

The mdframed package ¹

auto-split frame environment

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1.6d

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

2. Syntax

Loadings `mdframed`

The package itself loads the packages

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

Depending on the options `mdframed` will load

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

Load the package as usual:

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

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

Provided environment

The package defines only one environment with the following syntax:

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

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

Autodetecting floats

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

Twoside-mode

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

3. The frames

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

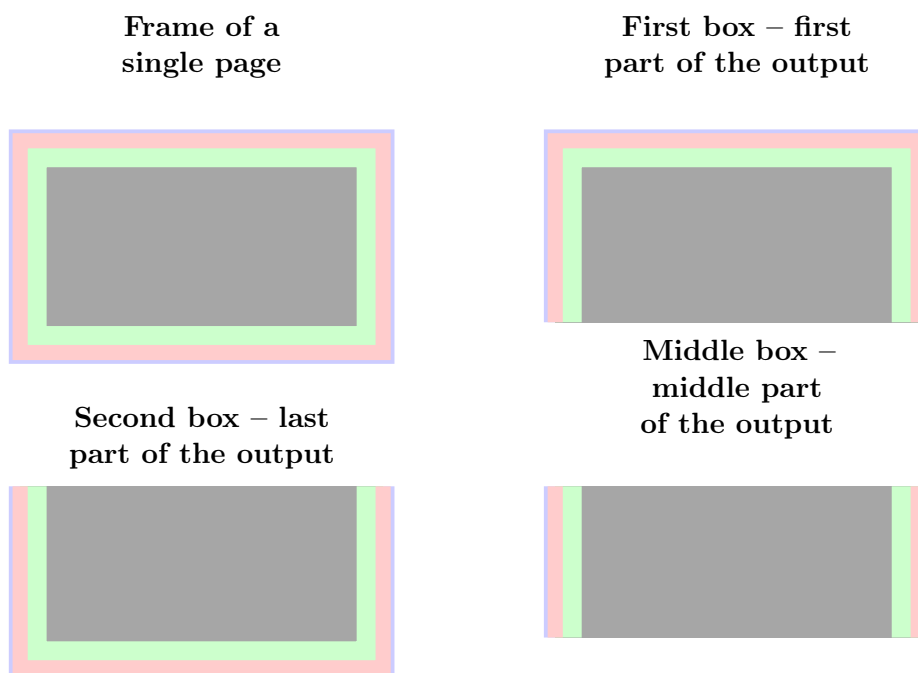


Figure 1: The basic frames

4. Commands

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

`\newmdenv`

The command has the following syntax:

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

In this way you can simply use:

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

`\renewmdenv`

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

`\surroundwithmdframed`

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

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

`\mdflength`

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

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

\the\mdflength{innerleftmargin}
```

`\mdfsetup`

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

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

`\mdfdefinestyle`

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

Here a small example:

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

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

`\mdfapptodefinestyle`

This commands allows to expand a defined style.³

5. Options

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

5.1. Global Options

The following options are only global options.

`xcolor`

default=none

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

³Thanks to Martin Scharrer and Enrico Gregorio:

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

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

`framemethod`default=`default`

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

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

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

Table 1: Allowed keys for `framemethod`

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

FYI

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

Note

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

5.2. Global and Local Options

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

5.2.1. Options with lengths

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

`defaultunit`default=`pt`

see the sentence above.

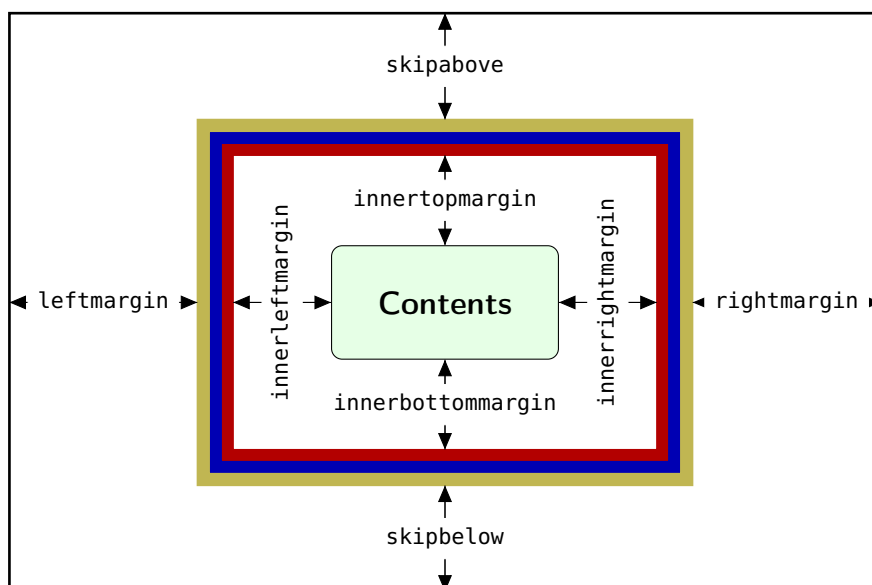


Figure 2: adjustable lengths of mdframed

`skipabove` default=0pt

Sets an additional skip above the frame.

`skipbelow` default=0pt

Sets an additional skip below the frame.

`margin` default=

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

`leftmargin` default=0pt

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

`rightmargin` default=0pt

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

`innerleftmargin` default=10pt

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

`innerrightmargin` default=10pt

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

`innertopmargin` default=.4\baselineskip

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

`innerbottommargin` default=.4\baselineskip

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

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

`userdefinedwidth` default=\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.

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

5.2.2. Colored Options

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

5.2.3. General options

<code>everyline</code>	<code>default=false</code>
Allows to draw a bottom and a top line at splitted frames.	
<code>font</code>	<code>default={}</code>
Sets the font of the environment.	
<code>ntheorem</code>	<code>default=false</code>
Before setting this boolean key, you have to load the package <code>ntheorem</code> . With this option you set the values <code>\theorempreskipamount</code> and <code>\theorempostskipamount</code> to 0 pt.	
<code>nobreak</code>	<code>default=false</code>
Sometimes it is useful to prevent a frame from splitting. The <code>nobreak</code> option is used for this purpose. If you activate this option you can enable it by setting <code>nobreak=false</code> .	
<code>usetwoside</code>	<code>default=true</code>
If you set the <code>twoside</code> option you can work with <code>outermargin</code> . This option disable this and you work with <code>leftmargin</code> and <code>rightmargin</code> .	
<code>needspace</code>	<code>default=0pt</code>
Sometimes it is useful to set a minimum height before a frame should be splitted. For such cases you can use <code>needspace</code> . The option requires a length which sets the minimum height before a frame will be splitted.	
<code>style</code>	
If you define a special style with <code>\mdfdefinestyle</code> you can use the key <code>style</code> to load the style. <code>mdframed</code> has no predefined styles yet.	
<code>settings</code>	<code>default=none</code>
This option allows the user to commit some macros. An example is shown in the example files.	
<code>align</code>	<code>default=left</code>
Sometimes it is useful to align the environment itself. For this you have the option <code>align</code> which can be set to the following strings:	
<ul style="list-style-type: none"> • <code>left</code>, • <code>right</code> and • <code>center</code>. 	
The alignments <code>left</code> or <code>right</code> depend on the given lengths <code>leftmargin</code> and <code>rightmargin</code> . Later I will present an example to demonstrate my bad English explanation.	
<code>ignorelastdescenders</code>	<code>default=false</code>
Try to ignore the last descenders of the environment <code>mdframed</code> . The complete idea was inspired by Tobias Weh and the solution was provided by Stefan Lemke. See How to make mdframed ignore descenders in last line	
<code>draft</code>	<code>default=false</code>
Activate the draft mode for the package. This option is useful for <code>framemethod=tikz</code> which clips the contents related to the surrounded frame. The options is motivated by the question mdframed+tikz to display overfullrule at tex.stackexchange .	
<code>shadow</code>	<code>default=false</code>

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

`shadowsize` default=8pt

Specify the size of the shadow.

`shadowcolor` default=black!50

Specify the color of the shadow.

`pstrickssetting` default={}

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

This works only with `framemethod=PSTricks`.

`pstricksappsetting` default={}

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

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

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

This works only with `framemethod=PSTricks`.

`tikzsetting` default={}

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

This works only with `framemethod=TikZ`.

`apptotikzsetting` default={}

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

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

- `\tikzset{mdfshadow/.style}`

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

This works only with `framemethod=TikZ`.

`singleextra` default={}

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

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

`firstextra` default={}

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

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

`middleextra` default={}

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

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

`secondextra` default={}

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

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

5.3. Hidden Lines

`topline` default=true

Draws a line at the top.

`bottomline` default=true

Draws a line at the bottom.

`leftline` default=true

Draws a line on the left.

`rightline` default=true

Draws a line on the right.

`hidealllines` default=false

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

5.4. Frametitle

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

`frametitle` default=none

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

`frametitlefont` default=\normalfont\bfseries

Sets the format of the `frametitle`.

`frametitlealignment` default=\raggedleft

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

`frametitlerule` default=false

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

`frametitlerulewidth` default=.2 pt

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

`frametitleaboveskip` default=5 pt

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

`frametitlebelowskip` default=5 pt

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

`frametitlebackgroundcolor` default=backgroundcolor

Sets the color of the background of the frametitle

`repeatframetitle` default=false

Repeat the frame title on every frame.

FYI and Note

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

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

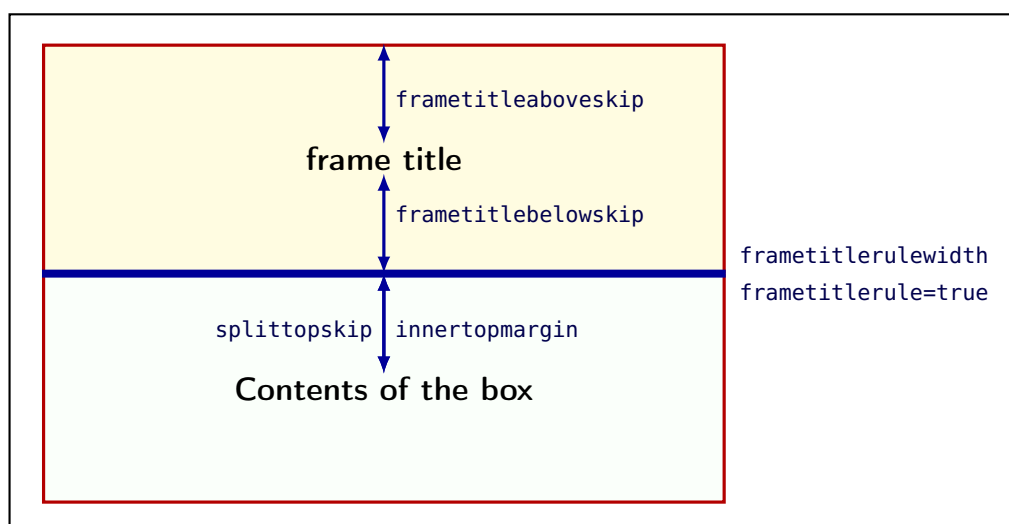


Figure 3: Behavior of the lengths if `frametitle` is used

5.5. Title commands inside the environment

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

`\mdfsubtitle`

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

`\mdfsubsubtitle`

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

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

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

5.5.1. Options related to the title of level 1

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

`subsubtitleabovelinewidth` default=0.8pt

Sets the line width of the line above.

`subsubtitlebelowlinewidth` default=0.6pt

Sets the line width of the line below.

`subsubtitleaboveskip` default=\baselineskip

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

`subsubtitlebelowskip` default=1.2\baselineskip

Sets the skip after the subsubtitle line below is drawn.

`subsubtitleinneraboveskip` default=0.5\baselineskip

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

`subsubtitleinnerbelowskip` default=0.5\baselineskip

Sets the skip after the subsubtitle and the line below.

5.6. Theorems

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

`\newmdtheoremenv`

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

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

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

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

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

So far there is no `\renewmdtheoremenv`!

`\mdtheorem`

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

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

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

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

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


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

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

`theoremseparator` default={:}

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

`theoremtitlefont` default={}

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

`theoremspace` default=\space

Sets the space after `theoremseparator`.

Examples can be found in the attached files.

5.7. Footnotes

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

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

`footnotedistance` default= \bigskipamount

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

`footnoteinside` default=true

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

Note

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

6. Examples

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

mdframed-example-default

Demonstration of examples created with `framemethod=default`.

mdframed-example-tikz

Demonstration of examples created with `framemethod=TikZ`.

mdframed-example-pstricks

Demonstration of examples created with `framemethod=pstricks`.

mdframed-example-texsx

Demonstration of examples like interaction with `listings`

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

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

7. Errors, Warnings and Messages

The package `mdframed` provides different errors, warnings and messages in the `log`-file. Some 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 deprecated
use `framemethod` instead `style`

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

Unknown `framemethod` `mdframed`

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

You have not loaded `ntheorem` yet

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

You have only a width of 3cm

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

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

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

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

See the explanation above.

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

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

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

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

8. Known Problems

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

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

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

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

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

9. ToDo

It is important to update the documentation

1. see "Known Problems".
2. So far it isn't possible to combine the environment `\begin{multicols}` of the package **multicol** with **mdframed** with the whole option list.
3. Create new styles.
4. Improve page breaks.
5. Improve footnotes.
6. Improve documentation and examples.
7. Create styles for **frametitle**.

8. Create an inline version of `mdframed` that's works like `\fbox`
9. Add `\ht\strutbox` to file `md-frame-1.mdf`

10. Acknowledgements

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

Thanks for proofreading

Alan Munn and Nahid Shajari

I hope I forgot nobody.

A. More information

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

A.1. How does `mdframed` work?

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

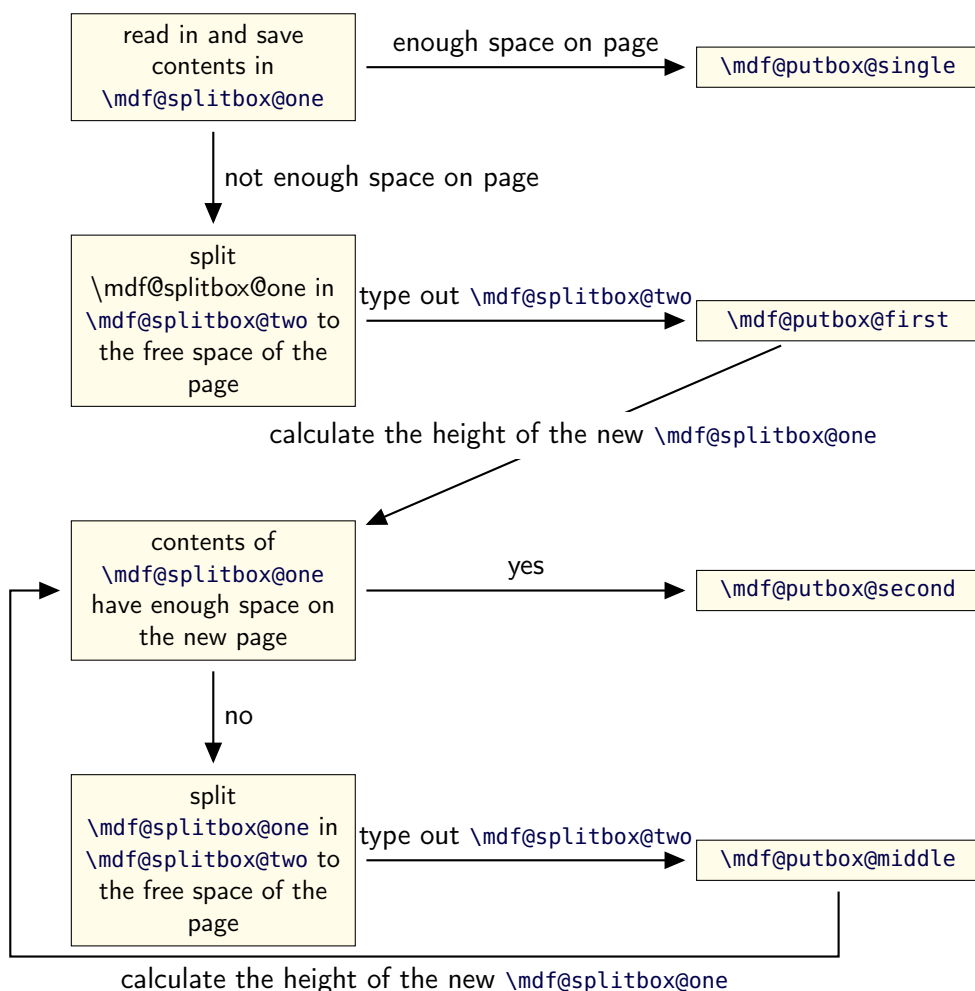


Figure 4: Setting the contents of `mdframed`

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

A.2. The Frametcommands

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

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

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

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

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

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

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

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

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

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

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

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

For example the leftmargin is:

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

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

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

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

A.3. Revision history

Version 1.6d 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 formatting of the file `mdframed.dtx`
- fixed bug in combination with `\parskip` – Thanks David Carlisle.
- added extra loop to compute the splitting point.
- improved splitting algorithm
- added new option `ignorelastdescenders` – Thanks Stephan Lehmke.
- Improved option `repeatframetitle`
- fixed bug: `framemethod=tikz` used wrong computed length by setting `everyline=true`
- Tobias Weh inspired the excurs-environment not Tobias Schwan. Sorry, I fixed it.
- Improved `\mdtheorem` to handle `\listtheorems` provided by `ntheorem`.

Version 1.5 submitted 10 Mar 2012

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

Version 1.4d submitted 30 Mar 2012

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

Version 1.4 submitted 4 Mar 2012

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

Version 1.3a submitted 5 Feb 2012

- fixed bug (Thanks to Dietrich Grau)

Version 1.3 submitted 4 Feb 2012

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

Version 1.2 submitted 8 Jan 2012

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

Version 1.0b submitted 9 Dec 2011

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

Version 1.0 submitted 13 Nov 2011

- add option `userdefinedwidth` • add option `align` • add option `apptotikzsetting` • create new command `\mdfapptodefinestyle` • changed internal algorithm • removed `calc` instead using ε -TeX `\dimexpr` • expand documentation • trying to fix problems with `xcolor` • fixed bug with `framemethod=pstricks` • create file `mdframed-example-default` • create file `mdframed-example-tikz` • create file `mdframed-example-pstricks` • create file `mdframed-example-texsx` (`texsx` stands for `tex stackexchange`)

Version 0.9g submitted 08 Oct 2011

- fixed documentation • added small footnote compatibility

Version 0.9f submitted 04 Oct 2011

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

Version 0.9e submitted 11 Sep 2011

- working with `twoside` modus

Version 0.9d submitted 10 Sep 2011

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

Version 0.9b submitted 7 Sep 2011

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

Version 0.9a submitted 5 Sep 2011

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

Version 0.9 submitted 4 Sep 2011

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

Version 0.8a

- fixes bugs • fixes documentation

Version 0.8 submitted 22 Aug 2011

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

Version 0.7a submitted 6 August 2011

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

Version 0.6a submitted 22 Dec 2010

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

B. Implementation

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

B.1. The Explanation of mdframed.sty

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

Set package information

```
1 \def\mdversion{1.6d}
2 \def\mdframedpackagename{mdframed}
3 \def\mdfmaindate{2012/09/21}
4 \def\mdfrevison{162}% 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-abspace}
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@templength}
29 \def\mdf@iflength#1{%
30   \afterassignment\mdf@iflength@check%
31   \mdf@templength=#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 mdfl@#1@length\endcsname%
47   \expandafter\setlength\csname mdfl@#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@templength}}%
54     {\csxdef{mdfl@#1}{\the\mdf@templength}}%
55     \setlength{\csname mdfl@#1@length\endcsname}{\csname mdfl@#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@tripleo

```

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

```

83 \def\mdf@do@alignoption#1{%
84 \mdf@alignoption@tripleo#1\@nil%
85 }
86 \def\mdf@alignoption@tripleo#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@dolist{\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@dolist{\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 }
244 %%special boolflag hidealllines:

```



```

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

```

`\mdf@do@alignoption`

Here the declaration of all align options.

```

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

```

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

Set the alignment.

```

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

```

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

Option to pass options to tikz or pstricks

```

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

```



```

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

```

\mdf@xcolor

Problem with xcolor. This part must be reworked!

```

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

```

\mdf@needspace

Defining the option `needspace`

```

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

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

```

\mdfsetup

Short form of `\setkeys{mdf}`

```

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

```

\mdf@style

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

```

315 \define@key{mdf}{style}{%
316   \ifcsundef{mdf@definestyle@#1}{%
317     \mdf@PackageWarning{Unknown definedstyle #1^^J
318       You have to define a style ^^J

```



```

319             via \string\mdfdefinedstyle\MessageBreak
320             }%
321   }%
322   {\expandafter\expandafter\expandafter\mdfsetup\expandafter%
323     \expandafter\expandafter{\csname mdf@definestyle@#1\endcsname}}%
324 }%

```

\mdf@print@space

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

```

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

```

\new...

Initialize all commands and length which will we used later

```

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

```



```

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

```

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

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

```

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

```



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

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

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

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

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

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

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



```

458 }
459 \def\mdf@endparenv{%
460   \addpenalty\@endparpenalty\addvspace\mdf@skipbelow@length\@endpetrue}
461

```

```

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

```

```

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

```

```

\mdfdefinestyle
\mdfapptodefinestyle

```

See explanation of this commands in the main documentation.

```

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

```

```

\mdflength
\surroundwithmdframed

```

Helper macros to work with *mdframed*

```

478 \newrobustcmd*\mdflength[1]{\csuse{mdf@#1@length}}
479
480 \newrobustcmd*\surroundwithmdframed[2][]{%
481   \BeforeBeginEnvironment{#2}{\begin{mdframed}[#1]}%
482   \AfterEndEnvironment{#2}{\end{mdframed}}%
483 }

```

```

\newmdenv
\renewmdenv
\newmdtheoremenv
\mdtheorem

```

Defining of the new environment definitions.

```

484 \newrobustcmd*\newmdenv[2][]{%
485   \newenvironment{#2}{%
486     \mdfsetup{#1}%
487     \begin{mdframed}%
488   }{%
489     \end{mdframed}%

```



```

490 }%
491 }
492 \newrobustcmd*\renewmdenv[2][{}]{%
493   \expandafter\let\csname #2\endcsname\relax%
494   \expandafter\let\csname end#2\endcsname\relax%
495   \newmdenv[#1]{#2}%
496 }%

```

Definitions of the standard Theorems surrounded by *mdframed*.

```

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

```

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

```

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

```

Defining a complete new theorem set by *mdframed*

```

513 \DeclareDocumentCommand{\mdtheorem}{0}{m o m o }%
514 {\ifcsdef{#2}%
515   {\mdf@PackageWarning{Environment #2 already exists\MessageBreak}}%
516   {%
517     \IfNoValueTF {#3}%
518     {%#3 not given -- number relationship
519       \IfNoValueTF {#5}%
520       {%#3+#5 not given
521         \definecounter{#2}%
522         \expandafter\xdef\csname the#2\endcsname{\@thmcounter{#2}}%
523         \newenvironment{#2}[1][{}]{%
524           \refstepcounter{#2}%
525           \ifstrempy{##1}%
526             {\let\@temptitle\relax}%
527             {%
528               \def\@temptitle{\mdf@theoremseparator%
529                 \mdf@theoremspace%
530                 \mdf@theoremtitlefont%
531                 ##1}%
532               \mdf@thm@caption{#2}{\csname the#2\endcsname}{##1}}%
533             }%
534           \begin{mdframed}[#1,frametitle={\strut#4\ \csname the#2\endcsname%
535             \@temptitle}]]%
536           \end{mdframed}}%
537         \newenvironment{#2*}[1][{}]{%
538           \ifstrempy{##1}{\let\@temptitle\relax}{\def\@temptitle{: \ ##1}}%
539           \begin{mdframed}[#1,frametitle={\strut#4\@temptitle}]]%
540           \end{mdframed}}%
541       }%

```



```

542     {%#5 given -- reset counter
543     \@definecounter{#2}\@newctr{#2}[#5]%
544     \expandafter\xdef\csname the#2\endcsname{\@thmcounter{#2}}%
545     \expandafter\xdef\csname the#2\endcsname{%
546         \expandafter\noexpand\csname the#5\endcsname \@thmcountersep%
547         \@thmcounter{#2}}%
548     \newenvironment{#2}[1][]{%
549         \refstepcounter{#2}%
550         \ifstrempy{##1}%
551             {\let\@temptitle\relax}%
552             {%
553                 \def\@temptitle{\mdf@theoremseparator%
554                     \mdf@theoremspace%
555                     \mdf@theoremtitlefont%
556                     ##1}%
557                 \mdf@thm@caption{#2}{\csname the#2\endcsname}{##1}}%
558             }
559     \begin{mdframed}[#1,frametitle={\strut#4\ \csname the#2\endcsname%
560         \@temptitle}]]%
561     {\end{mdframed}}%
562     \newenvironment{#2*}[1][]{%
563         \ifstrempy{##1}%
564             {\let\@temptitle\relax}%
565             {%
566                 \def\@temptitle{\mdf@theoremseparator%
567                     \mdf@theoremspace%
568                     \mdf@theoremtitlefont%
569                     ##1}%
570                 \mdf@thm@caption{#2}{\csname the#2\endcsname}{##1}}%
571             }%
572     \begin{mdframed}[#1,frametitle={\strut#4\@temptitle}]]%
573     {\end{mdframed}}%
574     }%
575     }%
576     {%#3 given -- number relationship
577     \global\@namedef{the#2}{\@nameuse{the#3}}%
578     \newenvironment{#2}[1][]{%
579         \refstepcounter{#3}%
580         \ifstrempy{##1}%
581             {\let\@temptitle\relax}%
582             {%
583                 \def\@temptitle{\mdf@theoremseparator%
584                     \mdf@theoremspace%
585                     \mdf@theoremtitlefont%
586                     ##1}%
587                 \mdf@thm@caption{#2}{\csname the#2\endcsname}{##1}}%
588             }
589     \begin{mdframed}[#1,frametitle={\strut#4\ \csname the#2\endcsname%
590         \@temptitle}]]%
591     {\end{mdframed}}%
592     \newenvironment{#2*}[1][]{%
593         \ifstrempy{##1}{\let\@temptitle\relax}{\def\@temptitle{: \ ##1}}%
594         \begin{mdframed}[#1,frametitle={\strut#4\@temptitle}]]%
595         {\end{mdframed}}%
596     }%
597     }%

```


598 }
599

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

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

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

Trying to ignore last descenders of the environment.
605   \ifbool{mdf@ignorelastdescenders}%
606   {%
607     \par\strut\par
608     \unskip\unskip\setbox0=\lastbox
609     \vspace*{\dimexpr\ht\strutbox-\baselineskip\relax}%
610   }{}%
611   \par\unskip\ifvmode\nointerlineskip\hrule \@height\z@ \@width\hsize\fi%

612   \endmdf@lrbox\relax%
613   \mdf@ignorevbadness%
614   \setbox\mdf@frametitlebox=\vbox{\unvbox\mdf@frametitlebox}%
615   \mdfframetitleboxwidth=\wd\mdf@frametitlebox\relax%
616   \mdfframetitleboxheight=\ht\mdf@frametitlebox\relax%
617   \mdfframetitleboxdepth=\dp\mdf@frametitlebox\relax%
618   \mdfframetitleboxtotalheight=\dimexpr
619     \ht\mdf@frametitlebox
620     +\dp\mdf@frametitlebox%
621     +\mdf@frametitleaboveskip@length
622     +\mdf@frametitlebelowskip@length
623     \relax%
624 }
625
626 \newrobustcmd*\mdf@@frametitle{%
627   \mdfframedtitleenv{\mdf@frametitle}%
628 }
629
630 \newrobustcmd*\mdf@@frametitle@use{%
631   \parskip\z@\relax%
632   \parindent\z@\relax%
633   \mdf@ignorevbadness%
634   \setbox\mdf@splitbox@one=\vbox{%
635     \offinterlineskip\relax%
636     \unvcopy\mdf@frametitlebox\relax%
637     \mdf@@frametitlerule\relax%
638     \unvbox\mdf@splitbox@one\relax%
639   }%
640   \mdf@ignorevbadness%
641   \setbox\mdf@splitbox@one=\vbox{\unvbox\mdf@splitbox@one}%
642   \mdfsetup{innertopmargin=\mdf@frametitleaboveskip@length}%
643 }
```


`\mdf@checkntheorem`

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

```

644 \newrobustcmd*\mdf@checkntheorem{%
645   \ifbool{mdf@ntheorem}%
646     {\ifundef{\theorempreskipamount}%
647       {\mdf@PackageWarning{You have not loaded ntheorem yet}}%
648       {\setlength{\theorempreskipamount}{\z@}%
649         \setlength{\theorempostskipamount}{\z@}%
650       }}%
651   {}%
652 }
```

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

Support for footnotes. See source2e.

```

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

`\mdf@load@style`

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

```

671 \newrobustcmd*\mdf@load@style{%
672   \ifcase\value{mdf@globalstyle@cnt}\relax%
673     \input{md-frame-0.mdf}%
674     \or\input{md-frame-1.mdf}%
675     \or\input{md-frame-2.mdf}%
676     \or\input{md-frame-3.mdf}%
677   \else%
678     \IfFileExists{md-frame-\value{mdf@globalstyle@cnt}.mdf}%
679     {\input{md-frame-\value{mdf@globalstyle@cnt}.mdf}}%
680     {%
681       \input{md-frame-0.mdf}%
682       \mdf@PackageWarning{The style number \value{mdf@globalstyle@cnt}
683         does not exist^^J
684         mdframed ues instead style=0 \mdframedpackagename}%
685     }%
686 }
```



```

686 \fi%
687 }%
688 \mdf@load@style

```

\mdf@styledefinition

The default frame method needs special handling.

```

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

```

\detected@mdf@put@frame

Detect whether inside a non breakable environment.

```

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

```

\mdframed

The user environment.

```

725 \newenvironment{mdframed}[1][[]]{%
Make everything local
726 \color@begingroup%

```


Set all options

```

727 \mdfsetup{userdefinedwidth=\linewidth,#1}%
728 \mdf@twoside@checklength%
729 \let\width\z@%
730 \let\height\z@%
731 \mdf@checkntheorem%

```

Draft mode

```

732 \ifbool{mdf@draft}%
733   {%
734     \ifdimgreater{\overfullrule}{0pt}{\setlength\overfullrule{5pt}}%
735   }%

736 \mdf@styledefinition%
737 \mdf@footnoteinput%
738 \color{\mdf@fontcolor}%
739 \mdf@font%
740 \ifvmode\nointerlineskip\fi%
741 \mdf@trivlist{\mdf@skipabove@length}%
742 \ifdefempty{\mdf@frametitle}{\mdf@@frametitle}%

```

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

```

743 \mdf@settings%

```

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

```

744 \mdf@lrbox{\mdf@splitbox@one}%
745 }%
746 {%

```

Trying to ignore last descenders of the environment.

```

747 \ifbool{mdf@ignorelastdescenders}%
748   {%
749     \par\strut\par
750     \unskip\unskip\setbox0=\lastbox
751     \vspace*{\dimexpr\ht\strutbox-\baselineskip\relax}%
752   }%
753 \par\unskip\ifvmode\nointerlineskip\hrule \@height\z@ \@width\hsize\fi%

```

End save box in relation to footnotes

```

754 \ifmdf@footnoteinside%
755   \def\mdf@reserveda{%
756     \mdf@footnoteoutput%
757     \endmdf@lrbox%
758     \ifdefempty{\mdf@frametitle}{\mdf@@frametitle@use}%
759     \detected@mdf@put@frame}%
760   \else%
761     \def\mdf@reserveda{%
762       \endmdf@lrbox%
763       \ifdefempty{\mdf@frametitle}{\mdf@@frametitle@use}%
764       \detected@mdf@put@frame%
765       \mdf@footnoteoutput%
766     }%
767   \fi%
768 \mdf@reserveda%
769 \endmdf@trivlist%

```

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

```

770 \color@endgroup\@doendpe%
771 }
772

```



```

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

```

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

```

773 \newtoggle{md:checktwoside}
774 \settoggle{md:checktwoside}{false}
775 \newrobustcmd*\mdf@twoside@checklength{%
776   \if@twoside
777     \ifbool{mdf@usetwoside}%
778       {\mdf@PackageInfo{mdframed works in twoside mode}%
779         \settoggle{md:checktwoside}{true}%
780         \setlength\mdf@rightmargin@length{\mdf@outermargin@length}%
781         \setlength\mdf@leftmargin@length{\mdf@innermargin@length}%
782         }%
783       {\mdf@PackageInfo{mdframed inside twoside mode but\MessageBreak
784         works with oneside mode}%
785         \settoggle{md:checktwoside}{false}%
786         }%
787   \fi%
788 }
789
790 \newcounter{mdf@zref@counter}%keine doppelten laebes
791 \zref@newprop*\mdf@pagevalue}[0]{\number\value{page}}
792 \zref@addprop{\ZREF@mainlist}{mdf@pagevalue}
793 \newrobustcmd*\mdf@zref@label{%
794   \stepcounter{mdf@zref@counter}
795   \zref@label{mdf@pagelabel-\number\value{mdf@zref@counter}}}%
796 }
797 \newrobustcmd*\if@mdf@pageodd{%
798   \zref@refused{mdf@pagelabel-\the\value{mdf@zref@counter}}}%
799   \ifodd\zref@extract{mdf@pagelabel-\the\value{mdf@zref@counter}}}%
800     {mdf@pagevalue}%
801   \setlength\mdf@rightmargin@length{\mdf@outermargin@length}%
802   \setlength\mdf@leftmargin@length{\mdf@innermargin@length}%
803   \else
804     \setlength\mdf@rightmargin@length{\mdf@innermargin@length}%
805     \setlength\mdf@leftmargin@length{\mdf@outermargin@length}%
806   \fi%
807 }
808 \newrobustcmd*\mdf@@setzref{%
809   \iftoggle{md:checktwoside}{\mdf@zref@label\if@mdf@pageodd}{}}%
810 }

```

```

\mdf@freepagevspace

```

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

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

```

812   \bgroup\@nobreakfalse\addpenalty\z@\egroup%added 29.5.12

813   \penalty\@M\relax\vskip 2\baselineskip\relax%
814   \penalty9999\relax\vskip -2\baselineskip\relax%

```



```

815 \penalty9999%
816 \ifdimequal{\pagegoal}{\maxdimen}%
817     {\mdf@freevspace@length\vsizel}%
818     {\mdf@freevspace@length=\pagegoal\relax%
819     \advance\mdf@freevspace@length by -\pagetotal\relax%
820     \addtolength\mdf@freevspace@length{\dimexpr-\parskip\relax}\relax%
821     }%
822 }

```

```

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

```

Command used for loop

```

823 \newrobustcmd*\mdf@advancelength@horizontalmargin@sub[1]{%
824 \advance\mdf@horizontalsofbox by -\csname md f@#1@length\endcsname\relax%
825 }

```

Compute the width of the box

```

826 \newlength\mdf@horizontalsofbox
827 \newrobustcmd*\mdf@horizontalmargin@equation{%
828 \setlength{\mdf@horizontalsofbox}{\mdf@userdefinedwidth@length}%
829 \mdf@dolist{\mdf@advancelength@horizontalmargin@sub}{%
830     leftmargin,outerlinewidth,middlelinewidth,%
831     innerlinewidth,innerleftmargin,inerrightmargin,%
832     innerlinewidth,middlelinewidth,outerlinewidth,%
833     rightmargin}%
834 \notbool{mdf@leftline}%
835 {%
836 \advance\mdf@horizontalsofbox by \mdf@innerlinewidth@length\relax%
837 \advance\mdf@horizontalsofbox by \mdf@middlelinewidth@length\relax%
838 \advance\mdf@horizontalsofbox by \mdf@outerlinewidth@length\relax%
839 }%
840 \notbool{mdf@rightline}%
841 {%
842 \advance\mdf@horizontalsofbox by \mdf@innerlinewidth@length\relax%
843 \advance\mdf@horizontalsofbox by \mdf@middlelinewidth@length\relax%
844 \advance\mdf@horizontalsofbox by \mdf@outerlinewidth@length\relax%
845 }%
846 \ifdimless{\mdf@horizontalsofbox}{3cm}%
847 {\mdf@PackageWarning{You have only a width of 3cm}}%
848 \hsize=\mdf@horizontalsofbox%
849 }

```

```

\mdf@keeplines@single

```

Space in relation of horizontal lines.

```

850 \newrobustcmd*\mdf@keeplines@single{%
851 \notbool{mdf@topline}%
852 {%
853 \advance\mdf@verticalmarginwhole@length %
854     by -\mdf@innerlinewidth@length\relax%
855 \advance\mdf@verticalmarginwhole@length %
856     by -\mdf@middlelinewidth@length\relax%
857 \advance\mdf@verticalmarginwhole@length %

```



```

858             by -\mdf@outerlinewidth@length\relax%
859     }{}%
860 \notbool{mdf@bottomline}%
861 {%
862     \advance\mdf@verticalmarginwhole@length %
863         by -\mdf@innerlinewidth@length\relax%
864     \advance\mdf@verticalmarginwhole@length %
865         by -\mdf@middlelinewidth@length\relax%
866     \advance\mdf@verticalmarginwhole@length %
867         by -\mdf@outerlinewidth@length\relax%
868     }{}%
869 }

```

```

\mdf@advancelength@verticalmarginwhole
\mdf@advancelength@freespace@sub
\mdf@advancelength@freespace@add

```

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

```

870 \newrobustcmd*\mdf@advancelength@verticalmarginwhole[1]{%
871     \advance\mdf@verticalmarginwhole@length %
872         by \csname mdf@#1@length\endcsname\relax%
873 }
874 \newrobustcmd*\mdf@advancelength@freespace@sub[1]{%
875     \advance\dimen@ by -\csname mdf@#1@length\endcsname\relax%
876 }
877 \newrobustcmd*\mdf@advancelength@freespace@add[1]{%
878     \advance\dimen@ by \csname mdf@#1@length\endcsname\relax%
879 }

```

```
\mdf@reset
```

Reset changes

```

880 \protected@edef\mdf@reset{\boxmaxdepth\the\boxmaxdepth
881     \splittopskip\the\splittopskip}%

```

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

Output of `mdframed` inside a non breakable environment.

```

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

```


898 }

\mdf@put@frame

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

```

899 \def\mdf@put@frame{\relax%
900 \ifvoid\mdf@splitbox@one\relax
901   \mdf@PackageWarning{The environment is empty\MessageBreak}%
902   \let\mdf@reserved@a\relax%
903 \else
904   \setlength\mdfboundingboxwidth{\wd\mdf@splitbox@one}%
905   \mdf@print@space%
906   \mdf@freepagevspace@gives \mdf@freevspace@length
907   \mdf@PackageInfoSpace{\the\mdf@freevspace@length before the
908                           beginning of \MessageBreak
909                           the environment ending on input line \MessageBreak}%
910   \ifdimless{\mdf@freevspace@length}{2\baselineskip}
911     {%
912       \mdf@PackageInfo{Not enough space on this page}
913       \vfill\eject%
914       \def\mdf@reserved@a{\mdf@put@frame}%
915     }{%
916       %Hier berechnung Box-Inhalt+Rahmen oben und unten
917       \setlength{\mdf@verticalmarginwhole@length}%
918         {\dimexpr\ht\mdf@splitbox@one+\dp\mdf@splitbox@one\relax}%
919       \mdf@dolist{\mdf@advancelength@verticalmarginwhole}%
920       {%
921         outerlinewidth,middlelinewidth,innerlinewidth,%
922         innertopmargin,innerbottommargin,%
923         innerlinewidth,middlelinewidth,outerlinewidth}%
924       \mdf@keeplines@single%
925       \ifdimless{\mdf@verticalmarginwhole@length}{\mdf@freevspace@length}%
926         {%passt auf Seite%
927           \begingroup\mdf@setzref\mdf@putbox@single\endgroup%Output no break
928           \let\mdf@reserved@a\relax%
929         }%
930         {%
931           \def\mdf@reserved@a{\mdf@put@frame@i}%passt nicht auf Seite
932         }
933       }%
934 \fi
935 \mdf@reserved@a%
936 }
```

\mdf@put@frame@i

Output of the first splitted box.

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

Compute the vertical free space of the current page

```
938 \mdf@freepagevspace@gives \mdf@freevspace@length
```

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

```
939 \dimen@=\the\mdf@freevspace@length\relax%
```

```
940 \dimen@i=\mdf@innertopmargin@length\relax%
```



```

941 \advance\dimen@i by \mdf@innerlinewidth@length\relax%
942 \advance\dimen@i by \mdf@middlelinewidth@length\relax%
943 \advance\dimen@i by \mdf@outerlinewidth@length\relax%
944 \advance\dimen@i by 2\baselineskip\relax%
945 \ifdimless{\dimen@}{\dimen@i}%
force a page / column break and restart printing of the environment
946 {\hrule \@height\z@ \@width\hsize%
947 \vfill\ject%
948 \def\mdf@reserved@a{\mdf@put@frame}%
949 }%
The page has enough space.
950 {%
compute the needed vertical space of the first frame. Subtract the dimension of the bottom frame
951 \mdf@dolist{\mdf@advancelength@freevspace@sub}{%calculate with \dimen@
952 outerlinewidth,middlelinewidth,innerlinewidth,%
953 innertopmargin,splitbottomskip}%
Reduce vertical space if option everyline is set to true
954 \ifbool{mdf@everyline}%
955 {%
956 \ifbool{mdf@bottomline}%
957 {%
958 \advance\dimen@ by -\mdf@innerlinewidth@length%
959 \advance\dimen@ by -\mdf@middlelinewidth@length%
960 \advance\dimen@ by -\mdf@outerlinewidth@length%
961 }}%
962 }{}%
Add vertical space if option topline is set to false
963 \notbool{mdf@topline}%
964 {%
965 \advance\dimen@ by \mdf@innerlinewidth@length%
966 \advance\dimen@ by \mdf@middlelinewidth@length%
967 \advance\dimen@ by \mdf@outerlinewidth@length%
968 }{}%
Add a length of 0.8\pageshrink. I don't know whether it's needed!
969 \advance\dimen@.8\pageshrink
Test whether the contents has enough space and the last frame will be empty
970 \ifdimless{\ht\mdf@splitbox@one+\dp\mdf@splitbox@one}{\dimen@}%
971 {\mdf@PackageWarning{You got a bad break\MessageBreak
972 because the last box will be empty\MessageBreak
973 you have to change it manually\MessageBreak
974 by changing the text, the space\MessageBreak
975 or something else}%
976 \advance\dimen@ by -1.8\baselineskip\relax%needed????????????????????
977 }{}%

```

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

```

978 \setbox\mdf@splitbox@save=\vbox{\unvcopy\mdf@splitbox@one}%
979 \splittmaxdepth\z@ \splitttopskip\mdf@splitttopskip@length%
980 \mdf@ignorevbadness%
981 \setbox\mdf@splitbox@two\vsplit\mdf@splitbox@one to \dimen@
982 \setbox\mdf@splitbox@two\vbox{\unvbox\mdf@splitbox@two}%
983 \setbox\mdf@splitbox@one\vbox{\unvbox\mdf@splitbox@one}%

```


Test whether the splitted box fits the required dimension

```

984   \ifdimgreater{\ht\mdf@splitbox@two+\dp\mdf@splitbox@two}{\dimen@}%
985   {%splitted wrong
986   \mdf@PackageInfo{Box was splittet wrong^^J
987   starting loop to iterate
988   the splitting point\MessageBreak}%
restore save box \mdf@splitbox@one by the save one \mdf@splitbox@save
989   \setbox\mdf@splitbox@one=\vbox{\unvcopy\mdf@splitbox@save}%
Start loop until splitting fits – break after 100 attempts
990   \dimen@i=\dimen@%\relax
991   \@tempcnta=\z@\relax
992   \loop
993   \ifdim\dimexpr\ht\mdf@splitbox@two+\dp\mdf@splitbox@two\relax>\dimen@
994   \advance\dimen@i by -\p@\relax
995   \advance\@tempcnta by \@ne\relax
996 %%   \immediate\typeout{***mdframed \string\@tempcnta=\the\@tempcnta***}
997 %%   \immediate \typeout{***mdframed \string\dimen@i=\the\dimen@i***}
998   \mdf@ignorevbadness%
999   \setbox\mdf@splitbox@one=\vbox{\unvcopy\mdf@splitbox@save}%
1000   \splitmaxdepth\z@ \splittopskip\mdf@splittopskip@length%
1001   \mdf@ignorevbadness%
1002   \setbox\mdf@splitbox@two\vsplit\mdf@splitbox@one to \dimen@i\relax%
1003   \setbox\mdf@splitbox@two\vbox{\unvbox\mdf@splitbox@two}%
1004   \setbox\mdf@splitbox@one\vbox{\unvbox\mdf@splitbox@one}%
1005   \ifnum\@tempcnta>100
1006   \let\iterate\relax
1007   \mdf@PackageWarning{correct box splittet fails^^J
1008   It seems you are using a non splittable
1009   contents\MessageBreak}
1010   \setbox\mdf@splitbox@one=\vbox{\unvcopy\mdf@splitbox@save}%
1011   \setbox\mdf@splitbox@two=\vbox{}%
1012   \def\mdf@reserved@a{\mdf@put@frame}%
1013   \fi
1014   \repeat%
1015   }{}%

```

Test if the last frame is empty

```

1016   \ifvoid\mdf@splitbox@one\relax%
1017   \mdf@PackageWarning{You got a bad break because the splittet box
1018   is empty^^J
1019   You have to change the page settings^^J
1020   like enlargethispage or something else^^J
1021   the package increases do
1022   \enlargethispage{\baselineskip}\MessageBreak}%
1023   \setbox\mdf@splitbox@one=\vbox{\unvcopy\mdf@splitbox@save}
1024   \enlargethispage{\baselineskip}%
1025   \def\mdf@reserved@a{\mdf@put@frame}%
1026   \fi%

```

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

```

1027   \ifdim\wd\mdf@splitbox@two=\wd\mdf@splitbox@one\relax
1028   \else%
1029   \mdf@PackageInfo{You first box width is to small^^J
1030   mdframed fixed it\MessageBreak}%
1031   \setbox\mdf@splitbox@two=\vbox%
1032   {%

```



```

1033             \hrule \@height\z@ \@width\mdfboundingboxwidth\relax
1034             \unvcopy\mdf@splitbox@two%
1035         }%
1036     \fi%
Test if the first frame is empty
1037     \ifvoid\mdf@splitbox@two\relax%
1038         {\hrule \@height\size pt \@width\z@%
1039          \hrule \@height\z@ \@width\hsize}%
1040         \setbox\mdf@splitbox@one=\vbox{\unvcopy\mdf@splitbox@save}%
1041         \def\mdf@reserved@a{\mdf@put@frame}%
1042     \else%
1043         \ifdimequal{\ht\mdf@splitbox@two}{0pt}%
1044             {\hrule \@height\z@ \@width\hsize%
1045              \vfill\eject%
1046              \setbox\mdf@splitbox@one=\vbox{\unvcopy\mdf@splitbox@save}%
1047              \def\mdf@reserved@a{\mdf@put@frame}%
1048              }%
1049             {%
Output of the first frame
1050             \begingroup\mdf@@setzref\mdf@putbox@first\endgroup%
1051             \hrule \@height\z@ \@width\hsize%
1052             \vfill\eject%
1053             \def\mdf@reserved@a{\mdf@put@frame@ii}%
1054             }%
1055     \fi%
1056 }%
1057 \mdf@reserved@a%
1058 }

```

`\mdf@put@frame@ii`

Output of the middle and last box.

```
1059 \def\mdf@put@frame@ii{%
```

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

```
1060 \setlength{\mdf@freevspace@length}{\vsize}%
```

repeating frame title must be improved

```
1061 \ifbool{mdf@repeatframetitle}%
```

```
1062 {%
```

Remember that the first title was printed

```
1063 \toggletrue{mdf@notfirstframetitle}%
```

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

```
1064 \splitmaxdepth\z@ \splittopskip\z@%
```

```
1065 \setbox\mdf@splitbox@one=\vbox{\break\unvbox\mdf@splitbox@one}%
```

```
1066 \mdf@ignorevbadness%
```

```
1067 \setbox0=\vsplit\mdf@splitbox@one to \z@\relax%
```

```
1068 \setbox\mdf@splitbox@one=\vbox{\unvbox\mdf@splitbox@one}
```

combine frame title with the contents of `mdframed`

```
1069 \setbox\mdf@splitbox@one\vbox%
```

```
1070 {%
```

```
1071 \vbox to \mdf@frametitleaboveskip@length{}
```

```
1072 \unvcopy\mdf@frametitlebox\relax%
```

```
1073 \mdf@@@frametitlerule\relax%
```



```

1074         \unvbox\mdf@splitbox@one\relax%
1075     }%
1076     \setbox\mdf@splitbox@one=\vbox{\unvbox\mdf@splitbox@one}%
1077     }{}%
\dimen@ is equal to the natural height of the rest
1078     \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
1079     \mdf@dolist{\mdf@advance\length@freevspace@add}%
1080         {%used \dimen@
1081             innerbottommargin,innerlinewidth,middlelinewidth,outerlinewidth,%
1082         }%
add top length of lines if everyline is set to true
1083     \ifbool{mdf@everyline}%
1084     {%
1085         \ifbool{mdf@topline}%
1086         {%
1087             \advance\dimen@ by \mdf@innerlinewidth@length\relax%
1088             \advance\dimen@ by \mdf@middlelinewidth@length\relax%
1089             \advance\dimen@ by \mdf@outerlinewidth@length\relax%
1090         }{}%
1091     }{}%
remove length of bottom if bottomline is set to false
1092     \notbool{mdf@bottomline}%
1093     {%
1094         \advance\dimen@ by -\mdf@innerlinewidth@length\relax%
1095         \advance\dimen@ by -\mdf@middlelinewidth@length\relax%
1096         \advance\dimen@ by -\mdf@outerlinewidth@length\relax%
1097         \relax%
1098     }{}%
Test whether the complete height of the frame fits on the current page
1099     \ifdimgreater{\dimen@}{\mdf@freevspace@length}%
1100     {%have a middle box
Use \mdf@freevspace@length to compute the splitting dimension. The conditionals everyline, topline and bottomline work like the test above.
1101         \advance\mdf@freevspace@length by -\mdf@splitbottomskip@length\relax%
1102         \ifbool{mdf@everyline}%
1103         {%
1104             \ifbool{mdf@topline}%
1105             {%
1106                 \advance\mdf@freevspace@length by -\mdf@innerlinewidth@length\relax%
1107                 \advance\mdf@freevspace@length by -\mdf@middlelinewidth@length\relax%
1108                 \advance\mdf@freevspace@length by -\mdf@outerlinewidth@length\relax%
1109             }{}%
1110             \ifbool{mdf@bottomline}%
1111             {%
1112                 \advance\mdf@freevspace@length by -\mdf@innerlinewidth@length\relax%
1113                 \advance\mdf@freevspace@length by -\mdf@middlelinewidth@length\relax%
1114                 \advance\mdf@freevspace@length by -\mdf@outerlinewidth@length\relax%
1115             }{}%
1116         }{}%
1117     }{}%

```

- save the original contents in a new save box,
- set the dimension for splitting

- ignore bad boxes and split

```

1118 \setbox\mdf@splitbox@save=\vbox{\unvcopy\mdf@splitbox@one}%
1119 \splitmaxdepth\z@ \splittopskip\mdf@splittopskip@length%
1120 \mdf@ignorevbadness%
1121 \setbox\mdf@splitbox@two\vsplit\mdf@splitbox@one to \mdf@freevspace@length
1122 \setbox\mdf@splitbox@two\vbox{\unvbox\mdf@splitbox@two}%
1123 \setbox\mdf@splitbox@one\vbox{\unvbox\mdf@splitbox@one}%

```

Test whether the splitted box fits the required dimension

```

1124 \ifdimgreater{\ht\mdf@splitbox@two+\dp\mdf@splitbox@two}%
1125 {\mdf@freevspace@length}%
1126 {%splitted wrong
1127 \mdf@PackageInfo{Box was splittet wrong^^J
1128 starting loop to iterate
1129 the splitting point\MessageBreak}%

```

Start loop until splitting fits – break after 100 attempts

```

1130 \dimen@i=\mdf@freevspace@length%\relax
1131 \@tempcnta=\z@\relax
1132 \loop
1133 \ifdim\dimexpr\ht\mdf@splitbox@two+\dp\mdf@splitbox@two\relax>%
1134 \mdf@freevspace@length\relax
1135 \advance\dimen@i by -\p@\relax%
1136 \advance\@tempcnta by \one\relax%
1137 %% \immediate\typeout{***mdframed \string\@tempcnta=\the\@tempcnta***}
1138 %% \immediate\typeout{***mdframed \string\dimen@i=\the\dimen@i***}
1139 \ifnum\@tempcnta>100
1140 \let\iterate\relax%
1141 \mdf@PackageWarning{correct box splittet fails^^J
1142 It seems you are using a non splittable
1143 contents\MessageBreak}%
1144 \fi
1145 \mdf@ignorevbadness%
1146 \setbox\mdf@splitbox@one=\vbox{\unvcopy\mdf@splitbox@save}%
1147 \splitmaxdepth\z@ \splittopskip\mdf@splittopskip@length%
1148 \mdf@ignorevbadness%
1149 \setbox\mdf@splitbox@two\vsplit\mdf@splitbox@one to \dimen@i\relax%
1150 \setbox\mdf@splitbox@two\vbox{\unvbox\mdf@splitbox@two}%
1151 \setbox\mdf@splitbox@one\vbox{\unvbox\mdf@splitbox@one}%
1152 \repeat%
1153 }{}%

```

Test whether last frame is empty

```

1154 \ifvoid\mdf@splitbox@one\relax%
1155 \mdf@PackageWarning{You got a bad break because the splittet box is
1156 empty^^J
1157 You have to change the page settings^^J
1158 like enlargethispage or something else^^J
1159 the package increases do
1160 \enlargethispage{\baselineskip}\MessageBreak}%
1161 \setbox\mdf@splitbox@one=\vbox{\unvcopy\mdf@splitbox@save}%
1162 \enlargethispage{\baselineskip}%
1163 \def\mdf@reserved@a{\mdf@put@frame@ii}%

```

Output of the middle frame

```

1164 \else
1165 % Test if first splitted frame doesn't have the original with.
1166 % \begin{macrocode}

```



```

1167     \setbox\mdf@splitbox@two=\vbox%
1168         {%
1169             \hrule \@height\z@ \@width\mdfboundingboxwidth\relax
1170             \unvcopy\mdf@splitbox@two%
1171         }%

1172     \begingroup\mdf@@setzref\mdf@putbox@middle\endgroup%
1173     \hrule \@height\z@ \@width\hsize%
1174     \vfill\ject%
1175     \def\mdf@reserved@a{\mdf@put@frame@ii}%
1176     \fi
1177 }%End middle box case

```

Starting output of last frame

```

1178     {%start last box case
1179     \ifvoid\mdf@splitbox@one
1180         \mdf@PackageWarning{You got a bad break\MessageBreak
1181                             because the last split box is empty\MessageBreak
1182                             You have to change the settings}%%
1183         \setbox\mdf@splitbox@one=\vbox%
1184             {%
1185                 \unvbox\mdf@splitbox@one%
1186                 \hrule \@height\z@ \@width\mdfboundingboxwidth
1187             }%
1188     \fi%

```

`\ifvoid` isn't enough – need to test the height

```

1189     \ifdimless{\ht\mdf@splitbox@one}{1sp}%
1190     {%
1191         \mdf@PackageWarning{You got a bad break\MessageBreak
1192                             because the last split box is empty\MessageBreak
1193                             You have to change the settings}%
1194
1195         \let\mdf@reserved@a\relax%
1196         \setbox\mdf@splitbox@one=\vbox%
1197             {%
1198                 \unvbox\mdf@splitbox@one%
1199                 \hrule \@height\z@ \@width\mdfboundingboxwidth
1200             }%
1201     }{}%

```

Output of the last frame

```

1202     \begingroup\mdf@@setzref\mdf@putbox@second\endgroup%
1203     \hrule \@height\z@ \@width\hsize%
1204     \let\mdf@reserved@a\relax%
1205     }%
1206 \mdf@reserved@a%
1207 }
1208

```



```

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

```

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

```

1209 %%%      ----t----
1210 %%%      |          |
1211 %%%      |          |
1212 %%%      |          |
1213 %%%      l|          |r
1214 %%%      |          |
1215 %%%      |          |
1216 %%%      |-----|
1217 %%%              b
1218 %%Zusammenhaenge abfragen:
1219 \newrobustcmd*\mdf@test@lrb{%
1220     \ifboolexpr{ (bool {mdf@topline}) and (bool {mdf@bottomline})
1221                 and (bool {mdf@leftline}) and (bool {mdf@rightline})}}
1222 %3-set
1223 \newrobustcmd*\mdf@test@ltr{%
1224     \ifboolexpr{ (bool {mdf@topline}) and not (bool {mdf@bottomline})
1225                 and (bool {mdf@leftline}) and (bool {mdf@rightline})}}
1226 \newrobustcmd*\mdf@test@ltb{%
1227     \ifboolexpr{ (bool {mdf@topline}) and (bool {mdf@bottomline})
1228                 and (bool {mdf@leftline}) and not (bool {mdf@rightline})}}
1229 \newrobustcmd*\mdf@test@trb{%
1230     \ifboolexpr{ (bool {mdf@topline}) and (bool {mdf@bottomline})
1231                 and not (bool {mdf@leftline}) and (bool {mdf@rightline})}}
1232 \newrobustcmd*\mdf@test@lrb{%
1233     \ifboolexpr{ not (bool {mdf@topline}) and (bool {mdf@bottomline})
1234                 and (bool {mdf@leftline}) and (bool {mdf@rightline})}}
1235 %2-set
1236 \newrobustcmd*\mdf@test@lb{%
1237     \ifboolexpr{ not (bool {mdf@topline}) and (bool {mdf@bottomline})
1238                 and (bool {mdf@leftline}) and not (bool {mdf@rightline})}}
1239 \newrobustcmd*\mdf@test@rb{%
1240     \ifboolexpr{ not (bool {mdf@topline}) and (bool {mdf@bottomline})
1241                 and not (bool {mdf@leftline}) and (bool {mdf@rightline})}}
1242 \newrobustcmd*\mdf@test@tr{%
1243     \ifboolexpr{ (bool {mdf@topline}) and not (bool {mdf@bottomline})
1244                 and not (bool {mdf@leftline}) and (bool {mdf@rightline})}}
1245 \newrobustcmd*\mdf@test@lt{%
1246     \ifboolexpr{ (bool {mdf@topline}) and not (bool {mdf@bottomline})
1247                 and (bool {mdf@leftline}) and not (bool {mdf@rightline})}}

```



```

1248 \newrobustcmd*\mdf@test@lr{%
1249     \ifboolexpr{ not (bool {mdf@topline}) and not (bool {mdf@bottomline})
1250               and (bool {mdf@leftline}) and (bool {mdf@rightline})}}
1251 \newrobustcmd*\mdf@test@tb{%
1252     \ifboolexpr{ (bool {mdf@topline}) and (bool {mdf@bottomline})
1253               and not (bool {mdf@leftline}) and not (bool {mdf@rightline})}}
1254 %Einzellinien
1255 \newrobustcmd*\mdf@test@l{%
1256     \ifboolexpr{ not (bool {mdf@topline}) and not (bool {mdf@bottomline})
1257               and (bool {mdf@leftline}) and not (bool {mdf@rightline})}}
1258 \newrobustcmd*\mdf@test@r{%
1259     \ifboolexpr{ not (bool {mdf@topline}) and not (bool {mdf@bottomline})
1260               and not (bool {mdf@leftline}) and (bool {mdf@rightline})}}
1261 \newrobustcmd*\mdf@test@t{%
1262     \ifboolexpr{ (bool {mdf@topline}) and not (bool {mdf@bottomline})
1263               and not (bool {mdf@leftline}) and not (bool {mdf@rightline})}}
1264 \newrobustcmd*\mdf@test@b{%
1265     \ifboolexpr{ not (bool {mdf@topline}) and (bool {mdf@bottomline})
1266               and not (bool {mdf@leftline}) and not (bool {mdf@rightline})}}
1267 %keine Linien
1268 \newrobustcmd*\mdf@test@noline{%
1269     \ifboolexpr{ not (bool {mdf@topline}) and not (bool {mdf@bottomline})
1270               and not (bool {mdf@leftline}) and not (bool {mdf@rightline})}}
1271 \newrobustcmd*\mdf@test@single{%
1272     \ifboolexpr{ not (test {\mdf@test@ltrb} or test {\mdf@test@ltr} or
1273               test {\mdf@test@ltb} or test {\mdf@test@trb} or
1274               test {\mdf@test@lrb} or test {\mdf@test@lb} or
1275               test {\mdf@test@rb} or test {\mdf@test@tr} or
1276               test {\mdf@test@lt} ) ) }}
1277 %
1278 \DisableKeyvalOption[action=warning,package=mdframed]{mdf}{framemethod}%
1279 \DisableKeyvalOption[action=warning,package=mdframed]{mdf}{xcolor}%
1280
1281 \endinput

```

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

```

1282 %% Style file for mdframed for package option 'framemethod=default'
1283 %%
1284 %% This package may be distributed under the terms of the LaTeX Project
1285 %% Public License, as described in lppl.txt in the base LaTeX distribution.
1286 %% Either version 1.0 or, at your option, any later version.
1287 %%

```

`\mdframed0packagename`

local settings

```

1288 \def\mdframed0packagename{md-frame-0}
1289 \ProvidesFile{md-frame-0.mdf}%
1290 [\mdfmaindate\ %
1291   \mdversion: \mdframed0packagename]

```

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

short command

```

1292 \def\mdf@background@default{\color{\mdf@backgroundcolor}}
1293 \def\mdf@frametitlebackground@default{\color{\mdf@frametitlebackgroundcolor}}
1294 \def\mdf@shadow@default{\color{\mdf@shadowcolor}}
1295 \def\mdf@innerlinecolor@default{\color{\mdf@innerlinecolor}}
1296 \def\mdf@middlelinecolor@default{\color{\mdf@middlelinecolor}}
1297 \def\mdf@outerlinecolor@default{\color{\mdf@outerlinecolor}}
1298 \def\mdf@frametitlerulecolor@default{\color{\mdf@frametitlerulecolor}}
1299 \let\mdf@linecolor@default\mdf@middlelinecolor@default
1300 \def\mdf@frametitlerule{%
1301   \ifbool{mdf@frametitlerule}{%
1302     \vbox{\hsize\mdfframetitleboxwidth%
1303       \par\unskip\vskip\mdf@frametitlebelowskip@length%
1304       \rlap{\noindent\hspace*{-\mdf@innerleftmargin@length}%
1305         \mdf@frametitlerulecolor@default%
1306         \rule{\dimexpr\mdfframetitleboxwidth%
1307           +\mdf@innerleftmargin@length
1308           +\mdf@innerrightmargin@length\relax
1309           }{\mdf@frametitlerulewidth@length}%
1310         }\hrule \@height\z@ \@width\hsize}%
1311   }{%
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           }{\z@}%
1320         }\hrule \@height\z@ \@width\hsize}%
1321   }%
1322 \iftoggle{mdf@notfirstframetitle}{%
1323   {%
1324     \par\unskip\vskip\mdf@splittopskip@length%
1325   }%
1326   {%
1327     \par\unskip\vskip\mdf@innertopmargin@length%
1328   }%
1329 }%
1330
```

\mdfsubtitle

Definition of the command `\mdfsubtitle`.

```

1331 \newrobustcmd\mdfsubtitle[2][]%
1332 {%
1333   Make everything local.
1334   \begin{group}
1335   \penalty-9995\set a breakpoint before the subtitle
1336   % \end{macrocode}
1337   % Inside the title we don't need any \Cmd{parindent}. Next set the options of
1338   % the optional argument of \Cmd{mdfsubtitle}.
1339   % \begin{macrocode}
1340   \parindent\z@ \relax%
1341   \mdfsetup{#1}%only for subtitle options

```



```

1341 %      \end{macrocode}
1342 % Save the complete subtitle inside the save box \Cmd{z@}.
1343 %      \begin{macrocode}
1344 \setbox\z@=\vbox{\mdf@subtitlefont{#2}\relax}%
1345 %      \end{macrocode}
1346 % Compute the width of the current line including the inner left margin and
1347 % inner right margin (using \Cmd{dimen@}. In the nest step the height and the
1348 % depth of the save box will be saved in \Cmd{dimen@i}.
1349 %      \begin{macrocode}
1350 \dimen@=\linewidth\relax%
1351 \advance\dimen@ by \mdf@innerleftmargin@length\relax%
1352 \advance\dimen@ by \mdf@innerrightmargin@length\relax%
1353 \dimen@i=\mdf@subtitleinneraboveskip@length\relax%
1354 \advance\dimen@i by \mdf@subtitleinnerbelowskip@length\relax%
1355 \advance\dimen@i by \ht\z@\relax%
1356 \advance\dimen@i by \dp\z@\relax%
1357 %      \end{macrocode}
1358 % Test if rules should be drawn. otherwise set the line width to 0\,pt.
1359 %      \begin{macrocode}
1360 \ifbool{mdf@subtitleaboveline}{}%
1361     {\mdfsetup{subtitleaboveline=\z@}}%
1362 \ifbool{mdf@subtitlebelowline}{}%
1363     {\mdfsetup{subtitlebelowline=\z@}}%
1364 %      \end{macrocode}
1365 % Start a new line with the given skip \Opt{subtitleaboveskip}.
1366 %      \begin{macrocode}
1367 \par\unskip\ifvmode\nointerlineskip\hrule \@height\z@ \@width\hsize\fi%
1368 \vskip\mdf@subtitleaboveskip@length
1369 %      \end{macrocode}
1370 % Drawing the above line of the subtitle.
1371 %      \begin{macrocode}
1372 \rlap%
1373 {%
1374     \hspace*{-\mdf@innerleftmargin@length}%
1375     \begingroup%
1376     \color{\mdf@subtitleabovelinecolor}%
1377     \rule{\dimen@}{\mdf@subtitleabovelinewidth@length}%
1378     \endgroup%
1379 }%
1380 %      \end{macrocode}
1381 % space between rule above and subtitle
1382 %      \begin{macrocode}
1383 \par\unskip\ifvmode\nointerlineskip\hrule \@height\z@ \@width\hsize\fi%
1384 \vskip\mdf@subtitleinneraboveskip@length
1385 %      \end{macrocode}
1386 % output of subtitle with a background. Must think about the \Cmd{hspace}
1387 % combination.
1388 %      \begin{macrocode}
1389 \leavevmode\rlap%
1390 {%
1391     \smash{%
1392         \hspace*{-\mdf@innerleftmargin@length}%
1393         \begingroup%
1394         \color{\mdf@subtitlebackgroundcolor}%
1395         \rule[\dimexpr-\dp\z@-\mdf@subtitleinnerbelowskip@length\relax]
1396             {\dimen@}{\dimen@i}%

```



```

1397     \endgroup%
1398   }%
1399 }%
1400 \box\z@\relax%
1401 %     \end{macrocode}
1402 % Skip after subtitle
1403 %     \begin{macrocode}
1404 \par\unskip\ifvmode\nointerlineskip\hrule \@height\z@ \@width\hsize\fi%
1405 \vskip\mdf@subtitleinnerbelowskip@length
1406 %     \end{macrocode}
1407 % Draw rule below of the subtitle.
1408 %     \begin{macrocode}
1409 \rlap%
1410 {%
1411   \hspace*{-\mdf@innerleftmargin@length}%
1412   \begingroup%
1413     \color{\mdf@subtitlebelowlinecolor}%
1414     \rule{\dimen@}{\mdf@subtitlebelowlinewidth@length}%
1415     \color@endgroup
1416   }%
1417 %     \end{macrocode}
1418 % Last skip and set a non breaking point.
1419 %     \begin{macrocode}
1420 \par\unskip\ifvmode\nointerlineskip\hrule \@height\z@ \@width\hsize\fi%
1421 \vskip\mdf@subtitlebelowskip@length
1422 \penalty 9995
1423 \endgroup
1424 }
1425

```

\mdfsubsubtitle

Definition of the command \mdfsubsubtitle.

```

1426 \newrobustcmd\mdfsubsubtitle[2][]%
1427 {%
1428   Make everything local.
1429   \begingroup
1430   \penalty-9995set a breakpoint before the subsubtitle
1431   %     \end{macrocode}
1432   % Inside the title we don't need any \Cmd{parindent}. Next set the options of
1433   % the optional argument of \Cmd{mdfsubsubtitle}.
1434   %     \begin{macrocode}
1435   \parindent\z@\relax%
1436   \mdfsetup{#1}%only for subsubtitle options
1437   %     \end{macrocode}
1438   % Save the complete subsubtitle inside the save box \Cmd{z@}.
1439   %     \begin{macrocode}
1440   \setbox\z@=\vbox{\mdf@subsubtitlefont{#2}\relax}%
1441   %     \end{macrocode}
1442   % Compute the width of the current line including the inner left margin and
1443   % inner right margin (using \Cmd{dimen@}. In the next step the height and the
1444   % depth of the save box will be saved in \Cmd{dimen@i}.
1445   %     \begin{macrocode}
1446   \dimen@=\linewidth\relax%
1447   \advance\dimen@ by \mdf@innerleftmargin@length\relax%

```



```

1447 \advance\dimen@ by \mdf@innerrightmargin@length\relax%
1448 \dimen@i=\mdf@subsubtitleinneraboveskip@length\relax%
1449 \advance\dimen@i by \mdf@subsubtitleinnerbelowskip@length\relax
1450 \advance\dimen@i by \ht\z@\relax%
1451 \advance\dimen@i by \dp\z@\relax%
1452 % \end{macrocode}
1453 % Test if rules should be drawn. otherwise set the line width to 0\,pt.
1454 % \begin{macrocode}
1455 \ifbool{mdf@subsubtitleaboveline}{}%
1456     {\mdfsetup{subsubtitleabovelinewidth=\z@}}%
1457 \ifbool{mdf@subsubtitlebelowline}{}%
1458     {\mdfsetup{subsubtitlebelowlinewidth=\z@}}%
1459 % \end{macrocode}
1460 % Start a new line with the given skip \Opt{subsubtitleaboveskip}.
1461 % \begin{macrocode}
1462 \par\unskip\ifvmode\nointerlineskip\hrule \@height\z@ \@width\hsize\fi%
1463 \vskip\mdf@subsubtitleaboveskip@length
1464 % \end{macrocode}
1465 % Drawing the above line of the subsubtitle.
1466 % \begin{macrocode}
1467 \rlap%
1468 {%
1469 \hspace*{-\mdf@innerleftmargin@length}%
1470 \begingroup%
1471 \color{\mdf@subsubtitleabovelinecolor}%
1472 \rule{\dimen@}{\mdf@subsubtitleabovelinewidth@length}%
1473 \endgroup%
1474 }%
1475 % \end{macrocode}
1476 % space between rule above and subsubtitle
1477 % \begin{macrocode}
1478 \par\unskip\ifvmode\nointerlineskip\hrule \@height\z@ \@width\hsize\fi%
1479 \vskip\mdf@subsubtitleinneraboveskip@length
1480 % \end{macrocode}
1481 % output of subsubtitle with a background. Must think about the \Cmd{hspace}
1482 % combination.
1483 % \begin{macrocode}
1484 \leavevmode\rlap%
1485 {%
1486 \hspace*{-\mdf@innerleftmargin@length}%
1487 \smash{%
1488 \begingroup%
1489 \color{\mdf@subsubtitlebackgroundcolor}%
1490 \rule[\dimexpr-\dp\z@-\mdf@subsubtitleinnerbelowskip@length\relax]
1491     {\dimen@}{\dimen@i}%
1492 \endgroup%
1493 }%
1494 }%
1495 \box\z@\relax%
1496 % \end{macrocode}
1497 % Skip after subsubtitle
1498 % \begin{macrocode}
1499 \par\unskip\ifvmode\nointerlineskip\hrule \@height\z@ \@width\hsize\fi%
1500 \vskip\mdf@subsubtitleinnerbelowskip@length
1501 % \end{macrocode}
1502 % Draw rule below of the subsubtitle.

```



```

1503 %      \begin{macrocode}
1504 \rlap%
1505 {%
1506   \hspace*{-\mdf@innerleftmargin@length}%
1507   \begin{group}
1508     \color{\mdf@subsubtitlebelowlinecolor}%
1509     \rule{\dimen@}{\mdf@subsubtitlebelowlinewidth@length}%
1510   \end{group}
1511 }%
1512 %      \end{macrocode}
1513 % Last skip and set a non breaking point.
1514 %      \begin{macrocode}
1515 \par\unskip\ifvmode\nointerlineskip\hrule \@height\z@ \@width\hsize\fi%
1516 \vskip\mdf@subsubtitlebelowskip@length
1517 \penalty 9995
1518 \end{group}
1519 }
1520

```

```

\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

```

1521 \def\mdf@frame@background@single{%
1522   \ifbool{mdf@shadow}%
1523   {%
1524     \rlap%
1525     {%
1526       \smash%
1527       {%
1528         \mdf@shadow@default%
1529         \rule[\dimexpr
1530           -\mdfboundingboxdepth
1531           -\mdf@shadowsize@length
1532           \ifbool{mdf@bottomline}{-\mdf@middlelinewidth@length}{}
1533         \relax]%
1534         {\dimexpr
1535           \mdfboundingboxtotalwidth
1536           +\mdf@shadowsize@length
1537           \ifbool{mdf@rightline}{+\mdf@middlelinewidth@length}{}
1538         \relax}%
1539         {\dimexpr
1540           \mdfboundingboxtotalheight
1541           +\mdf@shadowsize@length
1542           \ifbool{mdf@bottomline}{+\mdf@middlelinewidth@length}{}
1543         \relax}%
1544       }%
1545     }%
1546   }{}%
1547 \rlap%
1548 {%
1549   \mdf@background@default%

```



```

1550 \rule[-\mdfboundingboxdepth]%
1551     {\mdfboundingboxtotalwidth}%
1552     {\mdfboundingboxtotalheight}%
1553 }%
1554 }%
1555 \def\mdf@frame@frametitlebackground@single{%
1556 \rlap%
1557 {%
1558 \mdf@frametitlebackground@default%
1559 \rule[\dimexpr
1560     -\mdfboundingboxdepth
1561     +\mdfboundingboxtotalheight
1562     -\mdfframetitleboxtotalheight
1563     \relax]%
1564     {\mdfboundingboxtotalwidth}%
1565     {\mdfframetitleboxtotalheight}%
1566 }%
1567 }%
1568 \def\mdf@frame@topline@single{%
1569 \rlap%
1570 {%
1571 \mdf@linecolor@default%
1572 \ifbool{mdf@topline}%
1573 {%
1574 \rule[\dimexpr
1575     \mdfboundingboxheight
1576     -\mdfboundingboxdepth%
1577     +\mdf@innerbottommargin@length
1578     +\mdf@innertopmargin@length
1579     \relax]%
1580     {\mdfboundingboxtotalwidth}%
1581     {\mdf@middlelinewidth@length}%
1582 }}%
1583 }%
1584 }%
1585 \def\mdf@frame@bottomline@single{%
1586 \rlap%
1587 {%
1588 \ifbool{mdf@leftline}%
1589 {%
1590 \hspace*{-\mdf@middlelinewidth@length}%
1591 }}%
1592 \mdf@linecolor@default%
1593 \ifbool{mdf@bottomline}%
1594 {%
1595 \rule[\dimexpr
1596     -\mdfboundingboxdepth
1597     -\mdf@middlelinewidth@length
1598     \relax]%
1599     {\dimexpr
1600     \mdfboundingboxtotalwidth
1601     \ifbool{mdf@rightline}{+\mdf@middlelinewidth@length}{}%
1602     \ifbool{mdf@leftline}{+\mdf@middlelinewidth@length}{}%
1603     \relax}%
1604     {\mdf@middlelinewidth@length}%
1605 }}%

```



```

1606 }%
1607 }%
1608 \def\mdf@frame@leftline@single{%
1609 \llap%
1610 {%
1611 \mdf@linecolor@default%
1612 \rule[-\mdfboundingboxdepth]%
1613 {\mdf@middlelinewidth@length}%
1614 {\dimexpr
1615 \mdfboundingboxtotalheight%
1616 \ifbool{mdf@topline}{+\mdf@middlelinewidth@length}{}}%
1617 \relax}%
1618 }%
1619 }%
1620 \def\mdf@frame@rightline@single{%
1621 \rlap%
1622 {%
1623 \mdf@linecolor@default%
1624 \hspace*{\mdfboundingboxwidth}%
1625 \hspace*{\mdf@innerrightmargin@length}%
1626 \rule[\dimexpr
1627 -\mdfboundingboxdepth%
1628 \relax]%
1629 {\mdf@middlelinewidth@length}%
1630 {\dimexpr
1631 \mdfboundingboxtotalheight%
1632 \ifbool{mdf@topline}{+\mdf@middlelinewidth@length}{}}%
1633 \relax}%
1634 }%
1635 }%
1636 \def\mdf@putbox@single{%
1637 \ifvoid\mdf@splitbox@one\relax
1638 \else%
1639 \mdf@makebox@out%
1640 {%
1641 \mdf@makeboxalign@left%
1642 \setlength{\mdfboundingboxwidth}%
1643 {\wd\mdf@splitbox@one}%
1644 \setlength{\mdfboundingboxtotalwidth}%
1645 {\dimexpr
1646 \mdfboundingboxwidth
1647 +\mdf@innerleftmargin@length%
1648 +\mdf@innerrightmargin@length
1649 \relax}%
1650 \setlength{\mdfboundingboxheight}%
1651 {\dimexpr
1652 \ht\mdf@splitbox@one
1653 +\dp\mdf@splitbox@one
1654 \relax}%
1655 \setlength{\mdfboundingboxdepth}%
1656 {\dimexpr
1657 \dp\mdf@splitbox@one
1658 +\mdf@innerbottommargin@length
1659 \relax}%
1660 \setlength{\mdfboundingboxtotalheight}%
1661 {\dimexpr

```



```

1662         \mdfboundingboxheight
1663         +\mdf@innertopmargin@length%
1664         +\mdf@innerbottommargin@length
1665         \relax}%
1666     \setlength{\mdftotallinewidth}%
1667         {\dimexpr
1668         \mdf@innerlinewidth@length
1669         +\mdf@middlelinewidth@length%
1670         +\mdf@outerlinewidth@length
1671         \relax}%
1672     \noindent%
1673     \setlength{\@tempdima}%
1674         {\dimexpr
1675         \mdfboundingboxtotalwidth%
1676         \ifbool{mdf@leftline}{+\mdf@middlelinewidth@length}{}%
1677         \ifbool{mdf@rightline}{+\mdf@middlelinewidth@length}{}
1678         \relax}%
1679     \mdf@makebox@in[\@tempdima]%
1680     {%
1681         \null%
1682         \ifbool{mdf@leftline}%
1683         {%
1684             \hspace*{\mdftotallinewidth}%
1685             \mdf@frame@leftline@single%
1686         }{}%
1687         \mdf@frame@topline@single%
1688         \mdf@frame@background@single%
1689         \mdf@frame@bottomline@single%
1690         \ifdefempty{\mdf@frametitle}{}{\mdf@frame@frametitlebackground@single}%
1691         \hspace*{\mdf@innerleftmargin@length}%
1692         \ifbool{mdf@rightline}%
1693         {%
1694             \mdf@frame@rightline@single%
1695         }{}%
1696         {\box\mdf@splitbox@one}%
1697     }%
1698     \mdf@makeboxalign@right%
1699 }%
1700 \fi%
1701 }

```

```

\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*

```

1702 \def\mdf@frame@background@first{%
1703     \ifbool{mdf@shadow}%
1704     {%
1705         \rlap%
1706         {%
1707             \smash%
1708             {%
1709                 \mdf@shadow@default%

```



```

1710     \rule[\dimexpr
1711         -\mdfboundingboxdepth
1712         -\mdf@shadowsize@length
1713         \relax]%
1714     {\dimexpr
1715         \mdfboundingboxtotalwidth
1716         +\mdf@shadowsize@length
1717         \ifbool{mdf@rightline}{+\mdf@middlelinewidth@length}{}
1718         \relax}%
1719     {\dimexpr
1720         \mdfboundingboxtotalheight
1721         +\mdf@shadowsize@length
1722         \relax}%
1723     }%
1724 }%
1725 }{}%
1726 \rlap%
1727 {%
1728     \mdf@background@default%
1729     \rule[-\mdfboundingboxdepth]%
1730         {\mdfboundingboxtotalwidth}%
1731         {\mdfboundingboxtotalheight}%
1732     }%
1733 }%
1734 \def\mdf@frame@frametitlebackground@first{%
1735     \ifbool{mdf@repeatframetitle}%
1736     {%repeating title = true
1737         \rlap%
1738         {%
1739             \mdf@frametitlebackground@default%
1740             \rule[\dimexpr
1741                 -\mdfboundingboxdepth
1742                 +\mdfboundingboxtotalheight
1743                 -\mdfframetitleboxtotalheight
1744                 \relax]%
1745                 {\mdfboundingboxtotalwidth}%
1746                 {\mdfframetitleboxtotalheight}%
1747             }%
1748         }%
1749     {%repeating title = false -- maybe splitted
1750         \ifdimless{\mdfframetitleboxtotalheight}{\mdfboundingboxtotalheight}%
1751         {%
1752             \rlap%
1753             {%
1754                 \mdf@frametitlebackground@default%
1755                 \rule[\dimexpr
1756                     -\mdfboundingboxdepth
1757                     +\mdfboundingboxtotalheight
1758                     -\mdfframetitleboxtotalheight
1759                     \relax]%
1760                     {\mdfboundingboxtotalwidth}%
1761                     {\mdfframetitleboxtotalheight}%
1762                 }%
1763                 \global\mdfframetitleboxtotalheight=-\p@ \relax%
1764             }%
1765         {%

```



```

1766 \mdf@PackageWarning{You got a page break inside the title\MessageBreak
1767             Current this isn't well supported}%
1768 \rlap%
1769 {%
1770 \mdf@frametitlebackground@default%
1771 \rule[-\mdfboundingboxdepth]%
1772     {\mdfboundingboxtotalwidth}%
1773     {\mdfboundingboxtotalheight}%
1774 }%
1775 \global\mdfframetitleboxtotalheight=%
1776 \dimexpr%
1777 \mdfframetitleboxtotalheight
1778 -\mdfboundingboxheight
1779 +\mdf@frametitlebelowskip@length
1780 +.5\baselineskip-1pt
1781 % +\dp\strutbox
1782 \relax%
1783 }%
1784 }%
1785 }%
1786 \def\mdf@frame@leftline@first{%
1787 \llap%
1788 {%
1789 \mdf@linecolor@default%
1790 \rule[-\mdfboundingboxdepth]%
1791     {\mdf@middlelinewidth@length}%
1792     {\dimexpr
1793         \mdfboundingboxtotalheight%
1794         \ifbool{mdf@topline}{+\mdf@middlelinewidth@length}{}}
1795     \relax}%
1796 }%
1797 }%
1798 \def\mdf@frame@topline@first{%
1799 \rlap%
1800 {%
1801 \mdf@linecolor@default%
1802 \rule[\dimexpr
1803     \mdfboundingboxheight
1804     -\mdfboundingboxdepth
1805     +\mdf@splitbottomskip@length
1806     +\mdf@innertopmargin@length
1807     \relax]%
1808     {\mdfboundingboxtotalwidth}%
1809     {\mdf@middlelinewidth@length}%
1810 }%
1811 }
1812 \def\mdf@frame@rightline@first{%
1813 \rlap%
1814 {%
1815 \mdf@linecolor@default%
1816 \hspace*{\mdfboundingboxwidth}%
1817 \hspace*{\mdf@innerrightmargin@length}%
1818 \rule[-\mdfboundingboxdepth]%
1819     {\mdf@middlelinewidth@length}%
1820     {\dimexpr
1821         \mdfboundingboxtotalheight%

```



```

1822         \ifbool{mdf@topline}{+\mdf@middlelinewidth@length}{}
1823         \relax}%
1824     }%
1825 }%
1826 \def\mdf@frame@bottomline@first{%
1827     \rlap%
1828     {%
1829         \ifbool{mdf@leftline}%
1830         {%
1831             \hspace*{-\mdf@middlelinewidth@length}%
1832         }{}%
1833         \mdf@linecolor@default%
1834         \ifbool{mdf@bottomline}%
1835         {%
1836             \rule[\dimexpr
1837                 -\mdfboundingboxdepth
1838                 -\mdf@middlelinewidth@length
1839                 \relax]{%
1840                 {\dimexpr
1841                     \mdfboundingboxtotalwidth
1842                     \ifbool{mdf@rightline}{+\mdf@middlelinewidth@length}{}%
1843                     \ifbool{mdf@leftline}{+\mdf@middlelinewidth@length}{}
1844                     \relax}%
1845                 {\mdf@middlelinewidth@length}%
1846                 }{}%
1847             }%
1848         }%
1849 \def\mdf@putbox@first{%
1850     \ifvoid\mdf@splitbox@two\relax
1851     \else%
1852         \mdf@makebox@out[\linewidth]%
1853         {%
1854             \mdf@makeboxalign@left%
1855             \setlength{\mdfboundingboxwidth}%
1856                 {\wd\mdf@splitbox@two}%
1857             \setlength{\mdfboundingboxtotalwidth}%
1858                 {\dimexpr
1859                     \mdfboundingboxwidth
1860                     +\mdf@innerleftmargin@length%
1861                     +\mdf@innerrightmargin@length
1862                     \relax}%
1863             \setlength{\mdfboundingboxheight}%
1864                 {\dimexpr
1865                     \ht\mdf@splitbox@two
1866                     +\dp\mdf@splitbox@two
1867                     \relax}%
1868             \setlength{\mdfboundingboxdepth}%
1869                 {\dimexpr
1870                     \dp\mdf@splitbox@two
1871                     +\mdf@splitbottomskip@length
1872                     \relax}%
1873             \setlength{\mdfboundingboxtotalheight}%
1874                 {\dimexpr
1875                     \mdfboundingboxheight
1876                     +\mdf@innertopmargin@length%
1877                     +\mdf@splitbottomskip@length

```



```

1878         \relax}%
1879     \setlength{\@tempdima}%
1880         {\dimexpr
1881             \mdfboundingboxtotalwidth%
1882             \ifbool{mdf@leftline}{+\mdf@middlelinewidth@length}{}%
1883             \ifbool{mdf@rightline}{+\mdf@middlelinewidth@length}{}%
1884         \relax}%
1885     \mdf@makebox@in[\@tempdima]%
1886     {%
1887         \null%
1888         \ifbool{mdf@leftline}%
1889             {%
1890                 \hspace*{\mdf@middlelinewidth@length}%
1891                 \mdf@frame@leftline@first%
1892             }{}%
1893         \ifbool{mdf@everyline}%
1894             {%
1895                 \mdf@frame@bottomline@first%
1896             }{}%
1897         \ifbool{mdf@topline}%
1898             {%
1899                 \mdf@frame@topline@first%
1900             }{}%
1901         \mdf@frame@background@first%
1902         \ifdefempty{\mdf@frametitle}{\mdf@frame@frametitlebackground@first}%
1903         \hspace*{\mdf@innerleftmargin@length}%
1904         \ifbool{mdf@rightline}%
1905             {%
1906                 \mdf@frame@rightline@first%
1907             }{}%
1908         {\box\mdf@splitbox@two}%
1909     }%
1910     \mdf@makebox@align@right%
1911 }%
1912 \fi%
1913 }

```

```

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

```

The last frame of of a splitted contents of mdframed

```

1914 \def\mdf@frame@background@second{%
1915     \ifbool{mdf@shadow}%
1916         {%
1917             \rlap%
1918             {%
1919                 \smash%
1920                 {%
1921                     \mdf@shadow@default%
1922                     \rule[\dimexpr
1923                         -\mdfboundingboxdepth
1924                         -\mdf@shadowsize@length
1925                     \ifbool{mdf@bottomline}{-\mdf@middlelinewidth@length}{}

```



```

1926         \relax]%
1927     {\dimexpr
1928         \mdfboundingboxtotalwidth
1929         +\mdf@shadowsize@length
1930         \ifbool{mdf@rightline}{+\mdf@middlelinewidth@length}{}}
1931     \relax}%
1932 {\dimexpr
1933     \mdfboundingboxtotalheight
1934     +\mdf@shadowsize@length
1935     \relax}%
1936 }%
1937 }%
1938 }{}%
1939 \rlap%
1940 {%
1941     \mdf@background@default%
1942     \rule[-\mdfboundingboxdepth]%
1943         {\mdfboundingboxtotalwidth}%
1944         {\mdfboundingboxtotalheight}%
1945 }%
1946 }%
1947 \def\mdf@frame@frametitlebackground@second{%
1948 \ifbool{mdf@repeatframetitle}%
1949 {%repeating title = true
1950     \rlap%
1951     {%
1952         \mdf@frametitlebackground@default%
1953         \rule[\dimexpr
1954             -\mdfboundingboxdepth
1955             +\mdfboundingboxtotalheight
1956             -\mdfframetitleboxtotalheight
1957             \relax]%
1958             {\mdfboundingboxtotalwidth}%
1959             {\mdfframetitleboxtotalheight}%
1960     }%
1961 }%
1962 {%repeating title = false -- maybe splitted
1963 \ifdimless{\mdfframetitleboxtotalheight}{\z@}%
1964 {}%
1965 {%
1966     \rlap%
1967     {%
1968         \mdf@frametitlebackground@default%
1969         \rule[\dimexpr
1970             -\mdfboundingboxdepth
1971             +\mdfboundingboxtotalheight
1972             -\mdfframetitleboxtotalheight
1973             \relax]%
1974             {\mdfboundingboxtotalwidth}%
1975             {\mdfframetitleboxtotalheight}%
1976     }%
1977 }%
1978 }%
1979 }%
1980 \def\mdf@frame@leftline@second{%
1981     \llap%

```



```

1982  {%
1983    \mdf@linecolor@default%
1984    \rule[-\mdfboundingboxdepth]%
1985      {\mdf@middlelinewidth@length}%
1986      {\dimexpr\mdfboundingboxtotalheight}%
1987  }%
1988 }%
1989 \def\mdf@frame@bottomline@second{%
1990   \rlap%
1991   {%
1992     \ifbool{mdf@leftline}%
1993     {%
1994       \hspace*{-\mdf@middlelinewidth@length}%
1995     }{}%
1996     \mdf@linecolor@default%
1997     \rule[\dimexpr
1998       -\mdfboundingboxdepth
1999       -\mdf@middlelinewidth@length
2000       \relax]%
2001     {\dimexpr
2002       \mdfboundingboxtotalwidth
2003       \ifbool{mdf@rightline}{+\mdf@middlelinewidth@length}{}
2004       \ifbool{mdf@leftline}{+\mdf@middlelinewidth@length}{}
2005       \relax}%
2006     {\mdf@middlelinewidth@length}%
2007   }%
2008 }%
2009 \def\mdf@frame@rightline@second{%
2010   \rlap%
2011   {%
2012     \mdf@linecolor@default\hspace*{\mdfboundingboxwidth}%
2013     \hspace*{\mdf@innerrightmargin@length}%
2014     \rule[-\mdfboundingboxdepth]%
2015       {\mdf@middlelinewidth@length}%
2016       {\mdfboundingboxtotalheight}%
2017   }%
2018 }%
2019 \def\mdf@frame@topline@second{%
2020   \rlap%
2021   {%
2022     \ifbool{mdf@leftline}%
2023     {%
2024       \hspace*{-\mdf@middlelinewidth@length}%
2025     }{}%
2026     \mdf@linecolor@default%
2027     \ifbool{mdf@topline}%
2028     {%
2029       \rule[\dimexpr
2030         \mdfboundingboxheight
2031         -\mdfboundingboxdepth%
2032         +\mdf@innerbottommargin@length
2033         \relax]%
2034       {\dimexpr
2035         \mdfboundingboxtotalwidth
2036         \ifbool{mdf@rightline}{+\mdf@middlelinewidth@length}{}%
2037         \ifbool{mdf@leftline}{+\mdf@middlelinewidth@length}{}

```



```

2038         \relax}%
2039         {\mdf@middlelinewidth@length}%
2040     }{}%
2041 }%
2042 }%
2043
2044 \def\mdf@putbox@second{%
2045     \ifvoid\mdf@splitbox@one\relax%
2046     \else
2047         \mdf@makebox@out%
2048         {%
2049             \mdf@makeboxalign@left%
2050             \setlength{\mdfboundingboxwidth}%
2051                 {\wd\mdf@splitbox@one}%
2052             \setlength{\mdfboundingboxtotalwidth}%
2053                 {\dimexpr
2054                     \mdfboundingboxwidth
2055                     +\mdf@innerleftmargin@length%
2056                     +\mdf@innerrightmargin@length
2057                     \relax}%
2058             \setlength{\mdfboundingboxheight}%
2059                 {\dimexpr
2060                     \ht\mdf@splitbox@one
2061                     +\dp\mdf@splitbox@one
2062                     \relax}%
2063             \setlength{\mdfboundingboxdepth}%
2064                 {\dimexpr
2065                     \dp\mdf@splitbox@one
2066                     +\mdf@innerbottommargin@length
2067                     \relax}%
2068             \setlength{\mdfboundingboxtotalheight}%
2069                 {\dimexpr
2070                     \mdfboundingboxheight
2071                     +\mdf@innerbottommargin@length
2072                     \relax}%
2073             \setlength{\@tempdima}%
2074                 {\dimexpr
2075                     \mdfboundingboxtotalwidth%
2076                     \ifbool{mdf@leftline}{+\mdf@middlelinewidth@length}{}%
2077                     \ifbool{mdf@rightline}{+\mdf@middlelinewidth@length}{}%
2078                     \relax}%
2079             \mdf@makebox@in[\@tempdima]%
2080             {%
2081                 \null%
2082                 \ifbool{mdf@leftline}%
2083                 {%
2084                     \hspace*{\mdf@middlelinewidth@length}%
2085                     \mdf@frame@leftline@second%
2086                 }{}%
2087                 \ifbool{mdf@everyline}%
2088                 {%
2089                     \mdf@frame@topline@second
2090                 }{}%
2091                 \mdf@frame@background@second%
2092                 \ifbool{mdf@bottomline}%
2093                 {%

```



```

2094         \mdf@frame@bottomline@second%
2095     }{}%
2096     \ifdefempty{\mdf@frametitle}{\mdf@frame@frametitlebackground@second}%
2097     \hspace*{\mdf@innerleftmargin@length}%
2098     \ifbool{mdf@rightline}%
2099     {%
2100         \mdf@frame@rightline@second%
2101     }{}%
2102     {\box\mdf@splitbox@one}%
2103 }%
2104 \mdf@makeboxalign@right%
2105 }%
2106 \fi%
2107 }%

```

```

\mdf@putbox@middle
\mdf@frame@background@middle
\mdf@frame@leftline@middle
\mdf@frame@rightline@middle

```

The last frame of of a splitted contents of mdframed

```

2108 \def\mdf@frame@leftline@middle{%
2109     \llap%
2110     {%
2111         \mdf@linecolor@default%
2112         \rule[-\mdfboundingboxdepth]%
2113             {\mdf@middlelinewidth@length}%
2114             {\mdfboundingboxtotalheight}%
2115     }%
2116 }%
2117 \def\mdf@frame@background@middle{%
2118     \ifbool{mdf@shadow}%
2119     {%
2120         \rlap%
2121         {%
2122             \smash%
2123             {%
2124                 \mdf@shadow@default%
2125                 \rule[\dimexpr
2126                     -\mdfboundingboxdepth
2127                     -\mdf@shadowsize@length
2128                 \relax]%
2129                 {\dimexpr
2130                     \mdfboundingboxtotalwidth
2131                     +\mdf@shadowsize@length
2132                     \ifbool{mdf@rightline}{+\mdf@middlelinewidth@length}{}}
2133                 \relax}%
2134                 {\mdfboundingboxtotalheight}%
2135             }%
2136         }%
2137     }{}%
2138     \rlap%
2139     {%
2140         \mdf@background@default%
2141         \rule[-\mdfboundingboxdepth]%
2142             {\mdfboundingboxtotalwidth}%

```



```

2143         {\mdfboundingboxtotalheight}%
2144     }%
2145 }%
2146 \def\mdf@frame@frametitlebackground@middle{%
2147 \ifbool{mdf@repeatframetitle}%
2148 {%repeating title = true
2149 \rlap%
2150 {%
2151 \mdf@frametitlebackground@default%
2152 \rule[\dimexpr
2153     -\mdfboundingboxdepth
2154     +\mdfboundingboxtotalheight
2155     -\mdfframetitleboxtotalheight
2156 \relax]%
2157 {\mdfboundingboxtotalwidth}%
2158 {\mdfframetitleboxtotalheight}%
2159 }%
2160 }%
2161 {%repeating title = false -- maybe splitted
2162 \ifdimless{\mdfframetitleboxtotalheight}{\z@}%
2163 {}%
2164 {%
2165 \rlap%
2166 {%
2167 \mdf@frametitlebackground@default%
2168 \rule[\dimexpr
2169     -\mdfboundingboxdepth
2170     +\mdfboundingboxtotalheight
2171     -\mdfframetitleboxtotalheight
2172 \relax]%
2173 {\mdfboundingboxtotalwidth}%
2174 {\mdfframetitleboxtotalheight}%
2175 }%
2176 \global\mdfframetitleboxtotalheight=-\p@\relax%
2177 }%
2178 }%
2179 }%
2180 \def\mdf@frame@rightline@middle{%
2181 \rlap%
2182 {%
2183 \mdf@linecolor@default%
2184 \hspace*{\mdfboundingboxwidth}%
2185 \hspace*{\mdf@innerrightmargin@length}%
2186 \rule[-\mdfboundingboxdepth]%
2187 {\mdf@middlelinewidth@length}%
2188 {\mdfboundingboxtotalheight}%
2189 }%
2190 }%
2191 \def\mdf@frame@topline@middle{%
2192 \rlap%
2193 {%
2194 \ifbool{mdf@leftline}%
2195 {%
2196 \hspace*{-\mdf@middlelinewidth@length}%
2197 }{}%
2198 \mdf@linecolor@default%

```



```

2199 \ifbool{mdf@topline}%
2200 {%
2201 \rule[\dimexpr
2202 \mdfboundingboxtotalheight
2203 -\mdfboundingboxdepth
2204 \relax]%
2205 {\dimexpr
2206 \mdfboundingboxtotalwidth
2207 \ifbool{mdf@rightline}{+\mdf@middlelinewidth@length}{}%
2208 \ifbool{mdf@leftline}{+\mdf@middlelinewidth@length}{%
2209 \relax}%
2210 {\mdf@middlelinewidth@length}%
2211 }}%
2212 }%
2213 }%
2214 \def\mdf@frame@bottomline@middle{%
2215 \rlap%
2216 {%
2217 \ifbool{mdf@leftline}%
2218 {%
2219 \hspace*{-\mdf@middlelinewidth@length}%
2220 }}%
2221 \mdf@linecolor@default%
2222 \ifbool{mdf@bottomline}%
2223 {%
2224 \rule[\dimexpr
2225 -\mdfboundingboxdepth
2226 -\mdf@middlelinewidth@length
2227 \relax]%
2228 {\dimexpr
2229 \mdfboundingboxtotalwidth
2230 \ifbool{mdf@rightline}{+\mdf@middlelinewidth@length}{}%
2231 \ifbool{mdf@leftline}{+\mdf@middlelinewidth@length}{%
2232 \relax}%
2233 {\mdf@middlelinewidth@length}%
2234 }}%
2235 }%
2236 }%
2237
2238 \def\mdf@putbox@middle{%
2239 \ifvoid\mdf@splitbox@two\relax%
2240 \else
2241 \mdf@makebox@out%
2242 {%
2243 \mdf@makeboxalign@left%
2244 \setlength{\mdfboundingboxwidth}%
2245 {\wd\mdf@splitbox@two}%
2246 \setlength{\mdfboundingboxtotalwidth}%
2247 {\dimexpr
2248 \mdfboundingboxwidth
2249 +\mdf@innerleftmargin@length%
2250 +\mdf@innerrightmargin@length
2251 \relax}%
2252 \setlength{\mdfboundingboxheight}%
2253 {\dimexpr
2254 \ht\mdf@splitbox@two

```



```

2255         +\dp\mdf@splitbox@two
2256         \relax}%
2257     \setlength{\mdfboundingboxdepth}%
2258         {\dimexpr
2259             \dp\mdf@splitbox@two
2260             +\mdf@splitbottomskip@length
2261             \relax}%
2262     \setlength{\mdfboundingboxtotalheight}%
2263         {\dimexpr
2264             \mdfboundingboxheight
2265             +\mdf@splitbottomskip@length
2266             \relax}%
2267     \setlength{\@tempdima}
2268         {\dimexpr
2269             \mdfboundingboxtotalwidth%
2270             \ifbool{mdf@leftline}{+\mdf@middlelinewidth@length}{}%
2271             \ifbool{mdf@rightline}{+\mdf@middlelinewidth@length}{}%
2272             \relax}%
2273     \mdf@makebox@in[\@tempdima]%
2274     {%
2275         \null%
2276         \ifbool{mdf@leftline}%
2277             {%
2278                 \hspace*{\mdf@middlelinewidth@length}%
2279                 \mdf@frame@leftline@middle%
2280             }{}%
2281         \mdf@frame@background@middle%
2282         \ifbool{mdf@everyline}%
2283             {%
2284                 \mdf@frame@topline@middle
2285             }{}%
2286         \ifdefempty{\mdf@frametitle}{%
2287             {\mdf@frame@frametitlebackground@middle}%
2288         \ifbool{mdf@everyline}%
2289             {%
2290                 \mdf@frame@bottomline@middle%
2291             }{}%
2292         \hspace*{\mdf@innerleftmargin@length}%
2293         \ifbool{mdf@rightline}%
2294             {%
2295                 \mdf@frame@rightline@middle%
2296             }{}%
2297         {\box\mdf@splitbox@two}%
2298     }%
2299     \mdf@makeboxalign@right%
2300 }%
2301 \fi%
2302 }

2303 \endinput

```

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

```

2304 %% Style file for mdframed for package option 'framemethod=tikz'
2305 %%
2306 %% This package may be distributed under the terms of the LaTeX Project

```



```

2307 %% Public License, as described in lppl.txt in the base LaTeX distribution.
2308 %% Either version 1.0 or, at your option, any later version.
2309 %%
2310 %

```

```
\mdframedIpackagename
```

local settings

```

2311 \def\mdframedIpackagename{md-frame-1}
2312 \ProvidesFile{md-frame-1.mdf}%
2313     [\mdfmaindate\ %
2314     \mdversion: \mdframedIpackagename]
2315 %

```

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

Define settings for tikz

```

2316 %Allgemeine Einstellungen fuer tikz
2317 \def\mdf@tikz@settings{%
2318 %
2319     \mdf@testdraftmode%
2320     \tikzset{mdfbox/.style={anchor=south west,%
2321                             inner sep=0pt,%
2322                             outer sep=0pt,%
2323                             \mdf@fontcolor,%
2324                             }%
2325             }% anchor der Ausgabebox ist unten links
2326     \tikzset{mdfcorners/.style={rounded corners=\mdf@roundcorner@length}}%
2327     \tikzset{mdfbackground/.style={fill=\mdf@backgroundcolor,%
2328                                     draw=\mdf@backgroundcolor%
2329                                     }%
2330             }%
2331     \tikzset{mdfframetitlebackground/.style=%
2332             {%
2333                 fill=\mdf@frametitlebackgroundcolor,%
2334                 draw=none,%
2335                 rounded corners={max(\mdf@roundcorner@length%
2336                                     -\mdf@innerlinewidth@length%
2337                                     -.5\mdf@middlelinewidth@length,0)%
2338                                     }%
2339             }%
2340             }%
2341 %
2342     \tikzset{mdfouterline/.style={}}%
2343 % nur wenn outerlinewidth>0 wird aussere Linie gezeichnet
2344     \ifdimgreater{\mdf@outerlinewidth@length}{\z@}
2345         {\tikzset{mdfouterline/.append style={%
2346             draw=\mdf@outerlinecolor,%
2347             line width=2\mdf@outerlinewidth@length+\mdf@middlelinewidth@length}}}%
2348 %
2349     \tikzset{mdfinnerline/.style={}}%
2350 % nur wenn innerlinewidth>0 wird innere Linie gezeichnet
2351     \ifdimgreater{\mdf@innerlinewidth@length}{\z@}
2352         {\tikzset{mdfinnerline/.append style={%
2353             draw=\mdf@innerlinecolor,%
2354             line width=2\mdf@innerlinewidth@length+\mdf@middlelinewidth@length}}}%

```



```

2355 %
2356 \tikzset{mdfshadow/.style={drop shadow={%
2357             shadow xshift=\mdf@shadowsize@length-2pt,
2358             shadow yshift=-\mdf@shadowsize@length+2pt,
2359             fill=\mdf@shadowcolor,
2360             every shadow }}}%
2361 %
2362 \mdf@tikzset@local
2363 \tikzset{mdfmiddleline/.style={}}%
2364 % nur wenn middlelinewidth>0 wird mittlere Linie gezeichnet
2365 \ifdimgreater{\mdf@middlelinewidth@length}{\z@}
2366     {\tikzset{mdfmiddleline/.append style={%
2367         preaction={draw=\mdf@middlelinecolor,%
2368             line width=\mdf@middlelinewidth@length},%
2369         line width=\mdf@middlelinewidth@length,%
2370         tikzsetting}}}%
2371     }{}%
2372 }%

```

```

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

```

Befehle fuer Ausgabe von Rahmen und Hintergrund

```

2373 \newrobustcmd*\mdf@tikzbox@tfl[1]{%three or four borders
2374     \clip(0,0)rectangle(\mdf@boundingboxwidth,\mdf@boundingboxheight);%
2375     \begin{scope}[mdfcorners]%
2376         \clip[preaction=mdfouterline]%
2377             [postaction=mdfbackground]%
2378             [postaction=mdfinnerline]#1;%
2379     \end{scope}%
2380     \path[mdfmiddleline,mdfcorners]#1;
2381 }%
2382
2383
2384
2385 \newrobustcmd*\mdf@tikzbox@otl[2]{%one or two borders
2386     \clip(0,0)rectangle(\mdf@boundingboxwidth,\mdf@boundingboxheight);%
2387     \begin{scope}
2388         \path[mdfouterline,mdfcorners]#1;%
2389         \clip[postaction=mdfbackground]#2;%
2390         \path[mdfinnerline,mdfcorners]#1;%
2391     \end{scope}%
2392     \path[mdfmiddleline,mdfcorners]#1;%

```

```

\mdf@testdraftmode

```

draftmode test

```

2393 \newrobustcmd*\mdf@testdraftmode{%
2394     \ifbool{mdf@draft}%
2395     {%
2396         \renewrobustcmd*\mdf@tikzbox@tfl[1]{%three or four borders
2397             \path(0,0)rectangle(\mdf@boundingboxwidth,\mdf@boundingboxheight);%
2398             \begin{scope}[mdfcorners]%
2399                 \clip[preaction=mdfouterline]%
2400                     [postaction=mdfbackground]%

```



```

2401         [postaction=mdfinnerline]##1;%
2402     \end{scope}%
2403     \path[mdfmiddleline,mdfcorners]##1;
2404 }%
2405 \renewrobustcmd*\mdf@tikzbox@otl[2]{%one or two borders
2406     \path(0,0)rectangle(\mdfboundingboxwidth,\mdfboundingboxheight);%
2407     \begin{scope}
2408         \path[mdfouterline,mdfcorners]##1;%
2409         \clip[postaction=mdfbackground]##2;%
2410         \path[mdfinnerline,mdfcorners]##1;%
2411     \end{scope}%
2412     \path[mdfmiddleline,mdfcorners]##1;%
2413 }%
2414 }{%
2415 \ifdimgreater{\overfullrule}{0pt}{%
2416     \renewrobustcmd*\mdf@tikzbox@tfl[1]{%three or four borders
2417         \path(0,0)rectangle(\mdfboundingboxwidth,\mdfboundingboxheight);%
2418         \begin{scope}[mdfcorners]%
2419             \clip[preaction=mdfouterline]%
2420                 [postaction=mdfbackground]%
2421                 [postaction=mdfinnerline]##1;%
2422         \end{scope}%
2423         \path[mdfmiddleline,mdfcorners]##1;
2424     }%
2425     \renewrobustcmd*\mdf@tikzbox@otl[2]{%one or two borders
2426         \path(0,0)rectangle(\mdfboundingboxwidth,\mdfboundingboxheight);%
2427         \begin{scope}
2428             \path[mdfouterline,mdfcorners]##1;%
2429             \clip[postaction=mdfbackground]##2;%
2430             \path[mdfinnerline,mdfcorners]##1;%
2431         \end{scope}%
2432         \path[mdfmiddleline,mdfcorners]##1;%
2433     }%
2434 }{}%
2435 }%
2436 }

```

`\mdf@put@frametitlerule`

frametitlerule with tikz

```

2437 \tikzset{mdfframetitlerule/.style={%
2438     draw=none,
2439     fill=\mdf@frametitlerulecolor,
2440 }%
2441 }
2442 \def\mdf@@frametitlerule{%
2443     \ifbool{mdf@frametitlerule}{%
2444         \vbox{\hsize0pt
2445             \par\unskip\vskip\mdf@frametitlebelowskip@length
2446             \noindent\rlap{\hspace*{-\mdf@innerleftmargin@length}%
2447             \begingroup%
2448                 \pgfmathsetlength{\dimen@}{\mdfframetitleboxwidth
2449                                     +\mdf@innerleftmargin@length
2450                                     +\mdf@innerrightmargin@length}%
2451             \tikz\draw[mdfframetitlerule] (0,0)%

```



```

2452             rectangle (\dimen@,\mdf@frametitulerulewidth@length);
2453     \endgroup}
2454 }%
2455 }{%
2456     \vbox{\hsize0pt
2457         \par\unskip\vskip\mdf@frametitlebelowskip@length
2458         \noindent\rlap{}
2459     }%
2460 }%
2461 \iftoggle{mdf@notfirstframetitle}%
2462 {%
2463     \par\unskip\vskip\mdf@splittopskip@length%
2464 }%
2465 {%
2466     \par\unskip\vskip\mdf@innertopmargin@length%
2467 }%
2468 }%
2469

```

\mdfsubtitle

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

```

2470 %
2471 \tikzset{mdfsubtitleaboverule/.style={%
2472     draw=none,
2473     fill=\mdf@subtitleabovelinecolor,
2474 }%
2475 }

```

Definition of the default style of rule below the subtitle.

```

2476 \tikzset{mdfsubtitlebelowrule/.style={%
2477     draw=none,
2478     fill=\mdf@subtitlebelowlinecolor,
2479 }%
2480 }

```

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

```

2481 \tikzset{mdfsubtitlebackground/.style={%
2482     draw=\mdf@subtitlebackgroundcolor,
2483     fill=\mdf@subtitlebackgroundcolor,
2484 }%
2485 }

```

Definition of the command `\mdfsubtitle`.

```

2486 \newrobustcmd\mdfsubtitle[2][]%
2487 {%

```

Make everything local.

```

2488 \begingroup
2489 \penalty-9995%set a breakpoint before the subtitle
2490 % \end{macrocode}
2491 % Inside the title we don't need any \Cmd{parindent}. Next set the options of
2492 % the optional argument of \Cmd{mdfsubtitle}.
2493 % \begin{macrocode}
2494 \parindent\z@%relax%
2495 \mdfsetup{#1}%only for subtitle options
2496 % \end{macrocode}

```



```

2497 % Save the complete subtitle inside the save box \Cmd{z@}.
2498 %     \begin{marcocode}
2499 \setbox\z@=\vbox{\mdf@subtitlefont{#2}\relax}%
2500 %     \end{macrocode}
2501 % Compute the width of the current line including the inner left margin and
2502 % inner right margin (using \Cmd{dimen@}. In the next step the height and the
2503 % depth of the save box will be saved in \Cmd{dimen@i}.
2504 %     \begin{marcocode}
2505 \pgfmathsetlength{\dimen@}{%
2506     {%
2507         \linewidth%
2508         +\mdf@innerleftmargin@length%
2509         +\mdf@innerrightmargin@length%
2510     }%
2511 %     \end{macrocode}
2512 % Test if rules should be drawn. otherwise set the line width to 0\,pt.
2513 %     \begin{macrocode}
2514 \ifbool{mdf@subtitleaboveline}{}%
2515     {\mdfsetup{subtitleabovelinewidth=\z@}}%
2516 \ifbool{mdf@subtitlebelowline}{}%
2517     {\mdfsetup{subtitlebelowlinewidth=\z@}}%
2518 %     \end{macrocode}
2519 % Start a new line with the given skip \Opt{subtitleaboveskip}.
2520 %     \begin{macrocode}
2521 \par\unskip\ifvmode\nointerlineskip\hrule \@height\z@ \@width\hsize\fi%
2522 \vskip\mdf@subtitleaboveskip@length
2523 %     \end{macrocode}
2524 % Drawing the above line of the subtitle.
2525 %     \begin{macrocode}
2526 \rlap%
2527 {%
2528     \hspace*{-\mdf@innerleftmargin@length}%
2529     \begingroup%
2530     \tikz\draw[mdfsubtitleaboverule] (0,0)%
2531         rectangle (\dimen@,\mdf@subtitleabovelinewidth@length);
2532     \endgroup%
2533 }%
2534 %     \end{macrocode}
2535 % space between rule above and subtitle
2536 %     \begin{macrocode}
2537 \par\unskip\ifvmode\nointerlineskip\hrule \@height\z@ \@width\hsize\fi%
2538 \vskip\mdf@subtitleinneraboveskip@length
2539 %     \end{macrocode}
2540 % output of subtitle with a background. Must think about the \Cmd{hspace}
2541 % combination.
2542 %     \begin{macrocode}
2543 \leavevmode\hspace*{-\mdf@innerleftmargin@length}%
2544 \tikz[overlay]%
2545     \draw[mdfsubtitlebackground]
2546         (0,-\mdf@subtitleinnerbelowskip@length-\dp\z@)
2547         rectangle(\dimen@,\ht\z@+\mdf@subtitleinneraboveskip@length);%
2548 \hspace*{+\mdf@innerleftmargin@length}%
2549 \box\z@\relax%
2550 %     \end{macrocode}
2551 % Skip after subtitle
2552 %     \begin{macrocode}

```



```

2553 \par\unskip\ifvmode\nointerlineskip\hrule \@height\z@ \@width\hsize\fi%
2554 \vskip\mdf@subtitleinnerbelowskip@length
2555 % \end{macrocode}
2556 % Draw rule below of the subtitle.
2557 % \begin{macrocode}
2558 \rlap%
2559 {%
2560 \hspace*{-\mdf@innerleftmargin@length}%
2561 \begin{group}%
2562 \tikz\draw[mdfsubtitlebelowrule] (0,0)%
2563 rectangle (\dimen@,\mdf@subtitlebelowlinewidth@length);
2564 \end{group}%
2565 }%
2566 % \end{macrocode}
2567 % Last skip and set a non breaking point.
2568 % \begin{macrocode}
2569 \par\unskip\ifvmode\nointerlineskip\hrule \@height\z@ \@width\hsize\fi%
2570 \vskip\mdf@subtitlebelowskip@length
2571 \penalty 9995
2572 \end{group}
2573 }
2574

```

\mdfsubsubtitle

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

```

2575 %
2576 \tikzset{mdfsubsubtitleaboverule/.style={%
2577 draw=none,
2578 fill=\mdf@subsubtitleabovelinecolor,
2579 }%
2580 }

```

Definition of the default style of rule below the subsubtitle.

```

2581 \tikzset{mdfsubsubtitlebelowrule/.style={%
2582 draw=none,
2583 fill=\mdf@subsubtitlebelowlinecolor,
2584 }%
2585 }

```

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

```

2586 \tikzset{mdfsubsubtitlebackground/.style={%
2587 draw=\mdf@subsubtitlebackgroundcolor,
2588 fill=\mdf@subsubtitlebackgroundcolor,
2589 }%
2590 }

```

Definition of the command `\mdfsubsubtitle`.

```

2591 \newrobustcmd\mdfsubsubtitle[2][]%
2592 {%

```

Make everything local.

```

2593 \begin{group}
2594 \penalty-9995%set a breakpoint before the subsubtitle
2595 % \end{macrocode}
2596 % Inside the title we don't need any \Cmd{parindent}. Next set the options of
2597 % the optional argument of \Cmd{mdfsubsubtitle}.

```



```

2598 %      \begin{macrocode}
2599 \parindent\z@ \relax%
2600 \mdfsetup{#1}%only for subsubtitle options
2601 %      \end{macrocode}
2602 % Save the complete subsubtitle inside the save box \Cmd{z@}.
2603 %      \begin{macrocode}
2604 \setbox\z@=\vbox{\mdf@subsubtitlefont{#2} \relax}%
2605 %      \end{macrocode}
2606 % Compute the width of the current line including the inner left margin and
2607 % inner right margin (using \Cmd{dimen@}. In the next step the height and the
2608 % depth of the save box will be saved in \Cmd{dimen@i}.
2609 %      \begin{macrocode}
2610 \pgfmathsetlength{\dimen@}%
2611 %          {%
2612 %              \linewidth%
2613 %              +\mdf@innerleftmargin@length%
2614 %              +\mdf@innerrightmargin@length%
2615 %          }%
2616 %      \end{macrocode}
2617 % Test if rules should be drawn. otherwise set the line width to 0\,pt.
2618 %      \begin{macrocode}
2619 \ifbool{mdf@subsubtitleaboveline}{}%
2620 %         {\mdfsetup{subsubtitleabovelinewidth=\z@}}%
2621 \ifbool{mdf@subsubtitlebelowline}{}%
2622 %         {\mdfsetup{subsubtitlebelowlinewidth=\z@}}%
2623 %      \end{macrocode}
2624 % Start a new line with the given skip \Opt{subsubtitleaboveskip}.
2625 %      \begin{macrocode}
2626 \par\unskip\ifvmode\nointerlineskip\hrule \@height\z@ \@width\hsize\fi%
2627 \vskip\mdf@subsubtitleaboveskip@length
2628 %      \end{macrocode}
2629 % Drawing the above line of the subsubtitle.
2630 %      \begin{macrocode}
2631 \rlap%
2632 % {%
2633 %     \hspace*{-\mdf@innerleftmargin@length}%
2634 %     \begin{group}%
2635 %         \tikz\draw[mdfsubsubtitleaboverule] (0,0)%
2636 %             rectangle (\dimen@,\mdf@subsubtitleabovelinewidth@length);
2637 %     \end{group}%
2638 % }%
2639 %      \end{macrocode}
2640 % space between rule above and subsubtitle
2641 %      \begin{macrocode}
2642 \par\unskip\ifvmode\nointerlineskip\hrule \@height\z@ \@width\hsize\fi%
2643 \vskip\mdf@subsubtitleinneraboveskip@length
2644 %      \end{macrocode}
2645 % output of subsubtitle with a background. Must think about the \Cmd{hspace}
2646 % combination.
2647 %      \begin{macrocode}
2648 \hspace*{-\mdf@innerleftmargin@length}%
2649 \tikz[overlay]%
2650 %     \draw[mdfsubsubtitlebackground]
2651 %         (0,-\mdf@subsubtitleinnerbelowskip@length-\dp\z@)
2652 %         rectangle(\dimen@,\ht\z@+\mdf@subsubtitleinneraboveskip@length);%
2653 \hspace*{+\mdf@innerleftmargin@length}%

```



```

2654 \box\z@\relax%
2655 % \end{macrocode}
2656 % Skip after subsubtitle
2657 % \begin{macrocode}
2658 \par\unskip\ifvmode\nointerlineskip\hrule \@height\z@ \@width\hsize\fi%
2659 \vskip\mdf@subsubtitleinnerbelowskip@length
2660 % \end{macrocode}
2661 % Draw rule below of the subsubtitle.
2662 % \begin{macrocode}
2663 \rlap%
2664 {%
2665 \hspace*{-\mdf@innerleftmargin@length}%
2666 \begingroup%
2667 \tikz\draw[mdfsubsubtitlebelowrule] (0,0)%
2668 rectangle (\dimen@,\mdf@subsubtitlebelowlinewidth@length);
2669 \endgroup%
2670 }%
2671 % \end{macrocode}
2672 % Last skip and set a non breaking point.
2673 % \begin{macrocode}
2674 \par\unskip\ifvmode\nointerlineskip\hrule \@height\z@ \@width\hsize\fi%
2675 \vskip\mdf@subsubtitlebelowskip@length
2676 \penalty 9995
2677 \endgroup
2678 }
2679

```

`\mdf@putbox@single`

Output of the non breakable contents.

```

2680 % Info zu den verwendeten Punkten:
2681 % 0 ist die untere linke Ecke der Mitte der middleline
2682 % P ist die obere rechte Ecke der Mitte der middleline
2683 % A ist der Punkt fuer den anchor (d.h. die untere linke Ecke) der Ausgabebox
2684 %
2685 \def\mdf@putbox@single{%
2686 \ifvoid\mdf@splitbox@one
2687 \else%
2688 \mdf@makebox@out{%
2689 \mdf@makeboxalign@left%
2690 \mdf@tikz@settings%
2691 %
2692 \setlength\mdfboundingboxwidth{\wd\mdf@splitbox@one}%
2693 \advance\mdfboundingboxwidth by \mdf@innerleftmargin@length\relax%
2694 \advance\mdfboundingboxwidth by \mdf@innerrightmargin@length\relax%
2695 \ifbool{mdf@leftline}{%
2696 \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
2697 \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
2698 \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}}{%
2699 \ifbool{mdf@rightline}{%
2700 \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
2701 \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
2702 \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}}}%
2703 %
2704 \setlength\mdfboundingboxheight%

```



```

2705         {\dimexpr\ht\mdf@splitbox@one+\dp\mdf@splitbox@one\relax}%
2706 \advance\mdfboundingboxheight by \mdf@innertopmargin@length\relax%
2707 \advance\mdfboundingboxheight by \mdf@innerbottommargin@length\relax%
2708 \ifbool{mdf@topline}{%
2709     \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
2710     \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
2711     \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}{}%
2712 \ifbool{mdf@bottomline}{%
2713     \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
2714     \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
2715     \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}{}%
2716 \mdf@makebox@in[\mdfboundingboxwidth]{%
2717 \null%
2718 \begin{tikzpicture}[remember picture]%
2719     \pgfmathsetlengthmacro\mdf@Ax{+\mdf@innerleftmargin@length}%
2720     \pgfmathsetlengthmacro\mdf@Ay{+\mdf@innerbottommargin@length}%
2721     \pgfmathsetlengthmacro\mdf@Ox{+0pt}%
2722     \pgfmathsetlengthmacro\mdf@Oy{+0pt}%
2723     \pgfmathsetlengthmacro\mdf@Px{+\mdfboundingboxwidth}%
2724     \pgfmathsetlengthmacro\mdf@Py{+\mdfboundingboxheight}%
2725     \ifbool{mdf@leftline}{%
2726         {%
2727             \pgfmathsetlengthmacro\mdf@Ax%
2728                 {\mdf@Ax+\mdf@outerlinewidth@length+
2729                 \mdf@middlelinewidth@length+\mdf@innerlinewidth@length}%
2730             \pgfmathsetlengthmacro\mdf@Ox%
2731                 {\mdf@Ox+\mdf@outerlinewidth@length+0.5\mdf@middlelinewidth@length}%
2732             }{}%
2733         \ifbool{mdf@rightline}{%
2734             {%
2735                 \pgfmathsetlengthmacro\mdf@Px%
2736                     {\mdf@Px-\mdf@outerlinewidth@length-0.5\mdf@middlelinewidth@length}%
2737                 }{}%
2738             \ifbool{mdf@bottomline}{%
2739                 {%
2740                     \pgfmathsetlengthmacro\mdf@Ay%
2741                         {\mdf@Ay+\mdf@outerlinewidth@length+\mdf@middlelinewidth@length
2742                         +\mdf@innerlinewidth@length}%
2743                     \pgfmathsetlengthmacro\mdf@Oy%
2744                         {\mdf@Oy+\mdf@outerlinewidth@length+0.5\mdf@middlelinewidth@length}%
2745                     }{}%
2746                 \ifbool{mdf@topline}{%
2747                     {%
2748                         \pgfmathsetlengthmacro\mdf@Py%
2749                             {\mdf@Py-\mdf@outerlinewidth@length-0.5\mdf@middlelinewidth@length}%
2750                         }{}%
2751                     %
2752                     \coordinate(0)at(\mdf@Ox,\mdf@Oy);%
2753                     \coordinate(P)at(\mdf@Px,\mdf@Py);%
2754                     %
2755                     \ifbool{mdf@shadow}
2756                         {\path[mdfshadow,mdfcorners](0) rectangle (P);}%
2757                     %
2758                     \begin{scope}[use as bounding box]
2759                         \mdf@test@lrb{\mdf@tikzbox@tfl{(0)--(0|-P)--(P)--(P|-0)--cycle)}}{}%
2760                     %

```



```

2761 \mdf@test@ltb{\mdf@tikzbox@tfl{(P|-0)--(0)--(0|-P)--(P)}}{}%
2762 \mdf@test@trb{\mdf@tikzbox@tfl{(0|-P)--(P)--(P|-0)--(0)}}{}%
2763 \mdf@test@ltr{\mdf@tikzbox@tfl{(0)--(0|-P)--(P)--(P|-0)}}{}%
2764 \mdf@test@lrb{\mdf@tikzbox@tfl{(P|-0)--(0)--(0|-P)--(P)}}{}%
2765 %
2766 \mdf@test@lb{\mdf@tikzbox@otl{(P|-0)--(0)--(0|-P)}}%
2767 {(P)--(P|-0)[mdfcorners]--(0)--(0|-P)}%
2768 {}{}%
2769 \mdf@test@rb{\mdf@tikzbox@otl{(P)--(P|-0)--(0)}}%
2770 {(0|-P)--(P)[mdfcorners]--(P|-0)--(0)}%
2771 {}{}%
2772 \mdf@test@tr{\mdf@tikzbox@otl{(0|-P)--(P)--(P|-0)}}%
2773 {(0)--(0|-P)[mdfcorners]--(P)--(P|-0)}%
2774 {}{}%
2775 \mdf@test@lt{\mdf@tikzbox@otl{(0)--(0|-P)--(P)}}%
2776 {(P|-0)--(0)[mdfcorners]--(0|-P)--(P)}%
2777 {}{}%
2778 \mdf@test@lr{\mdf@tikzbox@otl{(0)--(0|-P)(P)--(P|-0)}}%
2779 {(0)rectangle(P)}%
2780 {}{}%
2781 \mdf@test@tb{\mdf@tikzbox@otl{(0)--(0|-P)(0|-P)--(P)}}%
2782 {(0)rectangle(P)}%
2783 {}{}%
2784 %
2785 \mdf@test@l{\mdf@tikzbox@otl{(0)--(0|-P)}}%
2786 {(0)rectangle(P)}%
2787 {}{}%
2788 \mdf@test@r{\mdf@tikzbox@otl{(0|-P)--(P)}}%
2789 {(0)rectangle(P)}%
2790 {}{}%
2791 \mdf@test@t{\mdf@tikzbox@otl{(0|-P)--(P)}}%
2792 {(0)rectangle(P)}%
2793 {}{}%
2794 \mdf@test@b{\mdf@tikzbox@otl{(0)--(0|-P)}}%
2795 {(0)rectangle(P)}%
2796 {}{}%
2797 %
2798 \mdf@test@noline{\path[mdfbackground,mdfcorners](0)rectangle(P);}{}%
2799 %
2800 %Frametitlebackground
2801 \drawbrackgroundframetitle@single
2802 %
2803 \node[mdfbox]at(\mdf@Ax,\mdf@Ay){\box\mdf@splitbox@one};%output
2804 \end{scope}
2805 %HIER KOMMT EIN WEITERES MAKRO
2806 \mdf@singleextra
2807 \mdfcreateextratikz
2808 \end{tikzpicture}%
2809 }%
2810 \mdf@makeboxalign@right%
2811 }%
2812 \fi
2813 }%
2814 \def\drawbrackgroundframetitle@single{%
2815 \ifdefempty{\mdf@frametitle}{}{}%
2816 \drawbrackgroundframetitle@single%

```



```

2817 }%
2818 }%
2819 \def\drawbackgroundframetitle@@single{%
2820     \begin{scope}%background frame title
2821         \ifbool{mdf@leftline}{
2822             \pgfmathsetlengthmacro\mdf@0x%
2823                 {\mdf@0x+\mdf@innerlinewidth@length+0.5\mdf@middlelinewidth@length}
2824             }{}%
2825         \ifbool{mdf@rightline}{%
2826             \pgfmathsetlengthmacro\mdf@Px%
2827                 {\mdf@Px-\mdf@innerlinewidth@length-0.5\mdf@middlelinewidth@length}
2828             }{}%
2829         \ifbool{mdf@topline}{%
2830             \pgfmathsetlengthmacro\mdf@Py%
2831                 {\mdf@Py-\mdf@innerlinewidth@length-0.5\mdf@middlelinewidth@length}
2832             }{}%
2833         \pgfmathsetlengthmacro\mdf@Fy
2834             {\mdf@Py-\mdfframetitleboxtotalheight}
2835         \path[mdfframetitlebackground]
2836             (\mdf@0x,\mdf@Fy) -- (\mdf@0x,\mdf@Py)%
2837             --(\mdf@Px,\mdf@Py) --(\mdf@Px,\mdf@Fy);
2838     \end{scope}
2839 }

```

\mdf@putbox@first

Output of the first breakable contents.

```

2840 \def\drawbackgroundframetitle@first{%
2841     {%
2842         \ifbool{mdf@repeatframetitle}%
2843             {%repeating title = true
2844                 \begin{scope}%background frame title
2845                     \ifbool{mdf@leftline}{
2846                         \pgfmathsetlengthmacro\mdf@0x%
2847                             {\mdf@0x+\mdf@innerlinewidth@length+0.5\mdf@middlelinewidth@length}
2848                         }{}%
2849                     \ifbool{mdf@rightline}{%
2850                         \pgfmathsetlengthmacro\mdf@Px%
2851                             {\mdf@Px-\mdf@innerlinewidth@length-0.5\mdf@middlelinewidth@length}
2852                         }{}%
2853                     \ifbool{mdf@topline}{%
2854                         \pgfmathsetlengthmacro\mdf@Py%
2855                             {\mdf@Py-\mdf@innerlinewidth@length-.5\mdf@middlelinewidth@length}
2856                         }{}%
2857                     \pgfmathsetlengthmacro\mdf@Fy
2858                         {\mdf@Py-\mdfframetitleboxtotalheight}
2859                     \coordinate(P)at(\mdf@Px,\mdf@Py);%
2860                     \path[mdfframetitlebackground]
2861                         (\mdf@0x,\mdf@Fy) -- (\mdf@0x,\mdf@Py)%
2862                         --(\mdf@Px,\mdf@Py) --(\mdf@Px,\mdf@Fy);
2863                     \end{scope}
2864                 }%
2865             {%
2866                 \ifdefempty{\mdf@frametitle}{}%
2867                 {%

```



```

2868 \ifdimgreater{\mdfboundingboxheight}{\mdfframetitleboxtotalheight}%
2869 {%
2870 \drawbrackgroundframetitle@@first
2871 \pgfmathsetlength{\global\mdfframetitleboxtotalheight}{-\p@}%
2872 }\mdf@PackageWarning%
2873 {You got a page break inside the frame title\MessageBreak
2874 Currently this isn't well supported}%
2875 \drawbrackgroundframetitle@@first
2876 \pgfmathsetlength{\global\mdfframetitleboxtotalheight}%
2877 {\mdfframetitleboxtotalheight
2878 -\mdfboundingboxheight
2879 -\mdf@innerlinewidth@length
2880 -0.5\mdf@middlelinewidth@length%
2881 +\mdf@frametitlebelowskip@length
2882 +\mdf@splitbottomskip@length
2883 +\mdf@splittopskip@length
2884 +\dp\strutbox%
2885 }%
2886 }%
2887 }%
2888 }%
2889 }%
2890 }%
2891 %
2892 \def\drawbrackgroundframetitle@@first{%
2893 \begin{scope}%background frame title
2894 \ifbool{mdf@leftline}{%
2895 \pgfmathsetlengthmacro\mdf@0x%
2896 {\mdf@0x+\mdf@innerlinewidth@length+0.5\mdf@middlelinewidth@length}
2897 }{}%
2898 \ifbool{mdf@rightline}{%
2899 \pgfmathsetlengthmacro\mdf@Px%
2900 {\mdf@Px-\mdf@innerlinewidth@length-0.5\mdf@middlelinewidth@length}
2901 }{}%
2902 \ifbool{mdf@topline}{%
2903 \pgfmathsetlengthmacro\mdf@Py%
2904 {\mdf@Py-\mdf@innerlinewidth@length-0.5\mdf@middlelinewidth@length}
2905 }{}%
2906 \pgfmathsetlengthmacro\mdf@Fy
2907 {max(0,\mdf@Py-\mdfframetitleboxtotalheight)}
2908 \path[mdfframetitlebackground]
2909 (\mdf@0x,\mdf@Fy) -- (\mdf@0x,\mdf@Py)%
2910 --(\mdf@Px,\mdf@Py) --(\mdf@Px,\mdf@Fy);
2911 \end{scope}%
2912 }%
2913 %
2914 \def\mdf@putbox@first{%
2915 \ifvoid\mdf@splitbox@two
2916 \else%
2917 \mdf@makebox@out{%
2918 \mdf@makeboxalign@left%
2919 \mdf@tikz@settings%
2920 \setlength\mdfboundingboxwidth{\wd\mdf@splitbox@two}%
2921 \advance\mdfboundingboxwidth by \mdf@innerleftmargin@length\relax%
2922 \advance\mdfboundingboxwidth by \mdf@innerrightmargin@length\relax%
2923 \ifbool{mdf@leftline}{%

```



```

2924 \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
2925 \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
2926 \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}}}%
2927 \ifbool{mdf@rightline}{%
2928 \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
2929 \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
2930 \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}}}%
2931 \setlength\mdfboundingboxheight%
2932 {\dimexpr\ht\mdf@splitbox@two+\dp\mdf@splitbox@two\relax}%
2933 \advance\mdfboundingboxheight by \mdf@innertopmargin@length\relax%
2934 \advance\mdfboundingboxheight by \mdf@splitbottomskip@length\relax%
2935 \ifbool{mdf@topline}{%
2936 \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
2937 \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
2938 \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}}}%
2939 %%%%%%%%%
2940 \ifbool{mdf@everyline}{%
2941 \ifbool{mdf@bottomline}{%
2942 \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
2943 \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
2944 \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}}}%
2945 }}}}
2946 %%%%%%%%%
2947 %\ifdimequal{\pagegoal}{\maxdimen}{\enlargethispage{\baselineskip}}}% ???
2948 \ifdimgreater{\pagegoal-\maxdimen}{0pt}}{\enlargethispage{\baselineskip}}}%
2949 \mdf@makebox@in[\mdfboundingboxwidth]{%
2950 \null%
2951 \begin{tikzpicture}[remember picture]
2952 \pgfmathsetlengthmacro\mdf@Ax{+\mdf@innerleftmargin@length}%
2953 \pgfmathsetlengthmacro\mdf@Ay{+\mdf@splitbottomskip@length}%
2954 \pgfmathsetlengthmacro\mdf@Ox{+0pt}%
2955 \pgfmathsetlengthmacro\mdf@Oy{+0pt}%
2956 \pgfmathsetlengthmacro\mdf@Px{+\mdfboundingboxwidth}%
2957 \pgfmathsetlengthmacro\mdf@Py{+\mdfboundingboxheight}%
2958 \ifbool{mdf@leftline}{
2959 {%
2960 \pgfmathsetlengthmacro\mdf@Ax%
2961 {\mdf@Ax+\mdf@outerlinewidth@length+
2962 \mdf@middlelinewidth@length+\mdf@innerlinewidth@length}%
2963 \pgfmathsetlengthmacro\mdf@Ox%
2964 {\mdf@Ox+\mdf@outerlinewidth@length+0.5\mdf@middlelinewidth@length}%
2965 }}}}
2966 \ifbool{mdf@rightline}{%
2967 \pgfmathsetlengthmacro\mdf@Px%
2968 {\mdf@Px-\mdf@outerlinewidth@length-0.5\mdf@middlelinewidth@length}%
2969 }}}}
2970 \ifbool{mdf@topline}{%
2971 \pgfmathsetlengthmacro\mdf@Py%
2972 {\mdf@Py-\mdf@outerlinewidth@length-0.5\mdf@middlelinewidth@length}%
2973 }}}}
2974 %%
2975 \ifbool{mdf@everyline}{%
2976 \ifbool{mdf@bottomline}{%
2977 {%
2978 \pgfmathsetlengthmacro\mdf@Ay%
2979 {\mdf@Ay+\mdf@outerlinewidth@length+\mdf@middlelinewidth@length%

```



```

2980         +\mdf@innerlinewidth@length}%
2981     \pgfmathsetlengthmacro\mdf@0y%
2982         {\mdf@0y+\mdf@outerlinewidth@length+0.5\mdf@middlelinewidth@length}%
2983     }{}%
2984 }{}%
2985 %%
2986     \coordinate(0)at(\mdf@0x,\mdf@0y);%
2987     \coordinate(P)at(\mdf@Px,\mdf@Py);%
2988     \ifbool{mdf@shadow}
2989     {\path[mdfshadow] (0) -- (0|-P) to[mdfcorners] (P) -- (P|-0) -- (0);}%
2990     \begin{scope}[use as bounding box]
2991     %%%%%%%%%%
2992     \ifbool{mdf@everyline}{%
2993         \mdf@test@lrb{\mdf@tikzbox@tfl{(0)--(0|-P)--(P)--(P|-0)--cycle)}}{}%
2994         \mdf@test@ltb{\mdf@tikzbox@tfl{(P|-0)--(0)--(0|-P)--(P)}}{}%
2995         \mdf@test@trb{\mdf@tikzbox@tfl{(0|-P)--(P)--(P|-0)--(0)}}{}%
2996         \mdf@test@ltr{\mdf@tikzbox@tfl{(0)--(0|-P)--(P)--(P|-0)}}{}%
2997         \mdf@test@lrb{\mdf@tikzbox@tfl{(P|-0)--(0)--(0|-P)--(P)}}{}%
2998         \mdf@test@lb{\mdf@tikzbox@otl{(P|-0)--(0)--(0|-P)}}%
2999             {(P)--(P|-0)[mdfcorners]--(0)--(0|-P)}%
3000         }{}%
3001         \mdf@test@rb{\mdf@tikzbox@otl{(P)--(P|-0)--(0)}}%
3002             {(0|-P)--(P)[mdfcorners]--(P|-0)--(0)}%
3003         }{}%
3004         \mdf@test@tr{\mdf@tikzbox@otl{(0|-P)--(P)--(P|-0)}}%
3005             {(0)--(0|-P)[mdfcorners]--(P)--(P|-0)}%
3006         }{}%
3007         \mdf@test@lt{\mdf@tikzbox@otl{(0)--(0|-P)--(P)}}%
3008             {(P|-0)--(0)[mdfcorners]--(0|-P)--(P)}%
3009         }{}%
3010         \mdf@test@lr{\mdf@tikzbox@otl{(0)--(0|-P)(P)--(P|-0)}}%
3011             {(0)rectangle(P)}%
3012         }{}%
3013         \mdf@test@tb{\mdf@tikzbox@otl{(0)--(0|-P)(0|-P)--(P)}}%
3014             {(0)rectangle(P)}%
3015         }{}%
3016         \mdf@test@l{\mdf@tikzbox@otl{(0)--(0|-P)}}%
3017             {(0)rectangle(P)}%
3018         }{}%
3019         \mdf@test@r{\mdf@tikzbox@otl{(0|-P)--(P)}}%
3020             {(0)rectangle(P)}%
3021         }{}%
3022         \mdf@test@t{\mdf@tikzbox@otl{(0|-P)--(P)}}%
3023             {(0)rectangle(P)}%
3024         }{}%
3025         \mdf@test@b{\mdf@tikzbox@otl{(0)--(0|-P)}}%
3026             {(0)rectangle(P)}%
3027         }{}%
3028         \mdf@test@noline{\path[mdfbackground,mdfcorners](0)rectangle(P);}%
3029     }{
3030     \ifboolexpr{test {\mdf@test@lrb} or test {\mdf@test@ltr}}%
3031         {\mdf@tikzbox@tfl{(0)--(0|-P)--(P)--(P|-0)}}%
3032         {}%
3033     \ifboolexpr{test {\mdf@test@ltb} or test {\mdf@test@lt}}%
3034         {%
3035         \mdf@tikzbox@otl{(0)--(0|-P)--(P)}

```



```

3036             {(P|-0)--(0)[mdfcorners]--(0|-P)--(P)}
3037         }%
3038     {}%
3039     \ifbool{test {\mdf@test@trb} or test {\mdf@test@tr}}%
3040     {%
3041         \mdf@tikzbox@otl{(0|-P)--(P)--(P|-0)}%
3042         {(0)--(0|-P)[mdfcorners]--(P)--(P|-0)}}%
3043     {}%
3044     \ifbool{test {\mdf@test@lrb} or test {\mdf@test@lr}}%
3045     {\mdf@tikzbox@otl{(0)--(0|-P)(P)--(P|-0)}{(0)rectangle(P)}}%
3046     {}%
3047     \ifbool{test {\mdf@test@tbt} or test {\mdf@test@t}}%
3048     {\mdf@tikzbox@otl{(0|-P)--(P)}{(0)rectangle(P)}}%
3049     {}%
3050     \ifbool{test {\mdf@test@lbt} or test {\mdf@test@l}}%
3051     {\mdf@tikzbox@otl{(0)--(0|-P)}{(0)rectangle(P)}}%
3052     {}%
3053     \ifbool{test {\mdf@test@rbt} or test {\mdf@test@r}}%
3054     {\mdf@tikzbox@otl{(0|-P)--(P)}{(0)rectangle(P)}}%
3055     {}%
3056     \mdf@test@b{\path[mdfbackground](0)rectangle(P);}%
3057     \mdf@test@noline{\path[mdfbackground,mdfcorners]
3058         (0)--(0|-P)--(P)--(P|-0);}%
3059     {}%
3060 }
3061 %%%%%%%%%%
3062 \drawbackgroundframetitle@first
3063 \node[mdfbox]at(\mdf@Ax,\mdf@Ay){\box\mdf@splitbox@two};%
3064 \end{scope}
3065 %HIER KOMMT EIN WEITERES MAKRO
3066 \mdf@firstextra
3067 \mdfcreateextratikz%
3068 \end{tikzpicture}%
3069 }%
3070 \mdf@makeboxalign@right%
3071 }%
3072 \fi
3073 }%

```

\mdf@putbox@middle

Output of the middle breakable contents.

```

3074 \def\drawbackgroundframetitle@middle{%
3075 \ifdefempty{\mdf@frametitle}{}%
3076 {%
3077     \ifbool{mdf@repeatframetitle}%
3078     {%repeating title = true
3079         \begin{scope}%background frame title
3080             \ifbool{mdf@leftline}{
3081                 \pgfmathsetlengthmacro\mdf@0x%
3082                 {\mdf@0x+\mdf@innerlinewidth@length+0.5\mdf@middlelinewidth@length}
3083             }{}%
3084             \ifbool{mdf@rightline}{%
3085                 \pgfmathsetlengthmacro\mdf@Px%
3086                 {\mdf@Px-\mdf@innerlinewidth@length-0.5\mdf@middlelinewidth@length}

```



```

3087     }{}%
3088     \ifbool{mdf@everyline}%
3089     {%
3090         \ifbool{mdf@topline}{%
3091             \pgfmathsetlengthmacro\mdf@Py%
3092                 {\mdf@Py-\mdf@innerlinewidth@length%
3093                     -.5\mdf@middlelinewidth@length}
3094             }{}%
3095         }{}%
3096         \pgfmathsetlengthmacro\mdf@Fy
3097             {\mdf@Py-\mdfframetitleboxtotalheight}
3098         \coordinate(P)at(\mdf@Px,\mdf@Py);%
3099         \path[mdfframetitlebackground]
3100             (\mdf@0x,\mdf@Fy) -- (\mdf@0x,\mdf@Py)%
3101             --(\mdf@Px,\mdf@Py) --(\mdf@Px,\mdf@Fy);
3102     \end{scope}
3103 }%
3104 {%
3105     \ifdimless{\mdfframetitleboxtotalheight}{\z@}
3106     {%
3107     {%
3108         \drawbrackgroundframetitle@@middle%
3109         \pgfmathsetlength{\global\mdfframetitleboxtotalheight}{-\p@}%
3110     }%
3111 }%
3112 }%
3113 }%
3114 \def\drawbrackgroundframetitle@@middle{%
3115     \begin{scope}%background frame title
3116     \ifbool{mdf@leftline}{%
3117         \pgfmathsetlengthmacro\mdf@0x%
3118             {\mdf@0x+\mdf@innerlinewidth@length+0.5\mdf@middlelinewidth@length}
3119         }{}%
3120     \ifbool{mdf@rightline}{%
3121         \pgfmathsetlengthmacro\mdf@Px%
3122             {\mdf@Px-\mdf@innerlinewidth@length-0.5\mdf@middlelinewidth@length}
3123         }{}%
3124     \pgfmathsetlengthmacro\mdf@Fy
3125         {\mdf@Py-\mdfframetitleboxtotalheight}
3126     \path[mdfframetitlebackground,rounded corners=\z@]
3127         (\mdf@0x,\mdf@Fy) -- (\mdf@0x,\mdf@Py)%
3128         --(\mdf@Px,\mdf@Py) --(\mdf@Px,\mdf@Fy);
3129     \end{scope}
3130 }%
3131 %
3132 \def\drawbrackgroundframetitle@@middle{%
3133     \begin{scope}%background frame title
3134     \ifbool{mdf@leftline}{%
3135         \pgfmathsetlengthmacro\mdf@0x%
3136             {\mdf@0x+\mdf@innerlinewidth@length+0.5\mdf@middlelinewidth@length}
3137         }{}%
3138     \ifbool{mdf@rightline}{%
3139         \pgfmathsetlengthmacro\mdf@Px%
3140             {\mdf@Px-\mdf@innerlinewidth@length-0.5\mdf@middlelinewidth@length}
3141         }{}%
3142     \pgfmathsetlengthmacro\mdf@Fy

```



```

3143         {\mdf@Py-\mdfframetitleboxtotalheight}
3144         \path[mdfframetitlebackground,rounded corners=\z@]
3145             (\mdf@Ox,\mdf@Fy) -- (\mdf@Ox,\mdf@Py)%
3146             --(\mdf@Px,\mdf@Py) --(\mdf@Px,\mdf@Fy);
3147     \end{scope}
3148 }%
3149 \def\mdf@putbox@middle{%
3150     \ifvoid\mdf@splitbox@two
3151     \else%
3152         \mdf@makebox@out{%
3153             \mdf@makeboxalign@left%
3154             \mdf@tikz@settings%
3155             \setlength\mdfboundingboxwidth{\wd\mdf@splitbox@two}%
3156             \advance\mdfboundingboxwidth by \mdf@innerleftmargin@length\relax%
3157             \advance\mdfboundingboxwidth by \mdf@innerrightmargin@length\relax%
3158             \ifbool{mdf@leftline}{%
3159                 \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
3160                 \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
3161                 \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}}{%
3162             \ifbool{mdf@rightline}{%
3163                 \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
3164                 \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
3165                 \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}}{%
3166             \setlength\mdfboundingboxheight%
3167                 {\dimexpr\ht\mdf@splitbox@two+\dp\mdf@splitbox@two\relax}%
3168             \advance\mdfboundingboxheight by \mdf@splitbottomskip@length\relax%
3169 %%%%%%%%%%
3170             \ifbool{mdf@everyline}{%
3171                 \ifbool{mdf@topline}{%
3172                     \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
3173                     \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
3174                     \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}}{%
3175                 \ifbool{mdf@bottomline}{%
3176                     \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
3177                     \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
3178                     \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}}{%
3179                 }{}%
3180 %%%%%%%%%%
3181             \mdf@makebox@in[\mdfboundingboxwidth]{%
3182                 \null%
3183                 \begin{tikzpicture}[remember picture]
3184                     \pgfmathsetlengthmacro\mdf@Ax{+\mdf@innerleftmargin@length}%
3185                     \pgfmathsetlengthmacro\mdf@Ay{+\mdf@splitbottomskip@length}%
3186                     \pgfmathsetlengthmacro\mdf@Ox{+0pt}%
3187                     \pgfmathsetlengthmacro\mdf@Oy{+0pt}%
3188                     \pgfmathsetlengthmacro\mdf@Px{+\mdfboundingboxwidth}%
3189                     \pgfmathsetlengthmacro\mdf@Py{+\mdfboundingboxheight}%
3190                     \ifbool{mdf@leftline}%
3191                         {%
3192                             \pgfmathsetlengthmacro\mdf@Ax%
3193                                 {\mdf@Ax+\mdf@outerlinewidth@length+
3194                                 \mdf@middlelinewidth@length+\mdf@innerlinewidth@length}%
3195                             \pgfmathsetlengthmacro\mdf@Ox%
3196                                 {\mdf@Ox+\mdf@outerlinewidth@length+0.5\mdf@middlelinewidth@length}%
3197                             }{}%
3198                     \ifbool{mdf@rightline}%

```



```

3199     {%
3200     \pgfmathsetlengthmacro\mdf@Px%
3201     {\mdf@Px-\mdf@outerlinewidth@length-0.5\mdf@middlelinewidth@length}%
3202     }{}%
3203 %%
3204 \ifbool{mdf@everyline}{%
3205 \ifbool{mdf@bottomline}%
3206 {%
3207 \pgfmathsetlengthmacro\mdf@Ay%
3208 {\mdf@Ay+\mdf@outerlinewidth@length+\mdf@middlelinewidth@length%
3209 +\mdf@innerlinewidth@length}%
3210 \pgfmathsetlengthmacro\mdf@Oy%
3211 {\mdf@Oy+\mdf@outerlinewidth@length+0.5\mdf@middlelinewidth@length}%
3212 }{}%
3213 \ifbool{mdf@topline}%
3214 {%
3215 \pgfmathsetlengthmacro\mdf@Py%
3216 {\mdf@Py-\mdf@outerlinewidth@length-0.5\mdf@middlelinewidth@length}%
3217 }{}%
3218 }{}%
3219 %%
3220 \coordinate(0)at(\mdf@0x,\mdf@0y);%
3221 \coordinate(P)at(\mdf@Px,\mdf@Py);%
3222 \ifbool{mdf@shadow}
3223 {\path[mdfshadow](0) rectangle (P);}%
3224 \begin{scope}[use as bounding box]
3225 %%%%%%%%%%%
3226 \ifbool{mdf@everyline}{%
3227 \mdf@test@ltrb{\mdf@tikzbox@tfl{(0)--(0|-P)--(P)--(P|-0)--cycle)}}{}%
3228 \mdf@test@ltb{\mdf@tikzbox@tfl{(P|-0)--(0)--(0|-P)--(P))}}{}%
3229 \mdf@test@trb{\mdf@tikzbox@tfl{(0|-P)--(P)--(P|-0)--(0))}}{}%
3230 \mdf@test@ltr{\mdf@tikzbox@tfl{(0)--(0|-P)--(P)--(P|-0))}}{}%
3231 \mdf@test@lrb{\mdf@tikzbox@tfl{(P|-0)--(0)--(0|-P)--(P))}}{}%
3232 \mdf@test@lb{\mdf@tikzbox@otl{(P|-0)--(0)--(0|-P))}%
3233 {(P)--(P|-0)[mdfcorners]--(0)--(0|-P)}}%
3234 }{}%
3235 \mdf@test@rb{\mdf@tikzbox@otl{(P)--(P|-0)--(0))}%
3236 {(0|-P)--(P)[mdfcorners]--(P|-0)--(0)}}%
3237 }{}%
3238 \mdf@test@tr{\mdf@tikzbox@otl{(0|-P)--(P)--(P|-0))}%
3239 {(0)--(0|-P)[mdfcorners]--(P)--(P|-0)}}%
3240 }{}%
3241 \mdf@test@lt{\mdf@tikzbox@otl{(0)--(0|-P)--(P))}%
3242 {(P|-0)--(0)[mdfcorners]--(0|-P)--(P)}}%
3243 }{}%
3244 \mdf@test@lr{\mdf@tikzbox@otl{(0)--(0|-P)(P)--(P|-0))}%
3245 {(0)rectangle(P)}}%
3246 }{}%
3247 \mdf@test@tb{\mdf@tikzbox@otl{(0)--(0|-P)(0|-P)--(P))}%
3248 {(0)rectangle(P)}}%
3249 }{}%
3250 \mdf@test@l{\mdf@tikzbox@otl{(0)--(0|-P))}%
3251 {(0)rectangle(P)}}%
3252 }{}%
3253 \mdf@test@r{\mdf@tikzbox@otl{(0|-P)--(P))}%
3254 {(0)rectangle(P)}}%

```



```

3255         }{}%
3256     \mdf@test@t{\mdf@tikzbox@otl{(0|-P)--(P)}%
3257                 {(0)rectangle(P)}%
3258         }{}%
3259     \mdf@test@b{\mdf@tikzbox@otl{(0)--(0|-P)}%
3260                 {(0)rectangle(P)}%
3261     }{}%
3262     \mdf@test@noline{\path[mdfbackground,mdfcorners](0)rectangle(P);}{}%
3263 }{
3264     \ifboolexpr{bool {mdf@leftline} and bool {mdf@rightline}}%
3265         {\mdf@tikzbox@otl{(0)--(0|-P)(P)--(P|-0)}{(0)rectangle(P)}}{}%
3266     \ifboolexpr{bool {mdf@leftline} and not (bool {mdf@rightline})}%
3267         {\mdf@tikzbox@otl{(0)--(0|-P)}{(0)rectangle(P)}}{}%
3268     \ifboolexpr{not (bool {mdf@leftline}) and bool {mdf@rightline}}%
3269         {\mdf@tikzbox@otl{(P)--(P|-0)}{(0)rectangle(P)}}{}%
3270     \ifboolexpr{not (bool {mdf@leftline}) and not (bool {mdf@rightline})}%
3271         {\path[mdfbackground](0)rectangle(P);}{}%
3272 }
3273 %%%%%%%%%%
3274     \drawbackgroundframetitle@middle
3275     \node[mdfbox]at(\mdf@Ax,\mdf@Ay){\box\mdf@splitbox@two};%
3276 \end{scope}
3277 \mdf@middleextra
3278 %HIER KOMMT EIN WEITERES MAKRO
3279 \mdfcreateextratikz
3280 \end{tikzpicture}%
3281 }%
3282 \mdf@makeboxalign@right%
3283 }%
3284 \fi
3285 }%

```

\mdf@putbox@second

Output of the last breakable contents.

```

3286 \def\drawbackgroundframetitle@second{%
3287     \ifdefempty{\mdf@frametitle}{}%
3288     {%
3289         \ifbool{mdf@repeatframetitle}%
3290             {%repeating title = true
3291             \begin{scope}%background frame title
3292                 \ifbool{mdf@leftline}{
3293                     \pgfmathsetlengthmacro\mdf@0x%
3294                     {\mdf@0x+\mdf@innerlinewidth@length+0.5\mdf@middlelinewidth@length}
3295                 }{}%
3296                 \ifbool{mdf@rightline}{%
3297                     \pgfmathsetlengthmacro\mdf@Px%
3298                     {\mdf@Px-\mdf@innerlinewidth@length-0.5\mdf@middlelinewidth@length}
3299                 }{}%
3300                 \ifbool{mdf@everyline}%
3301                 {%
3302                     \ifbool{mdf@topline}{%
3303                         \pgfmathsetlengthmacro\mdf@Py%
3304                         {\mdf@Py-\mdf@innerlinewidth@length%
3305                         -.5\mdf@middlelinewidth@length}

```



```

3306         {}%
3307     {}%
3308     \pgfmathsetlengthmacro\mdf@Fy
3309         {\mdf@Py-\mdfframetitleboxtotalheight}
3310     \coordinate(P)at(\mdf@Px,\mdf@Py);%
3311     \path[mdfframetitlebackground]
3312         (\mdf@0x,\mdf@Fy) -- (\mdf@0x,\mdf@Py)%
3313         --(\mdf@Px,\mdf@Py) --(\mdf@Px,\mdf@Fy);
3314     \end{scope}
3315 }%
3316 {%
3317     \ifdimless{\mdfframetitleboxtotalheight}{\z@}
3318     {}%
3319     {%
3320         \drawbackgroundframetitle@@second%
3321     }%
3322 }%
3323 }%
3324 }%
3325 %
3326 \def\drawbackgroundframetitle@@second{%
3327     \begin{scope}%background frame title
3328     \ifbool{mdf@leftline}{
3329         \pgfmathsetlengthmacro\mdf@0x%
3330         {\mdf@0x+\mdf@innerlinewidth@length+0.5\mdf@middlelinewidth@length}
3331     }{}%
3332     \ifbool{mdf@rightline}{%
3333         \pgfmathsetlengthmacro\mdf@Px%
3334         {\mdf@Px-\mdf@innerlinewidth@length-0.5\mdf@middlelinewidth@length}
3335     }{}%
3336     \pgfmathsetlengthmacro\mdf@Fy
3337         {\mdf@Py-\mdfframetitleboxtotalheight}
3338     \path[mdfframetitlebackground,rounded corners=\z@]
3339         (\mdf@0x,\mdf@Fy) -- (\mdf@0x,\mdf@Py)%
3340         --(\mdf@Px,\mdf@Py) --(\mdf@Px,\mdf@Fy);
3341     \end{scope}
3342 }%
3343 \def\mdf@putbox@second{%
3344     \ifvoid\mdf@splitbox@one
3345     \else%
3346         \mdf@makebox@out{%
3347             \mdf@makeboxalign@left%
3348             \mdf@tikz@settings%
3349             \setlength\mdfboundingboxwidth{\wd\mdf@splitbox@one}%
3350             \advance\mdfboundingboxwidth by \mdf@innerleftmargin@length\relax%
3351             \advance\mdfboundingboxwidth by \mdf@innerrightmargin@length\relax%
3352             \ifbool{mdf@leftline}{%
3353                 \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
3354                 \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
3355                 \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}}{}%
3356             \ifbool{mdf@rightline}{%
3357                 \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
3358                 \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
3359                 \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}}{}%
3360             \setlength\mdfboundingboxheight%
3361                 {\dimexpr\ht\mdf@splitbox@one+\dp\mdf@splitbox@one\relax}%

```



```

3362 \advance\mdfboundingboxheight by \mdf@innerbottommargin@length\relax%
3363 \ifbool{mdf@bottomline}{%
3364 \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
3365 \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
3366 \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}}{%
3367 %%%%%%%%%%
3368 \ifbool{mdf@everyline}{%
3369 \ifbool{mdf@topline}{%
3370 \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
3371 \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
3372 \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}}{%
3373 }}%
3374 %%%%%%%%%%
3375 \mdf@makebox@in[\mdfboundingboxwidth]{%
3376 \null%
3377 \begin{tikzpicture}[remember picture]
3378 \pgfmathsetlengthmacro\mdf@Ax{+\mdf@innerleftmargin@length}%
3379 \pgfmathsetlengthmacro\mdf@Ay{+\mdf@innerbottommargin@length}%
3380 \pgfmathsetlengthmacro\mdf@Ox{+0pt}%
3381 \pgfmathsetlengthmacro\mdf@Oy{+0pt}%
3382 \pgfmathsetlengthmacro\mdf@Px{+\mdfboundingboxwidth}%
3383 \pgfmathsetlengthmacro\mdf@Py{+\mdfboundingboxheight}%
3384 \ifbool{mdf@leftline}{%
3385 {%
3386 \pgfmathsetlengthmacro\mdf@Ax%
3387 {\mdf@Ax+\mdf@outerlinewidth@length+
3388 \mdf@middlelinewidth@length+\mdf@innerlinewidth@length}%
3389 \pgfmathsetlengthmacro\mdf@Ox%
3390 {\mdf@Ox+\mdf@outerlinewidth@length+0.5\mdf@middlelinewidth@length}%
3391 }}%
3392 \ifbool{mdf@rightline}{%
3393 {%
3394 \pgfmathsetlengthmacro\mdf@Px%
3395 {\mdf@Px-\mdf@outerlinewidth@length-0.5\mdf@middlelinewidth@length}%
3396 }}%
3397 \ifbool{mdf@bottomline}{%
3398 {%
3399 \pgfmathsetlengthmacro\mdf@Ay%
3400 {\mdf@Ay+\mdf@outerlinewidth@length+
3401 \mdf@middlelinewidth@length+\mdf@innerlinewidth@length}%
3402 \pgfmathsetlengthmacro\mdf@Oy%
3403 {\mdf@Oy+\mdf@outerlinewidth@length+0.5\mdf@middlelinewidth@length}%
3404 }}%
3405 %%
3406 \ifbool{mdf@everyline}{%
3407 \ifbool{mdf@topline}{%
3408 {%
3409 \pgfmathsetlengthmacro\mdf@Py%
3410 {\mdf@Py-\mdf@outerlinewidth@length-0.5\mdf@middlelinewidth@length}%
3411 }}%
3412 }}%
3413 %%
3414 \coordinate(0)at(\mdf@Ox,\mdf@Oy);%
3415 \coordinate(P)at(\mdf@Px,\mdf@Py);%
3416 \ifbool{mdf@shadow}
3417 {%

```



```

3418      \path[mdfshadow] (0|-P) to[mdfcorners] (0)
3419                      to[mdfcorners] (P|-0) -- (P) -- (0|-P);%
3420      }{}%
3421      \begin{scope}[use as bounding box]
3422      %%%%%%%%%%
3423      \ifbool{mdf@everyline}{%
3424      \mdf@test@ltrb{\mdf@tikzbox@tfl{(0)--(0|-P)--(P)--(P|-0)--cycle)}}{}%
3425      \mdf@test@ltb{\mdf@tikzbox@tfl{(P|-0)--(0)--(0|-P)--(P)}}{}%
3426      \mdf@test@trb{\mdf@tikzbox@tfl{(0|-P)--(P)--(P|-0)--(0)}}{}%
3427      \mdf@test@ltr{\mdf@tikzbox@tfl{(0)--(0|-P)--(P)--(P|-0)}}{}%
3428      \mdf@test@lrb{\mdf@tikzbox@tfl{(P|-0)--(0)--(0|-P)--(P)}}{}%
3429      \mdf@test@lb{\mdf@tikzbox@otl{(P|-0)--(0)--(0|-P)}}%
3430                      {(P)--(P|-0)[mdfcorners]--(0)--(0|-P)}%
3431      }{}%
3432      \mdf@test@rb{\mdf@tikzbox@otl{(P)--(P|-0)--(0)}}%
3433                      {(0|-P)--(P)[mdfcorners]--(P|-0)--(0)}%
3434      }{}%
3435      \mdf@test@tr{\mdf@tikzbox@otl{(0|-P)--(P)--(P|-0)}}%
3436                      {(0)--(0|-P)[mdfcorners]--(P)--(P|-0)}%
3437      }{}%
3438      \mdf@test@lt{\mdf@tikzbox@otl{(0)--(0|-P)--(P)}}%
3439                      {(P|-0)--(0)[mdfcorners]--(0|-P)--(P)}%
3440      }{}%
3441      \mdf@test@lr{\mdf@tikzbox@otl{(0)--(0|-P)(P)--(P|-0)}}%
3442                      {(0)rectangle(P)}%
3443      }{}%
3444      \mdf@test@tb{\mdf@tikzbox@otl{(0)--(0|-P)(0|-P)--(P)}}%
3445                      {(0)rectangle(P)}%
3446      }{}%
3447      \mdf@test@l{\mdf@tikzbox@otl{(0)--(0|-P)}}%
3448                      {(0)rectangle(P)}%
3449      }{}%
3450      \mdf@test@r{\mdf@tikzbox@otl{(0|-P)--(P)}}%
3451                      {(0)rectangle(P)}%
3452      }{}%
3453      \mdf@test@t{\mdf@tikzbox@otl{(0|-P)--(P)}}%
3454                      {(0)rectangle(P)}%
3455      }{}%
3456      \mdf@test@b{\mdf@tikzbox@otl{(0)--(0|-P)}}%
3457                      {(0)rectangle(P)}%
3458      }{}%
3459      \mdf@test@noline{\path[mdfbackground,mdfcorners](0)rectangle(P);}{}%
3460      }{}%
3461      \ifboolexpr{test {\mdf@test@ltrb} or test {\mdf@test@lrb}}%
3462      {\mdf@tikzbox@tfl{(P|-0)--(0)--(0|-P)--(P)}}%
3463      {}%
3464      \ifboolexpr{test {\mdf@test@ltb} or test {\mdf@test@lb}}%
3465      {%
3466      \mdf@tikzbox@otl{(P|-0)--(0)--(0|-P)}%
3467      {(P)--(P|-0)[mdfcorners]--(0)--(0|-P)}%
3468      }%
3469      }{}%
3470      \ifboolexpr{test {\mdf@test@trb} or test {\mdf@test@rb}}%
3471      {%
3472      \mdf@tikzbox@otl{(P)--(P|-0)--(0)}%
3473      {(0|-P)--(P)[mdfcorners]--(P|-0)--(0)}%

```



```

3474     }%
3475     {}%
3476     \ifbool{test {\mdf@test@ltr} or test {\mdf@test@lr}}%
3477     {\mdf@tikzbox@otl{(0)--(0|-P)(P)--(P|-0)}{(0)rectangle(P)}}%
3478     {}%
3479     \ifbool{test {\mdf@test@tb} or test {\mdf@test@b}}%
3480     {\mdf@tikzbox@otl{(0)--(0|-P)}{(0)rectangle(P)}}%
3481     {}%
3482     \ifbool{test {\mdf@test@lt} or test {\mdf@test@l}}%
3483     {\mdf@tikzbox@otl{(0)--(0|-P)}{(0)rectangle(P)}}%
3484     {}%
3485     \ifbool{test {\mdf@test@tr} or test {\mdf@test@r}}%
3486     {\mdf@tikzbox@otl{(0|-P)--(P)}{(0)rectangle(P)}}%
3487     {}%
3488     \mdf@test@t{\path[mdfbackground,mdfcorners](0|-P)--(0)--(0|-P)--(P);}%
3489     \mdf@test@noline{\path[mdfbackground,mdfcorners]
3490         (0|-P)--(0)--(0|-P)--(P);}%
3491     {}%
3492 }%
3493 \drawbackgroundframetitle@second
3494 \node[mdfbox] at (\mdf@Ax,\mdf@Ay){\box\mdf@splitbox@one};%
3495 \end{scope}
3496 \mdf@secondextra
3497 %HIER KOMMT EIN WEITERES MAKRO
3498 \mdfcreateextratikz
3499 \end{tikzpicture}%
3500 }%
3501 \mdf@makeboxalign@right%
3502 }%
3503 \fi
3504 }%

3505 \endinput

```

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

```

3506 %% Style file for mdframed for package option 'framemethod=pstricks'
3507 %%
3508 %% This package may be distributed under the terms of the LaTeX Project
3509 %% Public License, as described in lppl.txt in the base LaTeX distribution.
3510 %% Either version 1.0 or, at your option, any later version.
3511 %%
3512 %

```

`\mdframedIIPackagename`

local settings

```

3513 \def\mdframedIIPackagename{md-frame-2}
3514 \ProvidesFile{md-frame-2.mdf}%
3515     [\mdfmaindate\ %
3516     \mdfversion: \mdframedIIPackagename]

```

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

Command to calculate a latex length to postscript


```

3517 \def\mdf@ptlength@to@pscode#1{\pst@number{#1} \pst@number\psxunit div }
3518 \def\mdf@ptlength@to@pscode@length#1{%
3519   \pst@number{\csname mdf@#1@length\endcsname}
3520   \pst@number\psxunit div\space}
3521 \let\ptTps\mdf@ptlength@to@pscode\relax
3522 \let\ptTpsL\mdf@ptlength@to@pscode@length\relax

```

```

\mdfbackgroundstyle
\mdflinestyle
\mdfframetitlerule
\mdfframetitlebackground

```

background and line settings for pstricks

```

3523 \def\mdf@pstricks@settings{%expand by \addtopsstyle
3524   \newsstyle{mdfbackgroundstyle}%
3525   {linecolor=\mdf@backgroundcolor,fillstyle=solid,%
3526    fillcolor=\mdf@backgroundcolor,linestyle=none,%
3527    ,dimen=middle,%
3528    }%
3529 %
3530 \newsstyle{mdfframetitlebackgroundstyle}{%
3531   linecolor=\mdf@frametitlebackgroundcolor,
3532   fillcolor=\mdf@frametitlebackgroundcolor,
3533   fillstyle=solid,linestyle=none,
3534   lineararc=\ifdimgreater{\mdf@roundcorner@length%
3535     -\mdf@innerlinewidth@length%
3536     -.5\mdf@middlelinewidth@length}
3537     {\z@}{\dimexpr\mdf@roundcorner@length%
3538     -\mdf@innerlinewidth@length%
3539     -.5\mdf@middlelinewidth@length}{\z@},
3540   }
3541 %
3542 \newsstyle{mdfouterlinestyle}{linestyle=none}%
3543 \ifdimgreater{\mdf@outerlinewidth@length}{\z@}
3544   {\newsstyle{mdfouterlinestyle}{%
3545     linecolor=\mdf@outerlinecolor,%
3546     linewidth=\dimexpr2\mdf@outerlinewidth@length
3547       +\mdf@middlelinewidth@length\relax,
3548     dimen=middle,
3549     }}{%
3550 %
3551 \newsstyle{mdfinnerlinestyle}{linestyle=none}%
3552 \ifdimgreater{\mdf@innerlinewidth@length}{\z@}%
3553   {\newsstyle{mdfinnerlinestyle}{%
3554     linecolor=\mdf@innerlinecolor,%
3555     linewidth=\dimexpr2\mdf@innerlinewidth@length
3556       +\mdf@middlelinewidth@length\relax,
3557     dimen=middle,
3558     }}{%
3559 %
3560 \newsstyle{mdfmiddlelinestyle}{linestyle=none}%
3561 \newsstyle{mdfshadow}{shadow=true,shadowcolor=\mdf@shadowcolor,
3562   shadowsize=\mdf@shadowsize@length}%
3563 \ifdimgreater{\mdf@middlelinewidth@length}{\z@}%
3564   {\newsstyle{mdfmiddlelinestyle}{%
3565     linewidth=\mdf@middlelinewidth@length,%

```



```

3566     \linecolor=\mdf@middlelinecolor,dimen=middle
3567     }}}%
3568 \mdfpstricks@appendsettings
3569 }%
3570 %
3571 \newrobustcmd*\mdf@pstricksbox@fl[2]{%four lines
3572   \psframe[style=mdfouterlinestyle](#1)(#2)%ausen=3mm
3573   \psframe[style=mdfbackgroundstyle](#1)(#2)%Hintergrund
3574   \psclip{\psframe[style=mdfmiddlelinestyle](#1)(#2)}
3575   \psframe[style=mdfinnerlinestyle](#1)(#2)%innere=3mm
3576   \endpsclip
3577   \psframe[style=mdfmiddlelinestyle](#1)(#2)%mittlere=2mm
3578   }%
3579 \newrobustcmd*\mdf@pstricksbox@tl[1]{%three lines
3580   \psline[style=mdfouterlinestyle]#1%ausen=3mm
3581   \psline[style=mdfbackgroundstyle]#1%Hintergrund
3582   \psclip{\psline[style=mdfmiddlelinestyle]#1}
3583   \psline[style=mdfinnerlinestyle]#1%innere=3mm
3584   \endpsclip
3585   \psline[style=mdfmiddlelinestyle]#1%mittlere=2mm
3586   }%
3587 \newrobustcmd*\mdf@pstricksbox@tcl[2]{%two combined lines
3588   %%#1 background comple
3589   %%#2 line path
3590   \psline[style=mdfouterlinestyle]#2%ausen=3mm
3591   \psline[style=mdfbackgroundstyle]#2%Hintergrund
3592   \psclip{\pscustom[linestyle=none]{
3593     \psline[style=mdfmiddlelinestyle]#2
3594     \psline[linestyle=none,lineararc=0pt]#1}
3595   }
3596   \psframe[style=mdfbackgroundstyle,lineararc=0pt](mdf@0)(mdf@P)%Hintergrund
3597   \psline[style=mdfinnerlinestyle]#2%innere=3mm
3598   \endpsclip
3599   \psline[style=mdfmiddlelinestyle]#2%mittlere=2mm
3600   }%
3601 \newrobustcmd*\mdf@pstricksbox@tncl[2]{%two not combined lines
3602   \begingroup
3603   \psset{lineararc=0pt}
3604   \psline[style=mdfouterlinestyle](mdf@0)#1%ausen=3mm
3605   \psline[style=mdfouterlinestyle](mdf@P)#2%ausen=3mm
3606   \psclip{
3607     \pscustom[linestyle=none]{%
3608       \psline[style=mdfmiddlelinestyle](mdf@0)#1%mittlere=2mm
3609       \psline[linestyle=none](mdf@0)#2
3610       \psline[style=mdfmiddlelinestyle](mdf@P)#2%mittlere=2mm
3611       \psline[linestyle=none](mdf@P)#1
3612     }%
3613   }%
3614   \psframe[style=mdfbackgroundstyle,lineararc=0pt](mdf@0)(mdf@P)%Hintergrund
3615   \psline[style=mdfinnerlinestyle](mdf@0)#1%innere=3mm
3616   \psline[style=mdfinnerlinestyle](mdf@P)#2%innere=3mm
3617   \endpsclip
3618   \psline[style=mdfmiddlelinestyle](mdf@0)#1%mittlere=2mm
3619   \psline[style=mdfmiddlelinestyle](mdf@P)#2%mittlere=2mm
3620   \endgroup
3621   }%

```



```

3622 \newrobustcmd*\mdf@pstricksbox@ol[1]{%one line
3623 \beginpgroup
3624 \psset{linearc=0pt}
3625 \psline[style=mdfouterlinestyle]#1%ausen=3mm
3626 \psline[style=mdfbackgroundstyle]#1%Hintergrund
3627 \psclip{\pscustom[linestyle=none]{
3628     \psline[style=mdfmiddlelinestyle]#1
3629     \psframe[linestyle=none,fillstyle=none,dimen=inner](mdf@O)(mdf@P)
3630 }}
3631 \psframe[style=mdfbackgroundstyle](mdf@O)(mdf@P)
3632 \psline[style=mdfinnerlinestyle]#1%innere=3mm
3633 \endpsclip
3634 \psline[style=mdfmiddlelinestyle]#1%mittlere=2mm
3635 \endpgroup%
3636 }%
3637
3638 %
3639 \newpsstyle{mdfframetitrerule}{%
3640     linecolor=\mdf@frametitrerulecolor,%
3641     fillcolor=\mdf@frametitrerulecolor,%
3642     fillstyle=solid,dimen=outer,%
3643 }
3644 %

```

\mdf@put@frametitrerule

frametitrerule with pstricks

```

3645 \def\mdf@@frametitrerule{%
3646     \ifbool{mdf@frametitrerule}{%
3647         \vbox{\hsize0pt
3648             \par\unskip\vskip\mdf@frametitlebelowskip@length
3649             \noindent\rlap{%
3650                 \beginpgroup%
3651                 \begin{pspicture}(0,0)(0,\mdf@frametitrerulewidth@length)
3652                     \psframe[style=mdfframetitrerule]%
3653                     (!\ptTpsL{innerleftmargin} neg 0)%
3654                     (!\ptTpsL{innerrightmargin}
3655                     \ptTpsL{\mdfframetitleboxwidth} add
3656                     \ptTpsL{frametitrerulewidth})
3657                 \end{pspicture}
3658                 \endpgroup}%
3659             }%
3660         }{%
3661             \vbox{\hsize0pt
3662                 \par\unskip\vskip\mdf@frametitlebelowskip@length
3663                 \noindent\rlap{}
3664             }%
3665         }%
3666         \iftoggle{mdf@notfirstframetitle}%
3667         {%
3668             \par\unskip\vskip\mdf@splittopskip@length%
3669         }%
3670         {%
3671             \par\unskip\vskip\mdf@innertopmargin@length%
3672         }%

```



```

3673 }%
3674 %
3675 %
3676 %
3677 %
3678 %
3679 % \begin{macro}{mdfsubtitle}
3680 % Definition of the command \Cmd{mdfsubtitle}. Starting with the definition of
3681 % the tikz style for the rule above the subtitle.
3682 % \begin{macrocode}%
3683 \newpsstyle{mdfsubtitleaboverule}{%
3684   linecolor=\mdf@subtitleabovelinecolor,
3685   fillcolor=\mdf@subtitleabovelinecolor,
3686   fillstyle=solid,dimen=outer,%
3687 }
Definition of the default style of rule below the subtitle.
3688 \newpsstyle{mdfsubtitlebelowrule}{%
3689   linecolor=\mdf@subtitlebelowlinecolor,
3690   fillcolor=\mdf@subtitlebelowlinecolor,
3691   fillstyle=solid,dimen=outer,%
3692 }
Definition of the default style of the background of the subtitle.
3693 \newpsstyle{mdfsubtitlebackground}{%
3694   linecolor=\mdf@subtitlebackgroundcolor,
3695   fillcolor=\mdf@subtitlebackgroundcolor,
3696   fillstyle=solid,linestyle=none,
3697 }
Definition of the command \mdfsubtitle.
3698 \newrobustcmd\mdfsubtitle[2][]%
3699 {%
Make everything local.
3700 \begingroup
3701 \penalty-9995%set a breakpoint before the subtitle
3702 % \end{macrocode}
3703 % Inside the title we don't need any \Cmd{parindent}. Next set the options of
3704 % the optional argument of \Cmd{mdfsubtitle}.
3705 % \begin{macrocode}
3706 \parindent\z@ \relax%
3707 \mdfsetup{#1}%only for subtitle options
3708 % \end{macrocode}
3709 % Save the complete subtitle inside the save box \Cmd{z@}.
3710 % \begin{macrocode}
3711 \setbox\z@=\vbox{\mdf@subtitlefont{#2}\relax}%
3712 % \end{macrocode}
3713 % Compute the width of the current line including the inner left margin and
3714 % inner right margin (using \Cmd{dimen@}. In the next step the height and the
3715 % depth of the save box will be saved in \Cmd{dimen@i}.
3716 % \begin{macrocode}
3717 \dimen@=\linewidth \relax%
3718 \advance\dimen@ by \mdf@innerleftmargin@length \relax%
3719 \advance\dimen@ by \mdf@innerrightmargin@length \relax%
3720 \dimen@i=\mdf@subtitleinneraboveskip@length \relax%
3721 \advance\dimen@i by \mdf@subtitleinnerbelowskip@length \relax%
3722 \advance\dimen@i by \ht\z@ \relax%

```



```

3723 \advance\dimen@i by \dp\z@\relax%
3724 % \end{macrocode}
3725 % Test if rules should be drawn. otherwise set the line width to 0\,pt.
3726 % \begin{macrocode}
3727 \ifbool{mdf@subtitleaboveline}{}%
3728 {\mdfsetup{subtitleabovelinewidth=\z@}}%
3729 \ifbool{mdf@subtitlebelowline}{}%
3730 {\mdfsetup{subtitlebelowlinewidth=\z@}}%
3731 % \end{macrocode}
3732 % Start a new line with the given skip \Opt{subtitleaboveskip}.
3733 % \begin{macrocode}
3734 \par\unskip\ifvmode\nointerlineskip\hrule \@height\z@ \@width\hsize\fi%
3735 \vskip\mdf@subtitleaboveskip@length
3736 % \end{macrocode}
3737 % Drawing the above line of the subtitle.
3738 % \begin{macrocode}
3739 \rlap%
3740 {%
3741 \hspace*{-\mdf@innerleftmargin@length}%
3742 \begin{group}%
3743 \begin{pspicture}(0,0)(\dimen@,\mdf@subtitleabovelinewidth@length)
3744 \ifbool{mdf@subtitleaboveline}%
3745 {%
3746 \psframe[style=mdfsubtitleaboverule]%
3747 (0,0)(\dimen@,\mdf@subtitleabovelinewidth@length)%
3748 }{}
3749 \end{pspicture}
3750 \end{group}%
3751 }%
3752 % \end{macrocode}
3753 % space between rule above and subtitle
3754 % \begin{macrocode}
3755 \par\unskip\ifvmode\nointerlineskip\hrule \@height\z@ \@width\hsize\fi%
3756 \vskip\mdf@subtitleinneraboveskip@length
3757 % \end{macrocode}
3758 % output of subtitle with a background. Must think about the \Cmd{hspace}
3759 % combination.
3760 % \begin{macrocode}
3761 \hspace*{-\mdf@innerleftmargin@length}%
3762 \begin{pspicture}%
3763 (0,0)%
3764 (0,\ht\z@)%
3765 \psframe[style=mdfsubtitlebackground]%
3766 (0,\dimexpr-\dp\z@-\mdf@subtitleinnerbelowskip@length\relax)%
3767 (\dimen@,\dimen@i)
3768 \end{pspicture}
3769 \hspace*{+\mdf@innerleftmargin@length}%
3770 \box\z@\relax%
3771 % \end{macrocode}
3772 % Skip after subtitle
3773 % \begin{macrocode}
3774 \par\unskip\ifvmode\nointerlineskip\hrule \@height\z@ \@width\hsize\fi%
3775 \vskip\mdf@subtitleinnerbelowskip@length
3776 % \end{macrocode}
3777 % Draw rule below of the subtitle.
3778 % \begin{macrocode}

```



```

3779 \rlap%
3780 {%
3781 \hspace*{-\mdf@innerleftmargin@length}%
3782 \begingroup%
3783 \begin{pspicture}(0,0)(\dimen@,\mdf@subtitlebelowlinewidth@length)
3784 \ifbool{mdf@subtitlebelowline}%
3785 {%
3786 \psframe[style=mdf@subtitlebelowrule]%
3787 (0,0)(\dimen@,\mdf@subtitlebelowlinewidth@length)%
3788 }{}%
3789 \end{pspicture}
3790 \endgroup%
3791 }%
3792 % \end{macrocode}
3793 % Last skip and set a non breaking point.
3794 % \begin{macrocode}
3795 \par\unskip\ifvmode\nointerlineskip\hrule \@height\z@ \@width\hsize\fi%
3796 \vskip\mdf@subtitlebelowskip@length
3797 \penalty 9995
3798 \endgroup
3799 }
3800

```

`\mdfsubsubtitle`

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

```

3801 %
3802 \newpsstyle{mdfsubsubtitleaboverule}{%
3803   linecolor=\mdf@subtitleabovelinecolor,
3804   fillcolor=\mdf@subtitleabovelinecolor,
3805   fillstyle=solid,dimen=outer,%
3806 }

```

Definition of the default style of rule below the subtitle.

```

3807 \newpsstyle{mdfsubsubtitlebelowrule}{%
3808   linecolor=\mdf@subtitlebelowlinecolor,
3809   fillcolor=\mdf@subtitlebelowlinecolor,
3810   fillstyle=solid,dimen=outer,%
3811 }

```

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

```

3812 \newpsstyle{mdfsubsubtitlebackground}{%
3813   linecolor=\mdf@subtitlebackgroundcolor,
3814   fillcolor=\mdf@subtitlebackgroundcolor,
3815   fillstyle=solid,linestyle=none,
3816 }

```

Definition of the command `\mdfsubsubtitle`.

```

3817 \newrobustcmd{\mdfsubsubtitle}[2][]%
3818 {%

```

Make everything local.

```

3819 \begingroup
3820 \penalty-9995%set a breakpoint before the subsubtitle
3821 % \end{macrocode}
3822 % Inside the title we don't need any \Cmd{parindent}. Next set the options of
3823 % the optional argument of \Cmd{mdfsubsubtitle}.

```



```

3824 %      \begin{macrocode}
3825 \parindent\z@\relax%
3826 \mdfsetup{#1}%only for subsubtitle options
3827 %      \end{macrocode}
3828 % Save the complete subsubtitle inside the save box \Cmd{z@}.
3829 %      \begin{macrocode}
3830 \setbox\z@=\vbox{\mdf@subsubtitlefont{#2}\relax}%
3831 %      \end{macrocode}
3832 % Compute the width of the current line including the inner left margin and
3833 % inner right margin (using \Cmd{dimen@}. In the nest step the height and the
3834 % depth of the save box will be saved in \Cmd{dimen@i}.
3835 %      \begin{macrocode}
3836 \dimen@=\linewidth\relax%
3837 \advance\dimen@ by \mdf@innerleftmargin@length\relax%
3838 \advance\dimen@ by \mdf@innerrightmargin@length\relax%
3839 \dimen@i=\mdf@subsubtitleinneraboveskip@length\relax%
3840 \advance\dimen@i by \mdf@subsubtitleinnerbelowskip@length\relax%
3841 \advance\dimen@i by \ht\z@\relax%
3842 \advance\dimen@i by \dp\z@\relax%
3843 %      \end{macrocode}
3844 % Test if rules should be drawn. otherwise set the line width to 0\,pt.
3845 %      \begin{macrocode}
3846 \ifbool{mdf@subsubtitleaboveline}{}%
3847     {\mdfsetup{subsubtitleabovelinewidth=\z@}}%
3848 \ifbool{mdf@subsubtitlebelowline}{}%
3849     {\mdfsetup{subsubtitlebelowlinewidth=\z@}}%
3850 %      \end{macrocode}
3851 % Start a new line with the given skip \Opt{subsubtitleaboveskip}.
3852 %      \begin{macrocode}
3853 \par\unskip\ifvmode\nointerlineskip\hrule \@height\z@ \@width\hsize\fi%
3854 \vskip\mdf@subsubtitleaboveskip@length
3855 %      \end{macrocode}
3856 % Drawing the above line of the subsubtitle.
3857 %      \begin{macrocode}
3858 \rlap%
3859 {%
3860   \hspace*{-\mdf@innerleftmargin@length}%
3861   \begin{group}%
3862     \begin{pspicture}(0,0)(\dimen@,\mdf@subsubtitleabovelinewidth@length)
3863       \ifbool{mdf@subsubtitleaboveline}%
3864         {%
3865           \psframe[style=mdfsubsubtitleaboverule]%
3866             (0,0)(\dimen@,\mdf@subsubtitleabovelinewidth@length)%
3867         }{}
3868       \end{pspicture}
3869     \end{group}%
3870   }%
3871 %      \end{macrocode}
3872 % space between rule above and subsubtitle
3873 %      \begin{macrocode}
3874 \par\unskip\ifvmode\nointerlineskip\hrule \@height\z@ \@width\hsize\fi%
3875 \vskip\mdf@subsubtitleinneraboveskip@length
3876 %      \end{macrocode}
3877 % output of subsubtitle with a background. Must think about the \Cmd{hspace}
3878 % combination.
3879 %      \begin{macrocode}

```



```

3880 \hspace*{-\mdf@innerleftmargin@length}%
3881 \begin{pspicture}(0,-\dp\z@)(0,\dimen@i
3882 \begin{pspicture}%
3883 (0,0)%
3884 (0,\ht\z@)
3885 \psframe[style=mdfsubsubtitlebackground]%
3886 (0,\dimexpr-\dp\z@-\mdf@subsubtitleinnerbelowskip@length\relax)%
3887 (\dimen@,\dimen@i)
3888 \end{pspicture}
3889 \hspace*{+\mdf@innerleftmargin@length}%
3890 \box\z@\relax%
3891 % \end{macrocode}
3892 % Skip after subsubtitle
3893 % \begin{macrocode}
3894 \par\unskip\ifvmode\nointerlineskip\hrule \@height\z@ \@width\hsize\fi%
3895 \vskip\mdf@subsubtitleinnerbelowskip@length
3896 % \end{macrocode}
3897 % Draw rule below of the subsubtitle.
3898 % \begin{macrocode}
3899 \rlap%
3900 {%
3901 \hspace*{-\mdf@innerleftmargin@length}%
3902 \begin{group}%
3903 \begin{pspicture}(0,0)(\dimen@,\mdf@subsubtitlebelowlinewidth@length)
3904 \ifbool{mdf@subsubtitlebelowline}%
3905 {%
3906 \psframe[style=mdfsubsubtitlebelowrule]%
3907 (0,0)(\dimen@,\mdf@subsubtitlebelowlinewidth@length)%
3908 }{}%
3909 \end{pspicture}
3910 \end{group}%
3911 }%
3912 % \end{macrocode}
3913 % Last skip and set a non breaking point.
3914 % \begin{macrocode}
3915 \par\unskip\ifvmode\nointerlineskip\hrule \@height\z@ \@width\hsize\fi%
3916 \vskip\mdf@subsubtitlebelowskip@length
3917 \penalty 9995
3918 \endgroup
3919 }
3920

```

`\mdf@putbox@single`

Single output

```

3921 % Info zu den verwendeten Punkten:
3922 % 0 ist die untere linke Ecke der Mitte der middleline
3923 % P ist die obere rechte Ecke der Mitte der middleline
3924 % A ist der Punkt fuer den anchor (d.h. die untere linke Ecke) der Ausgabebox
3925 \def\mdf@putbox@single{%
3926 \ifvoid\mdf@splitbox@one\relax
3927 \else%
3928 \mdf@makebox@out{%
3929 \mdf@makeboxalign@left%
3930 \setlength\mdf@boundingboxwidth{\wd\mdf@splitbox@one}%

```



```

3931 \advance\mdfboundingboxwidth by \mdf@innerleftmargin@length\relax%
3932 \advance\mdfboundingboxwidth by \mdf@innerrightmargin@length\relax%
3933 \ifbool{mdf@leftline}{%
3934   \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
3935   \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
3936   \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}}{%
3937 \ifbool{mdf@rightline}{%
3938   \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
3939   \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
3940   \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}}}%
3941 %
3942 \setlength\mdfboundingboxheight%
3943   {\dimexpr\ht\mdf@splitbox@one+\dp\mdf@splitbox@one\relax}%
3944 \advance\mdfboundingboxheight by \mdf@innerbottommargin@length\relax%
3945 \advance\mdfboundingboxheight by \mdf@innertopmargin@length\relax%
3946 \ifbool{mdf@topline}{%
3947   \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
3948   \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
3949   \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}}{%
3950 \ifbool{mdf@bottomline}{%
3951   \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
3952   \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
3953   \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}}}%
3954 %
3955 \setlength\mdftotallinewidth{\dimexpr\mdf@innerlinewidth@length%
3956                               +\mdf@middlelinewidth@length
3957                               +\mdf@outerlinewidth@length\relax}%
3958 \psset{unit=1truecm}%
3959 \mdf@makebox@in[\mdfboundingboxwidth]{%
3960   \null%
3961   \begin{pspicture}(0,0)(\mdfboundingboxwidth,\mdfboundingboxheight)
3962     \mdfpstricks@settings%
3963     \psset{lineararc=\mdf@roundcorner@length, cornersize=absolut,}%
3964     \expandafter\psset\expandafter{\mdf@psset@local}%
3965     \pnode(\mdf@innerleftmargin@length,\mdf@innerbottommargin@length)
3966       {mdf@A}
3967     \pnode(0,0){mdf@0}
3968     \pnode(\mdfboundingboxwidth,\mdfboundingboxheight){mdf@P}
3969     \ifbool{mdf@leftline}{%
3970       {%
3971         \nodexn{(\mdf@A)+(\mdf@outerlinewidth@length,0)
3972               +(\mdf@middlelinewidth@length,0)
3973               +(\mdf@innerlinewidth@length,0)}}{mdf@A}%
3974         \nodexn{(\mdf@0)+(\mdf@outerlinewidth@length,0)
3975               +0.5(\mdf@middlelinewidth@length,0)}}{mdf@0}%
3976       }{}%
3977     \ifbool{mdf@rightline}{%
3978       {%
3979         \nodexn{(\mdf@P)-(\mdf@outerlinewidth@length,0)
3980               -0.5(\mdf@middlelinewidth@length,0)}}{mdf@P}%
3981       }{}%
3982     \ifbool{mdf@bottomline}{%
3983       {%
3984         \nodexn{(\mdf@A)+(0,\mdf@outerlinewidth@length)
3985               +(0,\mdf@middlelinewidth@length)
3986               +(0,\mdf@innerlinewidth@length)}}{mdf@A}%

```



```

3987      \nodexn{(mdf@0)+(0,\mdf@outerlinewidth@length)
3988              +0.5(0,\mdf@middlelinewidth@length)}{mdf@0}%
3989      }{}%
3990  \ifbool{mdf@topline}%
3991  {%
3992      \nodexn{(mdf@P)-(0,\mdf@outerlinewidth@length)
3993              -0.5(0,\mdf@middlelinewidth@length)}{mdf@P}
3994      }{}%
3995  \ifbool{mdf@shadow}
3996      {\psframe[style=mdfshadow](mdf@0)(mdf@P)}{}
3997  %
3998  %Four lines
3999      \mdf@test@lrb{\mdf@pstricksbox@fl{mdf@0}{mdf@P}}{}
4000  %three lines
4001      \mdf@test@ltb{%
4002          \mdf@pstricksbox@tl{(mdf@P|mdf@0)(mdf@0)(mdf@0|mdf@P)(mdf@P)}{}
4003      \mdf@test@trb{%
4004          \mdf@pstricksbox@tl{(mdf@0)(mdf@P|mdf@0)(mdf@P)(mdf@0|mdf@P)}{}
4005      \mdf@test@ltr{%
4006          \mdf@pstricksbox@tl{(mdf@0)(mdf@0|mdf@P)(mdf@P)(mdf@P|mdf@0)}{}%
4007      \mdf@test@lrb{%
4008          \mdf@pstricksbox@tl{(mdf@0|mdf@P)(mdf@0)(mdf@P|mdf@0)(mdf@P)}{}%
4009  %two lines combined
4010      \mdf@test@lb{\mdf@pstricksbox@tcl%
4011                  {(mdf@P|mdf@0)(mdf@P)(mdf@0|mdf@P)}%
4012                  {(mdf@0|mdf@P)(mdf@0)(mdf@P|mdf@0)}{}
4013      \mdf@test@rb{\mdf@pstricksbox@tcl%
4014                  {(mdf@P)(mdf@0|mdf@P)(mdf@0)}%
4015                  {(mdf@0)(mdf@P|mdf@0)(mdf@P)}{}
4016      \mdf@test@tr{\mdf@pstricksbox@tcl%
4017                  {(mdf@P|mdf@0)(mdf@0)(mdf@0|mdf@P)}%
4018                  {(mdf@0|mdf@P)(mdf@P)(mdf@P|mdf@0)}{}
4019      \mdf@test@lt{\mdf@pstricksbox@tcl%
4020                  {(mdf@0)(mdf@P|mdf@0)(mdf@P)}%
4021                  {(mdf@0)(mdf@0|mdf@P)(mdf@P)}{}
4022  %two lines not combined combined
4023      \mdf@test@lr{\mdf@pstricksbox@tncl{(mdf@0|mdf@P)}{(mdf@P|mdf@0)}
4024                  {}}
4025      \mdf@test@tb{\mdf@pstricksbox@tncl{(mdf@P|mdf@0)}{(mdf@0|mdf@P)}
4026                  {}}
4027  %single line
4028      \mdf@test@l{\mdf@pstricksbox@ol{(mdf@0)(mdf@0|mdf@P)}{}
4029      \mdf@test@r{\mdf@pstricksbox@ol{(mdf@P)(mdf@P|mdf@0)}{}
4030      \mdf@test@t{\mdf@pstricksbox@ol{(mdf@P)(mdf@0|mdf@P)}{}
4031      \mdf@test@b{\mdf@pstricksbox@ol{(mdf@0)(mdf@P|mdf@0)}{}
4032  %no line
4033      \mdf@test@noline{\psframe[style=mdfbackgroundstyle](mdf@0)(mdf@P)}{}
4034  %
4035  %Frametitlebackground
4036      \drawbackgroundframetitle@single
4037  %output%
4038      \rput[bl](mdf@A){\box\mdf@splitbox@one}
4039  %
4040  %
4041  %
4042  %

```



```

4043 %          \endpsclip
4044          \mdf@singleextra
4045          \end{pspicture}%
4046      }%
4047      \mdf@makeboxalign@right%
4048  }%
4049 \fi
4050 }%
4051 \def\drawbackgroundframetitle@single{%
4052 \ifdefempty{\mdf@frametitle}{\}%
4053   \drawbackgroundframetitle@@single%
4054 }%
4055 }%
4056 \def\drawbackgroundframetitle@@single{%
4057 \begingroup%
4058   \ifbool{mdf@leftline}{%
4059     \nodexn{(\mdf@0)+(\mdf@innerlinewidth@length,0)
4060             +0.5(\mdf@middlelinewidth@length,0)}{\mdf@0}%
4061     }{}%
4062   \ifbool{mdf@rightline}{%
4063     \nodexn{(\mdf@P)-(\mdf@innerlinewidth@length,0)
4064             -0.5(\mdf@middlelinewidth@length,0)}{\mdf@P}%
4065     }{}%
4066   \ifbool{mdf@topline}{%
4067     \nodexn{(\mdf@P)-(0,\mdf@innerlinewidth@length)
4068             -0.5(0,\mdf@middlelinewidth@length)}{\mdf@P}%
4069     }{}%
4070   \nodexn{(\mdf@P)-(0,\mdfframetitleboxtotalheight)}{\mdf@F}%
4071   \psline[style=mdfframetitlebackgroundstyle](mdf@0|mdf@F)(mdf@0|mdf@P)
4072                                     (mdf@P)(mdf@P|mdf@F)%
4073 \endgroup
4074 }

```

`\mdf@putbox@first`

First output

```

4075 \def\mdf@putbox@first{%
4076   \ifvoid\mdf@splitbox@two
4077   \else%
4078     \mdf@makebox@out{%
4079       \mdf@makeboxalign@left%
4080       %\ifbool{mdf@leftline}{\hspace*{\mdf@middlelinewidth@length}}{}%
4081       \setlength\mdfboundingboxwidth{\wd\mdf@splitbox@two}%
4082       \advance\mdfboundingboxwidth by \mdf@innerleftmargin@length\relax%
4083       \advance\mdfboundingboxwidth by \mdf@innerrightmargin@length\relax%
4084       \ifbool{mdf@leftline}{%
4085         \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
4086         \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
4087         \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}%{}%
4088       \ifbool{mdf@rightline}{%
4089         \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
4090         \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
4091         \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}%{}%
4092       \setlength\mdfboundingboxheight%
4093         {\dimexpr\ht\mdf@splitbox@two+\dp\mdf@splitbox@two\relax}%

```



```

4094 \advance\mdfboundingboxheight by \mdf@innertopmargin@length\relax%
4095 \advance\mdfboundingboxheight by \mdf@splitbottomskip@length\relax%
4096 \ifbool{mdf@topline}{%
4097   \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
4098   \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
4099   \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}{}%
4100 %%%%%%%%%%
4101 \ifbool{mdf@everyline}{%
4102   \ifbool{mdf@bottomline}{%
4103     \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
4104     \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
4105     \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}{}%
4106   }{}%
4107 %%%%%%%%%%
4108 \psset{linear=\mdf@roundcorner@length, cornersize=absolute}%
4109 \expandafter\psset\expandafter{\mdf@psset@local}%
4110 \mdf@makebox@in[\mdfboundingboxwidth]{%
4111   \null%
4112   \psset{unit=1truecm}%
4113   \ifdimgreater{\mdfboundingboxheight}{\vsize}
4114     {\begin{pspicture}(0,0)(\mdfboundingboxwidth,\vsize)}
4115     {\begin{pspicture}(0,0)(\mdfboundingboxwidth,\mdfboundingboxheight)}
4116     \mdfpstricks@settings%
4117     \psset{linear=\mdf@roundcorner@length, cornersize=absolut,%
4118     \expandafter\psset\expandafter{\mdf@psset@local}%
4119     \pnode(\mdf@innerleftmargin@length,\mdf@splitbottomskip@length){mdf@A}
4120     \pnode(0,0){mdf@0}
4121     \pnode(\mdfboundingboxwidth,\mdfboundingboxheight){mdf@P}
4122     \ifbool{mdf@leftline}{%
4123       {%
4124         \nodexn{(\mdf@A)+(\mdf@outerlinewidth@length,0)
4125               +(\mdf@middlelinewidth@length,0)
4126               +(\mdf@innerlinewidth@length,0)}{mdf@A}
4127         \nodexn{(\mdf@0)+(\mdf@outerlinewidth@length,0)
4128               +0.5(\mdf@middlelinewidth@length,0)}{mdf@0}
4129       }{}%
4130     \ifbool{mdf@rightline}{%
4131       {%
4132         \nodexn{(\mdf@P)-(\mdf@outerlinewidth@length,0)
4133               -0.5(\mdf@middlelinewidth@length,0)}{mdf@P}
4134       }{}%
4135     \ifbool{mdf@topline}{%
4136       {%
4137         \nodexn{(\mdf@P)-(0,\mdf@outerlinewidth@length)
4138               -0.5(0,\mdf@middlelinewidth@length)}{mdf@P}
4139       }{}%
4140 %%%%%%%%%%
4141     \ifbool{mdf@everyline}{%
4142       \ifbool{mdf@bottomline}{%
4143         {%
4144           \nodexn{(\mdf@A)+(0,\mdf@outerlinewidth@length)
4145                 +(0,\mdf@middlelinewidth@length)
4146                 +(0,\mdf@innerlinewidth@length)}{mdf@A}%
4147           \nodexn{(\mdf@0)+(0,\mdf@outerlinewidth@length)
4148                 +0.5(0,\mdf@middlelinewidth@length)}{mdf@0}%
4149         }{}%

```



```

4150     }{}%
4151 %%%%%%%%%%
4152     \ifbool{mdf@shadow}
4153     { \pscustom[style=mdfshadow,linestyle=none]{%
4154         \psline[linejoin=2,linecap=1,]%
4155             (mdf@P|mdf@0)(mdf@P)(mdf@0|mdf@P)%
4156         \psline[linejoin=2,linecap=1,lineararc=\z@]%
4157             (mdf@0|mdf@P)(mdf@0)(mdf@P|mdf@0)
4158         \closedshadow
4159     }
4160     }{}
4161 %     \psclip{
4162 %%%%%%%%%%
4163     \ifbool{mdf@everyline}{%
4164         %Four lines
4165         \mdf@test@lrb{\mdf@pstricksbox@fl{mdf@0}{mdf@P}}{}
4166         %three lines
4167         \mdf@test@ltb{%
4168             \mdf@pstricksbox@tl{(mdf@P|mdf@0)(mdf@0)(mdf@0|mdf@P)(mdf@P)}}{}
4169         \mdf@test@trb{%
4170             \mdf@pstricksbox@tl{(mdf@0)(mdf@P|mdf@0)(mdf@P)(mdf@0|mdf@P)}}{}
4171         \mdf@test@ltr{%
4172             \mdf@pstricksbox@tl{(mdf@0)(mdf@0|mdf@P)(mdf@P)(mdf@P|mdf@0)}}{}%
4173         \mdf@test@lrb{%
4174             \mdf@pstricksbox@tl{(mdf@0|mdf@P)(mdf@0)(mdf@P|mdf@0)(mdf@P)}}{}%
4175         %two lines combined
4176         \mdf@test@lb{\mdf@pstricksbox@tcl%
4177             {(mdf@P|mdf@0)(mdf@P)(mdf@0|mdf@P)}%
4178             {(mdf@0|mdf@P)(mdf@0)(mdf@P|mdf@0)}}{}
4179         \mdf@test@rb{\mdf@pstricksbox@tcl%
4180             {(mdf@P)(mdf@0|mdf@P)(mdf@0)}%
4181             {(mdf@0)(mdf@P|mdf@0)(mdf@P)}}{}
4182         \mdf@test@tr{\mdf@pstricksbox@tcl%
4183             {(mdf@P|mdf@0)(mdf@0)(mdf@0|mdf@P)}%
4184             {(mdf@0|mdf@P)(mdf@P)(mdf@P|mdf@0)}}{}
4185         \mdf@test@lt{\mdf@pstricksbox@tcl%
4186             {(mdf@0)(mdf@P|mdf@0)(mdf@P)}%
4187             {(mdf@0)(mdf@0|mdf@P)(mdf@P)}}{}
4188         %two lines not combined combined
4189         \mdf@test@lr{\mdf@pstricksbox@tncl{(mdf@0|mdf@P)}{(mdf@P|mdf@0)}}
4190             {}
4191         \mdf@test@tb{\mdf@pstricksbox@tncl{(mdf@P|mdf@0)}{(mdf@0|mdf@P)}}
4192             {}
4193         %single line
4194         \mdf@test@l{\mdf@pstricksbox@ol{(mdf@0)(mdf@0|mdf@P)}}{}
4195         \mdf@test@r{\mdf@pstricksbox@ol{(mdf@P)(mdf@P|mdf@0)}}{}
4196         \mdf@test@t{\mdf@pstricksbox@ol{(mdf@P)(mdf@0|mdf@P)}}{}
4197         \mdf@test@b{\mdf@pstricksbox@ol{(mdf@0)(mdf@P|mdf@0)}}{}
4198         %no line
4199         \mdf@test@noline{\psframe[style=mdfbackgroundstyle](mdf@0)(mdf@P)}}{}%
4200     }{}
4201     %Four or Three lines
4202     \ifboolexpr{test {\mdf@test@lrb} or test {\mdf@test@ltr}}%
4203         {\mdf@pstricksbox@tl{(mdf@0)(mdf@0|mdf@P)(mdf@P)(mdf@P|mdf@0)}}{}%
4204         {}%
4205     %two combined lines

```



```

4206 \ifboolexpr{test {\mdf@test@ltb} or test {\mdf@test@lt}}%
4207     {\mdf@pstricksbox@tcl{(mdf@0)(mdf@P|mdf@0)(mdf@P)}%
4208         {(mdf@0)(mdf@0|mdf@P)(mdf@P)}}{}%
4209 \ifboolexpr{test {\mdf@test@trb} or test {\mdf@test@tr}}%
4210     {\mdf@pstricksbox@tcl{(mdf@P|mdf@0)(mdf@0)(mdf@0|mdf@P)}%
4211         {(mdf@0|mdf@P)(mdf@P)(mdf@P|mdf@0)}}{}%
4212 %two not combined lines
4213 \ifboolexpr{test {\mdf@test@lrb} or test {\mdf@test@lr}}%
4214     {\mdf@pstricksbox@tncl{(mdf@0|mdf@P)}{(mdf@P|mdf@0)}}{}%
4215 %single line
4216 \ifboolexpr{test {\mdf@test@tb} or test {\mdf@test@t}}%
4217     {\mdf@pstricksbox@ol{(mdf@P)(mdf@0|mdf@P)}}{}%
4218 \ifboolexpr{test {\mdf@test@lb} or test {\mdf@test@l}}%
4219     {\mdf@pstricksbox@ol{(mdf@0)(mdf@0|mdf@P)}}{}%
4220 \ifboolexpr{test {\mdf@test@rb} or test {\mdf@test@r}}%
4221     {\mdf@pstricksbox@ol{(mdf@P)(mdf@P|mdf@0)}}{}%
4222 %no line
4223 \mdf@test@b{\psframe[style=mdfbackgroundstyle](mdf@0)(mdf@P)}{}%
4224 \mdf@test@noline{\psframe[style=mdfbackgroundstyle](mdf@0)(mdf@P)}{}%
4225 }%
4226 %
4227 %Frametitlebackground
4228 \drawbackgroundframetitle@first
4229 %output%
4230 \rput[bl](mdf@A){\box\mdf@splitbox@two}
4231 % \psdot(mdf@A)\uput[90](mdf@A){mdf at A}
4232 % \psdot(mdf@P)\uput[90](mdf@P){mdf at P}
4233 % \psdot(mdf@0)\uput[90](mdf@0){mdf at 0}
4234 % \endpsclip
4235 \mdf@firstextra
4236 \end{pspicture}
4237 }%
4238 \mdf@makeboxalign@right%
4239 }%
4240 \fi
4241 }%
4242 \def\drawbackgroundframetitle@first{%
4243 \ifdefempty{\mdf@frametitle}}{}%
4244 {%
4245 \ifbool{mdf@repeatframetitle}%
4246 {%repeating title = true
4247 \drawbackgroundframetitle@@@first
4248 }%
4249 {%
4250 \ifdimgreater{\mdfboundingboxheight}{\mdfframetitleboxtotalheight}%
4251 {%
4252 \drawbackgroundframetitle@@first
4253 \global\mdfframetitleboxtotalheight=-\p@%
4254 }{\mdf@PackageWarning{You got a page break inside the frame
4255 title\MessageBreak
4256 Currently this isn't well supported}%
4257 \drawbackgroundframetitle@@first
4258 \global\mdfframetitleboxtotalheight=\dimexpr
4259 \mdfframetitleboxtotalheight
4260 -\mdfboundingboxheight
4261 -\mdf@innerlinewidth@length

```



```

4262             -0.5\mdf@middlelinewidth@length%
4263             +\mdf@frametitlebelowskip@length
4264             +\mdf@splitbottomskip@length
4265             +\mdf@splittopskip@length
4266             +\dp\strutbox\relax%
4267         }%
4268     }%
4269 }%
4270 }%
4271 \def\drawbackgroundframetitle@@first{%
4272 \begingroup%
4273 \ifbool{mdf@leftline}{%
4274     \nodexn{(mdf@0)+(\mdf@innerlinewidth@length,0)
4275             +0.5(\mdf@middlelinewidth@length,0)}{mdf@0}%
4276     }{}%
4277 \ifbool{mdf@rightline}{%
4278     \nodexn{(mdf@P)-(\mdf@innerlinewidth@length,0)
4279             -0.5(\mdf@middlelinewidth@length,0)}{mdf@P}%
4280     }{}%
4281 \ifbool{mdf@topline}{%
4282     \nodexn{(mdf@P)-(0,\mdf@innerlinewidth@length)
4283             -0.5(0,\mdf@middlelinewidth@length)}{mdf@P}%
4284     }{}%
4285 \ifdimgreater{\mdfboundingboxheight}{\mdfframetitleboxtotalheight}
4286     {\nodexn{(mdf@P)-(0,\mdfframetitleboxtotalheight)}{mdf@F}}%
4287     {\nodexn{(mdf@0)}{mdf@F}}%
4288 \psline[style=mdfframetitlebackgroundstyle](mdf@0|mdf@F)(mdf@0|mdf@P)
4289                                             (mdf@P)(mdf@P|mdf@F)%
4290 \endgroup
4291 }
4292 \def\drawbackgroundframetitle@@@first{%
4293 \begingroup%
4294 \ifbool{mdf@leftline}{%
4295     \nodexn{(mdf@0)+(\mdf@innerlinewidth@length,0)
4296             +0.5(\mdf@middlelinewidth@length,0)}{mdf@0}%
4297     }{}%
4298 \ifbool{mdf@rightline}{%
4299     \nodexn{(mdf@P)-(\mdf@innerlinewidth@length,0)
4300             -0.5(\mdf@middlelinewidth@length,0)}{mdf@P}%
4301     }{}%
4302 \ifbool{mdf@topline}{%
4303     \nodexn{(mdf@P)-(0,\mdf@innerlinewidth@length)
4304             -0.5(0,\mdf@middlelinewidth@length)}{mdf@P}%
4305     }{}%
4306 \nodexn{(mdf@P)-(0,\mdfframetitleboxtotalheight)}{mdf@F}%
4307 \psline[style=mdfframetitlebackgroundstyle](mdf@0|mdf@F)(mdf@0|mdf@P)
4308                                             (mdf@P)(mdf@P|mdf@F)%
4309 \endgroup
4310 }

```

\mdf@putbox@middle

Middle output

```

4311 \def\mdf@putbox@middle{%
4312 \ifvoid\mdf@splitbox@two

```



```

4313 \else%
4314 \mdf@makebox@out{%
4315 \mdf@makebox@align@left%
4316 % \ifbool{mdf@leftline}{\hspace*{\mdf@middlelinewidth@length}}{}%
4317 \setlength\mdfboundingboxwidth{\wd\mdf@splitbox@two}%
4318 \advance\mdfboundingboxwidth by \mdf@innerleftmargin@length\relax%
4319 \advance\mdfboundingboxwidth by \mdf@innerrightmargin@length\relax%
4320 \ifbool{mdf@leftline}{%
4321 \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
4322 \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
4323 \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}}{}%
4324 \ifbool{mdf@rightline}{%
4325 \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
4326 \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
4327 \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}}{}%
4328 \setlength\mdfboundingboxheight%
4329 {\dimexpr\ht\mdf@splitbox@two+\dp\mdf@splitbox@two\relax}%
4330 \advance\mdfboundingboxheight by \mdf@splitbottomskip@length\relax%
4331 %%%%%%%%%%
4332 \ifbool{mdf@everyline}{%
4333 \ifbool{mdf@topline}{%
4334 \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
4335 \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
4336 \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}}{}%
4337 \ifbool{mdf@bottomline}{%
4338 \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
4339 \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
4340 \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}}{}%
4341 }{}%
4342 %%%%%%%%%%
4343 \psset{unit=1truecm}%
4344 \mdf@makebox@in[\mdfboundingboxwidth]{%
4345 \null%
4346 \ifdimgreater{\mdfboundingboxheight}{\vsize}
4347 {\begin{pspicture}(0,0)(\mdfboundingboxwidth,\vsize)}
4348 {\begin{pspicture}(0,0)(\mdfboundingboxwidth,\mdfboundingboxheight)}
4349 \mdfpstricks@settings%
4350 \psset{lineararc=0pt, cornersize=absolut,}%
4351 \expandafter\psset\expandafter{\mdf@psset@local}%
4352 %%%%
4353 \pnode(\mdf@innerleftmargin@length,\mdf@splitbottomskip@length){mdf@A}
4354 \pnode(0,0){mdf@0}
4355 \pnode(\mdfboundingboxwidth,\mdfboundingboxheight){mdf@P}
4356 \ifbool{mdf@leftline}{%
4357 {%
4358 \nodexn{(mdf@A)+(\mdf@outerlinewidth@length,0)
4359 +(\mdf@middlelinewidth@length,0)
4360 +(\mdf@innerlinewidth@length,0)}}{mdf@A}
4361 \nodexn{(mdf@0)+(\mdf@outerlinewidth@length,0)
4362 +0.5(\mdf@middlelinewidth@length,0)}}{mdf@0}
4363 }{}%
4364 \ifbool{mdf@rightline}{%
4365 {%
4366 \nodexn{(mdf@P)-(\mdf@outerlinewidth@length,0)
4367 -0.5(\mdf@middlelinewidth@length,0)}}{mdf@P}
4368 }{}%

```



```

4369      %%
4370      %%%%%%%%%%
4371      \ifbool{mdf@everyline}{%
4372      \ifbool{mdf@bottomline}%
4373      {%
4374      \nodexn{(mdf@A)+(0,\mdf@outerlinewidth@length)
4375      +(0,\mdf@middlelinewidth@length)
4376      +(0,\mdf@innerlinewidth@length)}}{mdf@A}%
4377      \nodexn{(mdf@0)+(0,\mdf@outerlinewidth@length)
4378      +0.5(0,\mdf@middlelinewidth@length)}}{mdf@0}%
4379      }{}%
4380      \ifbool{mdf@topline}%
4381      {%
4382      \nodexn{(mdf@P)-(0,\mdf@outerlinewidth@length)
4383      -0.5(0,\mdf@middlelinewidth@length)}}{mdf@P}
4384      }{}%
4385      }{}%
4386      %%%%%%%%%%
4387      %%
4388      \ifbool{mdf@shadow}
4389      {\psframe[style=mdfshadow](mdf@0)(mdf@P)}{}
4390      %%%%%%%%%%
4391      \ifbool{mdf@everyline}{%
4392      %Four lines
4393      \mdf@test@lrb{\mdf@pstricksbox@fl{mdf@0}{mdf@P}}{}
4394      %three lines
4395      \mdf@test@ltb{%
4396      \mdf@pstricksbox@tl{(mdf@P|mdf@0)(mdf@0)(mdf@0|mdf@P)(mdf@P)}}{}
4397      \mdf@test@trb{%
4398      \mdf@pstricksbox@tl{(mdf@0)(mdf@P|mdf@0)(mdf@P)(mdf@0|mdf@P)}}{}
4399      \mdf@test@ltr{%
4400      \mdf@pstricksbox@tl{(mdf@0)(mdf@0|mdf@P)(mdf@P)(mdf@P|mdf@0)}}{}%
4401      \mdf@test@lrb{%
4402      \mdf@pstricksbox@tl{(mdf@0|mdf@P)(mdf@0)(mdf@P|mdf@0)(mdf@P)}}{}%
4403      %two lines combined
4404      \mdf@test@lb{\mdf@pstricksbox@tcl%
4405      {(mdf@P|mdf@0)(mdf@P)(mdf@0|mdf@P)}%
4406      {(mdf@0|mdf@P)(mdf@0)(mdf@P|mdf@0)}}{}
4407      \mdf@test@rb{\mdf@pstricksbox@tcl%
4408      {(mdf@P)(mdf@0|mdf@P)(mdf@0)}%
4409      {(mdf@0)(mdf@P|mdf@0)(mdf@P)}}{}
4410      \mdf@test@tr{\mdf@pstricksbox@tcl%
4411      {(mdf@P|mdf@0)(mdf@0)(mdf@0|mdf@P)}%
4412      {(mdf@0|mdf@P)(mdf@P)(mdf@P|mdf@0)}}{}
4413      \mdf@test@lt{\mdf@pstricksbox@tcl{(mdf@0)(mdf@P|mdf@0)(mdf@P)}%
4414      {(mdf@0)(mdf@0|mdf@P)(mdf@P)}}{}
4415      %two lines not combined
4416      \mdf@test@lr{\mdf@pstricksbox@tncl{(mdf@0|mdf@P)}{(mdf@P|mdf@0)}
4417      }{}
4418      \mdf@test@tb{\mdf@pstricksbox@tncl{(mdf@P|mdf@0)}{(mdf@0|mdf@P)}
4419      }{}
4420      %single line
4421      \mdf@test@l{\mdf@pstricksbox@ol{(mdf@0)(mdf@0|mdf@P)}}{}
4422      \mdf@test@r{\mdf@pstricksbox@ol{(mdf@P)(mdf@P|mdf@0)}}{}
4423      \mdf@test@t{\mdf@pstricksbox@ol{(mdf@P)(mdf@0|mdf@P)}}{}
4424      \mdf@test@b{\mdf@pstricksbox@ol{(mdf@0)(mdf@P|mdf@0)}}{}

```



```

4425      %no line
4426      \mdf@test@noline{\psframe[style=mdfbackgroundstyle](mdf@0)(mdf@P)}{}%
4427  }{%
4428      \ifboolexpr{bool {mdf@leftline} and bool {mdf@rightline}}%
4429          {\mdf@pstricksbox@tncl{(mdf@0|mdf@P)}{(mdf@P|mdf@0)}}{}%
4430      \ifboolexpr{bool {mdf@leftline} and not (bool {mdf@rightline})}%
4431          {\mdf@pstricksbox@ol{(mdf@0)(mdf@0|mdf@P)}}{}%
4432      \ifboolexpr{not (bool {mdf@leftline}) and bool {mdf@rightline}}%
4433          {\mdf@pstricksbox@ol{(mdf@P)(mdf@P|mdf@0)}}{}%
4434      \ifboolexpr{not (bool {mdf@leftline}) and not (bool {mdf@rightline})}%
4435          {\psframe[style=mdfbackgroundstyle](mdf@0)(mdf@P)}{}%
4436  }%
4437  %Frametitlebackground
4438      \drawbackgroundframetitle@middle
4439  %output%
4440      \rput[bl](mdf@A){\box\mdf@splitbox@two}
4441      %\psdot(mdf@A)\uput[90](mdf@A){mdf at A}
4442      %\psdot(mdf@P)\uput[90](mdf@P){mdf at P}
4443      %\psdot(mdf@0)\uput[90](mdf@0){mdf at 0}
4444      \mdf@middleextra
4445      \end{pspicture}%
4446  }%
4447      \mdf@makeboxalign@right%
4448  }%
4449  \fi
4450 }%
4451 \def\drawbackgroundframetitle@middle{%
4452 \ifdefempty{\mdf@frametitle}{}%
4453 {%
4454     \ifbool{mdf@repeatframetitle}%
4455     {%repeating title = true
4456         \drawbackgroundframetitle@@@middle
4457     }%
4458     {%
4459         \ifdimless{\mdfframetitleboxtotalheight}{\z@}
4460             {}%
4461             {%
4462                 \drawbackgroundframetitle@@middle
4463                 \global\mdfframetitleboxtotalheight=-\p@relax%
4464             }%
4465         }%
4466     }%
4467 }%
4468 \def\drawbackgroundframetitle@@middle{%
4469 \begingroup%
4470 \ifbool{mdf@leftline}{%
4471     \nodexn{(mdf@0)+(\mdf@innerlinewidth@length,0)
4472         +0.5(\mdf@middlelinewidth@length,0)}{mdf@0}%
4473     }{}%
4474 \ifbool{mdf@rightline}{%
4475     \nodexn{(mdf@P)-(\mdf@innerlinewidth@length,0)
4476         -0.5(\mdf@middlelinewidth@length,0)}{mdf@P}%
4477     }{}%
4478 \nodexn{(mdf@P)-(0,\mdfframetitleboxtotalheight)}{mdf@F}%
4479 \psline[style=mdfframetitlebackgroundstyle,linear=\z@]%
4480     (mdf@0|mdf@F)(mdf@0|mdf@P)(mdf@P)(mdf@P|mdf@F)%

```



```

4481 \endgroup
4482 }
4483 \def\drawbackgroundframetitle@@@middle{%
4484 \begingroup%
4485 \ifbool{mdf@leftline}{%
4486     \nodexn{(mdf@0)+(\mdf@innerlinewidth@length,0)
4487             +0.5(\mdf@middlelinewidth@length,0)}{mdf@0}%
4488     }{}%
4489 \ifbool{mdf@rightline}{%
4490     \nodexn{(mdf@P)-(\mdf@innerlinewidth@length,0)
4491             -0.5(\mdf@middlelinewidth@length,0)}{mdf@P}%
4492     }{}%
4493 \ifbool{mdf@everyline}%
4494     {%
4495     \ifbool{mdf@topline}{%
4496         \nodexn{(mdf@P)-(0,\mdf@innerlinewidth@length)
4497                 -0.5(0,\mdf@middlelinewidth@length)}{mdf@P}%
4498     }{}%
4499     }{}%
4500 \nodexn{(mdf@P)-(0,\mdfframetitleboxtotalheight)}{mdf@F}%
4501 \psline[style=mdfframetitlebackgroundstyle](mdf@0|mdf@F)(mdf@0|mdf@P)
4502                                             (mdf@P)(mdf@P|mdf@F)%
4503 \endgroup
4504 }

```

\mdf@putbox@second

Last output

```

4505 \def\mdf@putbox@second{
4506 \ifvoid\mdf@splitbox@one
4507 \else%
4508 \mdf@makebox@out{%
4509     \mdf@makeboxalign@left%
4510 % \ifbool{mdf@leftline}{\hspace*{\mdf@middlelinewidth@length}}{}%
4511 \setlength\mdfboundingboxwidth{\wd\mdf@splitbox@one}%
4512 \advance\mdfboundingboxwidth by \mdf@innerleftmargin@length\relax%
4513 \advance\mdfboundingboxwidth by \mdf@innerrightmargin@length\relax%
4514 \ifbool{mdf@leftline}{%
4515     \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
4516     \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
4517     \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}%{}%
4518 \ifbool{mdf@rightline}{%
4519     \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
4520     \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
4521     \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}%{}%
4522 \setlength\mdfboundingboxheight%
4523     {\dimexpr\ht\mdf@splitbox@one+\dp\mdf@splitbox@one\relax}%
4524 \advance\mdfboundingboxheight by \mdf@innerbottommargin@length\relax%
4525 \ifbool{mdf@bottomline}{%
4526     \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
4527     \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
4528     \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}%{}%
4529 %%%%%%%%%%
4530 \ifbool{mdf@everyline}{%
4531 \ifbool{mdf@topline}{%

```



```

4532      \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
4533      \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
4534      \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}}}%
4535  }}}%
4536  %%%%%%%%%%
4537      \psset{unit=1truecm}%
4538      \mdf@makebox@in[\mdfboundingboxwidth]{%
4539          \null%
4540          \begin{pspicture}(0,0)(\mdfboundingboxwidth,\mdfboundingboxheight)
4541              \mdfpstricks@settings%
4542              \psset{lineararc=\mdf@roundcorner@length, cornersize=absolut,}%
4543              \expandafter\psset\expandafter{\mdf@psset@local}%
4544              \pnode(\mdf@innerleftmargin@length,\mdf@innerbottommargin@length)
4545                  {mdf@A}
4546              \pnode(0,0){mdf@O}
4547              \pnode(\mdfboundingboxwidth,\mdfboundingboxheight){mdf@P}
4548              \ifbool{mdf@leftline}%
4549                  {%
4550                      \nodexn{(mdf@A)+(\mdf@outerlinewidth@length,0)
4551                          +(\mdf@middlelinewidth@length,0)
4552                          +(\mdf@innerlinewidth@length,0)){mdf@A}
4553                      \nodexn{(mdf@O)+(\mdf@outerlinewidth@length,0)
4554                          +0.5(\mdf@middlelinewidth@length,0)){mdf@O}
4555                  }}}%
4556              \ifbool{mdf@rightline}%
4557                  {%
4558                      \nodexn{(mdf@P)-(\mdf@outerlinewidth@length,0)
4559                          -0.5(\mdf@middlelinewidth@length,0)){mdf@P}
4560                  }}}%
4561              \ifbool{mdf@bottomline}%
4562                  {%
4563                      \nodexn{(mdf@A)+(0,\mdf@outerlinewidth@length)
4564                          +(0,\mdf@middlelinewidth@length)
4565                          +(0,\mdf@innerlinewidth@length)){mdf@A}
4566                      \nodexn{(mdf@O)+(0,\mdf@outerlinewidth@length)
4567                          +0.5(0,\mdf@middlelinewidth@length)){mdf@O}
4568                  }}}%
4569  %%%%%%%%%%
4570      \ifbool{mdf@everyline}{%
4571          \ifbool{mdf@topline}%
4572              {%
4573                  \nodexn{(mdf@P)-(0,\mdf@outerlinewidth@length)
4574                      -0.5(0,\mdf@middlelinewidth@length)){mdf@P}
4575              }}}%
4576      }}}%
4577  %%%%%%%%%%
4578  %%
4579      \ifbool{mdf@shadow}
4580          {\pscustom[style=mdfshadow,linestyle=none]{%
4581              \psline[linejoin=2,linecap=1,](mdf@O|mdf@P)(mdf@O)%
4582                  (mdf@P|mdf@O)(mdf@P)%
4583              \psline[linejoin=2,linecap=1,lineararc=\z@](mdf@O|mdf@P)(mdf@P)
4584              \closedshadow
4585          }
4586      }%
4587  %%%%%%%%%%

```



```

4588 \ifbool{mdf@everyline}{%
4589     %Four lines
4590     \mdf@test@lrb{\mdf@pstricksbox@fl{mdf@0}{mdf@P}}{}
4591     %three lines
4592     \mdf@test@ltb{%
4593         \mdf@pstricksbox@tl{(mdf@P|mdf@0)(mdf@0)(mdf@0|mdf@P)(mdf@P)}}{}
4594     \mdf@test@trb{%
4595         \mdf@pstricksbox@tl{(mdf@0)(mdf@P|mdf@0)(mdf@P)(mdf@0|mdf@P)}}{}
4596     \mdf@test@ltr{%
4597         \mdf@pstricksbox@tl{(mdf@0)(mdf@0|mdf@P)(mdf@P)(mdf@P|mdf@0)}}{}%
4598     \mdf@test@lrb{%
4599         \mdf@pstricksbox@tl{(mdf@0|mdf@P)(mdf@0)(mdf@P|mdf@0)(mdf@P)}}{}%
4600     %two lines combined
4601     \mdf@test@lb{\mdf@pstricksbox@tcl%
4602         {(mdf@P|mdf@0)(mdf@P)(mdf@0|mdf@P)}%
4603         {(mdf@0|mdf@P)(mdf@0)(mdf@P|mdf@0)}}{}
4604     \mdf@test@rb{\mdf@pstricksbox@tcl%
4605         {(mdf@P)(mdf@0|mdf@P)(mdf@0)}%
4606         {(mdf@0)(mdf@P|mdf@0)(mdf@P)}}{}
4607     \mdf@test@tr{\mdf@pstricksbox@tcl%
4608         {(mdf@P|mdf@0)(mdf@0)(mdf@0|mdf@P)}%
4609         {(mdf@0|mdf@P)(mdf@P)(mdf@P|mdf@0)}}{}
4610     \mdf@test@lt{\mdf@pstricksbox@tcl%
4611         {(mdf@0)(mdf@P|mdf@0)(mdf@P)}%
4612         {(mdf@0)(mdf@0|mdf@P)(mdf@P)}}{}
4613     %two lines not combined combined
4614     \mdf@test@lr{\mdf@pstricksbox@tncl{(mdf@0|mdf@P)}{(mdf@P|mdf@0)}}
4615         {}
4616     \mdf@test@tb{\mdf@pstricksbox@tncl{(mdf@P|mdf@0)}{(mdf@0|mdf@P)}}
4617         {}
4618     %single line
4619     \mdf@test@l{\mdf@pstricksbox@ol{(mdf@0)(mdf@0|mdf@P)}}{}
4620     \mdf@test@r{\mdf@pstricksbox@ol{(mdf@P)(mdf@P|mdf@0)}}{}
4621     \mdf@test@t{\mdf@pstricksbox@ol{(mdf@P)(mdf@0|mdf@P)}}{}
4622     \mdf@test@b{\mdf@pstricksbox@ol{(mdf@0)(mdf@P|mdf@0)}}{}
4623     %no line
4624     \mdf@test@noline{\psframe[style=mdfbackgroundstyle](mdf@0)(mdf@P)}}{}%
4625 }{%
4626     %Four + Three
4627     \ifboolexpr{test {\mdf@test@lrb} or test {\mdf@test@lrb}}%
4628         {\mdf@pstricksbox@tl{(mdf@0|mdf@P)(mdf@0)(mdf@P|mdf@0)(mdf@P)}}{}%
4629     %Two combined
4630     \ifboolexpr{test {\mdf@test@ltb} or test {\mdf@test@lb}}%
4631         {\mdf@pstricksbox@tcl{(mdf@P|mdf@0)(mdf@P)(mdf@0|mdf@P)}%
4632         {(mdf@0|mdf@P)(mdf@0)(mdf@P|mdf@0)}}{}
4633     \ifboolexpr{test {\mdf@test@trb} or test {\mdf@test@rb}}%
4634         {\mdf@pstricksbox@tcl{(mdf@P)(mdf@0|mdf@P)(mdf@0)}%
4635         {(mdf@0)(mdf@P|mdf@0)(mdf@P)}}{}
4636     %Two not combined
4637     \ifboolexpr{test {\mdf@test@ltr} or test {\mdf@test@lr}}%
4638         {\mdf@pstricksbox@tncl{(mdf@0|mdf@P)}{(mdf@P|mdf@0)}}{}%
4639     %one line
4640     \ifboolexpr{test {\mdf@test@tb} or test {\mdf@test@b}}%
4641         {\mdf@pstricksbox@ol{(mdf@0)(mdf@P|mdf@0)}}{}
4642     \ifboolexpr{test {\mdf@test@lt} or test {\mdf@test@l}}%
4643         {\mdf@pstricksbox@ol{(mdf@0)(mdf@0|mdf@P)}}{}

```



```

4644 \ifbool{test {\mdf@test@tr} or test {\mdf@test@r}}%
4645 {\mdf@pstricksbox@ol{\mdf@P}(\mdf@P|\mdf@O)}}{}
4646 %no line
4647 \mdf@test@t{\psframe[style=mdfbackgroundstyle](mdf@O)(mdf@P)}}{}%
4648 \mdf@test@noline{\psframe[style=mdfbackgroundstyle](mdf@O)(mdf@P)}}{}%
4649 }%
4650 %Frametitlebackground
4651 \drawbackgroundframetitle@second
4652 %output%
4653 \rput[bl](mdf@A){\box\mdf@splitbox@one}
4654 \mdf@secondextra
4655 % \psdot(mdf@A)\uput[90](mdf@A){mdf at A}
4656 % \psdot(mdf@P)\uput[90](mdf@P){mdf at P}
4657 % \psdot(mdf@O)\uput[90](mdf@O){mdf at O}
4658 \end{pspicture}%
4659 }%
4660 \mdf@makeboxalign@right%
4661 }%
4662 \fi
4663 }%
4664 \def\drawbackgroundframetitle@second{%
4665 \ifdefempty{\mdf@frametitle}}{}%
4666 {%
4667 \ifbool{\mdf@repeatframetitle}%
4668 {%repeating title = true
4669 \drawbackgroundframetitle@@@second
4670 }%
4671 {%
4672 \ifdimless{\mdfframetitleboxtotalheight}{\z@}
4673 {}{}%
4674 \drawbackgroundframetitle@@@second
4675 }%
4676 }%
4677 }%
4678 }%
4679 \def\drawbackgroundframetitle@@@second{%
4680 \begingroup%
4681 \ifbool{\mdf@leftline}{%
4682 \nodexn{(\mdf@O)+(\mdf@innerlinewidth@length,0)
4683 +0.5(\mdf@middlelinewidth@length,0)}{\mdf@O}%
4684 }{}%
4685 \ifbool{\mdf@rightline}{%
4686 \nodexn{(\mdf@P)-(\mdf@innerlinewidth@length,0)
4687 -0.5(\mdf@middlelinewidth@length,0)}{\mdf@P}%
4688 }{}%
4689 \nodexn{(\mdf@P)-(0,\mdfframetitleboxtotalheight)}{\mdf@F}%
4690 \psline[style=mdfframetitlebackgroundstyle,linearcs=\z@]%
4691 (\mdf@O|\mdf@F)(\mdf@O|\mdf@P)(\mdf@P)(\mdf@P|\mdf@F)%
4692 \endgroup
4693 }
4694 \def\drawbackgroundframetitle@@@second{%
4695 \begingroup%
4696 \ifbool{\mdf@leftline}{%
4697 \nodexn{(\mdf@O)+(\mdf@innerlinewidth@length,0)
4698 +0.5(\mdf@middlelinewidth@length,0)}{\mdf@O}%
4699 }{}%

```



```

4700 \ifbool{mdf@rightline}{%
4701     \nodexn{(mdf@P) - (\mdf@innerlinewidth@length,0)
4702         -0.5(\mdf@middlelinewidth@length,0)){mdf@P}%
4703     }{}%
4704 \ifbool{mdf@everyline}%
4705     {%
4706     \ifbool{mdf@topline}{%
4707         \nodexn{(mdf@P) - (0,\mdf@innerlinewidth@length)
4708             -0.5(0,\mdf@middlelinewidth@length)){mdf@P}%
4709     }{}%
4710     }{}%
4711 \nodexn{(mdf@P) - (0,\mdfframetitleboxtotalheight)){mdf@F}%
4712 \psline[style=mdfframetitlebackgroundstyle](mdf@0|mdf@F)(mdf@0|mdf@P)
4713     (mdf@P)(mdf@P|mdf@F)%
4714 \endgroup
4715 }

4716 \endinput
4717 %eof

```

C. The file *mdframed-example-default*

```

4718 %Documentation of the package mdframed
4719 \setcounter{errorcontextlines}{999}
4720 \documentclass[parskip=false,english,11pt]{ltxmdf}
4721
4722
4723 \usepackage{showexpl}
4724 \lstset{style=lstltxmdf,explpreset={pos=b,rframe={}},}
4725
4726 \newcommand\Loadedframemethod{default}
4727 \usepackage[framemethod=\Loadedframemethod]{mdframed}
4728
4729 \title{The \Pack{mdframed} package}
4730 \subtitle{Examples for \Opt{framemethod=\Loadedframemethod}}
4731 \author{\href{mailto:marco.daniel@mada-nada.de}{Marco Daniel}}
4732 \date{\mdfmaindate}
4733 \version{\mdversion}
4734 \introduction{In this document I collect various examples for
4735     \Opt{framemethod=\Loadedframemethod}.
4736     Some presented examples are more or less exorbitant.}
4737
4738 \mdfsetup{skipabove=\topskip,skipbelow=\topskip}
4739 \newrobustcmd\ExampleText{%
4740     An \textit{inhomogeneous linear} differential equation has the form
4741     \begin{align}
4742         L[v] &= f,
4743     \end{align}
4744     where  $L$  is a linear differential operator,  $v$  is
4745     the dependent variable, and  $f$  is a given non-zero
4746     function of the independent variables alone.
4747 }
4748
4749 \newcounter{examplecount}
4750 \setcounter{examplecount}{0}

```



```

4751 \renewcommand\thesubsection{}
4752 \newcommand\Examplesec[1]{%
4753 \stepcounter{examplecount}%
4754 \subsection{Example~\arabic{examplecount}~---~#1\relax}%
4755 }
4756
4757 \begin{document}
4758 \maketitle
4759 \section{Loading}
4760 In the preamble only the package \Pack{mdframed} with the option
4761 \Opt{framemethod=\Loadedframemethod} is loaded. All other modifications will be
4762 done by \Cmd{mdfdefinestyle} or \Cmd{mdfsetup}.
4763
4764 {\large\color{red!50!black}
4765 \NOTE Every \Cmd{global} inside the examples is necessary to work with the
4766 package \Pack{showexpl}.}
4767
4768 \section{Examples}
4769 All examples have the following settings:
4770
4771 \begin{tltxmdfexample}
4772 \mdfsetup{skipabove=\topskip,skipbelow=\topskip}
4773 \newrobustcmd\ExampleText{%
4774 An \textit{inhomogeneous linear} differential equation
4775 has the form
4776 \begin{align}
4777 L[v] = f,
4778 \end{align}
4779 where  $L$  is a linear differential operator,  $v$  is
4780 the dependent variable, and  $f$  is a given non-zero
4781 function of the independent variables alone.
4782 }
4783 \end{tltxmdfexample}
4784 \clearpage
4785 \Examplesec{very simple}
4786 \begin{LTxexample}
4787 \global\mdfdefinestyle{exampledefault}{%
4788     linecolor=red,linewidth=3pt,%
4789     leftmargin=1cm,rightmargin=1cm
4790 }
4791 \begin{mdframed}[style=exampledefault]
4792 \ExampleText
4793 \end{mdframed}
4794 \end{LTxexample}
4795
4796 \Examplesec{hidden line + frame title}
4797 \begin{LTxexample}
4798 \global\mdfapptodefinestyle{exampledefault}{%
4799     topline=false,bottomline=false}
4800 \begin{mdframed}[style=exampledefault,frametitle={Inhomogeneous linear}]
4801 \ExampleText
4802 \end{mdframed}
4803 \end{LTxexample}
4804 \clearpage
4805
4806 \Examplesec{colored frame title}

```



```

4807 \begin{LTXexample}
4808
4809 \global\mdfapptodefinestyle{exampledefault}{%
4810   rightline=true,innerleftmargin=10,innerrightmargin=10,
4811   frametitle=rule=true,frametitlecolor=green,
4812   frametitlebackgroundcolor=yellow,
4813   frametitlewidth=2pt}
4814 \begin{mdframed}[style=exampledefault,frametitle={Inhomogeneous linear}]
4815 \ExampleText
4816 \end{mdframed}
4817 \end{LTXexample}
4818
4819 \Examplesec{framed picture which is centered}
4820 \begin{LTXexample}[morekeywords=width]
4821 \begin{mdframed}[userdefinedwidth=6cm,align=center,
4822   linecolor=blue,linewidth=4pt]
4823 \IfFileExists{donald-duck.jpg}%
4824 {\includegraphics[width=\linewidth]{donald-duck}}%
4825 {\rule{\linewidth}{4cm}}%
4826 \end{mdframed}
4827 \end{LTXexample}
4828
4829 \clearpage
4830 \Examplesec{Theorem environments}
4831 \begin{LTXexample}[morekeywords={theoremstyle,definition}]
4832 \mdfdefinestyle{theoremstyle}{%
4833   linecolor=red,linewidth=2pt,%
4834   frametitle=rule=true,%
4835   frametitlebackgroundcolor=gray!20,
4836   innertopmargin=\topskip,
4837 }
4838 \mdtheorem[style=theoremstyle]{definition}{Definition}
4839 \begin{definition}
4840 \ExampleText
4841 \end{definition}
4842 \begin{definition}[Inhomogeneous linear]
4843 \ExampleText
4844 \end{definition}
4845 \begin{definition*}[Inhomogeneous linear]
4846 \ExampleText
4847 \end{definition*}
4848 \end{LTXexample}
4849
4850 \clearpage
4851 \Examplesec{theorem with separate header and the help of TikZ (complex)}
4852 \begin{LTXexample}[%
4853   morekeywords={theo,baseline,anchor,outer,sep,current,bounding,box,east},%
4854   moretexcs=tikz]
4855 \newcounter{theo}[section]
4856 \newenvironment{theo}[1][]{%
4857   \stepcounter{theo}%
4858   \ifstrempy{#1}%
4859   {\mdfsetup{%
4860     frametitle={%
4861       \tikz[baseline=(current bounding box.east),outer sep=0pt]
4862       \node[anchor=east,rectangle,fill=blue!20]

```



```

4863     {\strut Theorem~\thetheo};}}
4864 }%
4865 {\mdfsetup{%
4866     frametitle={%
4867         \tikz[baseline=(current bounding box.east),outer sep=0pt]
4868         \node[anchor=east,rectangle,fill=blue!20]
4869         {\strut Theorem~\thetheo:~\#1};}}%
4870 }%
4871 \mdfsetup{innertopmargin=10pt,linecolor=blue!20,%
4872     linewidth=2pt,topline=true,
4873     frametitleaboveskip=\dimexpr-\ht\strutbox\relax,}
4874 \begin{mdframed}[]\relax%
4875 }\end{mdframed}}
4876 \begin{theo}[Inhomogeneous Linear]
4877 \ExampleText
4878 \end{theo}
4879
4880 \begin{theo}
4881 \ExampleText
4882 \end{theo}
4883 \end{LTXexample}
4884
4885 \clearpage
4886 \Examplesec{hide only a part of a line}
4887 The example below is inspired by the following post on StackExchange
4888 \href{http://tex.stackexchange.com/questions/24101/theorem-decorations^^A
4889     -that-stay-with-theorem-environment}%
4890     {Theorem decorations that stay with theorem environment}
4891 \begin{LTXexample}[morekeywords={mdf@frame@leftline@single,mdf@frame@rightline@single,%
4892     mdf@frame@leftline@first,mdf@frame@rightline@first,%
4893     mdf@frame@leftline@second,mdf@frame@rightline@second,%
4894     mdf@frame@leftline@middle,mdf@frame@rightline@middle,%
4895     mdfboundingboxdepth,mdfboundingboxtotalheight,%
4896     mdf@topline,ifbool,interruptrule,everyline}]
4897 \makeatletter
4898 \newlength{\interruptlength}
4899 \newrobustcmd\interruptrule[3]{%
4900     \color{#1}%
4901     \hspace*{\dimexpr\mdfboundingboxwidth+\mdf@innerrightmargin@length\relax}%
4902     \rule[\dimexpr-\mdfboundingboxdepth+#2\interruptlength\relax]{%
4903         {\mdf@middlelinewidth@length}%
4904         {\dimexpr\mdfboundingboxtotalheight-#3\interruptlength\relax}%
4905     }
4906 \newrobustcmd\overlaplines[2][white]{%
4907     \mdfsetup{everyline=false}%
4908     \setlength{\interruptlength}{#2}
4909     \appto\mdf@frame@leftline@single{\llap{\interruptrule{#1}{1}{2}}}
4910     \appto\mdf@frame@rightline@single{\rlap{\interruptrule{#1}{1}{2}}}
4911     \appto\mdf@frame@leftline@first{\llap{\interruptrule{#1}{0}{1}}}
4912     \appto\mdf@frame@rightline@first{\rlap{\interruptrule{#1}{0}{1}}}
4913     \appto\mdf@frame@leftline@second{\llap{\interruptrule{#1}{1}{1}}}
4914     \appto\mdf@frame@rightline@second{\rlap{\interruptrule{#1}{1}{1}}}
4915     \appto\mdf@frame@leftline@middle{\llap{\interruptrule{#1}{0}{0}}}
4916     \appto\mdf@frame@rightline@middle{\rlap{\interruptrule{#1}{0}{0}}}
4917 }
4918 \makeatother

```



```

4919
4920 \overlaplines{2.5ex}
4921 \begin{mdframed}[linecolor=blue,linewidth=8pt]
4922 \ExampleText
4923 \end{mdframed}
4924 \overlaplines[blue!70!black!20]{2.5ex}
4925 \begin{mdframed}[linecolor=blue,linewidth=8pt]
4926 \ExampleText
4927 \end{mdframed}
4928 \end{LTXexample}
4929 \end{document}
4930 \endinput

```

D. The file mdframed-example-tikz

```

4931 %Documenation of the package mdframed
4932 \setcounter{errorcontextlines}{999}
4933 \documentclass[parskip=false,english,11pt]{ltxmdf}
4934
4935 \usepackage{showexpl}
4936 \lstset{style=lstltxmdf,explpreset={pos=b,rframe={}},}
4937
4938 \newcommand\Loadedframemethod{TikZ}
4939 \usepackage[framemethod=\Loadedframemethod]{mdframed}
4940
4941 \title{The \Pack{mdframed} package}
4942 \subtitle{Examples for \Opt{framemethod=\Loadedframemethod}}
4943 \author{\href{mailto:marco.daniel@mada-nada.de}{Marco Daniel}}
4944 \date{\mdfmaindate}
4945 \version{\mdversion}
4946 \introduction{In this document I collect various examples for
4947               \Opt{framemethod=\Loadedframemethod}.
4948               Some presented examples are more or less exorbitant.}
4949
4950 \mdfsetup{skipabove=\topskip,skipbelow=\topskip}
4951 \newrobustcmd\ExampleText{%
4952     An \textit{inhomogeneous linear} differential equation has the form
4953     \begin{align}
4954         L[v] &= f,
4955     \end{align}
4956     where  $L$  is a linear differential operator,  $v$  is
4957     the dependent variable, and  $f$  is a given non-zero
4958     function of the independent variables alone.
4959 }
4960
4961 \newcounter{examplecount}
4962 \setcounter{examplecount}{0}
4963 \renewcommand\thesubsection{}
4964 \newcommand\Examplesec[1]{%
4965     \stepcounter{examplecount}%
4966     \subsection{Example~\arabic{examplecount}~---~#1\relax}%
4967 }
4968
4969 \begin{document}
4970 \maketitle
4971 \section{Loading}

```



```

4972 In the preamble only the package \Pack{mdframed} with the option
4973 \Opt{framemethod=\Loadedframemethod} is loaded. All other modifications will be
4974 done by \Cmd{mdfdefinestyle} or \Cmd{mdfsetup}.
4975
4976 {\large\color{red!50!black}
4977 \NOTE Every \Cmd{global} inside the examples is necessary to work with the
4978 package \Pack{showexpl}.}
4979
4980 \section{Examples}
4981 All examples have the following settings:
4982
4983 \begin{tltxmdfexample}
4984 \mdfsetup{skipabove=\topskip,skipbelow=\topskip}
4985 \newrobustcmd\ExampleText{%
4986 An \textit{inhomogeneous linear} differential equation
4987 has the form
4988 \begin{align}
4989 L[v] = f,
4990 \end{align}
4991 where  $L$  is a linear differential operator,  $v$  is
4992 the dependent variable, and  $f$  is a given non-zero
4993 function of the independent variables alone.
4994 }
4995 \end{tltxmdfexample}
4996 \clearpage
4997 \Examplesec{round corner}
4998 \begin{LTExample}
4999 \global\mdfdefinestyle{exampledefault}{%
5000     outerlinewidth=5pt,innerlinewidth=0pt,
5001     outerlinecolor=red,roundcorner=5pt
5002 }
5003 \begin{mdframed}[style=exampledefault]
5004 \ExampleText
5005 \end{mdframed}
5006 \end{LTExample}
5007
5008 \Examplesec{hidden line + frame title}
5009 \begin{LTExample}
5010 \global\mdfapptodefinestyle{exampledefault}{%
5011     topline=false,leftline=false,}
5012 \begin{mdframed}[style=exampledefault,frametitle={Inhomogeneous linear}]
5013 \ExampleText
5014 \end{mdframed}
5015 \end{LTExample}
5016 \clearpage
5017 \Examplesec{framed picture which is centered}
5018 \begin{LTExample}
5019 \begin{mdframed}[userdefinedwidth=6cm,align=center,
5020     linecolor=blue,middlelinewidth=4pt,roundcorner=5pt]
5021 \IfFileExists{donald-duck.jpg}%
5022 {\includegraphics[width=\linewidth]{donald-duck}}%
5023 {\rule{\linewidth}{4cm}}%
5024 \end{mdframed}
5025 \end{LTExample}
5026
5027 \Examplesec{Gimmick}

```



```

5028 \begin{LTXexample}[morekeywords={line,width,dash,dashed,pattern}]
5029 \mdfsetup{splitbottomskip=0.8cm, splittopskip=0cm,
5030           innerrightmargin=2cm, innertopmargin=1cm,%
5031           innerlinewidth=2pt, outerlinewidth=2pt,
5032           middlelinewidth=10pt, backgroundcolor=red,
5033           linecolor=blue, middlelinecolor=gray,
5034           tikzsetting={draw=yellow, line width=3pt,%
5035                       dashed,%
5036                       dash pattern= on 10pt off 3pt},
5037           rightline=false, bottomline=false}
5038 \begin{mdframed}
5039 \ExampleText
5040 \end{mdframed}
5041 \end{LTXexample}
5042
5043 \clearpage
5044 \Examplesec{complex example with TikZ}
5045
5046 \begin{tltxmdfexample}[morekeywords={mdf}]
5047 \tikzstyle{titregris} =
5048     [draw=gray, thick, fill=white, shading = exersicetitle, %
5049     text=gray, rectangle, rounded corners, right, minimum height=.7cm]
5050 \pgfdeclarehorizontalshading{exersicebackground}{100bp}
5051     {color(0bp)=(green!40); color(100bp)=(black!5)}
5052 \pgfdeclarehorizontalshading{exersicetitle}{100bp}
5053     {color(0bp)=(red!40); color(100bp)=(black!5)}
5054 \newcounter{exercise}
5055 \renewcommand*{\theexercise}{Exercise~n\arabic{exercise}}
5056 \makeatletter
5057 \def\mdf@@exercisepoints{}%new mdframed key:
5058 \define@key{mdf}{exercisepoints}{%
5059     \def\mdf@@exercisepoints{#1}
5060 }
5061 \mdfdefinestyle{exercisestyle}{%
5062     outerlinewidth=1em, outerlinecolor=white,%
5063     leftmargin=-1em, rightmargin=-1em,%
5064     middlelinewidth=1.2pt, roundcorner=5pt, linecolor=gray,
5065     apptotikzsetting={\tikzset{mdfbackground/.append style ={%
5066         shading = exersicebackground}}},
5067     innertopmargin=1.2\baselineskip,
5068     skipabove={\dimexpr0.5\baselineskip+\topskip\relax},
5069     skipbelow={-1em},
5070     needspace=3\baselineskip,
5071     frametitlefont=\sffamily\bfseries,
5072     settings={\global\stepcounter{exercise}},
5073     singleextra={%
5074         \node[titregris,xshift=1cm] at (P-|0) %
5075             {\mdf@frametitlefont{\theexercise}~};
5076         \ifdefempty{\mdf@@exercisepoints}%
5077             {}%
5078             {\node[titregris,left,xshift=-1cm] at (P)%
5079                 {\mdf@frametitlefont{\mdf@@exercisepoints points}~};}%
5080     },
5081     firstextra={%
5082         \node[titregris,xshift=1cm] at (P-|0) %
5083             {\mdf@frametitlefont{\theexercise}~};

```



```

5084 \ifdefempty{\mdf@@exercisepoints}%
5085 {}%
5086 {\node[titregris,left,xshift=-1cm] at (P)%
5087   {\mdf@frametitlefont{\mdf@@exercisepoints points}~};}%
5088 },
5089 }
5090 \makeatother
5091
5092 \begin{mdframed}[style=exercisestyle]
5093 \ExampleText
5094 \end{mdframed}
5095
5096 \begin{mdframed}[style=exercisestyle,exercisepoints=10]
5097 \ExampleText
5098 \end{mdframed}
5099 \end{tltxmdfexample}
5100
5101 \tikzstyle{titregris} =
5102   [draw=gray, thick, fill=white, shading = exersicetitle, %
5103     text=gray, rectangle, rounded corners, right,minimum height=.7cm]
5104 \pgfdeclarehorizontalshading{exersicebackground}{100bp}
5105   {color(0bp)=(green!40); color(100bp)=(black!5)}
5106 \pgfdeclarehorizontalshading{exersicetitle}{100bp}
5107   {color(0bp)=(red!40);color(100bp)=(black!5)}
5108 \newcounter{exercise}
5109 \renewcommand*{\theexercise}{Exercise~n\arabic{exercise}}
5110 \makeatletter
5111 \def\mdf@@exercisepoints{}%new mdframed key:
5112 \define@key{mdf}{exercisepoints}{%
5113   \def\mdf@@exercisepoints{#1}
5114 }
5115 \mdfdefinestyle{exercisestyle}{%
5116   outerlinewidth=1em,outerlinecolor=white,%
5117   leftmargin=-1em,rightmargin=-1em,%
5118   middlelinewidth=1.2pt,roundcorner=5pt,linecolor=gray,
5119   apptotikzsetting={\tikzset{mdfbackground/.append style ={%
5120     shading = exersicebackground}}},
5121   innertopmargin=1.2\baselineskip,
5122   skipabove={\dimexpr0.5\baselineskip+\topskip\relax},
5123   skipbelow={-1em},
5124   needspace=3\baselineskip,
5125   frametitlefont=\sffamily\bfseries,
5126   settings={\global\stepcounter{exercise}},
5127   singleextra={%
5128     \node[titregris,xshift=1cm] at (P-|0) %
5129       {\mdf@frametitlefont{\theexercise}~};
5130     \ifdefempty{\mdf@@exercisepoints}%
5131       {}%
5132     {\node[titregris,left,xshift=-1cm] at (P)%
5133       {\mdf@frametitlefont{\mdf@@exercisepoints points}~};}%
5134   },
5135   firstextra={%
5136     \node[titregris,xshift=1cm] at (P-|0) %
5137       {\mdf@frametitlefont{\theexercise}~};
5138     \ifdefempty{\mdf@@exercisepoints}%
5139       {}%

```



```

5140      {\node[titregris,left,xshift=-1cm] at (P)%
5141        {\mdf@frametitlefont{\mdf@@exercisepoints points}~};}%
5142    },
5143  }
5144  \makeatother
5145
5146  \begin{mdframed}[style=exercisestyle]
5147  \ExampleText
5148  \end{mdframed}
5149
5150  \begin{mdframed}[style=exercisestyle,exercisepoints=10]
5151  \ExampleText
5152  \end{mdframed}
5153
5154  \clearpage
5155  \Examplesec{Theorem environments}
5156  \begin{LTExample}[morekeywords={theoremstyle,definition}]
5157  \mdfdefinestyle{theoremstyle}{%
5158    linecolor=red,middlelinewidth=2pt,%
5159    frametitlerule=true,%
5160    apptotikzsetting={\tikzset{mdfframetitlebackground/.append style={%
5161      shade,left color=white, right color=blue!20}}},
5162    frametitlerulecolor=green!60,
5163    frametitlerulewidth=1pt,
5164    innertopmargin=\topskip,
5165  }
5166  \mdtheorem[style=theoremstyle]{definition}{Definition}
5167  \begin{definition}[Inhomogeneous linear]
5168  \ExampleText
5169  \end{definition}
5170  \begin{definition*}[Inhomogeneous linear]
5171  \ExampleText
5172  \end{definition*}
5173  \end{LTExample}
5174
5175  \end{document}
5176  \endinput

```

E. The file *mdframed-example-pstricks*

```

5177 %Documenation of the package mdframed
5178 \setcounter{errorcontextlines}{999}
5179 \documentclass[parskip=false,english,11pt]{ltxmdf}
5180
5181 \lstDeleteShortInline{[]}
5182 \newcommand\Loadedframemethod{PSTricks}
5183 \usepackage[framemethod=\Loadedframemethod]{mdframed}
5184
5185 \usepackage{showexpl}
5186 \lstset{style=lstltxmdf,explpreset={pos=b,rframe={}}},}
5187
5188 \title{The \Pack{mdframed} package}
5189 \subtitle{Examples for \Opt{framemethod=\Loadedframemethod}}
5190 \author{\href{mailto:marco.daniel@mada-nada.de}{Marco Daniel}}
5191 \date{\mdfmaindate}
5192 \version{\mdversion}

```



```

5193 \introduction{In this document I collect various examples for
5194             \Opt{framemethod=\Loadedframemethod}.
5195             Some presented examples are more or less exorbitant.}
5196
5197 \mdfsetup{skipabove=\topskip,skipbelow=\topskip}
5198 \newrobustcmd\ExampleText{%
5199     An \textit{inhomogeneous linear} differential equation has the form
5200     \begin{align}
5201         L[v] = f,
5202     \end{align}
5203     where  $L$  is a linear differential operator,  $v$  is
5204     the dependent variable, and  $f$  is a given non-zero
5205     function of the independent variables alone.
5206 }
5207
5208 \newcounter{examplecount}
5209 \setcounter{examplecount}{0}
5210 \renewcommand\thesubsection{}
5211 \newcommand\Examplesec[1]{%
5212 \stepcounter{examplecount}%
5213 \subsection{Example~\arabic{examplecount}~---~#1\relax}%
5214 }
5215
5216 \begin{document}
5217 \maketitle
5218 \section{Loading}
5219 In the preamble only the package \Pack{mdframed} with the option
5220 \Opt{framemethod=\Loadedframemethod} is loaded. All other modifications will be
5221 done by \Cmd{mdfdefinestyle} or \Cmd{mdfsetup}.
5222
5223 {\large\color{red!50!black}
5224 \NOTE Every \Cmd{global} inside the examples is necessary to work with the
5225 package \Pack{showexpl}.}
5226
5227 \section{Examples}
5228 All examples have the following settings:
5229
5230 \begin{tltxmdfexample}
5231 \mdfsetup{skipabove=\topskip,skipbelow=\topskip}
5232 \newrobustcmd\ExampleText{%
5233 An \textit{inhomogeneous linear} differential equation
5234 has the form
5235 \begin{align}
5236 L[v] = f,
5237 \end{align}
5238 where  $L$  is a linear differential operator,  $v$  is
5239 the dependent variable, and  $f$  is a given non-zero
5240 function of the independent variables alone.
5241 }
5242 \end{tltxmdfexample}
5243 \clearpage
5244
5245 \Examplesec{very simple}
5246 \begin{LTXexample}
5247 \global\mdfdefinestyle{exampledefault}{%
5248     linecolor=red,middlelinewidth=3pt,%

```



```

5249     leftmargin=1cm,rightmargin=1cm
5250 }
5251 \begin{mdframed}[style=exampledefault,roundcorner=5]
5252 \ExampleText
5253 \end{mdframed}
5254 \end{LTXexample}
5255
5256 \Examplesec{hidden line + frame title}
5257 \begin{LTXexample}[morekeywords={innerlinecolor,addtopsstyle,mdfouterlinestyle,
5258                               linestyle}]
5259 \global\mdfapptodefinestyle{exampledefault}{%
5260   topline=false,rightline=false,bottomline=false,
5261   frametitlerule=true,innertopmargin=6pt,
5262   outerlinewidth=6pt,outerlinecolor=blue,
5263   pstricksappsetting={\addtopsstyle{mdfouterlinestyle}{linestyle=dashed}},
5264   innerlinecolor=yellow,innerlinewidth=5pt}%
5265 \begin{mdframed}[style=exampledefault,frametitle={Inhomogeneous linear}]
5266 \ExampleText
5267 \end{mdframed}
5268 \end{LTXexample}
5269
5270 \clearpage
5271
5272 \Examplesec{Dash Lines}[morekeywords={pstrickssetting,linestyle,dashed}]
5273 \begin{LTXexample}
5274 \global\mdfdefinestyle{exampledefault}{%
5275   pstrickssetting={linestyle=dashed,,linecolor=red,middlelinewidth=2pt}
5276 \begin{mdframed}[style=exampledefault]
5277 \ExampleText
5278 \end{mdframed}
5279 \end{LTXexample}
5280
5281 \Examplesec{Double Lines}
5282 \begin{LTXexample}[morekeywords={addtopsstyle,mdfmiddlelinestyle,
5283                               doubleline,doublesep}]
5284 \global\mdfdefinestyle{exampledefault}{%
5285   pstricksappsetting={\addtopsstyle{mdfmiddlelinestyle}{%
5286     doubleline=true,doublesep=6pt,linewidth=4pt}},%
5287   linecolor=red,middlelinewidth=16pt}
5288 \begin{mdframed}[style=exampledefault]
5289 \ExampleText
5290 \end{mdframed}
5291 \end{LTXexample}
5292
5293 \clearpage
5294 \Examplesec{Shadow frame}
5295 \begin{LTXexample}[morekeywords={shadow,shadowsize,myshadowbox}]
5296 \newmdenv[shadow=true,
5297           shadowsize=11pt,
5298           linewidth=8pt,
5299           frametitlerule=true,
5300           roundcorner=10pt,
5301           ]{myshadowbox}
5302 \begin{myshadowbox}[frametitle={Inhomogeneous linear}]
5303 \ExampleText
5304 \end{myshadowbox}

```



```

5305 \end{LTXexample}
5306 \end{document}
5307 \endinput

```

F. The file *mdframed-example-texsx*

```

5308 %Documenation of the package mdframed
5309 \setcounter{errorcontextlines}{999}
5310 \documentclass[parskip=false,english,11pt,lipsum=true]{ltxmdf}
5311
5312 \usepackage{showexpl}
5313 \lstset{style=lstltxmdf,explpreset={pos=b,rframe={}},}
5314 \usepackage{tikz}
5315 \usetikzlibrary{calc,arrows,shadings,shadows}
5316 \newcommand\Loadedframemethod{tikz}
5317 \usepackage[framemethod=\Loadedframemethod]{mdframed}
5318
5319 \title{The \Pack{mdframed} package}
5320 \subtitle{Examples for \Opt{framemethod=\Loadedframemethod}}
5321 \author{\href{mailto:marco.daniel@mada-nada.de}{Marco Daniel}}
5322 \date{\mdfmaindate}
5323 \version{\mdversion}
5324 \introduction{In this document I collect various examples for
5325               \Opt{framemethod=\Loadedframemethod}.
5326               Some presented examples are more or less exorbitant.}
5327
5328 \mdfsetup{skipabove=\topskip,skipbelow=\topskip}
5329 \newrobustcmd\ExampleText{%
5330     An \textit{inhomogeneous linear} differential equation has the form
5331     \begin{align}
5332         L[v] &= f,
5333     \end{align}
5334     where  $L$  is a linear differential operator,  $v$  is
5335     the dependent variable, and  $f$  is a given non-zero
5336     function of the independent variables alone.
5337 }
5338
5339 \newcounter{examplecount}
5340 \setcounter{examplecount}{0}
5341 \renewcommand\thesubsection{}
5342 \newcommand\Examplesec[1]{%
5343     \stepcounter{examplecount}%
5344     \subsection{Example~\arabic{examplecount}~---~#1\relax}%
5345 }
5346
5347 \begin{document}
5348 \maketitle
5349 \section{Loading}
5350 In the preamble only the package \Pack{mdframed} with the option
5351 \Opt{framemethod=\Loadedframemethod} is loaded. All other modifications will be
5352 done by \Cmd{mdfdefinestyle} or \Cmd{mdfsetup}.
5353
5354 {\large\color{red!50!black}
5355 \NOTE Every \Cmd{global} inside the examples is necessary to work with the
5356 package \Pack{showexpl}.}
5357

```



```

5358 \section{Examples}
5359 All examples have the following settings:
5360
5361 \begin{tltxmdfexample}
5362 \mdfsetup{skipabove=\topskip,skipbelow=\topskip}
5363 \newrobustcmd\ExampleText{%
5364 An \textit{inhomogeneous linear} differential equation
5365 has the form
5366 \begin{align}
5367 L[v] = f,
5368 \end{align}
5369 where  $L$  is a linear differential operator,  $v$  is
5370 the dependent variable, and  $f$  is a given non-zero
5371 function of the independent variables alone.
5372 }
5373 \end{tltxmdfexample}
5374 \clearpage
5375 \Examplesec{Package listings}
5376 The example below is inspired by the following post on StackExchange
5377 \href{http://tex.stackexchange.com/questions/27673/background-overflows-^^A
5378     when-using-rounded-corners-for-listings-package-listings}%
5379     {Background overflows when using rounded corners for listings
5380     (package: 'listings')}
5381
5382 Here the solution which can be decorate as usual.
5383
5384 \begin{tltxmdfexample}[moretexcs={BeforeBeginEnvironment,AfterEndEnvironment},
5385     morekeywords={lstlisting}]
5386 \BeforeBeginEnvironment{lstlisting}{%
5387     \begin{mdframed}[<modification>%
5388     \vspace{-0.7em}]
5389 \AfterEndEnvironment{lstlisting}{%
5390     \vspace{-0.5em}%
5391     \end{mdframed}}
5392 \end{tltxmdfexample}
5393
5394 With the new command \Cmd{surroundwithmdframed} you can use
5395 \begin{tltxmdfexample}[moretexcs={BeforeBeginEnvironment,AfterEndEnvironment},
5396     morekeywords={listings}]
5397 \surroundwithmdframed{listings}
5398 \end{tltxmdfexample}
5399
5400 \Examplesec{Package multicol}
5401 How I wrote in \enquote{Known Problems} you can't combine \Pack{multicol} with
5402 \Pack{mdframed}. In a simple way without any breaks you can use:
5403 \begin{LTExample}[morekeywords={multicols}]
5404 \begin{multicols}{2}
5405 \lipsum[1]
5406 \begin{mdframed}
5407 \ExampleText
5408 \end{mdframed}
5409 \lipsum[2]
5410 \end{multicols}
5411 \end{LTExample}
5412 \clearpage
5413 \twocolumn[\Examplesec{Working in twocolumn mode}]

```



```

5414 \begin{tltxmdfexample}
5415 \twocolumn[%
5416   \Examplesec{Working in
5417     twocolumn mode}]
5418 \lipsum[1]\lipsum[2]
5419 \begin{mdframed}[%
5420   leftmargin=10pt,%
5421   rightmargin=10pt,%
5422   linecolor=red,
5423   backgroundcolor=yellow]
5424 \ExampleText
5425 \end{mdframed}
5426 \lipsum[2]
5427 \end{tltxmdfexample}
5428 \lipsum[1]\lipsum[2]
5429 \begin{mdframed}[leftmargin=10pt,%
5430   rightmargin=10pt,%
5431   linecolor=red,
5432   backgroundcolor=yellow]
5433 \ExampleText
5434 \end{mdframed}
5435 \lipsum[2]
5436 \clearpage
5437 \onecolumn
5438 \Examplesec{Working inside enumerate}
5439 \begin{LTExample}[morekeywords={enumerate}]
5440 Text Text Text Text Text Text Text
5441 \begin{enumerate}
5442 \item in the following \ldots
5443   \begin{mdframed}[linecolor=blue,middlelinewidth=2]
5444     \ExampleText
5445   \end{mdframed}
5446 \item \lipsum[2]
5447 \end{enumerate}
5448 Text Text Text Text Text Text
5449 \end{LTExample}
5450 \clearpage
5451 \Examplesec{Position a specific symbol at a line}
5452 \begin{LTExample}
5453 \tikzset{
5454   warningsymbol/.style={
5455     rectangle,draw=red,
5456     fill=white,scale=1,
5457     overlay}}
5458 \mdfdefinestyle{warning}{%
5459   hidealllines=true,leftline=true,
5460   skipabove=12,skipbelow=12pt,
5461   innertopmargin=0.4em,%
5462   innerbottommargin=0.4em,%
5463   innerrightmargin=0.7em,%
5464   rightmargin=0.7em,%
5465   innerleftmargin=1.7em,%
5466   leftmargin=0.7em,%
5467   middlelinewidth=.2em,%
5468   linecolor=red,%
5469   fontcolor=red,%

```



```

5470 firstextra={\path let \p1=(P), \p2=(0) in ($(\x2,0)+0.5*(0,\y1)$)
5471             node[warningsymbol] {\$}};,%
5472 secondextra={\path let \p1=(P), \p2=(0) in ($(\x2,0)+0.5*(0,\y1)$)
5473             node[warningsymbol] {\$}};,%
5474 middleextra={\path let \p1=(P), \p2=(0) in ($(\x2,0)+0.5*(0,\y1)$)
5475             node[warningsymbol] {\$}};,%
5476 singleextra={\path let \p1=(P), \p2=(0) in ($(\x2,0)+0.5*(0,\y1)$)
5477             node[warningsymbol] {\$}};,%
5478 }
5479 \begin{mdframed}[style=warning]
5480 \ExampleText
5481 \end{mdframed}
5482 \end{LTXexample}
5483
5484 \clearpage
5485 \Examplesec{digression-environement inspired by Tobias Weh}
5486 \begin{lstlisting}[morekeywords={%
5487             font,anchor,let,in,arrow,round,cap,controls,coordinate,%
5488             excursus,head,arrows,calc,line,width,and,to,digressionarrows,%
5489             base,west},%
5490             moretexcs={usetikzlibrary}}
5491 \usetikzlibrary{calc,arrows}
5492 \tikzset{
5493     excursus arrow/.style={%
5494         line width=2pt,
5495         draw=gray!40,
5496         rounded corners=2ex,
5497     },
5498     excursus head/.style={
5499         fill=white,
5500         font=\bfseries\sffamily,
5501         text=gray!80,
5502         anchor=base west,
5503     },
5504 }
5505 \mdfdefinestyle{digressionarrows}{%
5506     singleextra={%
5507         \path let \p1=(P), \p2=(0) in (\x2,\y1) coordinate (Q);
5508         \path let \p1=(Q), \p2=(0) in (\x1,{(\y1-\y2)/2}) coordinate (M);
5509         \path [excursus arrow, round cap-to]
5510             ($ (0)+(5em,0ex)$) -| (M) |- %
5511             ($ (Q)+(12em,0ex)$) .. controls +(0:16em) and +(185:6em) .. %
5512             ++(23em,2ex);
5513         \node [excursus head] at ($ (Q)+(2.5em,-0.75pt)$) {Digression}};},
5514     firstextra={%
5515         \path let \p1=(P), \p2=(0) in (\x2,\y1) coordinate (Q);
5516         \path [excursus arrow,-to]
5517             (0) |- %
5518             ($ (Q)+(12em,0ex)$) .. controls +(0:16em) and +(185:6em) .. %
5519             ++(23em,2ex);
5520         \node [excursus head] at ($ (Q)+(2.5em,-2pt)$) {Digression}};},
5521     secondextra={%
5522         \path let \p1=(P), \p2=(0) in (\x2,\y1) coordinate (Q);
5523         \path [excursus arrow,round cap-]
5524             ($ (0)+(5em,0ex)$) -| (Q)};},
5525     middleextra={%

```



```

5526     \path let \p1=(P), \p2=(0) in (\x2,\y1) coordinate (Q);
5527     \path [excursus arrow]
5528         (0) -- (Q);},
5529     middlelinewidth=2.5em,middlelinecolor=white,
5530     hidealllines=true,topline=true,
5531     innertopmargin=0.5ex,
5532     innerbottommargin=2.5ex,
5533     innerrightmargin=2pt,
5534     innerleftmargin=2ex,
5535     skipabove=0.87\baselineskip,
5536     skipbelow=0.62\baselineskip,
5537 }
5538
5539 \begin{mdframed}[style=digressionarrows]
5540     \ExampleText
5541 \end{mdframed}
5542 \end{lstlisting}
5543
5544 \tikzset{
5545     excursus arrow/.style={%
5546         line width=2pt,
5547         draw=gray!40,
5548         rounded corners=2ex,
5549     },
5550     excursus head/.style={
5551         fill=white,
5552         font=\bfseries\sffamily,
5553         text=gray!80,
5554         anchor=base west,
5555     },
5556 }
5557 \mdfdefinestyle{digressionarrows}{%
5558     singleextra={%
5559         \path let \p1=(P), \p2=(0) in (\x2,\y1) coordinate (Q);
5560         \path let \p1=(Q), \p2=(0) in (\x1,{(\y1-\y2)/2}) coordinate (M);
5561         \path [excursus arrow, round cap-to]
5562             ($ (0)+(5em,0ex)$) -| (M) |- %
5563             ($ (Q)+(12em,0ex)$) .. controls +(0:16em) and +(185:6em) .. %
5564             ++(23em,2ex);
5565         \node [excursus head] at ($ (Q)+(2.5em,-0.75pt)$) {Digression};},
5566     firstextra={%
5567         \path let \p1=(P), \p2=(0) in (\x2,\y1) coordinate (Q);
5568         \path [excursus arrow,-to]
5569             (0) |- %
5570             ($ (Q)+(12em,0ex)$) .. controls +(0:16em) and +(185:6em) .. %
5571             ++(23em,2ex);
5572         \node [excursus head] at ($ (Q)+(2.5em,-2pt)$) {Digression};},
5573     secondextra={%
5574         \path let \p1=(P), \p2=(0) in (\x2,\y1) coordinate (Q);
5575         \path [excursus arrow,round cap-]
5576             ($ (0)+(5em,0ex)$) -| (Q);},
5577     middleextra={%
5578         \path let \p1=(P), \p2=(0) in (\x2,\y1) coordinate (Q);
5579         \path [excursus arrow]
5580             (0) -- (Q);},
5581     middlelinewidth=2.5em,middlelinecolor=white,

```



```

5582   hidealllines=true,topline=true,
5583   innertopmargin=0.5ex,
5584   innerbottommargin=2.5ex,
5585   innerrightmargin=2pt,
5586   innerleftmargin=2ex,
5587   skipabove=0.87\baselineskip,
5588   skipbelow=0.62\baselineskip,
5589 }
5590
5591 \begin{mdframed}[style=digressionarrows]
5592     \ExampleText
5593 \end{mdframed}
5594
5595 \Examplesec{Theorem style shading background}
5596 \begin{LTXexample}[morekeywords={top,bottom,Theorem,shadow,alternativtheorem}]
5597 %\usetikzlibrary{shadings,shadows}% loaded in the header
5598 \mdtheorem[%
5599   apptotikzsetting={\tikzset{mdfbackground/.append style =%
5600                                   {top color=yellow!40!white,
5601                                   bottom color=yellow!80!black},
5602   mdfframetitlebackground/.append style =%
5603                                   {top color=purple!40!white,
5604                                   bottom color=purple!80!black}
5605   }%
5606   },
5607   ,roundcorner=10pt,middlelinewidth=2pt,
5608   shadow=true,frametitlerule=true,frametitlerulewidth=4pt,
5609   innertopmargin=10pt,%
5610   ]{alternativtheorem}{Theorem}
5611 \begin{alternativtheorem}[Inhomogeneous linear]
5612 \ExampleText
5613 \end{alternativtheorem}
5614 \end{LTXexample}
5615 \end{document}
5616 \endinput

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