PSTricks

News -- 2021

new macros and bugfixes for the basic package.

December 29, 2021

Package author(s):
Herbert Voß

Contents

Part I.
pstricks – package

This version of the News was run with lualatex *without* using Ghostscript. The PDF file was created in a direkt way by Lua. If you want to try it, then look at https://github.com/zauguin/luapstricks.

By default the dots are now taken from a Type1 version of the font file. For lualatex it uses the OpenType version.

The dot part is now in an own file pstricks-dots.tex.

1. pstricks.sty

The optional argument gsfonts can be used to load only the symbol font from GhostScript. Otherwise the one from URW or the system is used, which is the default.

2. pstricks.tex (v. 3.12 – 2021/12/29)

2.1. Coordinates

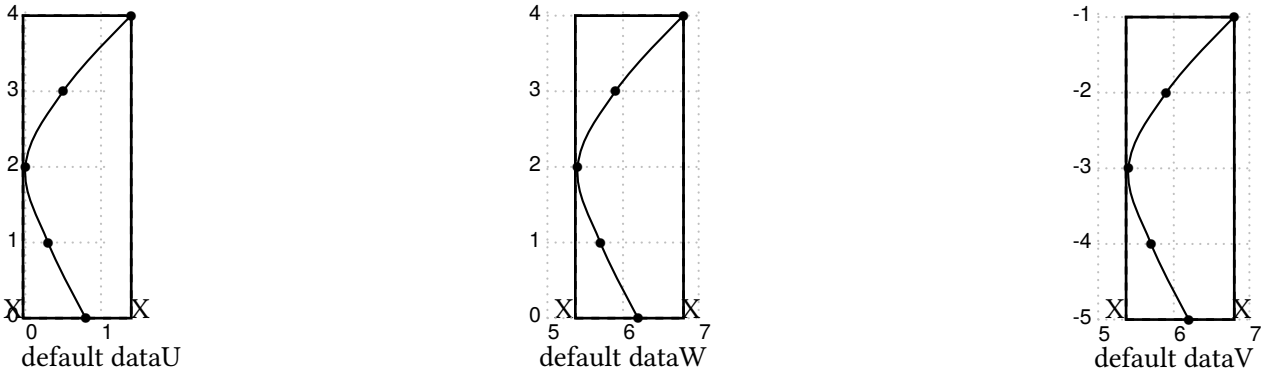
By default the coordinates (10,10) are used if the environment pspicture is called without any given coordinates. This behaviour can be changed if you are running the document with lualatex. Then you can use the optional argument calcframe to allow the internal calculation of the box width and height. it needs two lualatex runs to get the coordinates. The values are written into a file \jobname-<No>.psaux and read in the next run.

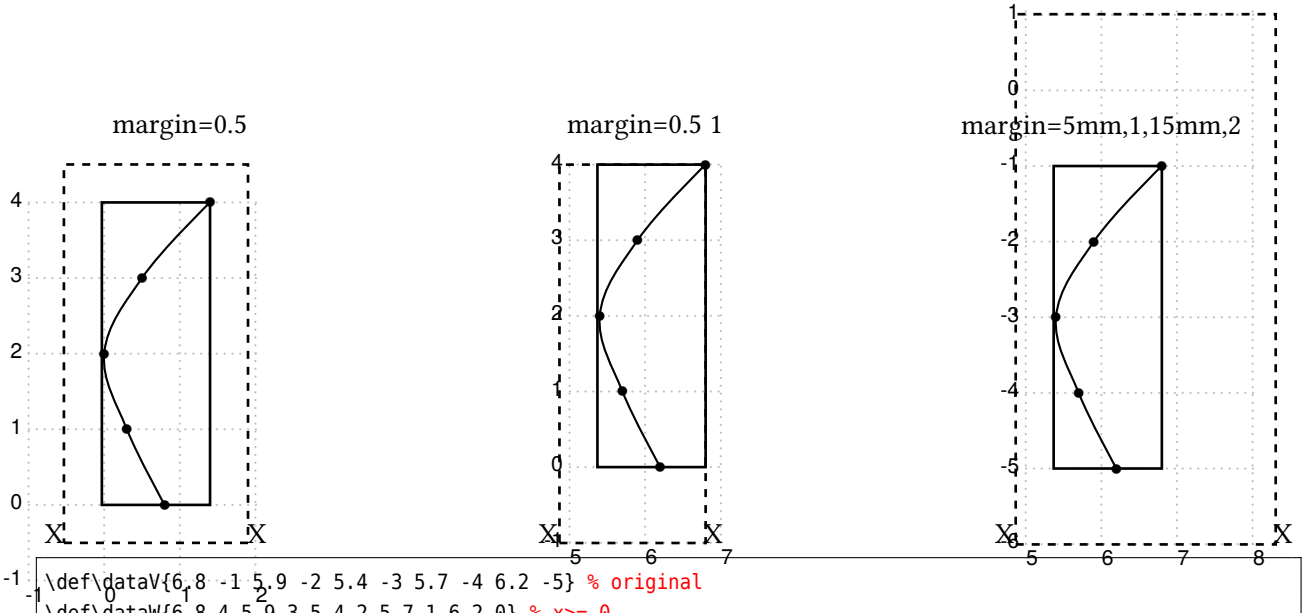
With the optional argument margin it is possible to add white space to the calculated coordinates. The keyword must be set with the command \psset *before* the environment pspicture, otherwise it is too late.

- margin=5mm will add 5mm on all sides of the box.
- margin={5mm,1cm} will add 5mm on the left side and 1cm on the lower side of the box.
- margin={2mm,3,4,5pt} will add 2mm on the left, 3\psunit at the bottom, 4\psunit on the right and 5pt on the top of the box. With the optional argument showframe the calculated box coordinates can be visible. Additional white space is marked by a box with dashed lines.

Without a given unit all values are used with the current defined PSTricks unit. But remember that this will only work with `lualatex`.

The following example shows the same curve, but with different coordinates.

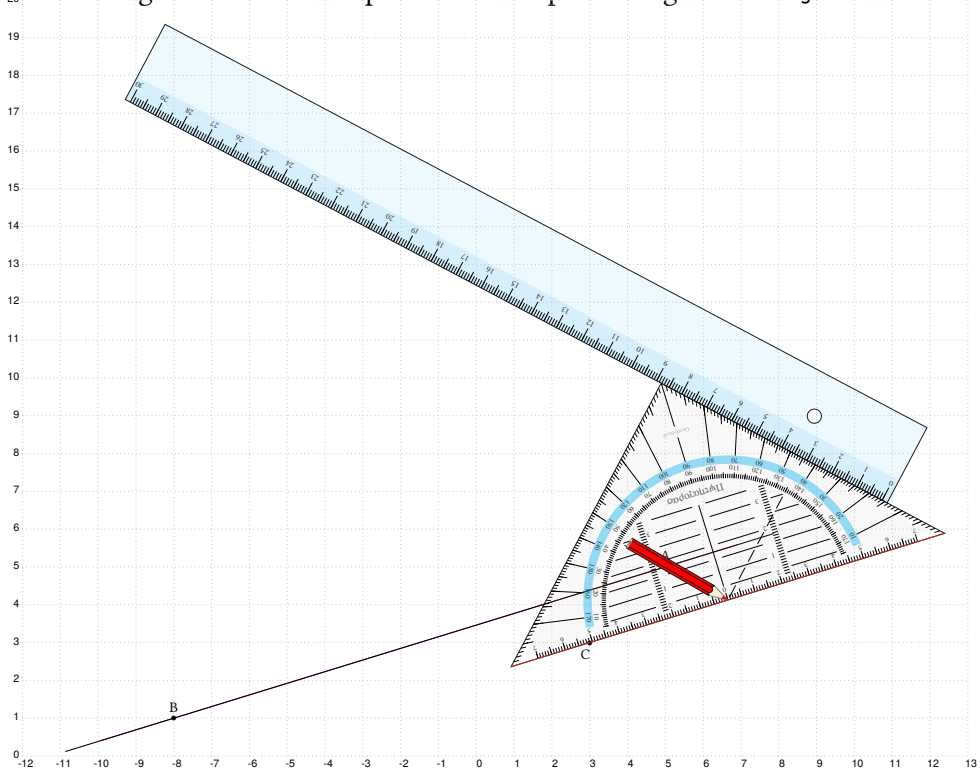





```
\def\dataV{6.8 -1 5.9 -2 5.4 -3 5.7 -4 6.2 -5} % original
\def\dataW{6.8 4 5.9 3 5.4 2 5.7 1 6.2 0} % x>= 0
\def\dataU{1.4 4 0.5 3 0 2 0.3 1 0.8 0} % x>=0 und y>=0
\psset{calcframe,showframe}% must be set before pspicture
X\begin{pspicture}[showgrid]
  \listplot[plotstyle=curve, showpoints]{\dataU} \rput(1,-0.5){default dataU}
\end{pspicture}X \hfill X%
\begin{pspicture}[showgrid]
  \listplot[plotstyle=curve, showpoints]{\dataW} \rput(6,-0.5){default dataW}
\end{pspicture}X \hfill X%
\begin{pspicture}[showgrid]
  \listplot[plotstyle=curve, showpoints]{\dataV} \rput(6,-5.5){default dataV}
\end{pspicture}X

\vspace{1cm}
X\begin{pspicture}[showgrid,margin=0.5]
  \listplot[plotstyle=curve, showpoints]{\dataU} \rput(1,5){margin=0.5}
\end{pspicture}X \hfill X%
\begin{pspicture}[showgrid,margin={0.5,1}]
  \listplot[plotstyle=curve, showpoints]{\dataW} \rput(6,4.5){margin={0.5 1}}
\end{pspicture}X \hfill X%
\begin{pspicture}[showgrid,margin={5mm,1,15mm,2}]
  \listplot[plotstyle=curve, showpoints]{\dataV} \rput(6,-0.5){margin={5mm,1,15mm,2}}
\end{pspicture}X
```

Only PSTricks objects are taken into account for calculating the bounding box. All stuff which is placed on TEX-level like any text with for example `\rput` cannot not be used for calculating the correct coordinates. With setting additional whitespace with the optional argument `margin` the boxsize can be modified.




```
\psscalebox{0.5}{%
  \psset{calcframe}%
  \begin{pspicture}[showgrid]% no coordinates are given
  \pnode(5,5){A}\uput[90](A){A}
  \pnode(-8,1){B}\uput[90](B){B}
  \pnode(3,3){C}\uput[250](C){C}
  \pcline[linecolor=BrickRed,nodesepA=-2,nodesepB=-2](A)(B)
  \psParallels[style=Parallelen,RulerScale=0.75,ProScale=0.75](A)(B)(C)
  \pcline[linecolor=BrickRed](GeodrB)(GeodrA)%
  \midAB(GeodrB)(GeodrA){M}%
  \psPencil[PenLength=5,pencilColA=red,PenScale=0.5]{60}(M)
\end{pspicture}}
```

2.2. Colors

There are two new macros to get the color values:

```
\psgetRGBColorValues{<color macro>}
\psgetCMYKColorValues{<color macro>}
```

An Example:

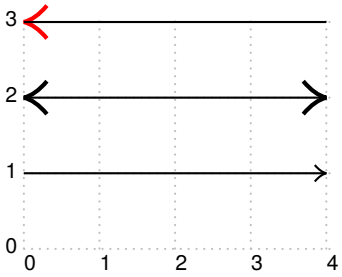
```
\psset{linecolor=red!40}
\psgetRGBColorValues{\pslinecolor}

\colorlet{Blue}[cmyk]{blue}
\psset{linecolor=Blue!40}
\psgetCMYKColorValues{\pslinecolor}
```

1 0.6 0.6
0.4 0.4 0 0

2.3. Arrows

There are new arrow types and a new optional argument `tipcolor`:




```
\begin{pspicture}[showgrid](4.2,3.25)
\psline{-T>}(0,1)(4,1)
\psline[arrowscale=2]{<T-T>}(0,2)(4,2)
\psline[tipcolor=red,arrowscale=2]{<T-}(0,3)(4,3)
\end{pspicture}
```

`pstricks` defines the following "'arrows"':

Value	Example	Name
`-`		None
`<->`		Arrowheads.
`>-<`		Reverse arrowheads.
`<<->>`		Double arrowheads.
`>>-<<`		Double reverse arrowheads.
`|-|`		T-bars, flush to endpoints.
`|*-|*`		T-bars, centered on endpoints.
`[-]`		Square brackets.
`]-[`		Reversed square brackets.
`(-)`		Rounded brackets.
`)-(`		Reversed rounded brackets.
`o-o`		Circles, centered on endpoints.
`*-*`		Disks, centered on endpoints.
`oo-oo`		Circles, flush to endpoints.
`**-**`		Disks, flush to endpoints.
`|<->|`		T-bars and arrows.
`|>-<|`		T-bars and reverse arrows.
`h-h`		left/right hook arrows.
`H-H`		left/right hook arrows.
`v-v`		left/right inside vee arrows.
`V-V`		left/right outside vee arrows.
`f-f`		left/right inside filled arrows.
`F-F`		left/right outside filled arrows.
`t-t`		left/right inside slash arrows.
`T-T`		left/right outside slash arrows.
`<D-D>`		curved arrows.
`<D<D-D>D>`		curved doubled arrows.
`D>-<D`		curved arrows, tip inside.
`<T-T>`		curved lines.

With version 3.04 all arrow specific base code is moved to the file `pstricks-arrows`, which is not of interest for the default user..

2.4. Symbolfont

Use by default the URW or system symbol font for `\psdot`. This can be changes by using the optional argument `gsfonts`:

```
\usepackage[gsfonts]{pstricks}
```

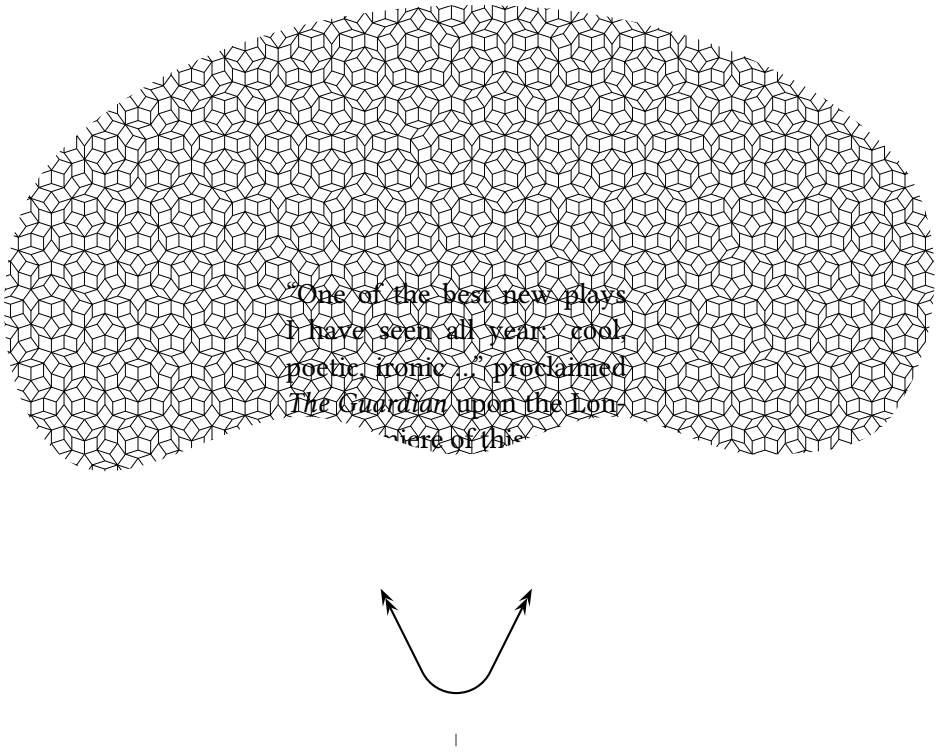
TEX-users have to define the switch and

```
\newif\ifpstGSfonts
\pstGSfontsfalse % or true for using GS font

\input pstricks
...
```

2.5. Fillstyle penrose

There was a bug if this fillstyle was used together with a line sequence.




```
\pspicture[showgrid=false](-0.5\linewidth,-4.5)(0.5\linewidth,5)
\rput(0,0){\parbox{4.5cm}{%
 \psclip{\psccurve[linestyle=none,fillstyle=penrose,psscale=.2](-3,-2)
 (0.3,-1.5)(2.3,-2)(4.3,-1.5)(6.3,-2)(8,-1.5)(8,2)(-3,2)}
 ``One of the best new plays I have seen all year: cool, poetic,
 ironic \ldots'' proclaimed \emph{The Guardian} upon the London
 premiere of this extraordinary play about a Czech director and
 his actress wife, confronting exile in America.
```

```
  \endpsclip}}%
  \psline[linearc=0.5cm,showpoints=true,dotstyle=|]{<<->>}(-1,-2)(0,-4)(1,-2)
\endpspicture
```

3. LuaLaTeX

Currently one has to use package `auto-pst-pdf-lua` if a document with PSTricks-code should be run *directly* with LuaLaTeX, without using GhostScript. This version has experimental basic support for the lua package `luapstricks.lua`, available from https://github.com/zauguin/luapstricks.

References

[1] Michel Goosens et al. *The LaTeX Graphics Companion*. 2nd ed. Reading, Mass.: Addison-Wesley Publishing Company, 2007.

[2] Laura E. Jackson and Herbert Voß. "Die Plot-Funktionen von `pst-plot`". In: *DTK* 2/02 (June 2002), pp. 27–34.

[3] Nikolai G. Kollock. *PostScript richtig eingesetzt: vom Konzept zum praktischen Einsatz*. Vaterstetten: IWT, 1989.

[4] Herbert Voß. "Die mathematischen Funktionen von Postscript". In: *DTK* 1/02 (Mar. 2002), pp. 40–47.

[5] Herbert Voß. *PSTricks – Grafik für TeX und LaTeX*. 7th ed. Heidelberg and Berlin: DANTE – Lehmanns Media, 2016.

[6] Herbert Voß. *PSTricks – Graphics for LaTeX*. 1st ed. Cambridge/UK: UIT, 2011.

[7] Herbert Voß. *PSTricks Support for pdf*. 2002. URL: http://PSTricks.tug.org/main.cgi?file=pdf/pdfoutput.

[8] Herbert Voß. *LaTeX Quick Reference*. 1st ed. Cambridge/UK: UIT, 2011.

[9] Herbert Voß. *LaTeX Referenz*. 3rd ed. Heidelberg and Berlin: DANTE – lehmanns media, 2014.

[10] Michael Wiedmann and Peter Karp. *References for TeX and Friends*. 2003. URL: http://www.miwie.org/tex-refs/.