mdf@P) (mdf@P))}{}%
4433      %two lines not combined combined
4434      \mdf@test@lr{\mdf@pstricksbox@tncl{((mdf@0|mdf@P))((mdf@P|mdf@0))}%
4435          }{}%
4436      \mdf@test@tb{\mdf@pstricksbox@tncl{((mdf@P|mdf@0))((mdf@0|mdf@P))}%
4437          }{}%
4438      %single line
4439      \mdf@test@l{\mdf@pstricksbox@ol{((mdf@0) (mdf@0|mdf@P))}{}%
4440      \mdf@test@r{\mdf@pstricksbox@ol{((mdf@P) (mdf@P|mdf@0))}{}%
4441      \mdf@test@t{\mdf@pstricksbox@ol{((mdf@P) (mdf@0|mdf@P))}{}%
4442      \mdf@test@b{\mdf@pstricksbox@ol{((mdf@0) (mdf@P|mdf@0))}{}%
4443      %no line
4444      \mdf@test@noline{\psframe[style=mdfbackgroundstyle]{(mdf@0)(mdf@P)}}{}%
4445  }{%
4446      \ifboolexpr{bool {mdf@leftline} and bool {mdf@rightline}}{%
4447          \mdf@pstricksbox@tncl{((mdf@0|mdf@P))((mdf@P|mdf@0))}{}%
4448      \ifboolexpr{bool {mdf@leftline} and not (bool {mdf@rightline})}{%
4449          \mdf@pstricksbox@ol{((mdf@0) (mdf@0|mdf@P))}{}%
4450      \ifboolexpr{not (bool {mdf@leftline}) and bool {mdf@rightline}}{%
4451          \mdf@pstricksbox@ol{((mdf@P) (mdf@P|mdf@0))}{}%
4452      \ifboolexpr{not (bool {mdf@leftline}) and not (bool {mdf@rightline})}{%
4453          \psframe[style=mdfbackgroundstyle]{(mdf@0)(mdf@P)}{}%
4454      }%
4455      %Frametitlebackground
4456      \drawbackgroundframetitle@middle
4457      %output%
4458      \rput[bl]{(mdf@A)}{\box\mdf@splitbox@two}
4459      \%psdot{(mdf@A)}\put[90]{(mdf@A)}{mdf at A}
4460      \%psdot{(mdf@P)}\put[90]{(mdf@P)}{mdf at P}
4461      \%psdot{(mdf@0)}\put[90]{(mdf@0)}{mdf at 0}
4462      \mdf@middleextra
4463      \end{pspicture}%
4464  }%
4465  \mdf@makeboxalign@right%

```

```

4466  }%
4467 \fi
4468 }%
4469 \def\drawbackgroundframetitle@middle{%
4470 \ifempty{\mdf@frametitle}{ }{%
4471 {%
4472 \ifbool{\mdf@repeatframetitle}{%
4473 {%
4474 \repeatingtitle = true
4475 \drawbackgroundframetitle@@@middle
4476 }%
4477 }%
4478 \ifdimless{\mdfframetitleboxtotalheight}{\z@}{%
4479 {%
4480 \drawbackgroundframetitle@middle
4481 \global\mdfframetitleboxtotalheight=-\p@\relax
4482 }%
4483 }%
4484 }%
4485 }%
4486 \def\drawbackgroundframetitle@@@middle{%
4487 \begingroup%
4488 \ifbool{\mdf@leftline}{%
4489 \nodexn{(\mdf@O)+(\mdf@innerlinewidth@length,0)
4490 +0.5(\mdf@middlelinewidth@length,0)}{\mdf@O}%
4491 }{ }%
4492 \ifbool{\mdf@rightline}{%
4493 \nodexn{(\mdf@P)-(\mdf@innerlinewidth@length,0)
4494 -0.5(\mdf@middlelinewidth@length,0)}{\mdf@P}%
4495 }{ }%
4496 \nodexn{(\mdf@P)-(0,\mdfframetitleboxtotalheight)}{\mdf@F}%
4497 \psline[style=\mdfframetitlebackgroundstyle,lineararc=\z@]{%
4498 (\mdf@O|\mdf@F) (\mdf@O|\mdf@P) (\mdf@P|\mdf@F)%
4499 \endgroup
4500 }%
4501 \def\drawbackgroundframetitle@@@middle{%
4502 \begingroup%
4503 \ifbool{\mdf@leftline}{%
4504 \nodexn{(\mdf@O)+(\mdf@innerlinewidth@length,0)
4505 +0.5(\mdf@middlelinewidth@length,0)}{\mdf@O}%
4506 }{ }%
4507 \ifbool{\mdf@rightline}{%
4508 \nodexn{(\mdf@P)-(\mdf@innerlinewidth@length,0)
4509 -0.5(\mdf@middlelinewidth@length,0)}{\mdf@P}%
4510 }{ }%
4511 \ifbool{\mdf@everyline}{%
4512 {%
4513 \ifbool{\mdf@topline}{%
4514 \nodexn{(\mdf@P)-(0,\mdf@innerlinewidth@length)
4515 -0.5(0,\mdf@middlelinewidth@length)}{\mdf@P}%
4516 }{ }%
4517 }{ }%
4518 \nodexn{(\mdf@P)-(0,\mdfframetitleboxtotalheight)}{\mdf@F}%
4519 \psline[style=\mdfframetitlebackgroundstyle]{%
4520 (\mdf@O|\mdf@F) (\mdf@O|\mdf@P)%
(\mdf@P|\mdf@F)%
4521 \endgroup

```

4522 }

\mdf@putbox@second

Last output

```

4523 \def\mdf@putbox@second{
4524   \ifvoid\mdf@splitbox@one
4525   \else%
4526     \mdf@makebox@out{%
4527       \mdf@makeboxalign@left%
4528 %       \ifbool{\mdf@leftline}{\hspace*{\mdf@middlelinewidth@length}}{}%
4529       \setlength{\mdfboundingboxwidth}{\wd\mdf@splitbox@one}%
4530       \advance{\mdfboundingboxwidth}{\mdf@innerleftmargin@length}\relax%
4531       \advance{\mdfboundingboxwidth}{\mdf@innersrightmargin@length}\relax%
4532       \ifbool{\mdf@leftline}{%
4533         \advance{\mdfboundingboxwidth}{\mdf@inner linewidth@length}\relax%
4534         \advance{\mdfboundingboxwidth}{\mdf@middle linewidth@length}\relax%
4535         \advance{\mdfboundingboxwidth}{\mdf@outer linewidth@length}\relax%
4536       \ifbool{\mdf@rightline}{%
4537         \advance{\mdfboundingboxwidth}{\mdf@inner linewidth@length}\relax%
4538         \advance{\mdfboundingboxwidth}{\mdf@middle linewidth@length}\relax%
4539         \advance{\mdfboundingboxwidth}{\mdf@outer linewidth@length}\relax%
4540       \setlength{\mdfboundingboxheight}{%
4541         \dimexpr\ht\mdf@splitbox@one+\dp\mdf@splitbox@one}\relax}%
4542       \advance{\mdfboundingboxheight}{\mdf@innerbottommargin@length}\relax%
4543       \ifbool{\mdf@bottomline}{%
4544         \advance{\mdfboundingboxheight}{\mdf@inner linewidth@length}\relax%
4545         \advance{\mdfboundingboxheight}{\mdf@middle linewidth@length}\relax%
4546         \advance{\mdfboundingboxheight}{\mdf@outer linewidth@length}\relax}%
4547 %%%%%%%
4548       \ifbool{\mdf@everyline}{%
4549         \ifbool{\mdf@topline}{%
4550           \advance{\mdfboundingboxheight}{\mdf@inner linewidth@length}\relax%
4551           \advance{\mdfboundingboxheight}{\mdf@middle linewidth@length}\relax%
4552           \advance{\mdfboundingboxheight}{\mdf@outer linewidth@length}\relax}%
4553       }%
4554 %%%%%%
4555       \psset{unit=1truecm}%
4556       \mdf@makebox@in[\mdfboundingboxwidth]{%
4557         \null%
4558         \begin{pspicture}(0,0)(\mdfboundingboxwidth,\mdfboundingboxheight)
4559           \mdfpstricks@settings%
4560           \psset{linearc=\mdf@roundcorner@length,cornersize=absolut,}%
4561           \expandafter\psset\expandafter{\mdf@psset@local}%
4562           \pnode(\mdf@innerleftmargin@length,\mdf@innerbottommargin@length)
4563             {\mdf@A}
4564           \pnode(0,0){\mdf@0}
4565           \pnode(\mdfboundingboxwidth,\mdfboundingboxheight){\mdf@P}
4566           \ifbool{\mdf@leftline}{%
4567             {%
4568               \nodexn{(\mdf@A)+(\mdf@outer linewidth@length,0)}
4569                 +(\mdf@middle linewidth@length,0)
4570                 +(\mdf@inner linewidth@length,0)}{\mdf@A}
4571             \nodexn{(\mdf@0)+(\mdf@outer linewidth@length,0)}
4572               +0.5(\mdf@middle linewidth@length,0)}{\mdf@0}

```

```

4573     }{%
4574     \ifbool{mdf@rightline}{%
4575         {%
4576             \nodexn{(\mdf@P)}{(\mdf@outerlinewidth@length,0)}{(\mdf@middlelinewidth@length,0)}{(\mdf@P)}{0.5{(\mdf@middlelinewidth@length,0)}}{(\mdf@P)}{(\mdf@outerlinewidth@length,0)}{(\mdf@P)}{0.5{(\mdf@middlelinewidth@length,0)}}{(\mdf@P)}}
4577         }{%
4578     \ifbool{mdf@bottomline}{%
4579         {%
4580             \nodexn{(\mdf@A)}{+(0,\mdf@outerlinewidth@length)}{+(\mdf@middlelinewidth@length)}{+(\mdf@innerlinewidth@length)}{(\mdf@A)}{(\mdf@O)}{+(0,\mdf@outerlinewidth@length)}{+(\mdf@middlelinewidth@length)}{(\mdf@O)}{+0.5(0,\mdf@middlelinewidth@length)}{(\mdf@O)}}
4581             }{%
4582         }{%
4583             \nodexn{(\mdf@O)}{+(0,\mdf@outerlinewidth@length)}{+(\mdf@middlelinewidth@length)}{+(\mdf@innerlinewidth@length)}{(\mdf@O)}{(\mdf@P)}{+(0,\mdf@outerlinewidth@length)}{+(\mdf@middlelinewidth@length)}{(\mdf@P)}{+0.5(0,\mdf@middlelinewidth@length)}{(\mdf@P)}}
4584             }{%
4585             }{%
4586         }{%
4587         %%%%%%%%
4588     \ifbool{mdf@everyline}{%
4589         \ifbool{mdf@topline}{%
4590             {%
4591                 \nodexn{(\mdf@P)}{-(0,\mdf@outerlinewidth@length)}{-0.5(0,\mdf@middlelinewidth@length)}{(\mdf@P)}{(\mdf@O)}{(\mdf@P)}{-(0,\mdf@outerlinewidth@length)}{-0.5(0,\mdf@middlelinewidth@length)}{(\mdf@P)}}
4592             }{%
4593             }{%
4594         }{%
4595         %%%%%%%
4596         %%%
4597         \ifbool{mdf@shadow}{%
4598             {\pscustom[style=mdfshadow,linestyle=none]{%
4599                 \psline[linejoin=2,linecap=1,](\mdf@O|\mdf@P)(\mdf@P|\mdf@O)
4600                 (\mdf@P|\mdf@O)(\mdf@P|\mdf@P)}%
4601                 \psline[linejoin=2,linecap=1,linarc=\z@](\mdf@O|\mdf@P)(\mdf@P|\mdf@P)
4602                 \closedshadow
4603             }{%
4604             }{%
4605             %%%%%%
4606         \ifbool{mdf@everyline}{%
4607             %Four lines
4608             \mdf@test@lrb{\pstricksbox@fl{(\mdf@O|\mdf@P)}{}}
4609             %three lines
4610             \mdf@test@ltb{%
4611                 \mdf@pstricksbox@tl{(\mdf@P|\mdf@O)(\mdf@O)(\mdf@O|\mdf@P)(\mdf@P)}{}}
4612             \mdf@test@trb{%
4613                 \mdf@pstricksbox@tl{(\mdf@O)(\mdf@P|\mdf@O)(\mdf@P)(\mdf@O|\mdf@P)}{}}
4614             \mdf@test@ltr{%
4615                 \mdf@pstricksbox@tl{(\mdf@O)(\mdf@O|\mdf@P)(\mdf@P)(\mdf@P|\mdf@O)}{}}
4616             \mdf@test@lrb{%
4617                 \mdf@pstricksbox@tl{(\mdf@O|\mdf@P)(\mdf@O)(\mdf@P|\mdf@O)(\mdf@P)}{}}
4618             %two lines combined
4619             \mdf@test@lb{\mdf@pstricksbox@tcl{%
4620                 {(\mdf@P|\mdf@O)(\mdf@P)(\mdf@O|\mdf@P)}%
4621                 {(\mdf@O|\mdf@P)(\mdf@O)(\mdf@P|\mdf@O)}{}}
4622             \mdf@test@rb{\mdf@pstricksbox@tcl{%
4623                 {(\mdf@P)(\mdf@O|\mdf@P)(\mdf@O)}%
4624                 {(\mdf@O)(\mdf@P|\mdf@O)(\mdf@P)}{}}
4625             \mdf@test@tr{\mdf@pstricksbox@tcl{%
4626                 {(\mdf@P|\mdf@O)(\mdf@O)(\mdf@O|\mdf@P)}%
4627                 {(\mdf@O|\mdf@P)(\mdf@P)(\mdf@P|\mdf@O)}{}}
4628             \mdf@test@lt{\mdf@pstricksbox@tcl{%

```

```

4629          {((mdf@0)(mdf@P|mdf@0)(mdf@P))%}
4630          {((mdf@0)(mdf@0|mdf@P)(mdf@P)){}}
4631      %two lines not combined combined
4632      \mdf@test@lr{\mdf@pstricksbox@tncl{((mdf@0|mdf@P))((mdf@P|mdf@0))}}
4633          }{}
4634      \mdf@test@tb{\mdf@pstricksbox@tncl{((mdf@P|mdf@0))((mdf@0|mdf@P))}}
4635          }{}
4636      %single line
4637      \mdf@test@l{\mdf@pstricksbox@ol{((mdf@0)(mdf@0|mdf@P)){}}
4638      \mdf@test@r{\mdf@pstricksbox@ol{((mdf@P)(mdf@P|mdf@0)){}}
4639      \mdf@test@t{\mdf@pstricksbox@ol{((mdf@P)(mdf@0|mdf@P)){}}
4640      \mdf@test@b{\mdf@pstricksbox@ol{((mdf@0)(mdf@P|mdf@0)){}}
4641      %no line
4642      \mdf@test@noline{\psframe[style=mdfbackgroundstyle]{(mdf@0)(mdf@P)}{}}
4643  }{%
4644      %Four + Three
4645      \ifboolexpr{test {\mdf@test@ltrb} or test {\mdf@test@lrb}}{%
4646          {\mdf@pstricksbox@tl{((mdf@0|mdf@P)(mdf@0)(mdf@P|mdf@0)(mdf@P)){}}
4647      %Two combined
4648      \ifboolexpr{test {\mdf@test@ltb} or test {\mdf@test@lb}}{%
4649          {\mdf@pstricksbox@tcl{((mdf@P|mdf@0)(mdf@P)(mdf@0|mdf@P)){}}
4650              {((mdf@0|mdf@P)(mdf@0)(mdf@P|mdf@0)){}}
4651      \ifboolexpr{test {\mdf@test@trb} or test {\mdf@test@rb}}{%
4652          {\mdf@pstricksbox@tcl{((mdf@P)(mdf@0|mdf@P)(mdf@0)){}}
4653              {((mdf@0)(mdf@P|mdf@0)(mdf@P)){}}
4654      %Two not combined
4655      \ifboolexpr{test {\mdf@test@ltr} or test {\mdf@test@lr}}{%
4656          {\mdf@pstricksbox@tncl{((mdf@0|mdf@P))((mdf@P|mdf@0)){}}
4657      %one line
4658      \ifboolexpr{test {\mdf@test@tb} or test {\mdf@test@b}}{%
4659          {\mdf@pstricksbox@ol{((mdf@0)(mdf@P|mdf@0)){}}
4660      \ifboolexpr{test {\mdf@test@lt} or test {\mdf@test@l}}{%
4661          {\mdf@pstricksbox@ol{((mdf@0)(mdf@0|mdf@P)){}}
4662      \ifboolexpr{test {\mdf@test@tr} or test {\mdf@test@r}}{%
4663          {\mdf@pstricksbox@ol{((mdf@P)(mdf@P|mdf@0)){}}
4664      %no line
4665      \mdf@test@t{\psframe[style=mdfbackgroundstyle]{(mdf@0)(mdf@P)}{}}
4666      \mdf@test@noline{\psframe[style=mdfbackgroundstyle]{(mdf@0)(mdf@P)}{}}
4667  }%
4668      %Frametitlebackground
4669      \drawbackgroundframetitle@second
4670      %output%
4671      \rput[bl]{(mdf@A)}{\box{\mdf@splitbox@one}}
4672      \mdf@secondextra
4673  %      \psdot{(mdf@A)}\uput[90]{(mdf@A)}{mdf at A}
4674  %      \psdot{(mdf@P)}\uput[90]{(mdf@P)}{mdf at P}
4675  %      \psdot{(mdf@0)}\uput[90]{(mdf@0)}{mdf at 0}
4676      \end{pspicture}%
4677  }%
4678      \mdf@makeboxalign@right%
4679  }%
4680  \fi
4681 }%
4682 \def\drawbackgroundframetitle@second{%
4683 \ifdefempty{\mdf@frametitle}{}
4684 {%

```

```

4685 \ifbool{mdf@repeatframetitle}{%
4686   {%
4687     \drawbackgroundframetitle@@second
4688   }%
4689   {%
4690     \ifdimless{\mdfframetitleboxtotalheight}{\z@}%
4691       {}{%
4692         \drawbackgroundframetitle@@second
4693       }%
4694     }%
4695   }%
4696 }%
4697 \def\drawbackgroundframetitle@@second{%
4698 \begingroup%
4699 \ifbool{mdf@leftline}{%
4700   \nodexn{(\mdf@O)+(\mdf@innerlinewidth@length,0)%
4701           +0.5(\mdf@middlelinewidth@length,0)}{\mdf@O}%
4702 }{%
4703 \ifbool{mdf@rightline}{%
4704   \nodexn{(\mdf@P)-(\mdf@innerlinewidth@length,0)%
4705           -0.5(\mdf@middlelinewidth@length,0)}{\mdf@P}%
4706 }{%
4707   \nodexn{(\mdf@P)-(0,\mdfframetitleboxtotalheight)}{\mdf@F}%
4708   \psline[style=mdfframetitlebackgroundstyle,linearc=\z@]{%
4709     (\mdf@O|\mdf@F) (\mdf@O|\mdf@P) (\mdf@P|\mdf@F)%
4710   }%
4711 \endgroup
4712 }%
4713 \def\drawbackgroundframetitle@@second{%
4714 \begingroup%
4715 \ifbool{mdf@leftline}{%
4716   \nodexn{(\mdf@O)+(\mdf@innerlinewidth@length,0)%
4717           +0.5(\mdf@middlelinewidth@length,0)}{\mdf@O}%
4718 }{%
4719 \ifbool{mdf@rightline}{%
4720   \nodexn{(\mdf@P)-(\mdf@innerlinewidth@length,0)%
4721           -0.5(\mdf@middlelinewidth@length,0)}{\mdf@P}%
4722 }{%
4723 \ifbool{mdf@everyline}{%
4724   {%
4725     \ifbool{mdf@topline}{%
4726       \nodexn{(\mdf@P)-(0,\mdf@innerlinewidth@length)%
4727           -0.5(0,\mdf@middlelinewidth@length)}{\mdf@P}%
4728     }{%
4729   }%
4730   \nodexn{(\mdf@P)-(0,\mdfframetitleboxtotalheight)}{\mdf@F}%
4731   \psline[style=mdfframetitlebackgroundstyle]{%
4732     (\mdf@O|\mdf@F) (\mdf@O|\mdf@P)%
4733   }%
4734 }%
4735 }%

```

C. The file mdframed-example-default

```

4736 %Documentation of the package mdframed
4737 \setcounter{errorcontextlines}{999}
4738 \documentclass[parskip=false,english,11pt]{ltexmdf}
4739
4740
4741 \usepackage{showexpl}
4742 \lstset{style=lstltexmdf,explpreset={pos=b,rframe={}},}
4743
4744 \newcommand\Loadedframemethod{default}
4745 \usepackage[framemethod=\Loadedframemethod]{mdframed}
4746
4747 \title{The \Pack{mdframed} package}
4748 \subtitle{Examples for \Opt{framemethod=\Loadedframemethod}}
4749 \author{\href{mailto:marco.daniel@mada-nada.de}{Marco Daniel}}
4750 \date{\mdfmaindate}
4751 \version{\mdversion}
4752 \introduction{In this document I collect various examples for
4753 \Opt{framemethod=\Loadedframemethod}.
4754 Some presented examples are more or less exorbitant.}
4755
4756 \mdfsetup{skipabove=\topskip,skipbelow=\topskip}
4757 \newrobustcmd\ExampleText{%
4758     An \textit{inhomogeneous linear} differential equation has the form
4759     \begin{align}
4760         L[v] = f,
4761     \end{align}
4762     where  $L$  is a linear differential operator,  $v$  is
4763     the dependent variable, and  $f$  is a given non-zero
4764     function of the independent variables alone.
4765 }
4766
4767 \newcounter{examplecount}
4768 \setcounter{examplecount}{0}
4769 \renewcommand\thesubsection{}
4770 \newcommand\Examplesec[1]{%
4771 \stepcounter{examplecount}%
4772 \subsection{Example~\arabic{examplecount}---#1\relax}%
4773 }
4774
4775 \begin{document}
4776 \maketitle
4777 \section{Loading}
4778 In the preamble only the package \Pack{mdframed} with the option
4779 \Opt{framemethod=\Loadedframemethod} is loaded. All other modifications will be
4780 done by \Cmd{mdfdefinestyle} or \Cmd{mdfsetup}.
4781
4782 {\large\color{red!50!black}}
4783 \NOTE Every \Cmd{global} inside the examples is necessary to work with the
4784 package \Pack{showexpl}.}
4785
4786 \section{Examples}
4787 All examples have the following settings:
4788
4789 \begin{tltexmdfexample}
4790 \mdfsetup{skipabove=\topskip,skipbelow=\topskip}
4791 \newrobustcmd\ExampleText{%

```

```

4792 An \textit{inhomogeneous linear} differential equation
4793 has the form
4794 \begin{align}
4795 L[v] = f,
4796 \end{align}
4797 where $L$ is a linear differential operator, $v$ is
4798 the dependent variable, and $f$ is a given non-zero
4799 function of the independent variables alone.
4800 }
4801 \end{tltxmdfexample}
4802 \clearpage
4803 \Examplesec{very simple}
4804 \begin{LTXexample}
4805 \global\mdfdefinestyle{exampledefault}{%
4806     linecolor=red, linewidth=3pt,%
4807     leftmargin=1cm, rightmargin=1cm
4808 }
4809 \begin{mdframed}[style=exampledefault]
4810 \ExampleText
4811 \end{mdframed}
4812 \end{LTXexample}
4813
4814 \Examplesec{hidden line + frame title}
4815 \begin{LTXexample}
4816 \global\mdfapptodefinestyle{exampledefault}{%
4817     topline=false, bottomline=false}
4818 \begin{mdframed}[style=exampledefault, frametitle={Inhomogeneous linear}]
4819 \ExampleText
4820 \end{mdframed}
4821 \end{LTXexample}
4822 \clearpage
4823
4824 \Examplesec{colored frame title}
4825 \begin{LTXexample}
4826
4827 \global\mdfapptodefinestyle{exampledefault}{%
4828     rightline=true, innerleftmargin=10, innerrightmargin=10,
4829     frametitlerule=true, frametitlerulecolor=green,
4830     frametitlebackgroundcolor=yellow,
4831     frametitlerulewidth=2pt}
4832 \begin{mdframed}[style=exampledefault, frametitle={Inhomogeneous linear}]
4833 \ExampleText
4834 \end{mdframed}
4835 \end{LTXexample}
4836
4837 \Examplesec{framed picture which is centered}
4838 \begin{LTXexample}[morekeywords=width]
4839 \begin{mdframed}[userdefinedwidth=6cm, align=center,
4840                 linecolor=blue, linewidth=4pt]
4841 \IfFileExists{donald-duck.jpg}{%
4842 {\includegraphics[width=\linewidth]{donald-duck}}%
4843 {\rule{\linewidth}{4cm}}%
4844 }%
4845 \end{mdframed}
4846 \end{LTXexample}
4847 \clearpage

```

```

4848 \Examplesec{Theorem environments}
4849 \begin{LTXexample}[morekeywords={theoremstyle,definition}]
4850 \mdfdefinestyle{theoremstyle}{%
4851   linecolor=red, linewidth=2pt,%
4852   frametitlerule=true,%
4853   frametitlebackgroundcolor=gray!20,
4854   innertopmargin=\topskip,
4855 }
4856 \mdtheorem[style=theoremstyle]{definition}{Definition}
4857 \begin{definition}
4858 \ExampleText
4859 \end{definition}
4860 \begin{definition}[Inhomogeneous linear]
4861 \ExampleText
4862 \end{definition}
4863 \begin{definition*}[Inhomogeneous linear]
4864 \ExampleText
4865 \end{definition*}
4866 \end{LTXexample}
4867
4868 \clearpage
4869 \Examplesec{theorem with separate header and the help of TikZ (complex)}
4870 \begin{LTXexample}[%]
4871   morekeywords={theo,baseline,anchor,outer,sep,current,bounding,box,east},%
4872   moretexcs=tikz]
4873 \newcounter{theo}[section]
4874 \newenvironment{theo}[1][]{%
4875   \stepcounter{theo}%
4876   \ifstrempty{#1}%
4877   {\mdfsetup{%
4878     frametitle=%
4879     \tikz[baseline=(current bounding box.east),outer sep=0pt]
4880     \node[anchor=east,rectangle,fill=blue!20]
4881     {\strut Theorem~\thetheo};}}%
4882 }%
4883 {\mdfsetup{%
4884   frametitle=%
4885   \tikz[baseline=(current bounding box.east),outer sep=0pt]
4886   \node[anchor=east,rectangle,fill=blue!20]
4887   {\strut Theorem~\thetheo:\#1};}}%
4888 }%
4889 \mdfsetup{innertopmargin=10pt,linecolor=blue!20,%
4890   linewidth=2pt,topline=true,
4891   frametitleaboveskip=\dimexpr-\ht\strutbox\relax,}
4892 \begin{mdframed}[]\relax%
4893 \end{mdframed}}
4894 \begin{theo}[Inhomogeneous Linear]
4895 \ExampleText
4896 \end{theo}
4897
4898 \begin{theo}
4899 \ExampleText
4900 \end{theo}
4901 \end{LTXexample}
4902
4903 \clearpage

```

```

4904 \Examplesec{hide only a part of a line}
4905 The example below is inspired by the following post on StackExchange
4906 \href{http://tex.stackexchange.com/questions/24101/theorem-decorations^^A
4907     -that-stay-with-theorem-environment}%
4908 {Theorem decorations that stay with theorem environment}
4909 \begin{LTXexample}[morekeywords={mdf@frame@leftline@single,mdf@frame@rightline@single,%
4910                         mdf@frame@leftline@first,mdf@frame@rightline@first,%
4911                         mdf@frame@leftline@second,mdf@frame@rightline@second,%
4912                         mdf@frame@leftline@middle,mdf@frame@rightline@middle,%
4913                         mdfboundingboxdepth,mdfboundingboxtotalheight,%
4914                         mdf@topline,ifbool,interruptrule,everyline}]
4915 \makeatletter
4916 \newlength{\interruptlength}
4917 \newrobustcmd\interruptrule[3]{%
4918   \color{#1}%
4919   \hspace*{\dimexpr\mdfboundingboxwidth+\mdf@innerrightmargin@length\relax}%
4920   \rule[\dimexpr-\mdfboundingboxdepth+\#2\interruptlength\relax]%
4921     {\mdf@middlelinewidth@length}%
4922   {\dimexpr\mdfboundingboxtotalheight-\#3\interruptlength\relax}%
4923 }
4924 \newrobustcmd\overlaplines[2][white]{%
4925   \mdfsetup{everyline=false}%
4926   \setlength{\interruptlength}{#2}%
4927   \appto\mdf@frame@leftline@single{\llap{\interruptrule{#1}{1}{2}}}
4928   \appto\mdf@frame@rightline@single{\rlap{\interruptrule{#1}{1}{2}}}
4929   \appto\mdf@frame@leftline@first{\llap{\interruptrule{#1}{0}{1}}}
4930   \appto\mdf@frame@rightline@first{\rlap{\interruptrule{#1}{0}{1}}}
4931   \appto\mdf@frame@leftline@second{\llap{\interruptrule{#1}{1}{1}}}
4932   \appto\mdf@frame@rightline@second{\rlap{\interruptrule{#1}{1}{1}}}
4933   \appto\mdf@frame@leftline@middle{\llap{\interruptrule{#1}{0}{0}}}
4934   \appto\mdf@frame@rightline@middle{\rlap{\interruptrule{#1}{0}{0}}}
4935 }
4936 \makeatother
4937
4938 \overlaplines{2.5ex}
4939 \begin{mdframed}[linecolor=blue, linewidth=8pt]
4940 \ExampleText
4941 \end{mdframed}
4942 \overlaplines[blue!70!black!20]{2.5ex}
4943 \begin{mdframed}[linecolor=blue, linewidth=8pt]
4944 \ExampleText
4945 \end{mdframed}
4946 \end{LTXexample}
4947 \end{document}
4948 \endinput

```

D. The file mdframed-example-tikz

```

4949 %Documentation of the package mdframed
4950 \setcounter{errorcontextlines}{999}
4951 \documentclass[parskip=false,english,11pt]{ltxmdf}
4952
4953 \usepackage{showexpl}
4954 \lstset{style=lstltxmdf,explpreset={pos=b,rframe={}},}
4955
4956 \newcommand\Loadedframemethod{TikZ}

```

```

4957 \usepackage[framemethod=Loadedframemethod]{mdframed}
4958
4959 \title{The \Pack{mdframed} package}
4960 \subtitle{Examples for \Opt{framemethod=Loadedframemethod}}
4961 \author{\href{mailto:marco.daniel@mada-nada.de}{Marco Daniel}}
4962 \date{\mdfmaindate}
4963 \version{\mdversion}
4964 \introduction{In this document I collect various examples for
4965             \Opt{framemethod=Loadedframemethod}.
4966             Some presented examples are more or less exorbitant.}
4967
4968 \mdfsetup{skipabove=\topskip,skipbelow=\topskip}
4969 \newrobustcmd\ExampleText{%
4970     An \textit{inhomogeneous linear} differential equation has the form
4971     \begin{align}
4972         L[v] = f,
4973     \end{align}
4974     where  $L$  is a linear differential operator,  $v$  is
4975     the dependent variable, and  $f$  is a given non-zero
4976     function of the independent variables alone.
4977 }
4978
4979 \newcounter{examplecount}
4980 \setcounter{examplecount}{0}
4981 \renewcommand\thesubsection{}
4982 \newcommand\Examplesec[1]{%
4983 \stepcounter{examplecount}%
4984 \subsection{Example~\arabic{examplecount}---#1\relax}%
4985 }
4986
4987 \begin{document}
4988 \maketitle
4989 \section{Loading}
4990 In the preamble only the package \Pack{mdframed} width the option
4991 \Opt{framemethod=Loadedframemethod} is loaded. All other modifications will be
4992 done by \Cmd{mdfdefinestyle} or \Cmd{mdfsetup}.
4993
4994 {\large\color{red!50!black}
4995 \NOTE Every \Cmd{global} inside the examples is necessary to work with the
4996 package \Pack{showexpl}.}
4997
4998 \section{Examples}
4999 All examples have the following settings:
5000
5001 \begin{tltxmdfexample}
5002 \mdfsetup{skipabove=\topskip,skipbelow=\topskip}
5003 \newrobustcmd\ExampleText{%
5004 An \textit{inhomogeneous linear} differential equation
5005 has the form
5006 \begin{align}
5007 L[v] = f,
5008 \end{align}
5009 where  $L$  is a linear differential operator,  $v$  is
5010 the dependent variable, and  $f$  is a given non-zero
5011 function of the independent variables alone.
5012 }

```

```

5013 \end{tltxmdfexample}
5014 \clearpage
5015 \Examplesec{round corner}
5016 \begin{LTXexample}
5017 \global\mdfdefinestyle{exampledefault}{%
5018     outerlinewidth=5pt,innerlinewidth=0pt,
5019     outerlinecolor=red,roundcorner=5pt
5020 }
5021 \begin{mdframed}[style=exampledefault]
5022 \ExampleText
5023 \end{mdframed}
5024 \end{LTXexample}
5025
5026 \Examplesec{hidden line + frame title}
5027 \begin{LTXexample}
5028 \global\mdfapptodefinestyle{exampledefault}{%
5029     topline=false,leftline=false,}
5030 \begin{mdframed}[style=exampledefault,frametitle={Inhomogeneous linear}]
5031 \ExampleText
5032 \end{mdframed}
5033 \end{LTXexample}
5034 \clearpage
5035 \Examplesec{framed picture which is centered}
5036 \begin{LTXexample}
5037 \begin{mdframed}[userdefinedwidth=6cm,align=center,
5038                 linecolor=blue,middlelinewidth=4pt,roundcorner=5pt]
5039 \IfFileExists{donald-duck.jpg}{%
5040 {\includegraphics[width=\linewidth]{donald-duck}}%
5041 {\rule{\linewidth}{4cm}}%
5042 \end{mdframed}
5043 \end{LTXexample}
5044
5045 \Examplesec{Gimmick}
5046 \begin{LTXexample}[morekeywords={line,width,dash,dashed,pattern}]
5047 \mdfsetup{splitbottomskip=0.8cm,splittopskip=0cm,
5048     innerrightmargin=2cm,innertopmargin=1cm,%
5049     innerlinewidth=2pt,outerlinewidth=2pt,
5050     middlelinewidth=10pt,backgroundcolor=red,
5051     linecolor=blue,middlelinecolor=gray,
5052     tikzsetting={draw=yellow,line width=3pt,%
5053                 dashed,%
5054                 dash pattern= on 10pt off 3pt},
5055     rightline=false,bottomline=false}
5056 \begin{mdframed}
5057 \ExampleText
5058 \end{mdframed}
5059 \end{LTXexample}
5060
5061 \clearpage
5062 \Examplesec{complex example with TikZ}
5063
5064 \begin{tltxmdfexample}[morekeywords={mdf}]
5065 \tikzstyle{titregris} =
5066 [draw=gray, thick, fill=white, shading = exersicetitle, %
5067   text=gray, rectangle, rounded corners, right,minimum height=.7cm]
5068 \pgfdeclarehorizontalshading{exersicebackground}{100bp}

```

```

5069      {color(0bp)=(green!40); color(100bp)=(black!5)}
5070 \pgfdeclarehorizontalshading{exercisetitle}{100bp}
5071      {color(0bp)=(red!40);color(100bp)=(black!5)}
5072 \newcounter{exercise}
5073 \renewcommand*\theexercise{Exercise-\arabic{exercise}}
5074 \makeatletter
5075 \def\mdf@exercisepoints{}%new mdframed key:
5076 \define@key{mdf}{exercisepoints}{%
5077   \def\mdf@exercisepoints{\#1}
5078 }
5079 \mdfdefinestyle{exercisestyle}{%
5080   outerlinewidth=1em,outerlinecolor=white,%
5081   leftmargin=-1em,rightmargin=-1em,%
5082   middlelinewidth=1.2pt,roundcorner=5pt,linecolor=gray,
5083   apptotikzsetting={\tikzset{mdfbg/.append style ={%
5084     shading = exersicebackground}}},%
5085   innertopmargin=1.2\baselineskip,
5086   skipabove={\dimexpr0.5\baselineskip+\topskip\relax},
5087   skipbelow={-1em},
5088   needspace=3\baselineskip,
5089   frametitlefont=\sffamily\bfseries,
5090   settings={\global\stepcounter{exercise}},%
5091   singleextra={%
5092     \node[titregris,xshift=1cm] at (P-|0) %
5093       {~\mdf@frametitlefont{\theexercise}~};
5094     \ifdefempty{\mdf@exercisepoints}{%
5095       {}%
5096       {\node[titregris,left,xshift=-1cm] at (P)%
5097         {~\mdf@frametitlefont{\mdf@exercisepoints points}~};}%
5098     },
5099     firstextra={%
5100       \node[titregris,xshift=1cm] at (P-|0) %
5101         {~\mdf@frametitlefont{\theexercise}~};
5102       \ifdefempty{\mdf@exercisepoints}{%
5103         {}%
5104         {\node[titregris,left,xshift=-1cm] at (P)%
5105           {~\mdf@frametitlefont{\mdf@exercisepoints points}~};}%
5106     },
5107   }
5108 \makeatother
5109
5110 \begin{mdframed}[style=exercisestyle]
5111 \ExampleText
5112 \end{mdframed}
5113
5114 \begin{mdframed}[style=exercisestyle,exercisepoints=10]
5115 \ExampleText
5116 \end{mdframed}
5117 \end{tltxmdfexample}
5118
5119 \tikzstyle{titregris} =
5120   [draw=gray, thick, fill=white, shading = exercisetitle, %
5121   text=gray, rectangle, rounded corners, right,minimum height=.7cm]
5122 \pgfdeclarehorizontalshading{exersicebackground}{100bp}
5123   {color(0bp)=(green!40); color(100bp)=(black!5)}
5124 \pgfdeclarehorizontalshading{exercisetitle}{100bp}

```

```

5125           {color(0bp)=(red!40);color(100bp)=(black!5)}
5126 \newcounter{exercise}
5127 \renewcommand*\theexercise{Exercise~\arabic{exercise}}
5128 \makeatletter
5129 \def\mdf@exercisepoints{}%new mdframed key:
5130 \define@key{mdf}{exercisepoints}{%
5131   \def\mdf@exercisepoints{\#1}
5132 }
5133 \mdfdefinestyle{exercisestyle}{%
5134   outerlinewidth=1em,outerlinecolor=white,%
5135   leftmargin=-1em,rightmargin=-1em,%
5136   middlelinewidth=1.2pt,roundcorner=5pt,linecolor=gray,
5137   apptotikzsetting={\tikzset{mdfbackground/.append style ={%
5138                           shading = exersicebackground}}},%
5139   innertopmargin=1.2\baselineskip,
5140   skipabove={\dimexpr0.5\baselineskip+\topskip\relax},
5141   skipbelow={-1em},
5142   needspace=3\baselineskip,
5143   frametitlefont=\sffamily\bfseries,
5144   settings={\global\stepcounter{exercise}},%
5145   singleextra={%
5146     \node[titregris,xshift=1cm] at (P-|0) %
5147       {~\mdf@frametitlefont{\theexercise}~};
5148   \ifdefempty{\mdf@exercisepoints}{%
5149     {}%
5150     {\node[titregris,left,xshift=-1cm] at (P)%
5151       {~\mdf@frametitlefont{\mdf@exercisepoints points}~};}%
5152   },
5153   firstextra={%
5154     \node[titregris,xshift=1cm] at (P-|0) %
5155       {~\mdf@frametitlefont{\theexercise}~};
5156   \ifdefempty{\mdf@exercisepoints}{%
5157     {}%
5158     {\node[titregris,left,xshift=-1cm] at (P)%
5159       {~\mdf@frametitlefont{\mdf@exercisepoints points}~};}%
5160   },
5161 },
5162 \makeatother
5163
5164 \begin{mdframed}[style=exercisestyle]
5165 \ExampleText
5166 \end{mdframed}
5167
5168 \begin{mdframed}[style=exercisestyle,exercisepoints=10]
5169 \ExampleText
5170 \end{mdframed}
5171
5172 \clearpage
5173 \Examplesec{Theorem environments}
5174 \begin{LTXexample}[morekeywords={theoremstyle,definition}]
5175 \mdfdefinestyle{theoremstyle}{%
5176   linecolor=red,middlelinewidth=2pt,%
5177   frametitlerule=true,%
5178   apptotikzsetting={\tikzset{mdfframetitlebackground/.append style={%
5179                           shade,left color=white, right color=blue!20}}},%
5180   frametitlerulecolor=green!60,

```

```

5181     frametitlerulewidth=1pt,
5182     innertopmargin=\topskip,
5183 }
5184 \mdtheorem[style=theoremstyle]{definition}{Definition}
5185 \begin{definition}[Inhomogeneous linear]
5186 \ExampleText
5187 \end{definition}
5188 \begin{definition*}[Inhomogeneous linear]
5189 \ExampleText
5190 \end{definition*}
5191 \end{LTXexample}
5192
5193 \end{document}
5194 \endinput

```

E. The file mdframed-example-pstricks

```

5195 %Documentation of the package mdframed
5196 \setcounter{errorcontextlines}{999}
5197 \documentclass[parskip=false,english,11pt]{ltxmdf}
5198
5199 \lstDeleteShortInline{|
5200 \newcommand\Loadedframemethod{PSTricks}
5201 \usepackage[framemethod=\Loadedframemethod]{mdframed}
5202
5203 \usepackage{showexpl}
5204 \lstset{style=lstltxmdf,explpreset={pos=b,rframe={}},}
5205
5206 \title{The \Pack{mdframed} package}
5207 \subtitle{Examples for \Opt{framemethod=\Loadedframemethod}}
5208 \author{\href{mailto:marco.daniel@mada-nada.de}{Marco Daniel}}
5209 \date{\mdfmaindate}
5210 \version{\mdversion}
5211 \introduction{In this document I collect various examples for
5212 \Opt{framemethod=\Loadedframemethod}.
5213 Some presented examples are more or less exorbitant.}
5214
5215 \mdfsetup{skipabove=\topskip,skipbelow=\topskip}
5216 \newrobustcmd\ExampleText{%
5217     An \textit{inhomogeneous linear} differential equation has the form
5218     \begin{align}
5219         L[v] = f,
5220     \end{align}
5221     where $L$ is a linear differential operator, $v$ is
5222     the dependent variable, and $f$ is a given non-zero
5223     function of the independent variables alone.
5224 }
5225
5226 \newcounter{examplecount}
5227 \setcounter{examplecount}{0}
5228 \renewcommand\thesubsection{}
5229 \newcommand\Examplesec[1]{%
5230 \stepcounter{examplecount}%
5231 \subsection{Example~\arabic{examplecount}---#1\relax}%
5232 }
5233

```

```

5234 \begin{document}
5235 \maketitle
5236 \section{Loading}
5237 In the preamble only the package \Pack{mdframed} width the option
5238 \Opt{framemethod=Loadedframemethod} is loaded. All other modifications will be
5239 done by \Cmd{mdfdefinestyle} or \Cmd{mdfsetup}.
5240
5241 {\large\color{red!50!black}
5242 \NOTE Every \Cmd{global} inside the examples is necessary to work with the
5243 package \Pack{showexpl}.}
5244
5245 \section{Examples}
5246 All examples have the following settings:
5247
5248 \begin{tltxmdfexample}
5249 \mdfsetup{skipabove=\topskip,skipbelow=\topskip}
5250 \newrobustcmd\ExampleText{%
5251 An \textit{inhomogeneous linear} differential equation
5252 has the form
5253 \begin{align}
5254 L[v] = f,
5255 \end{align}
5256 where $L$ is a linear differential operator, $v$ is
5257 the dependent variable, and $f$ is a given non-zero
5258 function of the independent variables alone.
5259 }
5260 \end{tltxmdfexample}
5261 \clearpage
5262
5263 \Examplesec{very simple}
5264 \begin{LTXexample}
5265 \global\mdfdefinestyle{exampledefault}{%
5266     linecolor=red,middlelinewidth=3pt,%
5267     leftmargin=1cm,rightmargin=1cm
5268 }
5269 \begin{mdframed}[style=exampledefault,roundcorner=5]
5270 \ExampleText
5271 \end{mdframed}
5272 \end{LTXexample}
5273
5274 \Examplesec{hidden line + frame title}
5275 \begin{LTXexample}[morekeywords={innerlinecolor,addtopsstyle,mdfouterlinestyle,
5276                         linestyle}]
5277 \global\mdfapptodefinestyle{exampledefault}{%
5278   topline=false,rightline=false,bottomline=false,
5279   frametitlerule=true,inertopmargin=6pt,
5280   outerlinewidth=6pt,outerlinecolor=blue,
5281   pstricksappsetting={\addtopsstyle{mdfouterlinestyle}{linestyle=dashed}},%
5282   innerlinecolor=yellow,innerlinewidth=5pt}%
5283 \begin{mdframed}[style=exampledefault,frametitle={Inhomogeneous linear}]
5284 \ExampleText
5285 \end{mdframed}
5286 \end{LTXexample}
5287
5288 \clearpage
5289

```

```

5290 \Examplesec{Dash Lines}[morekeywords={pstrickssetting,linestyle,dashed}]
5291 \begin{LTXexample}
5292 \global\mdfdefinestyle{exampledefault}{%
5293   pstrickssetting={linestyle=dashed,},linecolor=red,middlelinewidth=2pt}
5294 \begin{mdframed}[style=exampledefault]
5295 \ExampleText
5296 \end{mdframed}
5297 \end{LTXexample}
5298
5299 \Examplesec{Double Lines}
5300 \begin{LTXexample}[morekeywords={addtopssstyle,mdfmiddlelinestyle,
5301   doubleline,doublesep}]
5302 \global\mdfdefinestyle{exampledefault}{%
5303   pstricksappsetting={\addtopssstyle{mdfmiddlelinestyle}{%
5304     doubleline=true,doublesep=6pt,linewidth=4pt}},%
5305   linecolor=red,middlelinewidth=16pt}
5306 \begin{mdframed}[style=exampledefault]
5307 \ExampleText
5308 \end{mdframed}
5309 \end{LTXexample}
5310
5311 \clearpage
5312 \Examplesec{Shadow frame}
5313 \begin{LTXexample}[morekeywords={shadow,shadowsize,myshadowbox}]
5314 \newmdenv[shadow=true,
5315   shadowsize=11pt,
5316   linewidth=8pt,
5317   frametitlerule=true,
5318   roundcorner=10pt,
5319   ]{myshadowbox}
5320 \begin{myshadowbox}[frametitle={Inhomogeneous linear}]
5321 \ExampleText
5322 \end{myshadowbox}
5323 \end{LTXexample}
5324 \end{document}
5325 \endinput

```

F. The file mdframed-example-texsx

```

5326 %Documentation of the package mdframed
5327 \setcounter{errorcontextlines}{999}
5328 \documentclass[parskip=false,english,11pt,lipsum=true]{ltxmdf}
5329
5330 \usepackage{showexpl}
5331 \lstset{style=lstltxmdf,explpreset={pos=b,rframe={}},}
5332 \usepackage{tikz}
5333 \usetikzlibrary{calc,arrows,shadings,shadows}
5334 \newcommand\Loadedframemethod{tikz}
5335 \usepackage[framemethod=\Loadedframemethod]{mdframed}
5336
5337 \title{The \Pack{mdframed} package}
5338 \subtitle{Examples for \Opt{framemethod=\Loadedframemethod}}
5339 \author{\href{mailto:marco.daniel@mada-nada.de}{Marco Daniel}}
5340 \date{\mdfmaindate}
5341 \version{\mdversion}
5342 \introduction{In this document I collect various examples for}

```

```

5343          \Opt{framemethod=\Loadedframemethod}.
5344          Some presented examples are more or less exorbitant.}

5345
5346 \mdfsetup{skipabove=\topskip,skipbelow=\topskip}
5347 \newrobustcmd\ExampleText{%
5348     An \textit{inhomogeneous linear} differential equation has the form
5349     \begin{align}
5350         L[v] = f,
5351     \end{align}
5352     where  $L$  is a linear differential operator,  $v$  is
5353     the dependent variable, and  $f$  is a given non-zero
5354     function of the independent variables alone.
5355 }
5356
5357 \newcounter{examplecount}
5358 \setcounter{examplecount}{0}
5359 \renewcommand\thesubsection{}
5360 \newcommand\Examplesec[1]{%
5361 \stepcounter{examplecount}%
5362 \subsection{Example~\arabic{examplecount}---#1\relax}%
5363 }
5364
5365 \begin{document}
5366 \maketitle
5367 \section{Loading}
5368 In the preamble only the package \Pack{mdframed} width the option
5369 \Opt{framemethod=\Loadedframemethod} is loaded. All other modifications will be
5370 done by \Cmd{mdfdefinestyle} or \Cmd{mdfsetup}.
5371
5372 {\large\color{red!50!black}}
5373 \NOTE Every \Cmd{global} inside the examples is necessary to work with the
5374 package \Pack{showexpl}.}

5375
5376 \section{Examples}
5377 All examples have the following settings:
5378
5379 \begin{tltxmdfexample}
5380 \mdfsetup{skipabove=\topskip,skipbelow=\topskip}
5381 \newrobustcmd\ExampleText{%
5382 An \textit{inhomogeneous linear} differential equation
5383 has the form
5384 \begin{align}
5385 L[v] = f,
5386 \end{align}
5387 where  $L$  is a linear differential operator,  $v$  is
5388 the dependent variable, and  $f$  is a given non-zero
5389 function of the independent variables alone.
5390 }
5391 \end{tltxmdfexample}
5392 \clearpage
5393 \Examplesec{Package listings}
5394 The example below is inspired by the following post on StackExchange
5395 \href{http://tex.stackexchange.com/questions/27673/background-overflows-^^A
5396     when-using-rounded-corners-for-listings-package-listings}%
5397     {Background overflows when using rounded corners for listings
5398     (package: 'listings')}

```

```

5399
5400 Here the solution which can be decorate as usual.
5401
5402 \begin{tltxmdfexample}[moretexcs={BeforeBeginEnvironment,AfterEndEnvironment},
5403                           morekeywords={lstlisting}]
5404 \BeforeBeginEnvironment{lstlisting}{%
5405   \begin{mdframed}[<modification>]%
5406   \vspace{-0.7em}%
5407 \AfterEndEnvironment{lstlisting}{%
5408   \vspace{-0.5em}%
5409   \end{mdframed}%
5410 \end{tltxmdfexample}
5411
5412 With the new command \Cmd{surroundwithmdframed} you can use
5413 \begin{tltxmdfexample}[moretexcs={BeforeBeginEnvironment,AfterEndEnvironment},
5414                           morekeywords={listings}]
5415 \surroundwithmdframed{listings}
5416 \end{tltxmdfexample}
5417
5418 \Examplesec{Package multicol}
5419 How I wrote in \enquote{Known Problems} you can't combine \Pack{multicol} with
5420 \Pack{mdframed}. In a simple way without any breaks you can use:
5421 \begin{LTXexample}[morekeywords={multicols}]
5422 \begin{multicols}{2}
5423 \lipsum[1]
5424 \begin{mdframed}
5425 \ExampleText
5426 \end{mdframed}
5427 \lipsum[2]
5428 \end{multicols}
5429 \end{LTXexample}
5430 \clearpage
5431 \twocolumn[\Examplesec{Working in twocolumn mode}]
5432 \begin{tltxmdfexample}
5433 \twocolumn[%
5434   \Examplesec{Working in
5435     twocolumn mode}]
5436 \lipsum[1]\lipsum[2]
5437 \begin{mdframed}[%
5438   leftmargin=10pt,%
5439   rightmargin=10pt,%
5440   linecolor=red,
5441   backgroundcolor=yellow]
5442 \ExampleText
5443 \end{mdframed}
5444 \lipsum[2]
5445 \end{tltxmdfexample}
5446 \lipsum[1]\lipsum[2]
5447 \begin{mdframed}[leftmargin=10pt,%
5448                   rightmargin=10pt,%
5449                   linecolor=red,
5450                   backgroundcolor=yellow]
5451 \ExampleText
5452 \end{mdframed}
5453 \lipsum[2]
5454 \clearpage

```

```

5455 \onecolumn
5456 \Examplesec{Working inside enumerate}
5457 \begin{LTXexample}[morekeywords={enumerate}]
5458 Text Text Text Text Text Text Text
5459 \begin{enumerate}
5460 \item in the following \ldots
5461     \begin{mdframed}[linecolor=blue,middlelinewidth=2]
5462         \ExampleText
5463     \end{mdframed}
5464 \item \lipsum[2]
5465 \end{enumerate}
5466 Text Text Text Text Text Text
5467 \end{LTXexample}
5468 \clearpage
5469 \Examplesec{Position a specific symbol at a line}
5470 \begin{LTXexample}
5471 \tikzset{
5472     warningsymbol/.style={
5473         rectangle,draw=red,
5474         fill=white,scale=1,
5475         overlay}}
5476 \mdfdefinestyle{warning}{%
5477     hidealllines=true,leftline=true,
5478     skipabove=12,skipbelow=12pt,
5479     innertopmargin=0.4em,%
5480     innerbottommargin=0.4em,%
5481     inerrightmargin=0.7em,%
5482     rightmargin=0.7em,%
5483     innerleftmargin=1.7em,%
5484     leftmargin=0.7em,%
5485     middlelinewidth=.2em,%
5486     linecolor=red,%
5487     fontcolor=red,%
5488     firstextra={\path let \p1=(P), \p2=(0) in ($(\x2,0)+0.5*(0,\y1)$)
5489                 node[warningsymbol] {\$};},%
5490     secondextra={\path let \p1=(P), \p2=(0) in $($\x2,0)+0.5*(0,\y1)$)
5491                 node[warningsymbol] {\$};},%
5492     middleextra={\path let \p1=(P), \p2=(0) in $($\x2,0)+0.5*(0,\y1)$)
5493                 node[warningsymbol] {\$};},%
5494     singleextra={\path let \p1=(P), \p2=(0) in $($\x2,0)+0.5*(0,\y1)$)
5495                 node[warningsymbol] {\$};},%
5496 }
5497 \begin{mdframed}[style=warning]
5498 \ExampleText
5499 \end{mdframed}
5500 \end{LTXexample}
5501
5502 \clearpage
5503 \Examplesec{digression-environement inspired by Tobias Weh}
5504 \begin{lstlisting}[morekeywords=%
5505             font,anchor,let,in,arrow,round,cap,controls,coordinate,%
5506             excursus,head,arrows,calc,line,width,and,to,digressionarrows,%
5507             base,west},%
5508             moretexcs={usetikzlibrary}]
5509 \usetikzlibrary{calc,arrows}
5510 \tikzset{

```

```

5511 excursion arrow/.style={%
5512   line width=2pt,
5513   draw=gray!40,
5514   rounded corners=2ex,
5515 },
5516 excursion head/.style={
5517   fill=white,
5518   font=\bfseries\sffamily,
5519   text=gray!80,
5520   anchor=base west,
5521 },
5522 }
5523 \mdfdefinestyle{digressionarrows}{%
5524 singleextra={%
5525   \path let \p1=(P), \p2=(0) in (\x2,\y1) coordinate (Q);
5526   \path let \p1=(Q), \p2=(0) in (\x1,{(\y1-\y2)/2}) coordinate (M);
5527   \path [excursus arrow, round cap-to]
5528     ($($0)+(5em,0ex)$) -| (M) |- %
5529     ($($Q)+(12em,0ex)$) .. controls +(0:16em) and +(185:6em) .. %
5530     ++(23em,2ex);
5531   \node [excursus head] at ($($Q)+(2.5em,-0.75pt)$) {Digression};},
5532 firstextra={%
5533   \path let \p1=(P), \p2=(0) in (\x2,\y1) coordinate (Q);
5534   \path [excursus arrow,-to]
5535     (0) |- %
5536     ($($Q)+(12em,0ex)$) .. controls +(0:16em) and +(185:6em) .. %
5537     ++(23em,2ex);
5538   \node [excursus head] at ($($Q)+(2.5em,-2pt)$) {Digression};},
5539 secondextra={%
5540   \path let \p1=(P), \p2=(0) in (\x2,\y1) coordinate (Q);
5541   \path [excursus arrow,round cap-]
5542     ($($0)+(5em,0ex)$) -| (Q);},
5543 middleextra={%
5544   \path let \p1=(P), \p2=(0) in (\x2,\y1) coordinate (Q);
5545   \path [excursus arrow]
5546     (0) -- (Q);,
5547   middlelinewidth=2.5em,middlelinecolor=white,
5548   hidealllines=true,topline=true,
5549   innertopmargin=0.5ex,
5550   innerbottommargin=2.5ex,
5551   innerrightmargin=2pt,
5552   innerleftmargin=2ex,
5553   skipabove=0.87\baselineskip,
5554   skipbelow=0.62\baselineskip,
5555 }
5556
5557 \begin{mdframed}[style=digressionarrows]
5558   \ExampleText
5559 \end{mdframed}
5560 \end{lstlisting}
5561
5562 \tikzset{
5563   excursion arrow/.style={%
5564     line width=2pt,
5565     draw=gray!40,
5566     rounded corners=2ex,

```

```

5567 },
5568 excursus head/.style={
5569   fill=white,
5570   font=\bfseries\sffamily,
5571   text=gray!80,
5572   anchor=base west,
5573 },
5574 }
5575 \mdfdefinestyle{digressionarrows}{%
5576 singleextra={%
5577   \path let \p1=(P), \p2=(0) in (\x2,\y1) coordinate (Q);
5578   \path let \p1=(Q), \p2=(0) in (\x1,{(\y1-\y2)/2}) coordinate (M);
5579   \path [excursus arrow, round cap-to]
5580     ($($0)+(5em,0ex)$) -| (M) |- %
5581     ($($Q)+(12em,0ex)$) .. controls +(0:16em) and +(185:6em) .. %
5582     +(23em,2ex);
5583   \node [excursus head] at ($($Q)+(2.5em,-0.75pt)$) {Digression};},
5584 firstextra={%
5585   \path let \p1=(P), \p2=(0) in (\x2,\y1) coordinate (Q);
5586   \path [excursus arrow,-to]
5587     (0) |- %
5588     ($($Q)+(12em,0ex)$) .. controls +(0:16em) and +(185:6em) .. %
5589     +(23em,2ex);
5590   \node [excursus head] at ($($Q)+(2.5em,-2pt)$) {Digression};},
5591 secondextra={%
5592   \path let \p1=(P), \p2=(0) in (\x2,\y1) coordinate (Q);
5593   \path [excursus arrow,round cap-]
5594     ($($0)+(5em,0ex)$) -| (Q);},
5595 middleextra={%
5596   \path let \p1=(P), \p2=(0) in (\x2,\y1) coordinate (Q);
5597   \path [excursus arrow]
5598     (0) -- (Q);},
5599   middlelinewidth=2.5em,middlelinecolor=white,
5600   hidealllines=true,topline=true,
5601   innertopmargin=0.5ex,
5602   innerbottommargin=2.5ex,
5603   innerrightmargin=2pt,
5604   innerleftmargin=2ex,
5605   skipabove=0.87\baselineskip,
5606   skipbelow=0.62\baselineskip,
5607 }
5608
5609 \begin{mdframed}[style=digressionarrows]
5610   \ExampleText
5611 \end{mdframed}
5612
5613 \Examplesec{Theorem style shading background}
5614 \begin{LTXexample}[morekeywords={top,bottom,Theorem,shadow,alternativtheorem}]
5615 %\usepackage{shadings,shadows} loaded in the header
5616 \mdtheorem[%
5617 apptotikzsetting={\tikzset{mdfbg/.append style =%
5618   {top color=yellow!40!white,
5619   bottom color=yellow!80!black},%
5620   mdfframeTitleBackground/.append style =%
5621   {top color=purple!40!white,
5622   bottom color=purple!80!black}}

```

```
5623 }%
5624 },
5625 , roundcorner=10pt, middlelinewidth=2pt,
5626 shadow=true, frametitlerule=true, frametitlerulewidth=4pt,
5627 innermargin=10pt,%
5628 ]{alternativtheorem}{Theorem}
5629 \begin{alternativtheorem}[Inhomogeneous linear]
5630 \ExampleText
5631 \end{alternativtheorem}
5632 \end{LTexample}
5633 \end{document}
5634 \endinput
```

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