The realboxes package

Martin Scharrer
martin@scharrer-online.de

http://www.ctan.org/pkg/realboxes

v0.2 from 2011/08/08

Abstract

Provides variants of common "box"-macros which reads their content as real box and not as macro argument.

1 Introduction

The LaTeX core and several packages like `graphics/x` provide some `\<xxx>box` macros which modify their content by first placing it into a box. However, these macros still read their content as a macro argument and therefore do no support verbatim content. This package provides variants of these macros which use the authors other package `collectbox` to collect the content as real box before it is modified (framed, raised, scaled, rotated, etc.). This allows for verbatim and other special content.

The provided macros simply have the same names as the original versions but start with an upper-case letter instead. However, these macros do not support the special `picture` syntax as the original macros. The "long-form" macros, like `\Makebox`, can also be used as environments, but not the "short-form" macros, like `\Mbox`. However, normally the long form uses the short form anyway when no optional arguments are used.

Length values

Some of the macros await length values to specify a dimension of the content. For all macros the lengths `\width`, `\height`, `\depth` and `\totalheight` (= height + depth) can be used to refer to the original dimensions of the content. Also the `adjcalc` package from the `adjustbox` bundle is used to allow for mathematical expressions for these values. By default the ϵ-TeX primitive `\dimexpr` is used which allows for `+`, `-`, `*` and `/` as well as grouping using `( )`. If either ϵ-TeX or the `adjcalc` package is not available, than the `calc` package is used by default. It is also possible to use the `pgfmath` framework of the `pgf` bundle. To select a different math back-end simply load the `adjcalc` package with one of the options '`etex`', '`calc`', '`pgfmath`' or '`none`' before the `realboxes` package. See the `adjustbox` manual for more information about `adjcalc`.

2 Usage

The following macros are provided dependent on the used package options. The options state other packages which are loaded and variants of their box macros are provided. See the package manual for more details about these macros. If loaded without any options the core macros are loaded as well as all variant of macros for all already loaded packages ("auto-detection mode").

2.1 LaTeX code macros (option core)

`\Mbox{`⟨*content*⟩`}`

This variant of `\mbox` is the only macro which doesn't use `\collectbox` because of the simplicity of the original macro. `\Mbox` will use `\hbox` directly to process the `{`⟨*content*⟩`}` (and will expand it to search for the opening brace). The special case when `{`⟨*content*⟩`}` is a single token is handling by using `\mbox` instead.

`\Makebox[`⟨*width*⟩`][`⟨*position*⟩`]{`⟨*content*⟩`}`

Places the ⟨*content*⟩ in a box of width ⟨*width*⟩ (by default the native width) and horizontally aligns it accordantly to ⟨*position*⟩. Valid values are `l` for left, `r` for right and `c` for center alignment (default). If no optional arguments are used this macro equals to `\Mbox`.

`\Fbox{`⟨*content*⟩`}`

Draws a frame around ⟨*content*⟩ with a line width of `\fboxrule` and a separation of `\fboxsep`. The baseline of the content is not affected.

`\Framebox[`⟨*width*⟩`][`⟨*position*⟩`]{`⟨*content*⟩`}`

Like `\Makebox` but draws a frame like `\Fbox`. If no optional arguments are used this macro equals to `\Fbox`.

`\Frame{`⟨*content*⟩`}`

Similar to `\Fbox` but does draw the frame tightly around its content with no separation. The resulting box will also have no depth, i.e. might be moved up. Note that the original `\frame` macro is indented for use inside a `picture` environment but can also be used in normal text. The line width is the current `picture` line width (`\@wholewidth`) which can be (globally) set using `\linethickness{`⟨*length*⟩`}(also in normal text mode)`.

`\Raisebox{`⟨*length*⟩`}[`⟨*height*⟩`][`⟨*depth*⟩`]{`⟨*content*⟩`}`

Raises the ⟨*content*⟩ by ⟨*length*⟩. Negative values lower the content. In addition to this the official height and depth can be set. This does not scale the content, but only make TeX reserve less vertical space.

`\Centerline{`⟨*content*⟩`}`

Places ⟨*content*⟩ into a box of width `\linewidth` and centers it inside this box (even if the content is wider). This is similar to `\Makebox[\linewidth][c]{`⟨*content*⟩`}`.

`\Leftline{`⟨*content*⟩`}`

Places ⟨*content*⟩ into a box of width `\linewidth` and left aligns it inside this box. If the content is wider it will stick out on the right site. This is similar to `\Makebox[\linewidth][l]{`⟨*content*⟩`}`.

`\Rightline{`⟨*content*⟩`}`

Places ⟨*content*⟩ into a box of width `\linewidth` and right aligns it inside this box. If the content is wider it will stick out on the left site. This is similar to `\Makebox[\linewidth][r]{`⟨*content*⟩`}`.

`\Rlap{`⟨*content*⟩`}`

Places ⟨*content*⟩ into a box of zero width so that it laps over to the right site. The following material to the right will be printed on top of it. This is similar to `\Makebox[0pt][l]{`⟨*content*⟩`}`.

`\Llap{`⟨*content*⟩`}`

Places ⟨*content*⟩ into a box of zero width so that it laps over to the left site. The content will be printed on top of the previous material on the left. This is similar to `\Makebox[0pt][l]{`⟨*content*⟩`}`.

`\Parbox[`⟨*pos*⟩`][`⟨*height*⟩`][`⟨*inner-pos*⟩`]{`⟨*width*⟩`}{`⟨*content*⟩`}`

Places the ⟨*content*⟩ into a paragraph box of the given ⟨*width*⟩. The optional ⟨*pos*⟩ argument can be used to select the vertical alignment of the box towards the surrounding: 't' align box to the top baseline, 'b' align to the bottom baseline or 'c' vertically center the content. In addition to this the ⟨*height*⟩ and the ⟨*inner pos*⟩ition can be set as further optional arguments. Valid values for ⟨*inner-pos*⟩ are: 't' flush content to the top, 'b' flush content to the bottom, 'c' center the content inside the box or 's' to stretch the material vertically across the box. This only works if the content contains something vertically stretchable.

This macro uses also `collectbox` but redefines an internal macro to collect a vertical box instead of the usual horizontal one.

`\Sbox{`⟨*\boxregister*⟩`}{`⟨*content*⟩`}`

This saves the ⟨*content*⟩ into the given ⟨*\boxregister*⟩, which must be first allocated using `\newsavebox{`⟨*\boxregister*⟩`}`.

`\Savebox{`⟨*\boxregister*⟩`}[`⟨*width*⟩`][`⟨*position*⟩`]{`⟨*content*⟩`}`

Sets the ⟨*content*⟩ in a box of the given width and alignment like `\Makebox` and stores it in ⟨*\boxregister*⟩. If no optional arguments are used this macro equals to `\Sbox`.

2.2 Color macros (option color or xcolor)

`\Colorbox`[⟨*color model*⟩]{⟨*color*⟩}{⟨*content*⟩}

Sets the ⟨*content*⟩ into a box with the given background ⟨*color*⟩. If required the ⟨*color model*⟩ can be specified.

`\Fcolorbox`[⟨*fc model*⟩]{⟨*frame color*⟩}[⟨*bg model*⟩]{⟨*background color*⟩}{⟨*content*⟩}

Sets the ⟨*content*⟩ into a box with the given ⟨*background color*⟩ and draws a frame around it like `\Fbox` but with a given ⟨*frame color*⟩. If required the color ⟨*model*⟩ can be specified. If only the frame color model is specified it will also be used for the background color.

2.3 Graphic macros (option graphics or graphicx)

`\Rotatebox`[⟨*options*⟩]{⟨*angle*⟩}{⟨*content*⟩}

Rotates the ⟨*content*⟩ by ⟨*angle*⟩ which is be default in degrees anti-clockwise (360 = full circle). As ⟨*options*⟩ the following keys can be used:

`x=`⟨*dimen*⟩

`y=`⟨*dimen*⟩ Allows to specify the X and Y coordinate of the coordinate of the center of rotation relative to the reference point of the box.

`origin=`⟨*label*⟩ Allows to specify the center of the rotation using the following letters which can be combined: '`l`' left side, '`r`' right side, '`c`' center of the box, '`t`' top of the box, '`b`' bottom of the box and '`B`' for the base line. For example '`tr`' rotates about the top right corner.

`units=`⟨*number*⟩ allows to change the default units of degrees anti-clockwise (`360`) to any ⟨*number*⟩ of units in one full anti-clockwise rotation. For example `-360` specifies degrees clockwise and `6.283185` specifies radians.

`\Scalebox`{⟨*h-scale*⟩}[⟨*v-scale*⟩]{⟨*content*⟩}

Scales the ⟨*content*⟩ by the given ⟨*scale*⟩ factor. The vertical scaling can be specified independently using the optional argument.

`\Reflectbox`{⟨*content*⟩}

This reflects the ⟨*content*⟩ and is equal to `\Scalebox{-1}{1}`{⟨*content*⟩}.

`\Resizebox`{⟨*width*⟩}{⟨*height*⟩}{⟨*content*⟩}

Resizes the ⟨*content*⟩ to the given ⟨*width*⟩ and/or ⟨*height*⟩. The special value '`!`' can be used for one of the two values to scale it accordantly to the other value. `\Resizebox{!}{!}`{⟨*content*⟩} will not change the size of the content. If both values

are used the aspect ratio might be changed. This can be avoided (for the local TEX group) using `\setkeys{Gin}{keepaspectratio}`. Then the content is scaled to the smaller of the two values.

`\Resizebox*{`⟨*width*⟩`}{`⟨*totalheight*⟩`}{`⟨*content*⟩`}`

Like `\Resizebox` but scales the total height (= height + depth) instead of the height.

2.4 Macros of the `dashbox` package (option dashbox)

`\Dbox{`⟨*content*⟩`}`

Like `\Fbox` but uses a dashed line instead.

`\Dashbox[`⟨*width*⟩`][`⟨*position*⟩`]{`⟨*content*⟩`}`

Like `\Framebox` but uses a dashed line instead.

`\Lbox[`⟨*layers*⟩`]{`⟨*content*⟩`}`

Draws some solid background layers to the lower right of the content which produces a shadow effect. The ⟨*content*⟩ is supposed to also use `\Dbox` or `\Fbox` to draw the foreground dash or frame box. By default two layers are drawn but this can be changed by the optional argument.

`\Dlbox[`⟨*layers*⟩`]{`⟨*content*⟩`}`

Like `\Lbox` but draws the layers with dashed lines instead.

2.5 Compatibility with the `fancybox` package (option fancybox)

The `fancybox` package defines its macros already in a verbatim compatible way. However, if this option is used the `\Sbox` macro provided by the core option is defined in a way to not collide with the Sbox environment of this package.