The 'fvrb-ex' package
Example environments
with the 'fancyvrb' package

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Abstract

This package, built above the 'fancyvrb' one (from Timothy van Zandt), offer several kinds of the so-called *example* environments to format some code both in "verbatim" mode and in the "normal" way, below or on the side. The advantage of such environments is that the code itself is included only one time in the source code, which allow to be sure of the consistence of the two versions shown.

Some other kinds of such environments are specially devoted to graphics, allowing to give the size of them. It is possible in this case to draw also a grid.

Contents

1 Introduction

These macros are based on some previous work of Timothy van Zandt, adapted and developed to suit my personal needs.

This package is built above the 'fancyvrb' one (from Timothy van Zandt), to offer some *example* environments showing both the code and it result. It main strength is that it allow to use all the power of 'fancyvrb', with it great number of customization parameters.

These macros can also be used in conjunction with the 'hbaw' and 'hcolor' packages, to allow to generate the verbatim code with some *highlighting* attributes

to emphasize parts of the text. It can also produce different effects according to the choice of a *colored* or *black and white* version. This last facility was developed for slides, to allow to generate them both in color for projection and in black and white to distribute them as paper copy.

Some special environments for graphic drawings allow to define directly the size of them, without requiring to use also a *picture* environment. To be able to use them, the PSTricks package must be available, even if these specialized environments can be used for graphics built with another macro language than PSTricks.

> **Warning!** You must be aware that it has been reported that this package doesn't work at all on some platforms, due to the way the 8 bits characters are managed by some TeX systems.

2   User interface

> **Warning!** We suppose here that you already know the 'fancyvrb' package. If not, look at it own documentation!

2.1   Environments

Five new environments are defined:

Example : show the verbatim text and the formatted result below.

CenterExample : same than `Example`, but the result is centered.

SideBySideExample : show the formatted result on the left and the verbatim text on the right. The result is centered vertically according to the text.

PCenterExample : same than `CenterExample`, but the result is put inside a PSTricks `pspicture` environment. It is undefined if PSTricks is not available. It is specially devoted to graphic drawings, but not specially built with PSTricks itself. It require to specify the dimensions of the graphic. In fact, it is the same thing than to use the `CenterExample` environment and to put the material inside a LaTeX `picture` or PSTricks `pspicture` environment, but it can be more convenient to have not to specify this one explicitly.

PSideBySideExample : same than `SideBySideExample`, but the result is put inside a PSTricks `pspicture` environment. The preceding comments for `PCenterExample` are of course also valid for it.

The syntax of the first three is:

```
\begin{EnvironmentName}[optional_fancyvrb_arguments]
    ...............................................
\end{EnvironmentName}
```

and for the two last ones:

```
\begin{EnvironmentName}[opt_fvrb_args][(x_min,y_min)](x_max,y_max)
    .....................................................................
\end{EnvironmentName}
```

In these last cases, default values for `x_min` and `y_min` are 0.

2.2 Loading options

baw : allow highlighting for a *black* *a*nd *w*hite version. In this case the 'hbaw' will be loaded and it definitions will be active to emphasize texts.

color : allow highlighting for a *color* version. In this case the 'hcolor' will be loaded and it definitions will be active to emphasize texts.

bawcolor : doesn't specify in the file if it will be a *black* *a*nd *w*hite or a *color* version to generate. A question will be asked interactively at compile time. This allow to generate at choice one of the two versions without any change in the file.

pstricks : require the loading of PSTricks (which of course must be available on the system) to be able to use the special environments devoted to graphics (but not at all mandatory PSTricks graphics).

Of course, these three keywords are mutually exclusive. If none of the `baw`, `color` or `bawcolor` keyword is specified, none of the supplementary files will be loaded.

2.3 'fancyvrb' options imposed

The following 'fancyvrb' parameters are imposed:

gobble=2 : each line inside these environments is supposed to be indented by 2 characters. It only concern the aspect of the source code, which will be more readable like that.

numbersep=3pt : it will be effective only if `numbers=left` or `numbers=right` will be chosen.

commentchar=W : it is the comment character for the source text, which will not be printed in the verbatim part, but executed in the formatted part. So, it allow to have the example not generated by the code shown, which can be surprising for readers and must be used only with care in special circumstances! Character chosen is 163 (£). If it cannot be used on your system or if you have it inside your verbatim text, you must change it by yourself in the package file.

commandchars=XYZ : respectively the *escape*, *beginning of group* and *end of group* characters, to allow escape sequences (LATEX commands as font and color changes) to be applied on the verbatim text, using the 'hbaw' or 'hcolor' packages. These characters are specially chosen to probably be used by nobody in their codes... Characters chosen are those of codes 167, 181 and 182 (μ). If they cannot be used on your system or if you have some of them inside your verbatim text, you must made yourself the relevant changes in the three files of the package.

3 Usage examples

3.1 Usage of the environments

```
1  \begin{Example}
2    First verbatim line.
3    Second verbatim line.
4    Third verbatim line.
5  \end{Example}
```

```
First verbatim line.
Second verbatim line.
Third verbatim line.
```

First verbatim line. Second verbatim line. Third verbatim line.

It is possible to customize the verbatim environments as in the standard way defined by 'fancyvrb', locally as argument of the environment[1], or globally using the \fvset command.

```
1  \begin{Example}[frame=lines,framerule=1mm,numbers=left]
2    First verbatim line.
3    Second verbatim line.
4    Third verbatim line.
5  \end{Example}
```

```
1  First verbatim line.
2  Second verbatim line.
3  Third verbatim line.
```

First verbatim line. Second verbatim line. Third verbatim line.

```
1  \begin{CenterExample}[frame=single,numbers=right]
2    First verbatim line.
3    Second verbatim line.
4    Third verbatim line.
5  \end{CenterExample}
```

```
First verbatim line.                                          1
Second verbatim line.                                         2
Third verbatim line.                                          3
```

First verbatim line. Second verbatim line. Third verbatim line.

---

[1]Take care that you must define these parameters directly for the Example, CenterExample and SideBySideExample environments, but that you must put them inside a \fvset macro for the PCenterExample and PSideBySideExample ones, as in these cases you can also specify some PSTricks parameters, using the \psset macro.

First Second | ₁ First ₂ Second

```
1 \begin{SideBySideExample}
2     [xrightmargin=3cm,numbers=left]
3   First
4   Second
5 \end{SideBySideExample}
```

As explained, the `PCenterExample` and `PSideBySideExample` environments, specially devoted to graphics, put their contents inside a PSTricks `pspicture` environment[2]. So, we must define the size of it.

```
1 \fvset{frame=lines,framerule=0.5mm,numbers=left}
2
3 \begin{PCenterExample}(-0.5,-0.5)(0.5,0.5)
4   \setlength{\unitlength}{1cm}
5   \put(0,0){\circle{1}}
6 \end{PCenterExample}
```

```
1 \setlength{\unitlength}{1cm}
2 \put(0,0){\circle{1}}
```

So, it is the same thing than to do:

```
1 \fvset{frame=lines,framerule=0.5mm,numbers=left}
2
3 \begin{CenterExample}
4   \setlength{\unitlength}{1cm}
5   \begin{picture}(1,1)(-0.5,-0.5)
6     \put(0,0){\circle{1}}
7   \end{picture}
8 \end{CenterExample}
```

```
1 \setlength{\unitlength}{1cm}
2 \begin{picture}(1,1)(-0.5,-0.5)
3   \put(0,0){\circle{1}}
4 \end{picture}
```

---

[2]The ∗ convention of the `pspicture` environment is not accepted here.

Using the`\showgrid` macro, we can require to superpose the graphic above a grid, which can help to built it as desired. The size of the picture must be at least of 1 unit in this case, and the grid is rounded to the next greater integer.

```
1  \showgrid
2  \begin{PCenterExample}[frame=single,numbers=left](-1,-1)(1,1)
3    \setlength{\unitlength}{1cm}
4    \put(0,0){\circle{1}}
5  \end{PCenterExample}
```

```
1  \setlength{\unitlength}{1cm}
2  \put(0,0){\circle{1}}
```

```
1  \fvset{frame=single,xrightmargin=5cm}
2  \begin{PSideBySideExample}(-2,-1)(2,1)
3    \psellipse*[linecolor=yellow](2,1)
4  \end{PSideBySideExample}
5
6  \showgrid
7  \begin{PSideBySideExample}(-2,-1)(2,1)
8    \psellipse[linestyle=dashed](2,1)
9  \end{PSideBySideExample}
```

```
\psellipse*[linecolor=yellow](2,1)
```

```
\psellipse[linestyle=dashed](2,1)
```

The special £ character defined as the comment for 'fancyvrb' must be used with care, as it allow to change the code run in the formatted part without showing these changes in the verbatim part. So, the code shown will not correspond any more in this case to the one which produce the result... (we must take care also to do not indent these lines, otherwise we will change the formatting...).

Nevertheless, in very special circumstances, it allow to do special tricks.

```
1  \begin{CenterExample}[frame=lines,framerule=0.5mm]
2    First verbatim line.
3  £\textit{%
4    Second verbatim line.
5  £}
6  £\LARGE
7    Third verbatim line.
8  \end{CenterExample}
```

```
First verbatim line.
^^a3\textit{%
Second verbatim line.
^^a3}
^^a3\LARGE
Third verbatim line.
```

First verbatim line. *Second verbatim line.* Third verbatim line.

3.2   Usage of the '**hbaw**' and '**hcolor**' packages

If the option baw, color or bawcolor is chosen, we can use special commands to
emphasize text in the verbatim formatting. It allow mainly to change the font or
the color of special parts of the text.
Here we suppose that the package option baw for the 'fvrb-ex' has been chosen:

```
1  \begin{CenterExample}[frame=single,numbers=right]
2    HLa$\mu$First verbatim line.
3    HLb$\mu$Second verbatim line.
4    HLCBWz$\mu$Third verbatim line.
5  \end{CenterExample}
```

```
^^a7HLa^^b5First^^b6 verbatim line.                    1
^^a7HLb^^b5Second^^b6 verbatim line.                   2
^^a7HLCBWz^^b5Third^^b6 verbatim line.                 3
```

First verbatim line. Second verbatim line. Third verbatim line.

```
1  \fvset{frame=single}
2  \begin{PSideBySideExample}[xrightmargin=5.5cm](-2,-1)(2,1)
3    \psellipse[linestyle=HLCBWz$\mu$dashed](2,1)
4  \end{PSideBySideExample}
5
6  \begin{PSideBySideExample}[xrightmargin=4.5cm](-2,-1)(2,1)
7    \psellipse[linestyle=HLb$\mu$dotted](2,1)
8  \end{PSideBySideExample}
```

```
\psellipse[linestyle=^^a7HLCBWz^^b5dashed^^b6](2,1)
```

```
\psellipse[linestyle=^^a7HLb^^b5dotted^^b6](2,1)
```

3.3 Thanks