

The mdframed package¹

auto-split frame environment

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v1.0c

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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`

²With thanks to Heiko Oberdiek, Rolf Niepraschk, Martin Scharrer and Herbert Voss.
Sorry for bad English.

$$a^2 + b^2 = c^2$$

The frame was defined with the following settings.

```
\newmdtheoremenv[outerlinewidth=2,leftmargin=40,%
  rightmargin=40,backgroundcolor=yellow,%
  outerlinecolor=blue,innertopmargin=0pt,%
  splittopskip=\topskip,skipbelow=\baselineskip,%
  skipabove=\baselineskip,ntheorem]{theorem}%
{Theorem}[section]
\begin{theorem}[Pythagorean theorem]
...
\end{theorem}
```

2. Syntax

The package itself loads the packages `kvoptions`, `etoolbox` and `color`. By setting the correct options `mdframed` will load `xcolor`, `tikz` or `pstricks`.

Load the package as usual:

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

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 3.

Autodetecting floats

I added a detection of `float` or `minipage` environments. If you use `mdframed` in such an environment `mdframed` will use the option `nobreak` automatically.

Twoside-mode

When you are using `mdframed` inside `twoside` mode you can set the option `innermargin` and `outermargin` (see section 4.2.1).

3. 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`.

\newmdtheoremenv

Since the package is often used to highlight theorem environments, I have created a command³ to simplify this process. The command has the following syntax:

```

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

```

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

```

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

```

So far there is no `renewmdtheoremenv`!

\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.

\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 4.2.3.

Here a small example:

```

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

```

\mdfapptodefinestyle

This commands allows to expand a defined style.⁴

³Thanks to Martin Scharrer and Enrico Gregorio:

[Own command to create new environment](#)

⁴Thanks to Martin Scharrer and Enrico Gregorio:

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

4. 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`.

4.1. Global Options

The following options are only global options.

`xcolor` default=`none`

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

`framemethod` default=`default`

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

1. L^AT_EX-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
L ^A T _E X-commands	<code>default</code> , <code>tex</code> , <code>latex</code> , <code>none</code> , <code>0</code>
TikZ	<code>tikz</code> , <code>pgf</code> , <code>1</code>
PSTricks	<code>pstricks</code> , <code>ps</code> , <code>postscript</code> , <code>2</code>

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

Note

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

4.2. Global and Local Options

The options listed below can be set globally or locally and they are not limited to the preamble.

4.2.1. Options with lengths

In figure (1) you can see the adjustable lengths 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. Only `framemethod=tikz` is able to draw such triple lines.

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

`defaultunit`

`default=pt`

see the sentence above.

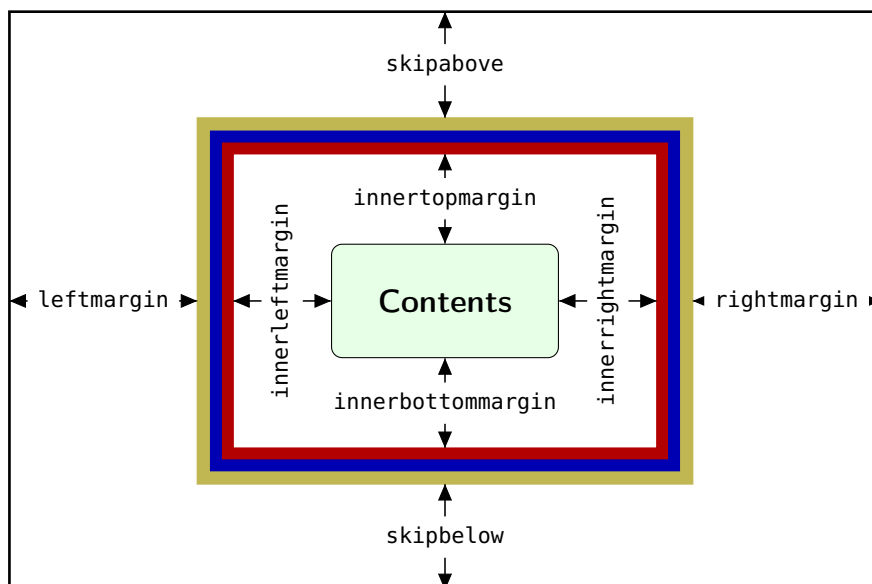


Figure 1: adjustable lengths of mdframed

`skipabove`

`default=0pt`

Sets an additional skip above the frame.

`skipbelow`

`default=0pt`

Sets an additional skip below the frame.

`margin`

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

`leftmargin`

`default=0pt`

Sets the length of the left margin of the environment.

`rightmargin`

`default=0pt`

Sets the length of the right margin of the environment.

`innerleftmargin`

`default=10pt`

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

`innerrightmargin`

`default=10pt`

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

`innertopmargin`

`default=.4\baselineskip`

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

`innerbottommargin` default=.4\baselineskip

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

The following lengths are not shown in figure (1).

`userdefinedwidth` default=0pt

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

`outermargin`

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

`innermargin`

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

`splittopskip` default=0pt

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

`splitbottomskip` default=0pt

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

`linewidth` default=0.4pt

Sets the width of the line around the environment.

`roundcorner` default=0pt

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

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

`innerlinewidth` default=0pt

Sets the width of the inner line around the environment.

This works only with `framemethod=TikZ`.

`outerlinewidth` default=0pt

Sets the width of the outer line around the environment.

This works only with `framemethod=TikZ`.

`middlelinewidth` default=linewidth

Sets the width of the middle line around the environment.

This works only with `framemethod=TikZ`.

4.2.2. Colored Options

`linecolor` default=black

Sets the color of the line around the environment.

`backgroundcolor` default=white

Sets the color of the background of the environment.

`fontcolor` default=black

Sets the color of the contents of the environment.

`innerlinecolor` default=linecolor

Sets the color of the inner line around the environment.

This works only with `framemethod=TikZ`.

`middlelinecolor` default=linecolor

Sets the color of the middle line around the environment.

This works only with `framemethod=TikZ`.

`outerlinecolor` default=linecolor

Sets the color of the outer line around the environment.

This works only with `framemethod=TikZ`.

4.2.3. General options

`ntheorem` default=false

Before setting this boolean key, you have to load the package `ntheorem`.

With this option you set the values `theoremprskipamount` and `theoremposskipamount` to 0 pt.

`nobreak` default=false

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

`needspace` default=0pt

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

`style`

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

`settings` default=none

With version 0.9 of the package `mdframed` this option was added. This option allows the user to commit some macros. An example is shown in the appendix.

`printheight` default=none

This key allows the entries `none`, `info` or `warning`. In relation to the key the vertical space at the beginning of the environment `mdframed` on the current page will be printed in the `log` file.

`align` default=left

Sometimes it is useful to align the environment itself. For this you have the option `align` which can be set to the following strings: `left`, `right` and `center`. The alignments `left` or `right` depend on the given lengths `leftmargin` and `rightmargin`. Later I will present an example to demonstrate my bad English explanation.

`pstrickssetting` default=`none`

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

This works only with `framemethod=PSTricks`.

`tikzsetting` default=`none`

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

This works only with `framemethod=TikZ`.

`apptotikzsetting` default=`none`

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

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

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`.

4.3. 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.

4.4. Frametitle

`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.

`frametitleformat`default= `bfserieslarge`

Sets the format of the `frametitle`.

4.5. 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.

5. 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.

6. Errors, Warnings and Messages

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

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

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

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

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

With version 0.9d `mdframed` changed the meaning of the option `style`. The option is used to load a defined style by `mdfdefinestyle`. Instead use `framemethod` (see section 4.1).

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

The input string for the option `framemethod` is unknown. See section 4.1.

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

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

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

The package `mdframed` calculates the width of the contents based on the given options. If the width of the contents smaller than 3 cm 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.

7. 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`.

8. ToDo

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`

9. Previous versions

If you have trouble with the new version of `mdframed` you can load `mdframedpre` instead. In this way you load the version v0.6 (see [Revision history](#)). With the new version 0.7a I changed the internal commands (I use `etoolbox`) and the algorithm of the splitting. So I don't know whether I will get new bugs or not. For the last case and the previous version (v0.6) works well you can load `mdframedpre` instead of `mdframed`.

10. Acknowledgements

Dick Nickalls; Dietrich Grau; Piazza Luca; Jobst Hoffmann.

Thanks for proofreading

Alan Munn and Nahid Shajari

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 `@tempboxa`. After the calculation of the width and the height of the `@tempboxa` (done by `mdframed.sty`) the box will be set sequentially (done by `md-frame-X.mdf`). The following figure demonstrates this.

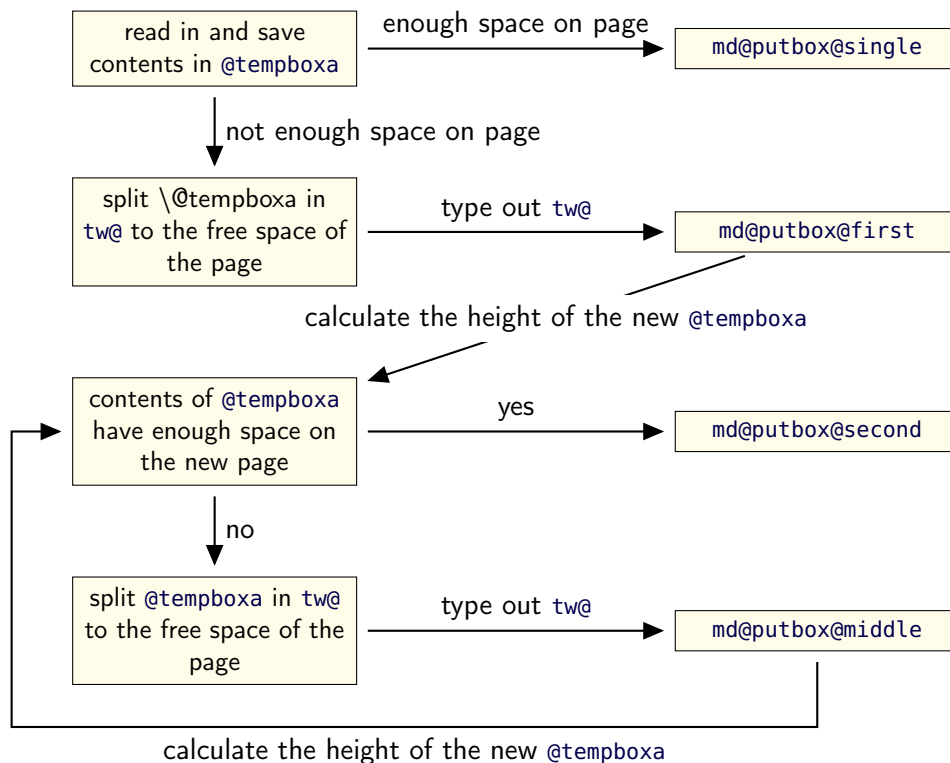


Figure 2: Setting the contents of `mdframed`

The width of the contents is the result of the settings of `leftmargin`, `rightmargin`, `linewidth`, `innerleftmargin` and `innerrightmargin` (see figure (1)).

A.2. The Framecommands

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

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

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

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

`md@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\md@putbox@single{\box\@tempboxa}
\makeatother
```

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

```
\makeatletter
\def\md@putbox@single{\leftline{\box\@tempboxa}}
\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 `md@putboxsingle` as follows

```
\makeatletter
\def\md@putbox@single{%
  \leftline{%
    \hspace*{\mdf@leftmargin@length}%
    \rule[-\dp\@tempboxa]{\mdf@linewidth}%
      {\ht\@tempboxa+\dp\@tempboxa}%
    \box\@tempboxa
  }%
}
\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 1.0b submitted 9 Dec 2011

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

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

Version 0.6 submitted 18 Dec 2010

- added `style=3` with `pstricks` • added option `pstrickssetting` • added option `splitbottomskip` • added option `splittopskip` • added options for hidden lines • changed the calculation • fixes bugs

Version 0.4a submitted 14 May 2010

- fixes bug in `fontcolor`

Version 0.4 submitted 13 May 2010

- Elke Schubert creates style file for `tikz` • fixes some bugs – calculation of the page dimen (thanks Dick Nickalls)
- using `tikz` for the frame with different styles

Version 0.3b submitted 1 May 2010

- fixes some bugs – thanks to Dietrich Grau • added new options: `ntheorem`

Version 0.3a submitted 23 Apr 2010

- added new options: `leftmargin` and `rightmargin` • fixes some bugs

Version 0.3 submitted 16 Apr 2010

- first upload to [CTAN](#)

B. Implementation

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

B.1. The Explanation of mdframed.sty

Id : mdframed.dtx2732011-12-1009:21:09Zmarco Rev : 273 Author : marco

Date : 2011-12-1010:21:09+0100(Sa, 10.Dez2011)

```
\mdversion
\mdframedpackagename
\md@maindate@svn
```

Set package information

```
1 \def\mdversion{v1.0c}
2 \def\mdframedpackagename{mdframed}
3 \def\md@maindate@svn$#1: #2 #3 #4-#5-#6 #7 #8${#4/#5/#6\space }

4 \NeedsTeXFormat{LaTeX2e}
5 \ProvidesPackage{mdframed}%
6     [\md@maindate@svn$Id: mdframed.dtx 273 2011-12-10 09:21:09Z marco $%
7     \mdversion: \mdframedpackagename]
```

```
\md@PackageWarning
\md@PackageInfo
\md@LoadFile@IfExist
```

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

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

Loading required packages

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

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

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

```
\md@iflength
\md@iflength@check
\md@iflength@check
```


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

```

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

```

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

Command to define a new length with a default value.

```

\mdf@option@length{<Laengenbezeichnung>}{<Defaultwert>}

42 \newrobustcmd*{\mdf@option@length}[2]{%
43   \expandafter\newlength\csname md@#1@length\endcsname%
44   \expandafter\setlength\csname md@#1@length\endcsname{#2}%
45 }
```

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

```

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

```
\mdf@dolist
```

Loop used by *mdframed*.

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

```

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

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

```

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

```

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

```

```

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

```

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

```

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

```

```

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

```

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

```

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

```

```

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

```

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

```

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

```

Start declaration of options

```

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

```

Only provide to be backward compatible

```

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

```

```

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

```

\mdf@framemethod

```

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

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

```

\mdf@do@lengthoption

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

```

133 \mdf@dolist{\mdf@do@lengthoption}{%
134     {skipabove==\z@},%
135     {skipbelow==\z@},%
136     {leftmargin==\z@},%
137     {rightmargin==\z@},%
138     {margin==20pt},%
139     {innerleftmargin==10pt},%

```

```

140 {innerrightmargin==10pt},%
141 {innertopmargin==0.4\baselineskip},%
142 {innerbottommargin==0.4\baselineskip},%
143 {splittopskip==\z@},%
144 {splitbottomskip==\z@},%
145 {outermargin== -999pt},%
146 {innermargin== -999pt},%
147 {linewidth==0.4pt},%
148 {innerlinewidth==\z@},%
149 {middlelinewidth==\expandafter\mdf@linewidth@length},%
150 {outerlinewidth==\z@},%
151 {roundcorner==\z@},%
152 {footnotedistance==\medskipamount},
153 {userdefinedwidth==\linewidth}
154 }

```

\mdf@do@lengthoption

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

```

155 \mdf@dolist{\mdf@do@stringoption}{%
156   {defaultunit==pt},%
157   {settings=={}},%
158   {linecolor==black},%
159   {backgroundcolor==white},%
160   {fontcolor==black},%
161   {innerlinecolor==\mdf@linecolor},%
162   {outerlinecolor==\mdf@linecolor},%
163   {middlelinecolor==\mdf@linecolor},%
164   {psroundlinecolor==\mdf@backgroundcolor},%
165   {frametitle=={}},%
166   {frametitlefont==\bfseries\large},%
167   {printheight==none},%
168 }

```

\mdf@do@booloption

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

```

169 \mdf@dolist{\mdf@do@booloption}{%
170   {ntheorem==false},%
171   {topline==true},%
172   {leftline==true},%
173   {bottomline==true},%
174   {rightline==true},%
175   {hidealllines==false},%
176   {nobreak==false},%
177   {footnoteinside==true},%
178 }

```

\mdf@do@alignoption

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

```

179 \mdf@dolist{\mdf@do@alignoption}{%
180   {left==\mdf@leftmargin@length==\z@},%
181   {center==\fill==\fill},%

```

```

182 {right==\fill==\mdf@rightmargin@length},%
183 {outer==\fill==\mdf@rightmargin@length},%not supported yet
184 {outer==\mdf@leftmargin@length==\fill},%not supported yet
185 }

```

```

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

```

Set the alignment.

```

186 \newcommand*\mdf@align{}%
187 \newcommand*\mdf@makeboxalign@left{\null\hspace*{\mdf@leftmargin@length}}%
188 \newcommand*\mdf@makeboxalign@right{}%
189 \define@key{mdf}{align}[left]{%
190   \ifcsundef{mdf@align@#1@left}{%
191     \md@PackageWarning{Unknown alignment #1\MessageBreak}%
192     \letcs\mdf@makeboxalign@left{mdf@align@left@left}%
193     \letcs\mdf@makeboxalign@right{mdf@align@left@right}%
194   }{%
195     \def\mdf@makeboxalign@left{\csuse{mdf@align@#1@left}}%
196     \def\mdf@makeboxalign@right{\csuse{mdf@align@#1@right}}%
197   }%
198 }

```

```

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

```

Option to pass options to tikz or pstricks

```

199 \def\mdf@tikzset@local{\tikzset{tikzsetting/.style={}}}
200 \define@key{mdf}{tikzsetting}{%
201   \def\mdf@tikzset@local{\tikzset{tikzsetting/.style={#1}}}%
202 }
203 \define@key{mdf}{apptotikzsetting}{%
204   \appto\mdf@tikzset@local{#1}%
205 }
206 \def\mdf@psset@local{}
207 \define@key{mdf}{pstrickssetting}{%
208   \def\mdf@psset@local{#1}%
209 }

```

```

\mdf@xcolor

```

Problem with xcolor. This part must be reworked!

```

210 \def\mdf@xcolor{}
211 \define@key{mdf}{xcolor}[none]{%
212   \ifpackageloaded{xcolor}{%
213     \let\mdf@xcolor\@empty %ignoriere die Eingabe der Optionen
214   }{%
215     \def\@tempa{none}%
216     \ifx\mdf@xcolor\@tempa
217       \else
218         \PassOptionsToPackage{\mdf@xcolor}{xcolor}%
219         \RequirePackage{xcolor}%

```

```

220     \fi%
221   }%
222 }

```

\mdf@needspace

Defining the option `needspace`

```

223 \define@key{mdf}{needspace}[\z@]{%
224   \begingroup%
225     \setlength{\dimen@}{#1}%
226     \vskip\z@\@plus\dimen@%
227     \penalty -100\vskip\z@\@plus -\dimen@%
228     \vskip\dimen@%
229     \penalty 9999%
230     \vskip -\dimen@%
231     \vskip\z@skip % hide the previous |\vskip| from |\addvspace|
232   \endgroup%
233 }

234 \DeclareDefaultOption{%
235   \md@PackageWarning{Unknown Option '\CurrentOption' for mdframed}}
236 \ProcessKeyvalOptions*\relax

```

\mdfsetup

Short form of `\setkeys{mdf}`

```

237 \newcommand*{\mdfsetup}{\setkeys{mdf}}

```

\mdf@style

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

```

238 \define@key{mdf}{style}{%
239   \ifcsundef{mdf@definestyle@#1}{%
240     \md@PackageWarning{Unknown definedstyle #1^^J
241       You have to define a style ^^J
242       via \string\mdfdefinedstyle\MessageBreak
243     }%
244   }%
245   {\expandafter\expandafter\expandafter\mdfsetup%
246     \expandafter\expandafter\expandafter{\csname mdf@definestyle@#1\endcsname}}%
247 }%

```

\md@print@space

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

```

248 \let\md@PackageNoInfo\@gobble
249 \newrobustcmd*{\md@ifstrequal@expand}%
250 \expandafter\ifstrequal\expandafter{\mdf@printheight}%
251 }
252 \newrobustcmd*{\md@print@space}%
253   %case "none"
254   \md@ifstrequal@expand{none}{\def\md@tempa{NoInfo}}{%
255     %case "info"

```

```

256     \md@ifstrequal@expand{info}{\def\md@tempa{Info}}{%
257         %case "warning"
258         \md@ifstrequal@expand{warning}{\def\md@tempa{Warning}}{%
259             %case "unknown"
260             \md@PackageWarning{Unknown key for printheight=\mdf@printheight^^J
261                 use none, info or warning}%
262             \def\md@tempa{none}%
263         }%
264     }%
265 }%
266 \def\md@PackageInfoSpace{\csname md@Package\md@tempa\endcsname}%
267 }

```

```

\md@lrbox
\endmd@lrbox

```

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

```

268 %\let\md@lrbox\lrbox
269 %\patchcmd\md@lrbox\hbox\vbox{}{}
270 %\patchcmd\md@lrbox\color@setgroup{%
271 %\begingroup%
272 %\color@setgroup\color{\mdf@fontcolor}%
273 %\hsize=\md@horizontalsofbox%
274 %\columnwidth=\hsize%
275 %\textwidth=\hsize%
276 %\linewidth=\hsize%
277 %\@parboxrestore%
278 %\bgroup\md@@frametitle\egroup\noindent%
279 %}{}}
280 \def\md@lrbox#1{%
281     \edef\reserved@a{%
282         \endgroup
283         \setbox#1\vbox{%
284             \begingroup\aftergroup}%
285             \def\noexpand\@currenvir{\@currenvir}%
286             \def\noexpand\@currencline{\on@line}}%
287     \reserved@a
288     \@endpfalse
289     \@parboxrestore
290     \begingroup%
291     \color@setgroup
292     \color{\mdf@fontcolor}%
293     \hsize=\md@horizontalsofbox%
294     \columnwidth=\hsize%
295     \textwidth=\hsize%
296     \linewidth=\hsize%
297     \@parboxrestore
298     \bgroup\md@@frametitle\egroup\noindent%
299     \ignorespaces}
300
301 \def\endmd@lrbox{\endgroup\unskip\color@endgroup}

```

```

\md@trivlist
\endmd@trivlist

```

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

```

302 \let\md@trivlist\trivlist
303 \let\endmd@trivlist\endtrivlist
304 \patchcmd\endmd@trivlist\@endparenv\md@endparenv{}{}
305 \def\md@endparenv{%
306   \addpenalty\@endparpenalty\addvspace\mdf@skipbelow@length\@endpetrue}

```

```

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

```

```

307 \newrobustcmd*\mdf@makebox@out[2][\linewidth]{%
308   \noindent\hb@xt@\z@{%
309     \noindent\makebox[\dimexpr #1\relax][l]{#2}%
310   \hss}%
311 }%
312 \newrobustcmd*\mdf@makebox@in[2][\mdf@userdefinedwidth@length]{%
313   \noindent\makebox[\dimexpr #1\relax][l]{#2}%
314 }

```

```

\mdfdefinestyle
\mdfapptodefinestyle

```

See explanation of this commands above.

```

315 \newrobustcmd*\mdfdefinestyle[2]{%
316   \csdef{mdf@definestyle@#1}{#2}%
317 }
318 \newrobustcmd*\mdfapptodefinestyle[2]{%
319   \ifcsundef{mdf@definestyle@#1}%
320     {\md@PackageWarning{Unknown style #1}}%
321     {\csappto{mdf@definestyle@#1}{, #2}}%
322 }

```

```

\newmdenv
\renewmdenv
\newmdtheoremenv

```

Defining of the new environment definitions.

```

323 \newrobustcmd*\newmdenv[2][]{%
324   \newenvironment{#2}{%
325     \mdfsetup{#1}%
326     \begin{mdframed}%
327   }{%
328     \end{mdframed}%
329   }%
330 }
331 \newrobustcmd*\renewmdenv[2][]{%
332   \expandafter\let\csname #2\endcsname\relax%
333   \expandafter\let\csname end#2\endcsname\relax%
334   \newmdenv[#1]{#2}%
335 }%
336 \newrobustcmd*\newmdtheoremenv{%
337   \kernel@ifnextchar[%
338     {\newmdtheoremenv@i}{\newmdtheoremenv@i[]}%

```



```

339 }
340 \def\newmdtheoremenv@i[#1]#2{%
341   \kernel@ifnextchar[%
342     {\newmdtheoremenv@ii[#1]#2}{\newmdtheoremenv@ii[#1]#2[]}%
343 }
344 \def\newmdtheoremenv@ii[#1]#2[#3]#4{%
345   \kernel@ifnextchar[%
346     {\newmdtheoremenv@iii[#1]#2[#3]#4}{\newmdtheoremenv@iii[#1]#2[#3]#4[]}%
347 }
348 \def\newmdtheoremenv@iii[#1]#2[#3]#4[#5]{%
349   \ifboolexpr{ test {\ifblank {#3}} and test {\ifblank {#5}} }{%
350     {%
351       \newtheorem{#2}{#4}%
352     }{%
353       \ifboolexpr{ not (test {\ifblank {#3}}) and not (test {\ifblank {#5}}) }{%
354         {\md@PackageWarning{You can't such a comibination for newmdtheoremenv^^J
355           Instead mdframed uses newtheorem{#2}{#4}}%
356         \newtheorem{#2}{#4}%
357       }%
358     }{%
359       \notblank{#3}{\newtheorem{#2}[#3]{#4}}{%
360         \notblank{#5}{\newtheorem{#2}[#4]{#5}}{%
361           }%
362         }%
363       \BeforeBeginEnvironment{#2}{\begin{mdframed}}[#1]}%
364       \AfterEndEnvironment{#2}{\end{mdframed}}}%
365 }

```

`\mdframedtitleenv`
`\md@@frametitle`

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

```

366 \let\mdraggedtitle\raggedright
367 \providecommand*\mdframedtitleenv[1]{%
368   \@afterindentfalse
369   {\parindent \z@
370     \setlength{\parfillskip}{\z@ plus 1fil}%
371     \mdraggedtitle\nobreak\mdf@frametitlefont#1\relax%
372   \par}%
373   \@afterheading}
374
375 \newrobustcmd*\md@@frametitle{%
376   \ifx\mdf@frametitle\@empty\relax%
377   \else
378     \color@begingroup\nobreaktrue%
379     \mdframedtitleenv{\mdf@frametitle}%
380     \color@endgroup
381   \fi%
382 }

```

`\md@checkntheorem`

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

```

383 \newrobustcmd*\md@checkntheorem{%
384   \ifbool{mdf@ntheorem}      %% Pruefen ob ntheorem gesetzt ist

```

```

385     {\ifundef{\theorempreskipamount}%
386         {\md@PackageWarning{You have not loaded ntheorem yet}}}%
387         {\setlength{\theorempreskipamount}{\z@}%
388             \setlength{\theorempostskipamount}{\z@}%
389         }%
390     }{}%
391 }

```

```

\md@footnoterule
\md@footnoteoutput
\md@footnoteinput

```

Support for footnotes.

```

392 \newrobustcmd*\md@footnoterule{%
393     \kern0\p@%
394     \hrule \@width 1in \kern 2.6\p@}
395 \newrobustcmd*\md@footnoteoutput{%
396     \ifvoid\@mpfootins\else
397         \nobreak%
398         \vskip\mdf@footnotedistance@length%
399         \normalcolor%
400         \md@footnoterule
401         \unvbox\@mpfootins
402     \fi%
403 }
404 \newrobustcmd*\md@footnoteinput{%
405     \def\@mpfn{mpfootnote}%
406     \def\thempfn{\thempfootnote}%
407     \c@mpfootnote\z@%
408     \let\@footnotetext\@mpfootnotetext%
409 }

```

```

\mdf@load@style
\md@styledefinition

```

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

```

410 \newrobustcmd*\mdf@load@style{%
411     \ifcase\value{mdf@globalstyle@cnt}\relax%
412         \input{md-frame-0.mdf}%
413     \or\input{md-frame-1.mdf}%
414     \or\input{md-frame-2.mdf}%
415     \or\input{md-frame-3.mdf}%
416     \else%
417         \IfFileExists{md-frame-\value{mdf@globalstyle@cnt}.mdf}%
418             {\input{md-frame-\value{mdf@globalstyle@cnt}.mdf}}%
419         {%
420             \input{md-frame-0.mdf}%
421             \md@PackageWarning{The style number \value{mdf@globalstyle@cnt} does not exist^^J
422                 mdfamed ues instead style=0 \mdframedpackagename}%
423         }%
424     \fi%
425 }%
426 \mdf@load@style
427
428 \newrobustcmd*\md@styledefinition{%

```

```

429 \ifnumequal{\value{mdf@globalstyle@cnt}}{0}%
430 {\deflength{\mdf@innerlinewidth@length}{\z@}%
431 \deflength{\mdf@middlelinewidth@length}{\mdf@linewidth@length}%
432 \deflength{\mdf@outerlinewidth@length}{\z@}%
433 \let\mdf@innerlinecolor\mdf@linecolor%
434 \let\mdf@middlelinecolor\mdf@linecolor%
435 \let\mdf@outerlinecolor\mdf@linecolor%
436 }{}%
437 \ifnumequal{\value{mdf@globalstyle@cnt}}{2}%
438 {\deflength{\mdf@innerlinewidth@length}{\z@}%
439 \deflength{\mdf@middlelinewidth@length}{\mdf@linewidth@length}%
440 \deflength{\mdf@outerlinewidth@length}{\z@}%
441 \let\mdf@innerlinecolor\mdf@linecolor%
442 }{}%
443 \ifnumequal{\value{mdf@globalstyle@cnt}}{3}%
444 {\deflength{\mdf@innerlinewidth@length}{\z@}%
445 \deflength{\mdf@middlelinewidth@length}{\mdf@linewidth@length}%
446 \deflength{\mdf@outerlinewidth@length}{\z@}%
447 \let\mdf@innerlinecolor\mdf@linecolor%
448 }{}%
449 }

```

`\detected@md@put@frame`

Detect whether inside a non breakable environment.

```

450 \let\md@reserved@a\@empty
451 \newrobustcmd*\detected@md@put@frame{%
452 \ifmdf@nobreak%Option nobreak=true?
453 \def\md@reserved@a{\md@put@frame@standalone}%
454 \else
455 \def\md@reserved@a{\md@put@frame}%
456 \ifnum\@floatpenalty<0\relax%Detecting float
457 \if@twocolumn%
458 \ifx\@capttype\@undefined
459 \def\md@reserved@a{\md@put@frame}%
460 \else
461 \md@PackageInfo{mdframed inside float ^^J
462 mdframed uses option nobreak \mdframedpackagename}%
463 \def\md@reserved@a{\md@put@frame@standalone}%
464 \fi
465 \else
466 \md@PackageInfo{mdframed inside float ^^J
467 mdframed uses option nobreak \mdframedpackagename}%
468 \def\md@reserved@a{\md@put@frame@standalone}%
469 \fi%
470 \fi%
471 \if@minipage%
472 \md@PackageInfo{mdframed inside minipage ^^J
473 mdframed uses option nobreak \mdframedpackagename}%
474 \def\md@reserved@a{\md@put@frame@standalone}%
475 \fi%
476 \ifinner%
477 \md@PackageInfo{mdframed inside a box ^^J
478 mdframed uses option nobreak \mdframedpackagename}%
479 \def\md@reserved@a{\md@put@frame@standalone}%

```

```

480     \fi%
481     \fi%
482 \md@reserved@a%
483 }

```

```
\md@hidealllines@check
```

```

484 \newrobustcmd*\md@hidealllines@check{%
485   \ifbool{mdf@hidealllines}{%
486     \setbool{mdf@leftline}{false}%
487     \setbool{mdf@rightline}{false}%
488     \setbool{mdf@topline}{false}%
489     \setbool{mdf@bottomline}{false}%
490   }{}%
491 }

```

X-length

```

492 \newlength\mdfboundingboxwidth
493 \newlength\mdfboundingboxtotalwidth

```

Y-length

```

494 \newlength\mdfboundingboxheight
495 \newlength\mdfboundingboxdepth
496 \newlength\mdfboundingboxtotalheight
497 \newlength\md@freevspace@length
498 \newlength\md@horizontalwidthofbox@length
499 \newlength\md@verticalmarginwhole@length

```

```
500 \providecommand*\ptTps{}
```

```
\mdfcreateextratikz
```

Command to expand the tikz code. (see md-frame-1.mdf)

```
501 \newrobustcmd\mdfcreateextratikz{}
```

```

\mdframed
\mdframed@ii
\mdframed@i

```

That the user environment.

```

502 \def\mdframed{\@ifnextchar[\mdframed@i\mdframed@ii}%
503 \def\mdframed@ii{\mdframed@i[]}%
504 \def\mdframed@i[#1]{% default-Umgebung
505   \begingroup
506   %%Ueberlegung- wie es besser geht!!!! WICHTIG
507   \mdfsetup{userdefinedwidth=\linewidth,#1}
508   \md@hidealllines@check%
509   \mdf@settings%
510   \md@twoside@checklength%
511   \let\width\z@%
512   \let\height\z@%
513   \setlength{\topsep}{\mdf@skipabove@length}%
514   \begingroup%

```

```

515 \let\partopsep\z@%
516 \expandafter\endgroup%
517 \begin{md@trivlist}\item\relax%
518 \md@checkntheorem%
519 \md@styledefinition%
520 \md@footnoteinput%
521 \md@horizontalmargin@equation%
522 \begin{md@lrbox}{\@tempboxa}%
523 }%

```

```
\endmdframed
```

```

524 \def\endmdframed{%
525   \ifmdf@footnoteinside%
526     \def\md@reserveda{%
527       \md@footnoteoutput%
528       \end{md@lrbox}%
529       \detected@md@put@frame}%
530   \else%
531     \def\md@reserveda{%
532       \end{md@lrbox}%
533       \detected@md@put@frame%
534       \md@footnoteoutput%
535     }%
536   \fi%
537   \md@reserveda%
538   \end{md@trivlist}%
539   \hrule \@height\z@ \@width\hsize
540 \endgroup\@endparenv%
541 }

```

```

\md@twoside@checklength
\md@zref@label
\ifmd@pageodd
\md@pageisodd
\md@pageiseven
\md@@setzref

```

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

```

542 \newtoggle{md:checktwoside}
543 \settoggle{md:checktwoside}{false}
544 \newrobustcmd*\md@twoside@checklength{%
545   \if@twoside
546     \ifboolexpr{ test {\ifdimequal{\mdf@outermargin@length}{-999pt}}
547               and
548               test {\ifdimequal{\mdf@innermargin@length}{-999pt}}
549             }%
550     {%
551       \md@PackageInfo{You haven't set the outermargin/innermargin^^
552                       mdframed will use leftmargin/rightmargin}%
553       \settoggle{md:checktwoside}{false}%
554     }%
555     {\settoggle{md:checktwoside}{true}}%
556   \iftoggle{md:checktwoside}{%

```

```

557     \ifdimequal{\mdf@outermargin@length}{-999pt}%
558     {\setlength\mdf@rightmargin@length{\z@}}%
559     {\setlength\mdf@rightmargin@length{\mdf@outermargin@length}}%
560     \ifdimequal{\mdf@innermargin@length}{-999pt}%
561     {\setlength\mdf@leftmargin@length{\z@}}%
562     {\setlength\mdf@leftmargin@length{\mdf@innermargin@length}}%
563   }{}%
564 \fi%
565 }
566 \newcounter{md@zref@counter}%keine doppelten laebes
567 \zref@newprop*{md@pagevalue}[0]{\number\value{page}}
568 \zref@addprop{\ZREF@mainlist}{md@pagevalue}
569 \newrobustcmd*{\md@zref@label}%
570   \stepcounter{md@zref@counter}
571   \zref@label{md@pagelabel-\number\value{md@zref@counter}}%
572 }
573 \newrobustcmd*{\ifmd@pageodd}%
574   \zref@refused{md@pagelabel-\the\value{md@zref@counter}}%
575   \ifodd\zref@extract{md@pagelabel-\the\value{md@zref@counter}}{md@pagevalue}%
576   \edef\md@reserveda{\md@pageisodd}%
577   \else
578     \edef\md@reserveda{\md@pageiseven}%
579   \fi
580   \md@reserveda%
581 }
582 \newrobustcmd*{\md@pageisodd}%
583   \ifdimequal{\mdf@outermargin@length}{-999pt}%
584   {\setlength\mdf@rightmargin@length{\z@}}%
585   {\setlength\mdf@rightmargin@length{\mdf@outermargin@length}}%
586   \ifdimequal{\mdf@innermargin@length}{-999pt}%
587   {\setlength\mdf@leftmargin@length{\z@}}%
588   {\setlength\mdf@leftmargin@length{\mdf@innermargin@length}}%
589 }
590 \newrobustcmd*{\md@pageiseven}%
591   \ifdimequal{\mdf@outermargin@length}{-999pt}%
592   {\setlength\mdf@leftmargin@length{\z@}}%
593   {\setlength\mdf@leftmargin@length{\mdf@outermargin@length}}%
594   \ifdimequal{\mdf@innermargin@length}{-999pt}%
595   {\setlength\mdf@rightmargin@length{\z@}}%
596   {\setlength\mdf@rightmargin@length{\mdf@innermargin@length}}%
597 }
598 \newrobustcmd*{\md@setzref{\md@zref@label\ifmd@pageodd}

```

`\md@freepagevspace`

```

599 \newrobustcmd*{\md@freepagevspace}%
600   \penalty\@M \vskip 2\baselineskip \vskip\height
601   \penalty9999 \vskip -2\baselineskip \vskip-\height
602   \penalty9999
603   \ifdimequal{\pagegoal}{\maxdimen}%
604     {\md@freevspace@length\vsiz}%
605     {\md@freevspace@length=\pagegoal\relax%
606     \advance\md@freevspace@length by -\pagetotal\relax%
607     }%
608 }

```

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

Width of the box

```
609 \newrobustcmd*\md@advancelength@horizontalmargin@add[1]{%
610   \advance\md@horizontalsofbox by -\csname md@#1@length\endcsname\relax%
611 }
612 \newlength\md@horizontalsofbox
613 \newrobustcmd*\md@horizontalmargin@equation{%
614   \setlength{\md@horizontalsofbox}{\mdf@userdefinedwidth@length}%
615   \mdf@dolist{\md@advancelength@horizontalmargin@add}{%
616     leftmargin,outerlinewidth,middlelinewidth,%
617     innerlinewidth,innerleftmargin,innerrightmargin,%
618     innerlinewidth,middlelinewidth,outerlinewidth,%
619     rightmargin}%
620   \notbool{mdf@leftline}{%
621     \advance\md@horizontalsofbox by \mdf@innerlinewidth@length\relax%
622     \advance\md@horizontalsofbox by \mdf@middlelinewidth@length\relax%
623     \advance\md@horizontalsofbox by \mdf@outerlinewidth@length\relax%
624   }{}%
625   \notbool{mdf@rightline}{%
626     \advance\md@horizontalsofbox by \mdf@innerlinewidth@length\relax%
627     \advance\md@horizontalsofbox by \mdf@middlelinewidth@length\relax%
628     \advance\md@horizontalsofbox by \mdf@outerlinewidth@length\relax%
629   }{}%
630   \advance\md@horizontalsofbox by -\width\md@arrayparboxrestore%
631   %% Beruecksichtigung, dass Auszaehlung bzw. list-Umgebung enthalten
632   \ifdimless{\md@horizontalsofbox}{3cm}%
633     {\md@PackageWarning{You have only a width of 3cm}}{}
634   \hsize=\md@horizontalsofbox%
635 }
```

```
\md@keeplines@single
```

horizontal space in relation of the lines.

```
635 \newrobustcmd*\md@keeplines@single{%
636   \notbool{mdf@topline}{%
637     \advance\md@verticalmarginwhole@length by -\mdf@middlelinewidth@length%
638   }{}%
639   \notbool{mdf@bottomline}{%
640     \advance\md@verticalmarginwhole@length by -\mdf@middlelinewidth@length%
641   }{}%
642 }
```

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

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

```
643 \newrobustcmd*\md@advancelength@verticalmarginwhole[1]{%
644   \advance\md@verticalmarginwhole@length by \csname md@#1@length\endcsname\relax%
645 }
646 \newrobustcmd*\md@advancelength@freevspace@sub[1]{%
```

```

647 \advance\dimen@ by -\csname mdf@#1@length\endcsname\relax%
648 }
649 \newrobustcmd*\md@advancelength@freevspace@add[1]{%
650 \advance\dimen@ by \csname mdf@#1@length\endcsname\relax%
651 }

```

\md@reset

Reset changes

```

652 \protected@edef\md@reset{\boxmaxdepth\the\boxmaxdepth
653 \splittopskip\the\splittopskip}%

```

\md@put@frame@standalone

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

```

654 \newrobustcmd*\md@put@frame@standalone{\relax%
655 \ifvoid\@tempboxa\relax
656 \md@PackageWarning{The environment is empty\MessageBreak}%
657 \let\md@reserved@a\relax%
658 \else
659 %Hier berechnung Box-Inhalt+Rahmen oben und unten
660 \setlength{\md@verticalmarginwhole@length}%
661 {\dimexpr\ht\@tempboxa+\dp\@tempboxa\relax}%
662 \mdf@dolist{\md@advancelength@verticalmarginwhole}{%
663 outerlinewidth,middlelinewidth,innerlinewidth,innertopmargin,
664 innerbottommargin,innerlinewidth,middlelinewidth,outerlinewidth}%
665 \md@keeplines@single%
666 \def\md@reserved@a{\md@putbox@single}%
667 \fi
668 \md@reserved@a%
669 }

```

\md@put@frame

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

```

670 \def\md@put@frame{\relax%
671 \ifvoid\@tempboxa\relax
672 \md@PackageWarning{The environment is empty\MessageBreak}%
673 \let\md@reserved@a\relax%
674 \else
675 \md@print@space%
676 \md@freepagevspace%
677 \md@PackageInfoSpace{\the\md@freevspace@length before the beginning of ^^J
678 the environment ending on input line \MessageBreak}%
679 \ifdimless{\md@freevspace@length}{2\baselineskip}
680 {\md@PackageInfo{Not enough space on this page}
681 \vfill\ejct%
682 \def\md@reserved@a{\md@put@frame}%
683 }{%
684 %Hier berechnung Box-Inhalt+Rahmen oben und unten
685 \setlength{\md@verticalmarginwhole@length}%
686 {\dimexpr\ht\@tempboxa+\dp\@tempboxa\relax}%
687 \mdf@dolist{\md@advancelength@verticalmarginwhole}{%

```



```

688         outerlinewidth,middlelinewidth,innerlinewidth,innertopmargin,
689         innerbottommargin,innerlinewidth,middlelinewidth,outerlinewidth}%
690     \md@keeplines@single%
691     \ifdimless{\md@verticalmarginwhole@length}{\md@freevspace@length}%
692         {%passt auf Seite%
693         \begingroup
694         \iftoggle{md:checktwoside}{\md@setzref}{}%
695         \md@putbox@single
696         \endgroup
697         \let\md@reserved@a\relax}%
698     {\def\md@reserved@a{\md@put@frame@i}}%passt nicht auf Seite
699 }%
700 \fi
701 \md@reserved@a%
702 }

```

`\md@put@frame@i`

Output of the first splitted box.

```

703 \def\md@put@frame@i{%Box muss gesplittet werden -- Ausgabe der ersten Teilbox
704     %Berechnung der Splittgroesse -- Linien und Abstand oben
705     \md@freepagevspace%
706     \dimen@=\the\md@freevspace@length%
707     \dimen@i=\mdf@innertopmargin@length%
708     \advance\dimen@i by \mdf@linewidth@length%
709     \advance\dimen@i by 2\baselineskip%
710     \ifdim\dimen@<\dimen@i\relax
711         \hrule \@height\z@ \@width\hsize%
712         \vfill\@eject%
713         \def\md@reserved@a{\md@put@frame}%
714     \else%
715     \mdf@dolist{\md@advancelength@freevspace@sub}{%
716         outerlinewidth,middlelinewidth,innerlinewidth,%
717         innertopmargin,splitbottomskip}%
718     \ifbool{mdf@topline}{\advance\dimen@ by \mdf@middlelinewidth@length}%
719     \ifdimless{\ht\@tempboxa+\dp\@tempboxa}{\dimen@}%
720         {\md@PackageWarning{You got a bad break\MessageBreak
721             you have to change it manually\MessageBreak
722             by changing the text, the space\MessageBreak
723             or something else}%
724         \advance\dimen@ by -1.8\baselineskip\relax%
725         }{}%
726     \advance\dimen@ by -1pt\relax%Box darf nicht zu Groß werden.
727     \splitmaxdepth\z@ \splittopskip\mdf@splittopskip@length%
728     \setbox\tw@\vsplit\@tempboxa to \dimen@
729     % \setbox\tw@\vbox{\unvbox\tw@}%needed?
730     \ifdimgreater{\ht\tw@+\dp\tw@}{\dimen@}{%Falsch gesplittet
731         \md@PackageInfo{Box was splittet wrong\MessageBreak}%
732         \dimen@i=\dimen@
733         \advance\dimen@ by -\ht\tw@
734         \advance\dimen@ by -\dp\tw@
735         \advance\dimen@i by 0.5\dimen@
736         \splittopskip\z@%
737         \setbox\@tempboxa\vbox{\unvbox\tw@%

```

```

738                                     %benoetigt um Tiefe zu haben
739                                     \hrule \@height\dp\strutbox \@width\z@
740                                     \unvbox\@tempboxa}
741     \splittopskip\mdf@splittopskip@length%
742     \setbox\tw@\vsplit\@tempboxa to \dimen@i
743 %     \setbox\tw@\vbox{\unvbox\tw@}%
744     }{}%
745     \setbox\@tempboxa\vbox{\unvbox\@tempboxa}%PRUEFEN!!!!
746     \ifvoid\@tempboxa
747         \md@PackageWarning{You got a bad break\MessageBreak
748                             because the splittet box is empty\MessageBreak
749                             You have to change the page settings\MessageBreak
750                             like enlargethispage or something else}%
751     \setbox\@tempboxa\vbox{\box\tw@\box\@tempboxa}%
752     \def\md@reserved@a{\md@put@frame}%
753     \fi
754     \ifvoid\tw@%pruefe, ob erste Box leer ist
755     \hrule \@height\z@ \@width\hsize
756     \vfill\@eject%
757     \def\md@reserved@a{\md@put@frame}%
758     \else
759     \ifdimequal{\ht\tw@}{0pt}%
760         {\hrule \@height\z@ \@width\hsize%
761         \vfill\@eject%
762         \setbox\@tempboxa\vbox{\unvbox\tw@\unvbox\@tempboxa}
763         \def\md@reserved@a{\md@put@frame}%
764         }%
765         {%
766         \begingroup
767             \iftoggle{md:checktwoside}{\md@setzref}{}%
768             \md@putbox@first%%Groesse des Splittens passt
769         \endgroup
770         \hrule \@height\z@ \@width\hsize
771         \vfill\@eject%
772         \def\md@reserved@a{\md@put@frame@ii}%
773         }%
774     \fi%
775     \fi%
776     \md@reserved@a%
777 }

```

`\md@put@frame@ii`

Output of the middle and last box.

```

778 \def\md@put@frame@ii{%Ausgabe der mittleren Box(en) wenn vorhanden
779     \setlength{\md@freevspace@length}{\vsize}%
780     \setlength{\dimen@}{\dimexpr\ht\@tempboxa+\dp\@tempboxa\relax}%
781     \mdf@dolist{\md@advance@length@freevspace@add}{%
782         outerlinewidth,middlelinewidth,innerlinewidth,%
783         innerbottommargin}%%Addition der Linien unten
784     \ifbool{mdf@bottomline}{}{\advance\dimen@ by -\mdf@middlelinewidth@length\relax}%
785     \ifdimgreater{\dimen@}{\md@freevspace@length}%
786     {%
787         \advance\md@freevspace@length by -\mdf@splitbottomskip@length
788         \splitmaxdepth\z@ \splittopskip\mdf@splittopskip@length%

```

```

789      \setbox\tw@ \vsplit\@tempboxa to \md@freevspace@length%
790 %      \setbox\tw@\vbox{\unvbox\tw@}%PRUEFEN!!!
791      \setbox\@tempboxa\vbox{\unvbox\@tempboxa}%PRUEFEN!!!
792      \ifvoid\@tempboxa\relax%
793          \md@PackageWarning{You got a bad break\MessageBreak
794                          because the split box is empty\MessageBreak
795                          You have to change the settings}%
796      \fi%
797      \begingroup
798          \iftoggle{md:checktwoside}{\md@setzref}{}%
799          \md@putbox@middle%
800      \endgroup
801      \hrule \@height\z@ \@width\hsize
802      \vfill\@eject
803      \def\md@reserved@a{\md@put@frame@ii}%
804      }%Hier die Ausgabe der mittleren Box
805      {\ifvoid\@tempboxa
806          \md@PackageWarning{You got a bad break\MessageBreak
807                          because the last split box is empty\MessageBreak
808                          You have to change the settings}%
809      \fi%
810      \begingroup
811          \iftoggle{md:checktwoside}{\md@setzref}{}%
812          \md@putbox@second%
813      \endgroup
814      \let\md@reserved@a\relax%
815      }%Hier kommt die Ausgabe der letzten Box
816      \md@reserved@a%
817  }

818 \DisableKeyvalOption[action=warning,package=mdframed]{mdf}{framemethod}%
819 \DisableKeyvalOption[action=warning,package=mdframed]{mdf}{xcolor}%
820
821 \endinput

```

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

```

822 %% Style file for mdframed for package option 'framemethod=default'
823 %%
824 %% This package may be distributed under the terms of the LaTeX Project
825 %% Public License, as described in lppl.txt in the base LaTeX distribution.
826 %% Either version 1.0 or, at your option, any later version.
827
828 %%$Id: mdframed.dtx 273 2011-12-10 09:21:09Z marco $
829 %

```

```

\mdframed0packagename
\md@frame0date@svn

```

local settings

```

830 \def\mdframed0packagename{md-frame-0}
831 \def\md@frame0date@svn$#1: #2 #3 #4-#5-#6 #7 #8${#4/#5/#6\space }
832 \ProvidesFile{md-frame-0.mdf}%
833      [\md@frame0date@svn$Id: mdframed.dtx 273 2011-12-10 09:21:09Z marco $%
834      \mdversion: \mdframed0packagename]

```

```
\mdframed0packagename
\md@frame0date@svn
```

short command

```
835 \def\mdf@background@default{\color{\mdf@backgroundcolor}}
836 \def\mdf@linecolor@default{\color{\mdf@middlelinecolor}}
```

```
\md@putbox@single
\md@frame@background@single
\md@frame@topandbottomline@single
\md@frame@leftline@single
\md@frame@rightline@single
\md@frame@rightline@single
```

The frame of of a non splitted contents of mdframed

```
837 \def\md@frame@background@single{%
838   \rlap{\mdf@background@default%
839     \rule[-\mdfboundingboxdepth]%
840       {\mdfboundingboxtotalwidth}%
841       {\mdfboundingboxtotalheight}%
842   }%
843 }%
844 %
845 \def\md@frame@topandbottomline@single{%
846   \rlap{\mdf@linecolor@default%
847     \ifbool{mdf@topline}{%
848       \rule[\dimexpr\mdfboundingboxheight-\mdfboundingboxdepth%
849         +\mdf@innerbottommargin@length+\mdf@innertopmargin@length\relax]%
850       {\mdfboundingboxtotalwidth}%
851       {\mdf@middlelinewidth@length}}%
852     {}%
853   }%
854   \rlap{\mdf@linecolor@default%
855     \ifbool{mdf@bottomline}{%
856       \rule[\dimexpr-\mdfboundingboxdepth-\mdf@middlelinewidth@length\relax]%
857       {\mdfboundingboxtotalwidth}%
858       {\mdf@middlelinewidth@length}}%
859     {}%
860   }%
861 }
862 %
863 \def\md@frame@leftline@single{%
864   \llap{\mdf@linecolor@default%
865     \rule[\dimexpr-\mdfboundingboxdepth%
866       \ifbool{mdf@bottomline}{-\mdf@middlelinewidth@length}{\relax}%
867       {\mdf@middlelinewidth@length}%
868       {\dimexpr\mdfboundingboxtotalheight%
869         +\ifbool{mdf@bottomline}{\mdf@middlelinewidth@length}{0pt}%
870         +\ifbool{mdf@topline}{\mdf@middlelinewidth@length}{0pt}\relax}%
871   }%
872 }%
873 %
874 \def\md@frame@rightline@single{%
875   \rlap{\mdf@linecolor@default%
876     \hspace*{\mdfboundingboxwidth}%

```

```

877 \hspace*{\mdf@innerrightmargin@length}%
878 \rule[\dimexpr-\mdfboundingboxdepth%
879 \ifbool{mdf@bottomline}{-\mdf@middlelinewidth@length}{\relax}%
880 {\mdf@middlelinewidth@length}%
881 {\dimexpr\mdfboundingboxtotalheight%
882 +\ifbool{mdf@bottomline}{\mdf@middlelinewidth@length}{0pt}%
883 +\ifbool{mdf@topline}{\mdf@middlelinewidth@length}{0pt}\relax}%
884 }%
885 }%
886 %
887 \def\md@putbox@single{%%%% Ausgabe der ungesplitteten Gesamtbox
888 \ifvoid\@tempboxa
889 \else%
890 \mdf@makebox@out{%
891 \mdf@makeboxalign@left%
892 \setlength{\mdfboundingboxwidth}%
893 {\wd\@tempboxa}%
894 \setlength{\mdfboundingboxtotalwidth}%
895 {\dimexpr\mdfboundingboxwidth+\mdf@innerleftmargin@length%
896 +\mdf@innerrightmargin@length\relax}%
897 \setlength{\mdfboundingboxheight}%
898 {\dimexpr\ht\@tempboxa+\dp\@tempboxa\relax}%
899 \setlength{\mdfboundingboxdepth}%
900 {\dimexpr\dp\@tempboxa+\mdf@innerbottommargin@length\relax}%
901 \setlength{\mdfboundingboxtotalheight}%
902 {\dimexpr\mdfboundingboxheight+\mdf@innertopmargin@length%
903 +\mdf@innerbottommargin@length\relax}%
904 \noindent%
905 \setlength{\@tempdima}{\dimexpr\mdfboundingboxtotalwidth%
906 +\ifbool{mdf@leftline}%
907 {\mdf@middlelinewidth@length}{\z@}%
908 +\ifbool{mdf@rightline}%
909 {\mdf@middlelinewidth@length}{\z@}\relax}%
910 \mdf@makebox@in[\@tempdima]{%
911 \null%
912 \ifbool{mdf@leftline}{%
913 \hspace*{\mdf@middlelinewidth@length}%
914 \md@frame@leftline@single%
915 }{}%
916 \md@frame@topandbottomline@single%
917 \md@frame@background@single%
918 \hspace*{\mdf@innerleftmargin@length}%
919 \ifbool{mdf@rightline}{%
920 \md@frame@rightline@single%
921 }{}%
922 {\box\@tempboxa}%
923 }%
924 \mdf@makeboxalign@right%
925 }%
926 \fi%
927 }

```

```

\md@putbox@first
\md@frame@background@first
\md@frame@leftline@first
\md@frame@topline@first
\md@frame@rightline@first

```

The first frame of of a splitted contents of mdframed

```

928 \def\md@frame@background@first{%
929   \rlap{\mdf@background@default%
930     \rule[-\mdfboundingboxdepth]%
931       {\mdfboundingboxtotalwidth}%
932       {\mdfboundingboxtotalheight}%
933   }%
934 }%
935 %
936 \def\md@frame@leftline@first{%
937   \llap{\mdf@linecolor@default%
938     \rule[-\mdfboundingboxdepth]%
939       {\mdf@middlelinewidth@length}%
940       {\dimexpr\mdfboundingboxtotalheight%
941         +\ifbool{mdf@topline}{\mdf@middlelinewidth@length}{0pt}\relax}%
942   }%
943 }%
944 %
945 \def\md@frame@topline@first{%
946   \rlap{\mdf@linecolor@default%
947     \rule[\dimexpr\mdfboundingboxheight-\mdfboundingboxdepth+
948       \mdf@splitbottomskip@length+\mdf@innertopmargin@length\relax]%
949     {\mdfboundingboxtotalwidth}%
950     {\mdf@middlelinewidth@length}%
951   }%
952 }
953 %
954 \def\md@frame@rightline@first{%
955   \rlap{\mdf@linecolor@default\hspace*{\mdfboundingboxwidth}%
956     \hspace*{\mdf@innerrightmargin@length}%
957     \rule[-\mdfboundingboxdepth]%
958       {\mdf@middlelinewidth@length}%
959       {\dimexpr\mdfboundingboxtotalheight%
960         +\ifbool{mdf@topline}{\mdf@middlelinewidth@length}{0pt}\relax}%
961   }%
962 }%
963 %
964 \def\md@putbox@first{%%%% Ausgabe der Teilbox 1
965   \ifvoid\@tempboxa
966   \else%
967     \mdf@makebox@out[\linewidth]{%
968       \mdf@makeboxalign@left%
969       \setlength{\mdfboundingboxwidth}{\wd\tw}%
970       \setlength{\mdfboundingboxtotalwidth}%
971         {\dimexpr\mdfboundingboxwidth+\mdf@innerleftmargin@length%
972           +\mdf@innerrightmargin@length\relax}%
973       \setlength{\mdfboundingboxheight}{\dimexpr\ht\tw+\dp\tw\relax}%
974       \setlength{\mdfboundingboxdepth}%
975         {\dimexpr\dp\tw+\mdf@splitbottomskip@length\relax}%
976       \setlength{\mdfboundingboxtotalheight}%

```

```

977         {\dimexpr\mdfboundingboxheight+\mdf@innertopmargin@length%
978          +\mdf@splitbottomskip@length\relax}%
979     \setlength{\@tempdima}{%
980         {\dimexpr\mdfboundingboxtotalwidth%
981          +\ifbool{mdf@leftline}{\mdf@middlelinewidth@length}{\z@}%
982          +\ifbool{mdf@rightline}{\mdf@middlelinewidth@length}{\z@}%
983          \relax}%
984     \mdf@makebox@in[\@tempdima]{%
985         \null%
986         \ifbool{mdf@leftline}{%
987             \hspace*{\mdf@middlelinewidth@length}%
988             \md@frame@leftline@first}{}%
989         \ifbool{mdf@topline}{%
990             \md@frame@topline@first}{}%
991         \md@frame@background@first%
992         \hspace*{\mdf@innerleftmargin@length}%
993         \ifbool{mdf@rightline}{%
994             \md@frame@rightline@first}{}%
995         {\box\tw}%
996     }%
997     \mdf@makeboxalign@right%
998 }%
999 \fi%
1000 }

```

```

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

```

The last frame of of a splitted contents of mdframed

```

1001 \def\md@frame@background@second{%
1002     \rlap{\mdf@background@default%
1003         \rule[-\mdfboundingboxdepth]{%
1004             {\mdfboundingboxtotalwidth}%
1005             {\mdfboundingboxtotalheight}%
1006         }%
1007     }%
1008 %
1009 \def\md@frame@leftline@second{%
1010     \llap{\mdf@linecolor@default%
1011         \rule[\dimexpr-\mdfboundingboxdepth%
1012             -\ifbool{mdf@bottomline}{\mdf@middlelinewidth@length}{0pt}\relax]{%
1013             {\mdf@middlelinewidth@length}%
1014             {\dimexpr\mdfboundingboxtotalheight%
1015              +\ifbool{mdf@bottomline}{\mdf@middlelinewidth@length}{0pt}\relax}%
1016         }%
1017     }%
1018 %
1019 \def\md@frame@bottomline@second{%
1020     \rlap{\mdf@linecolor@default%
1021         \rule[\dimexpr-\mdfboundingboxdepth-\mdf@middlelinewidth@length\relax]{%
1022             {\mdfboundingboxtotalwidth}%
1023             {\mdf@middlelinewidth@length}%

```

```

1024 }%
1025 }%
1026 %
1027 \def\md@frame@rightline@second{%
1028   \rlap{\mdf@linecolor@default\hspace*{\mdfboundingboxwidth}%
1029     \hspace*{\mdf@innerrightmargin@length}%
1030     \rule[\dimexpr-\mdfboundingboxdepth%
1031       -\ifbool{mdf@bottomline}{\mdf@middlelinewidth@length}{0pt}\relax}%
1032       {\mdf@middlelinewidth@length}%
1033       {\dimexpr\mdfboundingboxtotalheight%
1034         +\ifbool{mdf@bottomline}{\mdf@middlelinewidth@length}{0pt}\relax}%
1035   }%
1036 }%
1037 %
1038 \def\md@putbox@second{%
1039   \ifvoid\@tempboxa%
1040   \else
1041     \mdf@makebox@out{%
1042       \mdf@makeboxalign@left%
1043       \setlength{\mdfboundingboxwidth}{\wd\@tempboxa}%
1044       \setlength{\mdfboundingboxtotalwidth}%
1045         {\dimexpr\mdfboundingboxwidth+\mdf@innerleftmargin@length%
1046           +\mdf@innerrightmargin@length\relax}%
1047       \setlength{\mdfboundingboxheight}{\dimexpr\ht\@tempboxa+\dp\@tempboxa\relax}%
1048       \setlength{\mdfboundingboxdepth}%
1049         {\dimexpr\dp\@tempboxa+\mdf@innerbottommargin@length\relax}%
1050       \setlength{\mdfboundingboxtotalheight}%
1051         {\dimexpr\mdfboundingboxheight+\mdf@innerbottommargin@length\relax}%
1052       \setlength{\@tempdima}{\dimexpr\mdfboundingboxtotalwidth%
1053         +\ifbool{mdf@leftline}{\mdf@middlelinewidth@length}{\z@}%
1054         +\ifbool{mdf@rightline}{\mdf@middlelinewidth@length}{\z@}%
1055         \relax}%
1056       \mdf@makebox@in[\@tempdima]{%
1057         \null%
1058         \ifbool{mdf@leftline}{%
1059           \hspace*{\mdf@middlelinewidth@length}%
1060           \md@frame@leftline@second}{}%
1061         \ifbool{mdf@bottomline}{%
1062           \md@frame@bottomline@second}{}%
1063         \md@frame@background@second%
1064         \hspace*{\mdf@innerleftmargin@length}%
1065         \ifbool{mdf@rightline}{%
1066           \md@frame@rightline@second}{}%
1067         {\box\@tempboxa}%
1068       }%
1069     \mdf@makeboxalign@right%
1070   }%
1071   \fi%
1072 }%

```

```

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

```


The last frame of of a splitted contents of mdframed

```

1073 \def\md@frame@background@middle{%
1074   \rlap{\mdf@background@default%
1075     \rule[-\mdfboundingboxdepth]%
1076       {\mdfboundingboxtotalwidth}%
1077       {\mdfboundingboxtotalheight}}%
1078   }%
1079 }%
1080 %
1081 \def\md@frame@leftline@middle{%
1082   \llap{\mdf@linecolor@default%
1083     \rule[-\mdfboundingboxdepth]%
1084       {\mdf@middlelinewidth@length}%
1085       {\mdfboundingboxtotalheight}}%
1086   }%
1087 }%
1088 %
1089 \def\md@frame@rightline@middle{%
1090   \rlap{\mdf@linecolor@default\hspace*{\mdfboundingboxwidth}%
1091     \hspace*{\mdf@innerrightmargin@length}}%
1092   \rule[-\mdfboundingboxdepth]%
1093     {\mdf@middlelinewidth@length}%
1094     {\mdfboundingboxtotalheight}}%
1095   }%
1096 }%
1097 %
1098 \def\md@putbox@middle{%
1099   \ifvoid\@tempboxa%
1100   \else
1101     \mdf@makebox@out{%
1102       \mdf@makeboxalign@left%
1103       \setlength{\mdfboundingboxwidth}{\wd\tw@}%
1104       \setlength{\mdfboundingboxtotalwidth}%
1105         {\dimexpr\mdfboundingboxwidth+\mdf@innerleftmargin@length%
1106           +\mdf@innerrightmargin@length\relax}%
1107       \setlength{\mdfboundingboxheight}{\dimexpr\ht\tw@+\dp\tw@\relax}%
1108       \setlength{\mdfboundingboxdepth}%
1109         {\dimexpr\dp\tw@+\mdf@splitbottomskip@length\relax}%
1110       \setlength{\mdfboundingboxtotalheight}%
1111         {\dimexpr\mdfboundingboxheight+\mdf@splitbottomskip@length\relax}%
1112       \setlength{\@tempdima}{\dimexpr\mdfboundingboxtotalwidth%
1113         +\ifbool{mdf@leftline}{\mdf@middlelinewidth@length}{\z@}%
1114         +\ifbool{mdf@rightline}{\mdf@middlelinewidth@length}{\z@}%
1115         \relax}%
1116       \mdf@makebox@in[\@tempdima]{%
1117         \null%
1118         \ifbool{mdf@leftline}{%
1119           \hspace*{\mdf@middlelinewidth@length}%
1120           \md@frame@leftline@middle}{}%
1121         \md@frame@background@middle%
1122         \hspace*{\mdf@innerleftmargin@length}%
1123         \ifbool{mdf@rightline}{%
1124           \md@frame@rightline@middle}{}%
1125         {\box\tw@}%
1126       }%
1127     \mdf@makeboxalign@right%

```

```

1128 }
1129 \fi%
1130 }

1131 \endinput

```

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

```

1132 %% Style file for mdframed for package option 'framemethod=default'
1133 %%
1134 %% This package may be distributed under the terms of the LaTeX Project
1135 %% Public License, as described in lppl.txt in the base LaTeX distribution.
1136 %% Either version 1.0 or, at your option, any later version.
1137
1138 %%$Id: mdframed.dtx 273 2011-12-10 09:21:09Z marco $
1139 %

```

```

\mdframedIpackagename
\md@frameIdate@svn

```

local settings

```

1140 \def\mdframedIpackagename{md-frame-1}
1141 \def\md@frameIdate@svn$#1: #2 #3 #4-#5-#6 #7 #8${#4/#5/#6\space }
1142 \ProvidesFile{md-frame-1.mdf}%
1143      [\md@frameIdate@svn$Id: mdframed.dtx 273 2011-12-10 09:21:09Z marco $ %
1144      \mdversion: \mdframedIpackagename]
1145 %

```

```

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

```

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

```

1146 %%%      ----t----
1147 %%%      |          |
1148 %%%      |          |
1149 %%%      |          |
1150 %%%      l|          |r
1151 %%%      |          |
1152 %%%      |          |
1153 %%%      |-----|
1154 %%%              b
1155 %%Zusammenhaenge abfragen:

```

```

1156 \newrobustcmd*\md@test@ltrb{%
1157     \ifboolexpr{ (bool {mdf@topline}) and (bool {mdf@bottomline})
1158                 and (bool {mdf@leftline}) and (bool {mdf@rightline})}}
1159 %3-set
1160 \newrobustcmd*\md@test@ltr{%
1161     \ifboolexpr{ (bool {mdf@topline}) and not (bool {mdf@bottomline})
1162                 and (bool {mdf@leftline}) and (bool {mdf@rightline})}}
1163 \newrobustcmd*\md@test@ltb{%
1164     \ifboolexpr{ (bool {mdf@topline}) and (bool {mdf@bottomline})
1165                 and (bool {mdf@leftline}) and not (bool {mdf@rightline})}}
1166 \newrobustcmd*\md@test@trb{%
1167     \ifboolexpr{ (bool {mdf@topline}) and (bool {mdf@bottomline})
1168                 and not (bool {mdf@leftline}) and (bool {mdf@rightline})}}
1169 \newrobustcmd*\md@test@lrb{%
1170     \ifboolexpr{ not (bool {mdf@topline}) and (bool {mdf@bottomline})
1171                 and (bool {mdf@leftline}) and (bool {mdf@rightline})}}
1172 %2-set
1173 \newrobustcmd*\md@test@lb{%
1174     \ifboolexpr{ not (bool {mdf@topline}) and (bool {mdf@bottomline})
1175                 and (bool {mdf@leftline}) and not (bool {mdf@rightline})}}
1176 \newrobustcmd*\md@test@rb{%
1177     \ifboolexpr{ not (bool {mdf@topline}) and (bool {mdf@bottomline})
1178                 and not (bool {mdf@leftline}) and (bool {mdf@rightline})}}
1179 \newrobustcmd*\md@test@tr{%
1180     \ifboolexpr{ (bool {mdf@topline}) and not (bool {mdf@bottomline})
1181                 and not (bool {mdf@leftline}) and (bool {mdf@rightline})}}
1182 \newrobustcmd*\md@test@lt{%
1183     \ifboolexpr{ (bool {mdf@topline}) and not (bool {mdf@bottomline})
1184                 and (bool {mdf@leftline}) and not (bool {mdf@rightline})}}
1185 \newrobustcmd*\md@test@lr{%
1186     \ifboolexpr{not (bool {mdf@topline}) and not (bool {mdf@bottomline})
1187                 and (bool {mdf@leftline}) and (bool {mdf@rightline})}}
1188 \newrobustcmd*\md@test@tb{%
1189     \ifboolexpr{ (bool {mdf@topline}) and (bool {mdf@bottomline})
1190                 and not (bool {mdf@leftline}) and not (bool {mdf@rightline})}}
1191 %Einzellinien
1192 \newrobustcmd*\md@test@l{%
1193     \ifboolexpr{ not (bool {mdf@topline}) and not (bool {mdf@bottomline})
1194                 and (bool {mdf@leftline}) and not (bool {mdf@rightline})}}
1195 \newrobustcmd*\md@test@r{%
1196     \ifboolexpr{ not (bool {mdf@topline}) and not (bool {mdf@bottomline})
1197                 and not (bool {mdf@leftline}) and (bool {mdf@rightline})}}
1198 \newrobustcmd*\md@test@t{%
1199     \ifboolexpr{ (bool {mdf@topline}) and not (bool {mdf@bottomline})
1200                 and not (bool {mdf@leftline}) and not (bool {mdf@rightline})}}
1201 \newrobustcmd*\md@test@b{%
1202     \ifboolexpr{ not (bool {mdf@topline}) and (bool {mdf@bottomline})
1203                 and not (bool {mdf@leftline}) and not (bool {mdf@rightline})}}
1204 %keine Linien
1205 \newrobustcmd*\md@test@noline{%
1206     \ifboolexpr{ not (bool {mdf@topline}) and not (bool {mdf@bottomline})
1207                 and not (bool {mdf@leftline}) and not (bool {mdf@rightline})}}
1208 %

```

\md@tikz@settings

Define settings for tikz

```

1209 %Allgemeine Einstellungen fuer tikz
1210 \def\md@tikz@settings{%
1211 %
1212 \tikzset{mdfbox/.style={anchor=south west,%
1213                         inner sep=0pt,%
1214                         outer sep=0pt,%
1215                         \mdf@fontcolor,}}% anchor der Ausgabebox ist unten links
1216 \tikzset{mdfcorners/.style={rounded corners=\mdf@roundcorner@length}}%
1217 \tikzset{mdfbackground/.style={fill=\mdf@backgroundcolor,%
1218                                draw=\mdf@backgroundcolor}}%
1219 %
1220 \tikzset{mdfouterline/.style={}}%
1221 % nur wenn outerlinewidth>0 wird aussere Linie gezeichnet
1222 \ifdimgreater{\mdf@outerlinewidth@length}{\z@}
1223   {\tikzset{mdfouterline/.append style={%
1224           draw=\mdf@outerlinecolor,%
1225           line width=2\mdf@outerlinewidth@length+\mdf@middlelinewidth@length}}}%
1226 %
1227 \tikzset{mdfinnerline/.style={}}%
1228 % nur wenn innerlinewidth>0 wird innere Linie gezeichnet
1229 \ifdimgreater{\mdf@innerlinewidth@length}{\z@}
1230   {\tikzset{mdfinnerline/.append style={%
1231           draw=\mdf@innerlinecolor,%
1232           line width=2\mdf@innerlinewidth@length+\mdf@middlelinewidth@length}}}%
1233 %
1234 \mdf@tikzset@local
1235 \tikzset{mdfmiddleline/.style={}}%
1236 % nur wenn middlelinewidth>0 wird mittlere Linie gezeichnet
1237 \ifdimgreater{\mdf@middlelinewidth@length}{\z@}
1238   {\tikzset{mdfmiddleline/.append style={%
1239           preaction={draw=\mdf@middlelinecolor,%
1240                     line width=\mdf@middlelinewidth@length},%
1241                     line width=\mdf@middlelinewidth@length,%
1242                     tikzsetting}}}%
1243   }%
1244 }%
```

```

\md@tikzbox@tfl
\md@tikzbox@otl
```

Befehle fuer Ausgabe von Rahmen und Hintergrund

```

1245 \newrobustcmd*\md@tikzbox@tfl[1]{%three or four borders
1246   \clip(0,0)rectangle(\mdfboundingboxwidth,\mdfboundingboxheight);%
1247   \begin{scope}[mdfcorners]%
1248     \clip[preaction=mdfouterline]%
1249       [postaction=mdfbackground]%
1250       [postaction=mdfinnerline]#1;%
1251   \end{scope}%
1252   \path[mdfmiddleline,mdfcorners]#1;%
1253 \newrobustcmd*\md@tikzbox@otl[2]{%one or two borders
1254   \clip(0,0)rectangle(\mdfboundingboxwidth,\mdfboundingboxheight);%
1255   \begin{scope}
1256     \path[mdfouterline,mdfcorners]#1;%
1257     \clip[postaction=mdfbackground]#2;%
```

```

1258      \path[mdfinnerline,mdfcorners]#1;%
1259  \end{scope}
1260  \path[mdfmiddleline,mdfcorners]#1;}%

```

\md@putbox@single

Output of the non breakable contents.

```

1261 % Info zu den verwendeten Punkten:
1262 % O ist die untere linke Ecke der Mitte der middleline
1263 % P ist die obere rechte Ecke der Mitte der middleline
1264 % A ist der Punkt fuer den anchor (d.h. die untere linke Ecke) der Ausgabebox
1265 %
1266 \def\md@putbox@single{%
1267   \ifvoid\@tempboxa
1268   \else%
1269     \mdf@makebox@out{%
1270       \mdf@makeboxalign@left%
1271       \md@tikz@settings%
1272 %
1273       \setlength\mdfboundingboxwidth{\wd\@tempboxa}%
1274       \advance\mdfboundingboxwidth by \mdf@innerleftmargin@length\relax%
1275       \advance\mdfboundingboxwidth by \mdf@innerrightmargin@length\relax%
1276       \ifbool{mdf@leftline}{%
1277         \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
1278         \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
1279         \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}}{%
1280       \ifbool{mdf@rightline}{%
1281         \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
1282         \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
1283         \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}}}%
1284 %
1285       \setlength\mdfboundingboxheight{\dimexpr\ht\@tempboxa+\dp\@tempboxa\relax}%
1286       \advance\mdfboundingboxheight by \mdf@innertopmargin@length\relax%
1287       \advance\mdfboundingboxheight by \mdf@innerbottommargin@length\relax%
1288       \ifbool{mdf@topline}{%
1289         \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
1290         \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
1291         \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}}{%
1292       \ifbool{mdf@bottomline}{%
1293         \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
1294         \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
1295         \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}}}%
1296       \mdf@makebox@in[\mdfboundingboxwidth]{%
1297       \null%
1298       \begin{tikzpicture}[remember picture]%
1299       \begin{scope}
1300         \pgfmathsetlengthmacro\md@Ax{+\mdf@innerleftmargin@length}%
1301         \pgfmathsetlengthmacro\md@Ay{+\mdf@innerbottommargin@length}%
1302         \pgfmathsetlengthmacro\md@Ox{+0pt}%
1303         \pgfmathsetlengthmacro\md@Oy{+0pt}%
1304         \pgfmathsetlengthmacro\md@Px{+\mdfboundingboxwidth}%
1305         \pgfmathsetlengthmacro\md@Py{+\mdfboundingboxheight}%
1306         \ifbool{mdf@leftline}%
1307           {%
1308           \pgfmathsetlengthmacro\md@Ax%

```

```

1309      {\md@Ax+\mdf@outerlinewidth@length+%
1310       \mdf@middlelinewidth@length+\mdf@innerlinewidth@length}%
1311      \pgfmathsetlengthmacro\md@Ox%
1312       {\md@Ox+\mdf@outerlinewidth@length+0.5\mdf@middlelinewidth@length}%
1313      }{}%
1314      \ifbool{mdf@rightline}%
1315      {%
1316       \pgfmathsetlengthmacro\md@Px%
1317       {\md@Px-\mdf@outerlinewidth@length-0.5\mdf@middlelinewidth@length}%
1318       }{}%
1319      \ifbool{mdf@bottomline}%
1320      {%
1321       \pgfmathsetlengthmacro\md@Ay%
1322       {\md@Ay+\mdf@outerlinewidth@length+\mdf@middlelinewidth@length%
1323        +\mdf@innerlinewidth@length}%
1324       \pgfmathsetlengthmacro\md@Oy%
1325       {\md@Oy+\mdf@outerlinewidth@length+0.5\mdf@middlelinewidth@length}%
1326       }{}%
1327      \ifbool{mdf@topline}%
1328      {%
1329       \pgfmathsetlengthmacro\md@Py%
1330       {\md@Py-\mdf@outerlinewidth@length-0.5\mdf@middlelinewidth@length}%
1331       }{}%
1332      %
1333      \coordinate(0)at(\md@Ox,\md@Oy);%
1334      \coordinate(P)at(\md@Px,\md@Py);%
1335      %
1336      \md@test@ltrb{\md@tikzbox@tfl{(0)--(0|-P)--(P)--(P|-0)--cycle)}}{}%
1337      %
1338      \md@test@ltb{\md@tikzbox@tfl{(P|-0)--(0)--(0|-P)--(P)}}{}%
1339      \md@test@trb{\md@tikzbox@tfl{(0|-P)--(P)--(P|-0)--(0)}}{}%
1340      \md@test@ltr{\md@tikzbox@tfl{(0)--(0|-P)--(P)--(P|-0)}}{}%
1341      \md@test@lrb{\md@tikzbox@tfl{(P|-0)--(0)--(0|-P)--(P)}}{}%
1342      %
1343      \md@test@lb{\md@tikzbox@otl{(P|-0)--(0)--(0|-P)}}%
1344      {(P)--(P|-0)[mdfcorners]--(0)--(0|-P)}%
1345      }{}%
1346      \md@test@rb{\md@tikzbox@otl{(P)--(P|-0)--(0)}}%
1347      {(0|-P)--(P)[mdfcorners]--(P|-0)--(0)}%
1348      }{}%
1349      \md@test@tr{\md@tikzbox@otl{(0|-P)--(P)--(P|-0)}}%
1350      {(0)--(0|-P)[mdfcorners]--(P)--(P|-0)}%
1351      }{}%
1352      \md@test@lt{\md@tikzbox@otl{(0)--(0|-P)--(P)}}%
1353      {(P|-0)--(0)[mdfcorners]--(0|-P)--(P)}%
1354      }{}%
1355      \md@test@lr{\md@tikzbox@otl{(0)--(0|-P)(P)--(P|-0)}}%
1356      {(0)rectangle(P)}%
1357      }{}%
1358      \md@test@tb{\md@tikzbox@otl{(0)--(0|-P)(0|-P)--(P)}}%
1359      {(0)rectangle(P)}%
1360      }{}%
1361      %
1362      \md@test@l{\md@tikzbox@otl{(0)--(0|-P)}}%
1363      {(0)rectangle(P)}%
1364      }{}%

```

```

1365 \md@test@r{\md@tikzbox@otl{(0-|P)--(P)}}%
1366 {(0)rectangle(P)}%
1367 }{}%
1368 \md@test@t{\md@tikzbox@otl{(0|-P)--(P)}}%
1369 {(0)rectangle(P)}%
1370 }{}%
1371 \md@test@b{\md@tikzbox@otl{(0)--(0-|P)}}%
1372 {(0)rectangle(P)}%
1373 }{}%
1374 %
1375 \md@test@noline{\path[mdfbackground,mdfcorners](0)rectangle(P);}{}%
1376 %
1377 \node[mdfbox]at(\md@Ax,\md@Ay){\box\@tempboxa};% Ausgabebox einfuegen
1378 \end{scope}
1379 %HIER KOMMT EIN WEITERES MAKRO
1380 \mdfcreateextratikz
1381 \end{tikzpicture}%
1382 }%
1383 \mdf@makeboxalign@right%
1384 }%
1385 \fi
1386 }%

```

`\md@putbox@first`

Output of the first breakable contents.

```

1387 \def\md@putbox@first{%
1388 \ifvoid\@tempboxa
1389 \else%
1390 \mdf@makebox@out{%
1391 \mdf@makeboxalign@left%
1392 \md@tikz@settings%
1393 \setlength\mdfboundingboxwidth{\wd\tw@}%
1394 \advance\mdfboundingboxwidth by \mdf@innerleftmargin@length\relax%
1395 \advance\mdfboundingboxwidth by \mdf@innerrightmargin@length\relax%
1396 \ifbool{mdf@leftline}{%
1397 \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
1398 \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
1399 \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}}{}%
1400 \ifbool{mdf@rightline}{%
1401 \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
1402 \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
1403 \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}}{}%
1404 %
1405 \setlength\mdfboundingboxheight{\dimexpr\ht\tw@+\dp\tw@\relax}%
1406 \advance\mdfboundingboxheight by \mdf@innertopmargin@length\relax%
1407 \advance\mdfboundingboxheight by \mdf@splitbottomskip@length\relax%
1408 \ifbool{mdf@topline}{%
1409 \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
1410 \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
1411 \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}}{}%
1412 %
1413 %\ifdimequal{\pagegoal}{\maxdimen}{\enlargethispage{\baselineskip}}{}% ???
1414 \ifdimgreater{\pagegoal-\maxdimen}{0pt}{\enlargethispage{\baselineskip}}{}%
1415 \mdf@makebox@in[\mdfboundingboxwidth]{%

```

```

1416 \null%
1417 \begin{tikzpicture}[remember picture]
1418 \begin{scope}
1419 %
1420 \pgfmathsetlengthmacro\md@Ax{+\mdf@innerleftmargin@length}%
1421 \pgfmathsetlengthmacro\md@Ay{+\mdf@splitbottomskip@length}%
1422 \pgfmathsetlengthmacro\md@Ox{+0pt}%
1423 \pgfmathsetlengthmacro\md@Oy{+0pt}%
1424 \pgfmathsetlengthmacro\md@Px{+\mdf@boundingboxwidth}%
1425 \pgfmathsetlengthmacro\md@Py{+\mdf@boundingboxheight}%
1426 \ifbool{mdf@leftline}
1427 {%
1428 \pgfmathsetlengthmacro\md@Ax%
1429 {\md@Ax+\mdf@outerlinewidth@length+
1430 \mdf@middlelinewidth@length+\mdf@innerlinewidth@length}%
1431 \pgfmathsetlengthmacro\md@Ox%
1432 {\md@Ox+\mdf@outerlinewidth@length+0.5\mdf@middlelinewidth@length}%
1433 }{}%
1434 \ifbool{mdf@rightline}{%
1435 \pgfmathsetlengthmacro\md@Px%
1436 {\md@Px-\mdf@outerlinewidth@length-0.5\mdf@middlelinewidth@length}%
1437 }{}%
1438 \ifbool{mdf@topline}{%
1439 \pgfmathsetlengthmacro\md@Py%
1440 {\md@Py-\mdf@outerlinewidth@length-0.5\mdf@middlelinewidth@length}%
1441 }{}%
1442 %
1443 \coordinate(0)at(\md@Ox,\md@Oy);%
1444 \coordinate(P)at(\md@Px,\md@Py);%
1445 %
1446 \ifboolexpr{test {\md@test@lrb} or test {\md@test@lrb}}%
1447 {\md@tikzbox@otl{(0)--(0|-P)--(P)--(P|-0)}}%
1448 {}%
1449 \ifboolexpr{test {\md@test@ltb} or test {\md@test@ltb}}%
1450 {\md@tikzbox@otl{(0)--(0|-P)--(P)}{(P|-0)--(0)[mdfcorners]--(0|-P)--(P)}}%
1451 {}%
1452 \ifboolexpr{test {\md@test@trb} or test {\md@test@trb}}%
1453 {\md@tikzbox@otl{(0|-P)--(P)--(P|-0)}{(0)--(0|-P)[mdfcorners]--(P)--(P|-0)}}%
1454 {}%
1455 \ifboolexpr{test {\md@test@lrb} or test {\md@test@lrb}}%
1456 {\md@tikzbox@otl{(0)--(0|-P)(P)--(P|-0)}{(0)rectangle(P)}}%
1457 {}%
1458 \ifboolexpr{test {\md@test@tb} or test {\md@test@tb}}%
1459 {\md@tikzbox@otl{(0|-P)--(P)}{(0)rectangle(P)}}%
1460 {}%
1461 \ifboolexpr{test {\md@test@lb} or test {\md@test@lb}}%
1462 {\md@tikzbox@otl{(0)--(0|-P)}{(0)rectangle(P)}}%
1463 {}%
1464 \ifboolexpr{test {\md@test@rb} or test {\md@test@rb}}%
1465 {\md@tikzbox@otl{(0|-P)--(P)}{(0)rectangle(P)}}%
1466 {}%
1467 \md@test@b{\path[mdfbackground](0)rectangle(P)}{}%
1468 %
1469 \md@test@noline{\path[mdfbackground,mdfcorners](0)--(0|-P)--(P)--(P|-0);}%
1470 %
1471 \node[mdfbox]at(\md@Ax,\md@Ay){\box\tw@};% Ausgabebox einfuegen

```



```

1472 \end{scope}
1473 %HIER KOMMT EIN WEITERES MAKRO
1474 \mdfcreateextratikz%
1475 \end{tikzpicture}%
1476 }%
1477 \mdf@makeboxalign@right%
1478 }%
1479 \fi
1480 }%

```

\md@putbox@middle

Output of the middle breakable contents.

```

1481 \def\md@putbox@middle{%
1482 \ifvoid\@tempboxa
1483 \else%
1484 \mdf@makebox@out{%
1485 \mdf@makeboxalign@left%
1486 \md@tikz@settings%
1487 %
1488 \setlength\mdfboundingboxwidth{\wd\tw}%
1489 \advance\mdfboundingboxwidth by \mdf@innerleftmargin@length\relax%
1490 \advance\mdfboundingboxwidth by \mdf@innerrightmargin@length\relax%
1491 \ifbool{mdf@leftline}{%
1492 \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
1493 \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
1494 \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}}{%
1495 \ifbool{mdf@rightline}{%
1496 \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
1497 \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
1498 \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}}}%
1499 %
1500 \setlength\mdfboundingboxheight{\dimexpr\ht\tw@+\dp\tw@\relax}%
1501 \advance\mdfboundingboxheight by \mdf@splitbottomskip@length\relax%
1502 %
1503 \mdf@makebox@in[\mdfboundingboxwidth]{%
1504 \null%
1505 \begin{tikzpicture}[remember picture]
1506 \begin{scope}
1507 \pgfmathsetlengthmacro\md@Ax{+\mdf@innerleftmargin@length}%
1508 \pgfmathsetlengthmacro\md@Ay{+\mdf@splitbottomskip@length}%
1509 \pgfmathsetlengthmacro\md@Ox{+0pt}%
1510 \pgfmathsetlengthmacro\md@Oy{+0pt}%
1511 \pgfmathsetlengthmacro\md@Px{+\mdfboundingboxwidth}%
1512 \pgfmathsetlengthmacro\md@Py{+\mdfboundingboxheight}%
1513 \ifbool{mdf@leftline}{%
1514 {%
1515 \pgfmathsetlengthmacro\md@Ax%
1516 {\md@Ax+\mdf@outerlinewidth@length+
1517 \mdf@middlelinewidth@length+\mdf@innerlinewidth@length}%
1518 \pgfmathsetlengthmacro\md@Ox%
1519 {\md@Ox+\mdf@outerlinewidth@length+0.5\mdf@middlelinewidth@length}%
1520 }{}%
1521 \ifbool{mdf@rightline}{%
1522 {%

```

```

1523      \pgfmathsetlengthmacro\md@Px%
1524      {\md@Px-\mdf@outerlinewidth@length-0.5\mdf@middlelinewidth@length}%
1525      }{}%
1526 %
1527      \coordinate(0)at(\md@0x,\md@0y);%
1528      \coordinate(P)at(\md@Px,\md@Py);%
1529 %
1530      \ifboolexpr{bool {mdf@leftline} and bool {mdf@rightline}}%
1531      {\md@tikzbox@otl{(0)--(0|-P)(P)--(P|-0)}{(0)rectangle(P)}}{}%
1532      \ifboolexpr{bool {mdf@leftline} and not (bool {mdf@rightline})}%
1533      {\md@tikzbox@otl{(0)--(0|-P)}{(0)rectangle(P)}}{}%
1534      \ifboolexpr{not (bool {mdf@leftline}) and bool {mdf@rightline}}%
1535      {\md@tikzbox@otl{(P)--(P|-0)}{(0)rectangle(P)}}{}%
1536      \ifboolexpr{not (bool {mdf@leftline}) and not (bool {mdf@rightline})}%
1537      {\path[mdfbackground](0)rectangle(P)}}{}%
1538 %
1539      \node[mdfbox]at(\md@Ax,\md@Ay){\box\tw@};% Ausgabebox einfuegen
1540      \end{scope}
1541      %HIER KOMMT EIN WEITERES MAKRO
1542      \end{tikzpicture}%
1543      }%
1544      \mdf@makeboxalign@right%
1545      }%
1546 \fi
1547 }%

```

\md@putbox@second

Output of the last breakable contents.

```

1548 \def\md@putbox@second{%
1549   \ifvoid\@tempboxa
1550   \else%
1551     \mdf@makebox@out{%
1552       \mdf@makeboxalign@left%
1553       \md@tikz@settings%
1554     %
1555     \setlength\mdfboundingboxwidth{\wd\@tempboxa}%
1556     \advance\mdfboundingboxwidth by \mdf@innerleftmargin@length\relax%
1557     \advance\mdfboundingboxwidth by \mdf@innerrightmargin@length\relax%
1558     \ifbool{mdf@leftline}{%
1559       \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
1560       \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
1561       \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}}{}%
1562     \ifbool{mdf@rightline}{%
1563       \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
1564       \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
1565       \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}}{}%
1566   %
1567   \setlength\mdfboundingboxheight{\dimexpr\ht\@tempboxa+\dp\@tempboxa\relax}%
1568   \advance\mdfboundingboxheight by \mdf@innerbottommargin@length\relax%
1569   \ifbool{mdf@bottomline}{%
1570     \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
1571     \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
1572     \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}}{}%
1573 %

```

```

1574 \mdf@makebox@in[\mdfboundingboxwidth]{%
1575 \null%
1576 \begin{tikzpicture}[remember picture]
1577 \begin{scope}
1578 \pgfmathsetlengthmacro\md@Ax{+\mdf@innerleftmargin@length}%
1579 \pgfmathsetlengthmacro\md@Ay{+\mdf@innerbottommargin@length}%
1580 \pgfmathsetlengthmacro\md@Ox{+0pt}%
1581 \pgfmathsetlengthmacro\md@Oy{+0pt}%
1582 \pgfmathsetlengthmacro\md@Px{+\mdfboundingboxwidth}%
1583 \pgfmathsetlengthmacro\md@Py{+\mdfboundingboxheight}%
1584 \ifbool{mdf@leftline}%
1585 {%
1586 \pgfmathsetlengthmacro\md@Ax%
1587 {\md@Ax+\mdf@outerlinewidth@length+
1588 \mdf@middlelinewidth@length+\mdf@innerlinewidth@length}%
1589 \pgfmathsetlengthmacro\md@Ox%
1590 {\md@Ox+\mdf@outerlinewidth@length+0.5\mdf@middlelinewidth@length}%
1591 }{}%
1592 \ifbool{mdf@rightline}%
1593 {%
1594 \pgfmathsetlengthmacro\md@Px%
1595 {\md@Px-\mdf@outerlinewidth@length-0.5\mdf@middlelinewidth@length}%
1596 }{}%
1597 \ifbool{mdf@bottomline}%
1598 {%
1599 \pgfmathsetlengthmacro\md@Ay%
1600 {\md@Ay+\mdf@outerlinewidth@length+
1601 \mdf@middlelinewidth@length+\mdf@innerlinewidth@length}%
1602 \pgfmathsetlengthmacro\md@Oy%
1603 {\md@Oy+\mdf@outerlinewidth@length+0.5\mdf@middlelinewidth@length}%
1604 }{}%
1605 %
1606 \coordinate(0)at(\md@Ox,\md@Oy);%
1607 \coordinate(P)at(\md@Px,\md@Py);%
1608 %
1609 \ifboolexpr{test {\md@test@lrb} or test {\md@test@lrb}}%
1610 {\md@tikzbox@tfl{(P|-0)--(0)--(0|-P)--(P))}%
1611 }{}%
1612 \ifboolexpr{test {\md@test@ltb} or test {\md@test@lb}}%
1613 {\md@tikzbox@otl{(P|-0)--(0)--(0|-P)){(P)--(P|-0)[mdfcorners]--(0)--(0|-P))}%
1614 }{}%
1615 \ifboolexpr{test {\md@test@trb} or test {\md@test@rb}}%
1616 {\md@tikzbox@otl{(P)--(P|-0)--(0)){(0|-P)--(P)[mdfcorners]--(P|-0)--(0))}%
1617 }{}%
1618 \ifboolexpr{test {\md@test@ltr} or test {\md@test@lr}}%
1619 {\md@tikzbox@otl{(0)--(0|-P)(P)--(P|-0)){(0)rectangle(P))}%
1620 }{}%
1621 \ifboolexpr{test {\md@test@tb} or test {\md@test@b}}%
1622 {\md@tikzbox@otl{(0)--(0|-P)){(0)rectangle(P))}%
1623 }{}%
1624 \ifboolexpr{test {\md@test@lt} or test {\md@test@l}}%
1625 {\md@tikzbox@otl{(0)--(0|-P)){(0)rectangle(P))}%
1626 }{}%
1627 \ifboolexpr{test {\md@test@tr} or test {\md@test@r}}%
1628 {\md@tikzbox@otl{(0|-P)--(P)){(0)rectangle(P))}%
1629 }{}%

```

```

1630      \md@test@t{\path[mdfbackground](0)rectangle(P)}{}%
1631 %
1632      \md@test@noline{\path[mdfbackground,mdfcorners](0|-P)--(0)--(0-|P)--(P)}{}%
1633 %
1634      \node[mdfbox] at (\md@Ax,\md@Ay){\box\@tempboxa};% Ausgabebox einfuegen
1635      \end{scope}
1636      %HIER KOMMT EIN WEITERES MAKRO
1637      \end{tikzpicture}%
1638      }%
1639      \mdf@makeboxalign@right%
1640      }%
1641      \fi
1642      }%

1643      \endinput

```

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

```

1644 %% Style file for mdframed for package option 'framemethod=default'
1645 %%
1646 %% This package may be distributed under the terms of the LaTeX Project
1647 %% Public License, as described in lppl.txt in the base LaTeX distribution.
1648 %% Either version 1.0 or, at your option, any later version.
1649
1650 %%$Id: mdframed.dtx 273 2011-12-10 09:21:09Z marco $
1651 %

```

```

\mdframedIIPackagename
\md@frameIIDate@svn

```

local settings

```

1652 \def\mdframedIIPackagename{md-frame-2}
1653 \def\md@frameIIDate@svn$#1: #2 #3 #4-#5-#6 #7 #8${#4/#5/#6\space }
1654 \ProvidesFile{md-frame-2.mdf}%
1655      [\md@frameIIDate@svn$Id: mdframed.dtx 273 2011-12-10 09:21:09Z marco $ %
1656      \mdversion: \mdframedIIPackagename]

```

```

\md@ptlength@to@pscode
\ptTps

```

Command to calculate a latex length to postscript

```

1657 \def\md@ptlength@to@pscode#1{\pst@number{#1} \pst@number\psxunit div }
1658 \let\ptTps\md@ptlength@to@pscode\relax

```

```

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

```

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

```

1659 %%% -----t-----
1660 %%% |               |
1661 %%% |               |
1662 %%% |               |
1663 %%% l|               |r
1664 %%% |               |
1665 %%% |               |
1666 %%% |-----|
1667 %%%          b
1668 %%Zusammenhaenge abfragen:
1669 \newrobustcmd*\md@test@lrb{%
1670   \ifboolexpr{ (bool {mdf@topline}) and (bool {mdf@bottomline})
1671               and (bool {mdf@leftline}) and (bool {mdf@rightline})}}
1672 %3-set
1673 \newrobustcmd*\md@test@ltr{%
1674   \ifboolexpr{ (bool {mdf@topline}) and not (bool {mdf@bottomline})
1675               and (bool {mdf@leftline}) and (bool {mdf@rightline})}}
1676 \newrobustcmd*\md@test@ltb{%
1677   \ifboolexpr{ (bool {mdf@topline}) and (bool {mdf@bottomline})
1678               and (bool {mdf@leftline}) and not (bool {mdf@rightline})}}
1679 \newrobustcmd*\md@test@trb{%
1680   \ifboolexpr{ (bool {mdf@topline}) and (bool {mdf@bottomline})
1681               and not (bool {mdf@leftline}) and (bool {mdf@rightline})}}
1682 \newrobustcmd*\md@test@lrb{%
1683   \ifboolexpr{ not (bool {mdf@topline}) and (bool {mdf@bottomline})
1684               and (bool {mdf@leftline}) and (bool {mdf@rightline})}}
1685 %2-set
1686 \newrobustcmd*\md@test@lb{%
1687   \ifboolexpr{ not (bool {mdf@topline}) and (bool {mdf@bottomline})
1688               and (bool {mdf@leftline}) and not (bool {mdf@rightline})}}
1689 \newrobustcmd*\md@test@rb{%
1690   \ifboolexpr{ not (bool {mdf@topline}) and (bool {mdf@bottomline})
1691               and not (bool {mdf@leftline}) and (bool {mdf@rightline})}}
1692 \newrobustcmd*\md@test@tr{%
1693   \ifboolexpr{ (bool {mdf@topline}) and not (bool {mdf@bottomline})
1694               and not (bool {mdf@leftline}) and (bool {mdf@rightline})}}
1695 \newrobustcmd*\md@test@lt{%
1696   \ifboolexpr{ (bool {mdf@topline}) and not (bool {mdf@bottomline})

```

```

1697             and (bool {mdf@leftline}) and not (bool {mdf@rightline}}})
1698 %Einzellinien
1699 \newrobustcmd*{\md@test@single{%
1700     \ifboolexpr{ not (test {\md@test@ltrb} or test {\md@test@ltr} or
1701         test {\md@test@ltb} or test {\md@test@trb} or
1702         test {\md@test@lrb} or test {\md@test@lb} or
1703         test {\md@test@rb} or test {\md@test@tr} or
1704         test {\md@test@lt} ) }}
1705

```

\mdfbackgroundstyle
\mdflinestyle

background and line settings for pstricks

```

1706 \newsstyle{mdfbackgroundstyle}{linecolor=\mdf@backgroundcolor,fillstyle=solid,%
1707     fillcolor=\mdf@backgroundcolor,linestyle=solid,%
1708     linewidth=\mdf@middlelinewidth@length,dimen=outer,%
1709 }%
1710 %
1711 \newsstyle{mdflinestyle}{linewidth=\mdf@middlelinewidth@length,%
1712     linecolor=\mdf@linecolor,%
1713     fillstyle=none,dimen=middle,}%

```

\md@putbox@single

Single output

```

1714 \def\md@putbox@single{%
1715     \ifvoid\@tempboxa
1716     \else%
1717     \mdf@makebox@out{%
1718         \mdf@makeboxalign@left%
1719         \ifbool{mdf@leftline}{\hspace*{\mdf@middlelinewidth@length}}{}%
1720         \setlength\mdfboundingboxwidth{\wd\@tempboxa}%
1721         \setlength\mdfboundingboxheight{\dimexpr\ht\@tempboxa+\dp\@tempboxa\relax}%
1722         \advance\mdfboundingboxheight by \mdf@innertopmargin@length\relax%
1723         \advance\mdfboundingboxheight by \mdf@innerbottommargin@length\relax%
1724         \ifbool{mdf@topline}%
1725             {\advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax}{}%
1726         \ifbool{mdf@bottomline}%
1727             {\advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax}{}%
1728         \advance\mdfboundingboxwidth by \mdf@innerleftmargin@length\relax%
1729         \advance\mdfboundingboxwidth by \mdf@innerrightmargin@length\relax%
1730         \psset{linearc=\mdf@roundcorner@length,cornersize=absolut,}%
1731         \expandafter\psset\expandafter{\mdf@psset@local}%
1732         \psset{unit=1truecm}%
1733         \mdf@makebox@in[\mdfboundingboxwidth]{%
1734             \null%
1735             \begin{pspicture}(0,0)(\mdfboundingboxwidth,\mdfboundingboxheight)
1736                 \md@test@ltrb{%
1737                     \psframe[style=mdflinestyle]%
1738                     (! \ptTps{\mdf@middlelinewidth@length} neg 0.5 mul %
1739                     \ptTps{\mdf@middlelinewidth@length} 0.5 mul)%
1740                     (! \ptTps{\mdfboundingboxwidth} %
1741                     \ptTps{\mdf@middlelinewidth@length} 0.5 mul add %X
1742                     \ptTps{\mdfboundingboxheight}%

```

```

1743         \ptTps{\mdf@middlelinewidth@length} neg 0.5 mul add)
1744     }{}
1745     \md@test@ltr{%
1746         \psline[style=mdflinestyle]%
1747         (! \ptTps{\mdf@middlelinewidth@length} neg 0.5 mul 0)%
1748         (! \ptTps{\mdf@middlelinewidth@length} neg 0.5 mul
1749         \ptTps{\mdfboundingboxheight}
1750         \ptTps{\mdf@middlelinewidth@length} neg 0.5 mul add)%
1751         (! \ptTps{\mdfboundingboxwidth}
1752         \ptTps{\mdf@middlelinewidth@length} 0.5 mul add %X
1753         \ptTps{\mdfboundingboxheight}
1754         \ptTps{\mdf@middlelinewidth@length} neg 0.5 mul add)%
1755         (! \ptTps{\mdfboundingboxwidth}
1756         \ptTps{\mdf@middlelinewidth@length} 0.5 mul add %X
1757         0)
1758     }{}
1759     \md@test@ltb{%
1760         \psline[style=mdflinestyle]%
1761         (! \ptTps{\mdfboundingboxwidth}
1762         \ptTps{\mdf@middlelinewidth@length} 0.5 mul)%
1763         (! \ptTps{\mdf@middlelinewidth@length} neg 0.5 mul
1764         \ptTps{\mdf@middlelinewidth@length} 0.5 mul)%
1765         (! \ptTps{\mdf@middlelinewidth@length} neg 0.5 mul
1766         \ptTps{\mdfboundingboxheight}
1767         \ptTps{\mdf@middlelinewidth@length} neg 0.5 mul add)%
1768         (! \ptTps{\mdfboundingboxwidth} %X
1769         \ptTps{\mdfboundingboxheight}
1770         \ptTps{\mdf@middlelinewidth@length} neg 0.5 mul add)%
1771     }{}
1772     \md@test@trb{%
1773         \psline[style=mdflinestyle]%
1774         (! 0
1775         \ptTps{\mdfboundingboxheight}
1776         \ptTps{\mdf@middlelinewidth@length} neg 0.5 mul add)%
1777         (! \ptTps{\mdfboundingboxwidth}
1778         \ptTps{\mdf@middlelinewidth@length} 0.5 mul add %X
1779         \ptTps{\mdfboundingboxheight}
1780         \ptTps{\mdf@middlelinewidth@length} neg 0.5 mul add)%
1781         (! \ptTps{\mdfboundingboxwidth}
1782         \ptTps{\mdf@middlelinewidth@length} 0.5 mul add %X
1783         \ptTps{\mdf@middlelinewidth@length} 0.5 mul)
1784         (! 0 \ptTps{\mdf@middlelinewidth@length} 0.5 mul)
1785     }{}
1786     \md@test@lrb{%
1787         \psline[style=mdflinestyle]%
1788         (! \ptTps{\mdf@middlelinewidth@length} 0.5 mul neg
1789         \ptTps{\mdfboundingboxheight})%
1790         (! \ptTps{\mdf@middlelinewidth@length} 0.5 mul neg
1791         \ptTps{\mdf@middlelinewidth@length} 0.5 mul )%
1792         (! \ptTps{\mdfboundingboxwidth}
1793         \ptTps{\mdf@middlelinewidth@length} 0.5 mul add %X
1794         \ptTps{\mdf@middlelinewidth@length} 0.5 mul )
1795         (! \ptTps{\mdfboundingboxwidth}
1796         \ptTps{\mdf@middlelinewidth@length} 0.5 mul add %X
1797         \ptTps{\mdfboundingboxheight})
1798     }{}

```

```

1799 \md@test@lb{%
1800   \psline[style=mdflinestyle]%
1801     (! \ptTps{\mdf@middlelinewidth@length} 0.5 mul neg
1802       \ptTps{\mdf@boundingboxheight})%
1803     (! \ptTps{\mdf@middlelinewidth@length} 0.5 mul neg
1804       \ptTps{\mdf@middlelinewidth@length} 0.5 mul )%
1805     (! \ptTps{\mdf@boundingboxwidth}
1806       \ptTps{\mdf@middlelinewidth@length} 0.5 mul )
1807   }{}
1808 \md@test@rb{%
1809   \psline[style=mdflinestyle]%
1810     (! 0 \ptTps{\mdf@middlelinewidth@length} 0.5 mul )%
1811     (! \ptTps{\mdf@boundingboxwidth}
1812       \ptTps{\mdf@middlelinewidth@length} 0.5 mul add %X
1813       \ptTps{\mdf@middlelinewidth@length} 0.5 mul )
1814     (! \ptTps{\mdf@boundingboxwidth}
1815       \ptTps{\mdf@middlelinewidth@length} 0.5 mul add %X
1816       \ptTps{\mdf@boundingboxheight})
1817   }{}
1818 \md@test@tr{%
1819   \psline[style=mdflinestyle]%
1820     (! 0
1821       \ptTps{\mdf@boundingboxheight}
1822       \ptTps{\mdf@middlelinewidth@length} neg 0.5 mul add)%
1823     (! \ptTps{\mdf@boundingboxwidth}
1824       \ptTps{\mdf@middlelinewidth@length} 0.5 mul add %X
1825       \ptTps{\mdf@boundingboxheight}
1826       \ptTps{\mdf@middlelinewidth@length} neg 0.5 mul add)%
1827     (! \ptTps{\mdf@boundingboxwidth}
1828       \ptTps{\mdf@middlelinewidth@length} 0.5 mul add %X
1829       0)
1830   }{}
1831 \md@test@lt{%
1832   \psline[style=mdflinestyle]%
1833     (! \ptTps{\mdf@middlelinewidth@length} neg 0.5 mul 0)%
1834     (! \ptTps{\mdf@middlelinewidth@length} neg 0.5 mul
1835       \ptTps{\mdf@boundingboxheight}
1836       \ptTps{\mdf@middlelinewidth@length} neg 0.5 mul add)%
1837     (! \ptTps{\mdf@boundingboxwidth} %X
1838       \ptTps{\mdf@boundingboxheight}
1839       \ptTps{\mdf@middlelinewidth@length} neg 0.5 mul add)%
1840   }{}
1841 \md@test@single{%
1842   \ifbool{mdf@bottomline}{%
1843     \psline[style=mdflinestyle]%
1844       (! 0 \ptTps{\mdf@middlelinewidth@length} 0.5 mul )%
1845       (! \ptTps{\mdf@boundingboxwidth}
1846         \ptTps{\mdf@middlelinewidth@length} 0.5 mul )
1847   }{}%
1848   \ifbool{mdf@topline}{%
1849     \psline[style=mdflinestyle]%
1850       (! 0 \ptTps{\mdf@boundingboxheight}
1851         \ptTps{\mdf@middlelinewidth@length} 0.5 mul neg add)%
1852       (! \ptTps{\mdf@boundingboxwidth}
1853         \ptTps{\mdf@boundingboxheight}
1854         \ptTps{\mdf@middlelinewidth@length} 0.5 mul neg add)

```



```

1855         }{}%
1856     \ifbool{mdf@leftline}{%
1857         \psline[style=mdflinestyle]%
1858         (! \ptTps{\mdf@middlelinewidth@length} neg 0.5 mul 0)%
1859         (! \ptTps{\mdf@middlelinewidth@length} neg 0.5 mul
1860         \ptTps{\mdf@boundingboxheight} )%
1861     }{}%
1862     \ifbool{mdf@rightline}{%
1863         \psline[style=mdflinestyle]%
1864         (! \ptTps{\mdf@boundingboxwidth}
1865         \ptTps{\mdf@middlelinewidth@length} 0.5 mul add 0)%
1866         (! \ptTps{\mdf@boundingboxwidth}
1867         \ptTps{\mdf@middlelinewidth@length} 0.5 mul add
1868         \ptTps{\mdf@boundingboxheight} )%
1869     }{}%
1870 }{}%
1871 %Hintergrund
1872 \psframe[style=mdfbackgroundstyle]%
1873 (!0 \ifbool{mdf@bottomline}{\ptTps{\mdf@middlelinewidth@length}}{0})
1874 (! \ptTps{\mdf@boundingboxwidth} %
1875     \ptTps{\mdf@boundingboxheight}
1876     \ifbool{mdf@topline}{\ptTps{\mdf@middlelinewidth@length} sub}{})
1877 %Ausgabe
1878 \rput[b]%
1879     (!\ptTps{\mdf@boundingboxwidth} 0.5 mul % X-Koordinate
1880     \ptTps{\mdf@innerbottommargin@length}
1881     \ifbool{mdf@bottomline}{\ptTps{\mdf@middlelinewidth@length} add}{})
1882 ){\box\@tempboxa}
1883 \end{pspicture}%
1884 }%
1885 \mdf@makeboxalign@right%
1886 }%
1887 \fi
1888 }%

```

`\md@putbox@first`

First output

```

1889 \def\md@putbox@first{%
1890     \ifvoid\@tempboxa
1891     \else%
1892         \mdf@makebox@out{%
1893             \mdf@makeboxalign@left%
1894             \ifbool{mdf@leftline}{\hspace*{\mdf@middlelinewidth@length}}{}%
1895             \setlength\mdf@boundingboxwidth{\wd\@tempboxa}%
1896             \setlength\mdf@boundingboxheight{\dimexpr\ht\@tempboxa+\dp\@tempboxa\relax}%
1897             \advance\mdf@boundingboxheight by \mdf@innertopmargin@length\relax
1898             \advance\mdf@boundingboxheight by \mdf@splitbottomskip@length\relax%
1899             \ifbool{mdf@topline}%
1900                 {\advance\mdf@boundingboxheight by \mdf@middlelinewidth@length\relax}{}%
1901             \advance\mdf@boundingboxwidth by \mdf@innerleftmargin@length\relax%
1902             \advance\mdf@boundingboxwidth by \mdf@innerrightmargin@length\relax%
1903             \psset{linearc=\mdf@roundcorner@length, cornersize=absolute}%
1904             \expandafter\psset\expandafter{\mdf@psset@local}%
1905             \mdf@makebox@in[\mdf@boundingboxwidth]{%

```

```

1906 \null%
1907 \psset{unit=1truecm}%
1908 \ifdimgreater{\mdfboundingboxheight}{\vsize}
1909 {\begin{pspicture}(0,0)(\mdfboundingboxwidth,\vsize)}
1910 {\begin{pspicture}(0,0)(\mdfboundingboxwidth,\mdfboundingboxheight)}
1911 %Hintergrund
1912 \psline[style=mdfbackgroundstyle,%
1913         lineararc={\dimexpr\mdf@roundcorner@length%
1914                   -\mdf@middlelinewidth@length\relax},]
1915         (! \ptTps{\mdf@middlelinewidth@length} 0.5 mul 0)%
1916         (! \ptTps{\mdf@middlelinewidth@length} 0.5 mul
1917          \ptTps{\mdfboundingboxheight}
1918          \ifbool{mdf@topline}%
1919              {\ptTps{\mdf@middlelinewidth@length} neg 1.5 mul add}%
1920              {\ptTps{\mdf@middlelinewidth@length} neg 0.5 mul add} )%
1921         (! \ptTps{\mdfboundingboxwidth}
1922          \ptTps{\mdf@middlelinewidth@length} 0.5 mul neg add %X
1923          \ptTps{\mdfboundingboxheight}
1924          \ifbool{mdf@topline}%
1925              {\ptTps{\mdf@middlelinewidth@length} neg 1.5 mul add}%
1926              {\ptTps{\mdf@middlelinewidth@length} neg 0.5 mul add} )%
1927         (! \ptTps{\mdfboundingboxwidth}
1928          \ptTps{\mdf@middlelinewidth@length} 0.5 mul neg add %X
1929          0)
1930 \ifboolexpr{ test {\md@test@lrb} or test {\md@test@lrb}}{%
1931 \psline[style=mdflinestyle]%
1932         (! \ptTps{\mdf@middlelinewidth@length} neg 0.5 mul 0)%
1933         (! \ptTps{\mdf@middlelinewidth@length} neg 0.5 mul
1934          \ptTps{\mdfboundingboxheight}
1935          \ptTps{\mdf@middlelinewidth@length} neg 0.5 mul add)%
1936         (! \ptTps{\mdfboundingboxwidth}
1937          \ptTps{\mdf@middlelinewidth@length} 0.5 mul add %X
1938          \ptTps{\mdfboundingboxheight}
1939          \ptTps{\mdf@middlelinewidth@length} neg 0.5 mul add)%
1940         (! \ptTps{\mdfboundingboxwidth}
1941          \ptTps{\mdf@middlelinewidth@length} 0.5 mul add %X
1942          0)
1943 }}
1944 \ifboolexpr{ test {\md@test@tr} or test {\md@test@trb}}{%
1945 \psline[style=mdflinestyle]%
1946         (! 0
1947          \ptTps{\mdfboundingboxheight}
1948          \ptTps{\mdf@middlelinewidth@length} neg 0.5 mul add)%
1949         (! \ptTps{\mdfboundingboxwidth}
1950          \ptTps{\mdf@middlelinewidth@length} 0.5 mul add %X
1951          \ptTps{\mdfboundingboxheight}
1952          \ptTps{\mdf@middlelinewidth@length} neg 0.5 mul add)%
1953         (! \ptTps{\mdfboundingboxwidth}
1954          \ptTps{\mdf@middlelinewidth@length} 0.5 mul add %X
1955          0)
1956 }}
1957 \ifboolexpr{ test {\md@test@ltb} or test {\md@test@lt}}{%
1958 \psline[style=mdflinestyle]%
1959         (! \ptTps{\mdf@middlelinewidth@length} neg 0.5 mul 0)%
1960         (! \ptTps{\mdf@middlelinewidth@length} neg 0.5 mul
1961          \ptTps{\mdfboundingboxheight}

```

```

1962         \ptTps{\mdf@middlelinewidth@length} neg 0.5 mul add)%
1963     (! \ptTps{\mdf@boundingboxwidth}
1964         \ptTps{\mdf@roundcorner@length} neg add %X
1965         \ptTps{\mdf@boundingboxheight}
1966         \ptTps{\mdf@middlelinewidth@length} neg 0.5 mul add)%
1967     {}%
1968     \ifbool{expr{ test {\md@test@single} or test {\md@test@rb} or
1969         test {\md@test@lrb} or test {\md@test@lb}}}%
1970     \ifbool{mdf@topline}{%
1971         \psline[style=mdflinestyle]%
1972         (! 0 \ptTps{\mdf@boundingboxheight}
1973             \ptTps{\mdf@middlelinewidth@length} 0.5 mul neg add)%
1974         (! \ptTps{\mdf@boundingboxwidth}
1975             \ptTps{\mdf@boundingboxheight}
1976             \ptTps{\mdf@middlelinewidth@length} 0.5 mul neg add)
1977     }{}%
1978     \ifbool{mdf@leftline}{%
1979         \psline[style=mdflinestyle]%
1980         (! \ptTps{\mdf@middlelinewidth@length} neg 0.5 mul 0)%
1981         (! \ptTps{\mdf@middlelinewidth@length} neg 0.5 mul
1982             \ptTps{\mdf@boundingboxheight} )%
1983     }{}%
1984     \ifbool{mdf@rightline}{%
1985         \psline[style=mdflinestyle]%
1986         (! \ptTps{\mdf@boundingboxwidth}
1987             \ptTps{\mdf@middlelinewidth@length} 0.5 mul add 0)%
1988         (! \ptTps{\mdf@boundingboxwidth}
1989             \ptTps{\mdf@middlelinewidth@length} 0.5 mul add
1990             \ptTps{\mdf@boundingboxheight} )%
1991     }{}%
1992     }{}%
1993     %Ausgabe
1994     \rput[b]{!
1995         \ptTps{\mdf@boundingboxwidth} 0.5 mul % X-Koordinate
1996         \ptTps{\mdf@splitbottomskip@length}}{\box\tw@}
1997     \end{pspicture}%
1998     }%
1999     \mdf@makeboxalign@right%
2000 }%
2001 \fi
2002 }%

```

\md@putbox@middle

Middle output

```

2003 \def\md@putbox@middle{%
2004     \ifvoid\@tempboxa
2005     \else%
2006         \mdf@makebox@out{%
2007             \mdf@makeboxalign@left%
2008             \ifbool{mdf@leftline}{\hspace*{\mdf@middlelinewidth@length}}{}%
2009             \setlength\mdf@boundingboxwidth{\wd\tw@}%
2010             \setlength\mdf@boundingboxheight{\dimexpr\ht\tw@+\dp\tw@\relax}%
2011             \advance\mdf@boundingboxheight by \mdf@splitbottomskip@length\relax%
2012             \advance\mdf@boundingboxwidth by \mdf@innerleftmargin@length\relax%

```

```

2013 \advance\mdfboundingboxwidth by \mdf@innerrightmargin@length\relax%
2014 \expandafter\psset\expandafter{\mdf@psset@local}%
2015 \psset{linearc=\mdf@roundcorner@length, cornersize=absolute}%
2016 \mdf@makebox@in[\mdfboundingboxwidth]{%
2017 \null%
2018 \psset{unit=1truecm}%
2019 \ifdimgreater{\mdfboundingboxheight}{\vsize}
2020 {\begin{pspicture}(0,0)(\mdfboundingboxwidth,\vsize)}
2021 {\begin{pspicture}(0,0)(\mdfboundingboxwidth,\mdfboundingboxheight)}
2022 \ifbool{mdf@leftline}{%
2023 \psline[style=mdflinestyle]%
2024 (! \ptTps{\mdf@middlelinewidth@length} neg 0.5 mul 0)%
2025 (! \ptTps{\mdf@middlelinewidth@length} neg 0.5 mul
2026 \ptTps{\mdfboundingboxheight} )%
2027 }{}%
2028 \ifbool{mdf@rightline}{%
2029 \psline[style=mdflinestyle]%
2030 (! \ptTps{\mdfboundingboxwidth}
2031 \ptTps{\mdf@middlelinewidth@length} 0.5 mul add 0)%
2032 (! \ptTps{\mdfboundingboxwidth}
2033 \ptTps{\mdf@middlelinewidth@length} 0.5 mul add
2034 \ptTps{\mdfboundingboxheight} )%
2035 }{}%
2036 %Hintergrund
2037 \psframe[style=mdfbackgroundstyle,%
2038 linearc=\z@]%
2039 (!0 0)
2040 (! \ptTps{\mdfboundingboxwidth}
2041 \ptTps{\mdfboundingboxheight})
2042 %Ausgabe
2043 \rput[b](!
2044 \ptTps{\mdfboundingboxwidth} 0.5 mul % X-Koordinate
2045 \ptTps{\mdf@splitbottomskip@length} ){\box\tw@}
2046 \end{pspicture}%
2047 }%
2048 \mdf@makebox@align@right%
2049 }%
2050 \fi
2051 }%

```

\md@putbox@second

Last output

```

2052 \def\md@putbox@second{
2053 \ifvoid\@tempboxa
2054 \else%
2055 \mdf@makebox@out{%
2056 \mdf@makebox@align@left%
2057 \ifbool{mdf@leftline}{\hspace*{\mdf@middlelinewidth@length}}{}%
2058 \setlength\mdfboundingboxwidth{\wd\@tempboxa}%
2059 \setlength\mdfboundingboxheight{\dimexpr\ht\@tempboxa+\dp\@tempboxa\relax}%
2060 \advance\mdfboundingboxheight by \mdf@innerbottommargin@length\relax%
2061 \ifbool{mdf@bottomline}%
2062 {\advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax}{}%
2063 \advance\mdfboundingboxwidth by \mdf@innerleftmargin@length\relax%

```

```

2064 \advance\mdfboundingboxwidth by \mdf@innerrightmargin@length\relax%
2065 \expandafter\psset\expandafter{\mdf@psset@local}
2066 \psset{lineararc=\mdf@roundcorner@length, cornersize=absolute}%
2067 \psset{unit=1truecm}%
2068 \mdf@makebox@in[\mdfboundingboxwidth]{%
2069 \null%
2070 \begin{pspicture}(0,0)(\mdfboundingboxwidth,\mdfboundingboxheight)
2071 %Hintergrund
2072 \psline[style=mdfbackgroundstyle,%
2073 lineararc={\dimexpr\mdf@roundcorner@length%
2074 -\mdf@middlelinewidth@length\relax},]%
2075 (! \ptTps{\mdf@middlelinewidth@length} 0.5 mul
2076 \ptTps{\mdfboundingboxheight} )%
2077 (! \ptTps{\mdf@middlelinewidth@length} 0.5 mul
2078 \ifbool{mdf@bottomline}%
2079 {\ptTps{\mdf@middlelinewidth@length} neg 1.5 mul neg}%
2080 {\ptTps{\mdf@middlelinewidth@length} neg 0.5 mul neg} )%
2081 (! \ptTps{\mdfboundingboxwidth}
2082 \ptTps{\mdf@middlelinewidth@length} 0.5 mul neg add
2083 \ifbool{mdf@bottomline}%
2084 {\ptTps{\mdf@middlelinewidth@length} neg 1.5 mul neg}%
2085 {\ptTps{\mdf@middlelinewidth@length} neg 0.5 mul neg} )%
2086 (! \ptTps{\mdfboundingboxwidth}
2087 \ptTps{\mdf@middlelinewidth@length} 0.5 mul neg add
2088 \ptTps{\mdfboundingboxheight} )
2089 %%%%%%%%%%%
2090 \ifbool{expr{ test {\md@test@lrb} or test {\md@test@lrb}}}{%
2091 \psline[style=mdflinestyle]%
2092 (! \ptTps{\mdf@middlelinewidth@length} 0.5 mul neg
2093 \ptTps{\mdfboundingboxheight})%
2094 (! \ptTps{\mdf@middlelinewidth@length} 0.5 mul neg
2095 \ptTps{\mdf@middlelinewidth@length} 0.5 mul )%
2096 (! \ptTps{\mdfboundingboxwidth}
2097 \ptTps{\mdf@middlelinewidth@length} 0.5 mul add %X
2098 \ptTps{\mdf@middlelinewidth@length} 0.5 mul )
2099 (! \ptTps{\mdfboundingboxwidth}
2100 \ptTps{\mdf@middlelinewidth@length} 0.5 mul add %X
2101 \ptTps{\mdfboundingboxheight})
2102 }}
2103 \ifbool{expr{ test {\md@test@ltb} or test {\md@test@lb}}}{%
2104 \psline[style=mdflinestyle]%
2105 (! \ptTps{\mdf@middlelinewidth@length} 0.5 mul neg
2106 \ptTps{\mdfboundingboxheight})%
2107 (! \ptTps{\mdf@middlelinewidth@length} 0.5 mul neg
2108 \ptTps{\mdf@middlelinewidth@length} 0.5 mul )%
2109 (! \ptTps{\mdfboundingboxwidth}
2110 \ptTps{\mdf@middlelinewidth@length} 0.5 mul )
2111 }}
2112 \ifbool{expr{ test {\md@test@trb} or test {\md@test@rb}}}{%
2113 \psline[style=mdflinestyle]%
2114 (! 0 \ptTps{\mdf@middlelinewidth@length} 0.5 mul )%
2115 (! \ptTps{\mdfboundingboxwidth}
2116 \ptTps{\mdf@middlelinewidth@length} 0.5 mul add %X
2117 \ptTps{\mdf@middlelinewidth@length} 0.5 mul )
2118 (! \ptTps{\mdfboundingboxwidth}
2119 \ptTps{\mdf@middlelinewidth@length} 0.5 mul add %X

```

```

2120         \ptTps{\mdfboundingboxheight})
2121     }}
2122     \ifbool{expr{ test {\md@test@single} or test {\md@test@ltr} or
2123         test {\md@test@tr} or test {\md@test@lt}}}{%
2124         \ifbool{mdf@bottomline}{%
2125             \psline[style=mdflinestyle]%
2126                 ( ! \ptTps{\mdf@middlelinewidth@length} 0.5 mul )%
2127                 ( ! \ptTps{\mdfboundingboxwidth}
2128                     \ptTps{\mdf@middlelinewidth@length} 0.5 mul )
2129             }}%
2130         \ifbool{mdf@leftline}{%
2131             \psline[style=mdflinestyle]%
2132                 ( ! \ptTps{\mdf@middlelinewidth@length} neg 0.5 mul 0)%
2133                 ( ! \ptTps{\mdf@middlelinewidth@length} neg 0.5 mul
2134                     \ptTps{\mdfboundingboxheight} )%
2135             }}%
2136         \ifbool{mdf@rightline}{%
2137             \psline[style=mdflinestyle]%
2138                 ( ! \ptTps{\mdfboundingboxwidth}
2139                     \ptTps{\mdf@middlelinewidth@length} 0.5 mul add 0)%
2140                 ( ! \ptTps{\mdfboundingboxwidth}
2141                     \ptTps{\mdf@middlelinewidth@length} 0.5 mul add
2142                     \ptTps{\mdfboundingboxheight} )%
2143             }}%
2144     }}%
2145     %Ausgabe
2146     \rput[b]( !
2147         \ptTps{\mdfboundingboxwidth} 0.5 mul % X-Koordinate
2148         \ptTps{\mdf@innerbottommargin@length}
2149         \ifbool{mdf@bottomline}{\ptTps{\mdf@middlelinewidth@length} add}{ }
2150     ){\box\@tempboxa}
2151 \end{pspicture}%
2152 }%
2153 \mdf@makeboxalign@right%
2154 }%
2155 \fi
2156 }%

2157 \endinput
2158 %eof

```

C. Change History

v1.0a		md@lrbox	23
General: Created dtx and fixes bugs	1	removed setbox\tw@ \vbox\unvbox \tw@	33
v1.0b			
General: added command @parboxrestore to			

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