PSTricks - 2005
new macros and bugfixes for the basic packages \pstricks, \pst-tree, and \pst-node

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Abstract

This new version of pstricks.tex depends on the also new prologue file pstricks.pro (v 1.01) and pst-dots.pro (v. 2.00), which should go into the local TEX-directory $TEXMFLOCAL/dvips/.

Contents

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Part I
General informations

1 Color handling

The new color package `xcolor` has a lot of interesting features, but it needs some modification to the code of `pstricks.sty` and `pstricks.tex`. The package `pstricks.sty` superseded the old package `pstcol.sty`, which is now obsolet. The version on CTAN now does nothing else as loading `pstricks.sty`.

There are some important facts for using colors inside PSTricks with LaTeX:

- load always `pstricks` as first package;
- use always the LaTeX syntax for defining colors and **not** the PSTricks own one.
  `\definecolor ...` is the correct setting!
- do not use the PSTricks style for using color, use always `\color{<name>}`.

Part II
`pstricks` – package

2 `pstricks.sty`

New otions:

`noxcolor` load package `color` instead of `xcolor`;

`plain` do nothing else as a `\input{pstricks}`;

`DIA` a bug fix for the `PSTricks`-export of the garfic program DIA.

3 `pstricks.pro`

this file now contains the PostScript code for arcs of an ellipse.

4 pstricks.tex

The new version 1.10 has some minor but important changes; it is not compatible to older versions when using the vertical shift option for the `pspicture` environment.

4.1 New and modified option for pspicture

Table 1 shows the two new options for the `pspicture` environment.

Table 1: Optionen der `pspicture`-Umgebung

name	*meaning*	*default*
`shift`	vertical shift	0
`showgrid`	show grid	`false`

4.1.1 shift

This option is the known one from older `PSTricks` version, but now with the usual syntax for options. The shift is relative to the height of the defined `pspicture` environment, its lower left corner is by deafult on the base line. For older versions the shift depends with its value to the baseline, a negative value raised up the `pspicture` box. Now the `shift` option works similiar to the known `\raisebox` makro, except that `shift` is relative to the box height. A positive `shift` value raises up the box and vice versa for a negative value.

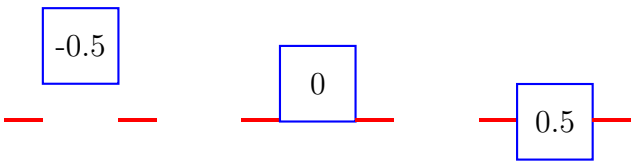


Figure 1: Meaning of the `shift` option

```
\textcolor{red}{\rule{5mm}{1pt}}%
\begin{pspicture}[shift=0.5](-0.5,-0.5)(0.5,0.5)
    \psframe[linecolor=blue](-0.5,-0.5)(0.5,0.5)\rput(0,0){-0.5}
\end{pspicture}%
\textcolor{red}{\rule{5mm}{1pt}}
\hspace{1cm}%
```

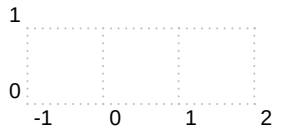
```
\textcolor{red}{\rule{5mm}{1pt}}%
\begin{pspicture}(-0.5,-0.5)(0.5,0.5)
    \psframe[linecolor=blue](-0.5,-0.5)(0.5,0.5)\rput(0,0){0}
\end{pspicture}\textcolor{red}{\rule{5mm}{1pt}}
\hspace{1cm}%
\textcolor{red}{\rule{5mm}{1pt}}%
\begin{pspicture}[shift=-0.5](-0.5,-0.5)(0.5,0.5)
    \psframe[linecolor=blue](-0.5,-0.5)(0.5,0.5)\rput(0,0){0.5}
\end{pspicture}%
\textcolor{red}{\rule{5mm}{1pt}}
```

4.1.2 showgrid

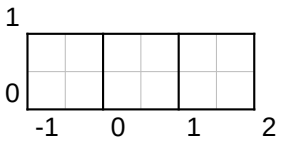
This new version of PSTricks defines internally a special grid style

```
\newpsstyle{gridstyle}{%
  subgriddiv=0,gridcolor=lightgray,griddots=10,gridlabels=8pt}
```

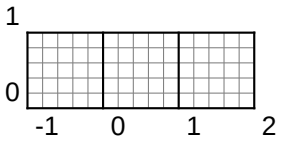
which can be overwritten by the user. This style is only used for the showgrid option of the pspicture environment. The macro \psgrid doesn't use this predefined style and works in the usual way. However, the user can use it like all other self defined styles: \psgrid[style=gridstyle].




```
\begin{pspicture}[showgrid=true](-1,0)(2,1)
\end{pspicture}
```

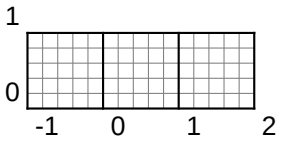



```
\newpsstyle{gridstyle}{%
  subgriddiv=2,subgridcolor=lightgray}
\begin{pspicture}[showgrid=true](-1,0)(2,1)
\end{pspicture}
```




```
\newpsstyle{gridstyle}{}
\begin{pspicture}[showgrid=true](-1,0)(2,1)
\end{pspicture}
```

```
\begin{pspicture}(-1,0)(2,1)
\end{pspicture}
```

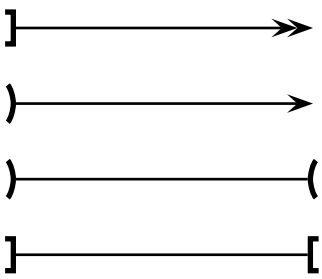



```
\begin{pspicture}(-1,0)(2,1)
  \psgrid
\end{pspicture}
```

Depending to the internal structure of the `pspicture` environment it is not possible to set the `shift` option global by `\psset`, it must always be locally defined with optional part of the parameter, as seen in the above examples.

4.2 New arrows

`pstricks now contains the missing arrow ends \verb]-[+ and )-(.`



```
\begin{pspicture}(4,3)
  \psset{arrowscale=2,linewidth=1pt}
  \psline{]-[}(4,0)
  \psline{)-(}(0,1)(4,1)
  \psline{)->}(0,2)(4,2)
  \psline{]->>}(0,3)(4,3)
\end{pspicture}
```

4.3 `\psdot` and `\psdots`

`\psdot*` and `\psdots*` are now supported by PSTricks. Both were missing in the old versions.

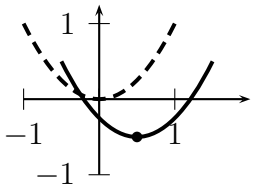
4.4 Other changes

`pstricks.tex` defined the PostScript subroutines for arcs of an ellipse. This code now moved into the appropriate `pstricks.pro`, which holds the pure PostScript code of `PSTricks`. This in not important for user until the newest `pstricks.pro` **and** `pstricks.tex` are installed.

4.5 Bugfixes

4.5.1 `origin`

There were several mailings in the past to the `origin` option, which worked the other way round than expected. Now the coordinates work realtive to the current origin.




```
\begin{pspicture}(-1,-1)(2,1.25)
  \psaxes{->}(0,0)(-1,-1)(2,1.25)
  \psset{linewidth=1.5pt}
  \parabola[linestyle=dashed](-1,1)(0,0)
  \parabola[origin={0.5,-0.5}](-1,1)(0,0)
  \qdisk(0.5,-0.5){2pt}
\end{pspicture}
```

4.5.2 Empty parameter

To prevent some problems with empty arrow definitions in macros like `\psline[...]{}(..)(...)`, which makes no sense, but should be possible, there is now a check before setting the values.

4.6 `\psscalebox` and `\psscaleboxto`

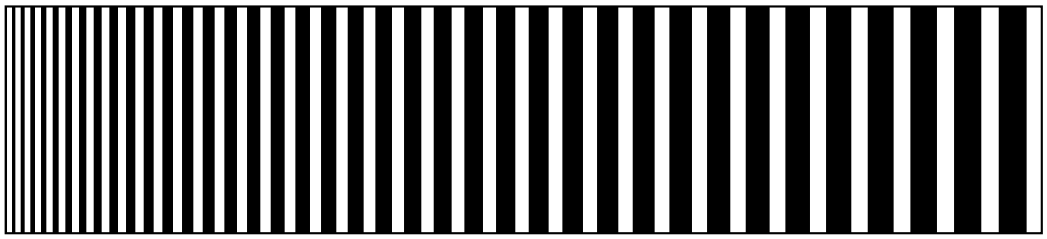
To prevent clashes with the `graphicx` package, which also defines a `\scalebox` macro with different syntax, `PSTricks` now defines `\psscalebox` and `\psscaleboxto`. For some compatibility reasons the old names are still supported. With the new names it doesn'r matter if `pstricks` is loaded before or after `graphicx`. There are also some other changes:

```
\scalebox    -> \psscalebox
\scaleboxto  -> \psscaleboxto
\rotateleft  -> \psrotateleft
\rotateright -> \psrotateright
\rotatedown  -> \psrotatedown
```

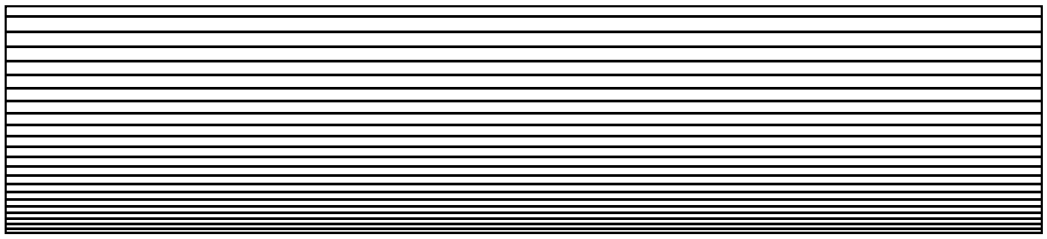
5 New fill options

For the fillstyles `hlines`, `vlines` and `crosshatch` there are two new options to get increasing line widths and/or increasing whitespace. Both options are lengths and can be set as usual for PSTricks, with or without a unit.

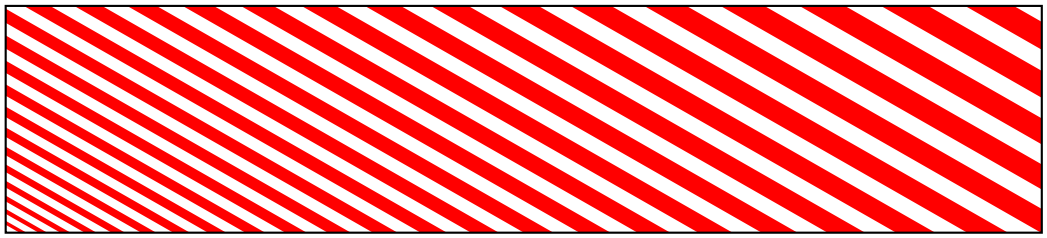
name	*meaning*	*default*
`hatchsepinc`	additional increasing space between two hatch lines	0
`hatchwidthinc`	value for the increasing line width of two hatch lines	0



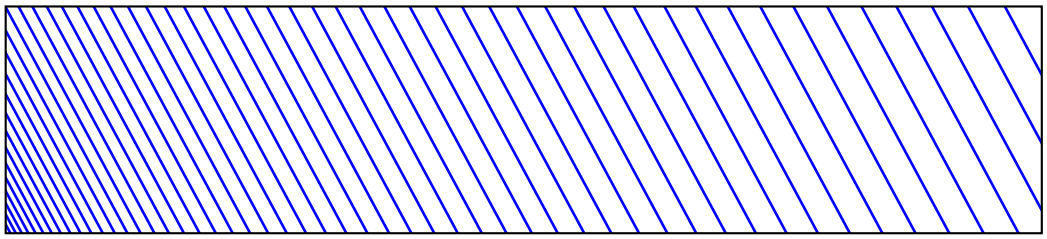
```
\begin{pspicture}(\linewidth,3)
  \psframe[fillstyle=vlines,hatchangle=0,hatchsep=.5pt,%
    hatchwidth=1pt,hatchwidthinc=0.25pt](\linewidth,3)
\end{pspicture}
```



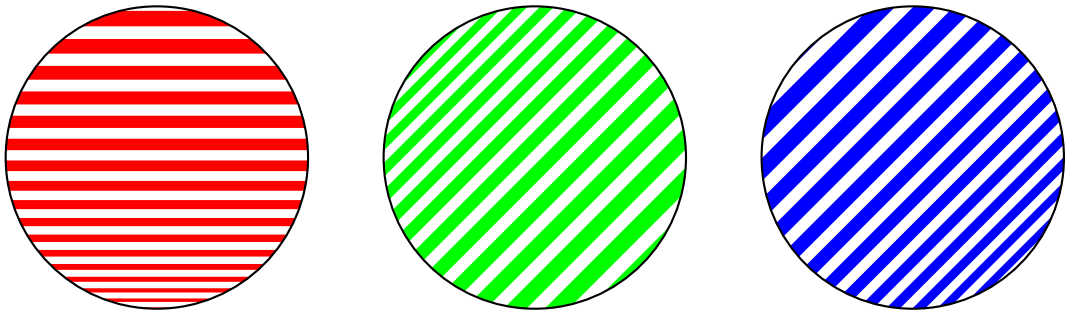
```
\begin{pspicture}(\linewidth,3)
  \psframe[fillstyle=hlines,hatchangle=0,%
    hatchwidth=1pt,hatchsep=0.5pt,hatchsepinc=0.1pt](\linewidth
      ,3)
\end{pspicture}
```



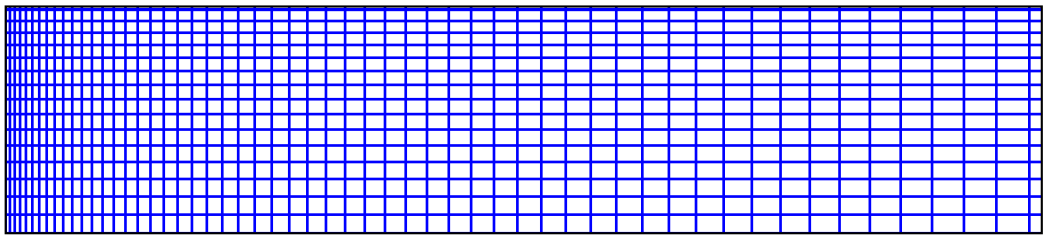
```
\begin{pspicture}(\linewidth,3)
  \psframe[fillstyle=vlines,hatchangle=0,hatchsep=0.6pt,%
    hatchwidth=1pt,hatchwidthinc=0.3pt,hatchangle=60,
    hatchcolor=red](\linewidth,3)
\end{pspicture}
```



```
\begin{pspicture}(\linewidth,3)
  \psframe[fillstyle=hlines,hatchangle=0,hatchangle=-60,%
    hatchwidth=1pt,hatchsep=0.5pt,hatchsepinc=0.1pt,
    hatchcolor=blue](\linewidth,3)
\end{pspicture}
```



```
\begin{pspicture}(\linewidth,4)
  \pscircle[fillstyle=vlines,hatchangle=0,hatchsep=0.6pt,%
    hatchwidth=1pt,hatchwidthinc=0.3pt,hatchangle=90,
    hatchcolor=red](2,2){2}
  \pscircle[fillstyle=vlines,hatchangle=0,hatchsep=0.6pt,%
    hatchwidth=1pt,hatchwidthinc=0.3pt,hatchangle=-45,
    hatchcolor=green](7,2){2}
  \pscircle[fillstyle=hlines,hatchangle=0,hatchsep=0.6pt,%
    hatchwidth=1pt,hatchwidthinc=0.3pt,hatchangle=45,
    hatchcolor=blue](12,2){2}
\end{pspicture}
```



```
\begin{pspicture}(\linewidth,3)
  \psframe[fillstyle=crosshatch,hatchangle=0,hatchangle=-90,%
    hatchwidth=1pt,hatchsep=0.5pt,hatchsepinc=0.1pt,
    hatchcolor=blue](\linewidth,3)
\end{pspicture}
```

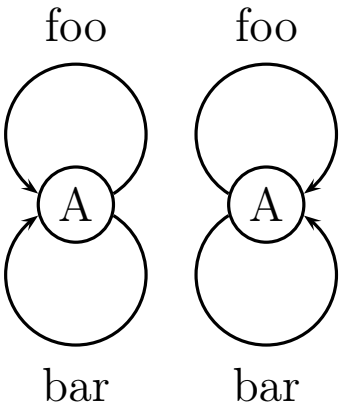
Part III

pst-node – package

6 pst-node.tex

6.1 \nccircle

With some modification to \psarciv it is now possible to get the loops in any direction and above or below the node.




```
\psscalebox{1.5}{%
  \circlenode{A}{A}
  \nccircle{->}{A}{1.5em} \nbput{foo}
  \nccircle{<-}{A}{-1.5em}\naput{bar}}
%
\hspace{1cm}
\psscalebox{1.5}{%
  \circlenode{A}{A}
  \nccircle{<-}{A}{1.5em} \nbput{foo}
  \nccircle{->}{A}{-1.5em}\naput{bar}}
```

Part IV
pst-tree – package

7 pst-tree.tex