

# PSTricks

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## **News -- 2022**

**new macros and bugfixes for the basic package.**

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## 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. 3.13 – 2022/01/09)

##### 2.1. Presetting of *dimen* for circles

Some years ago the behaviour changed and *dimen=middle* was preset for circles and ovals. It is now reverted to the old behaviour where all PSTricks objects have the presetting *dimen=outer*.

##### 2.2. Coordinates

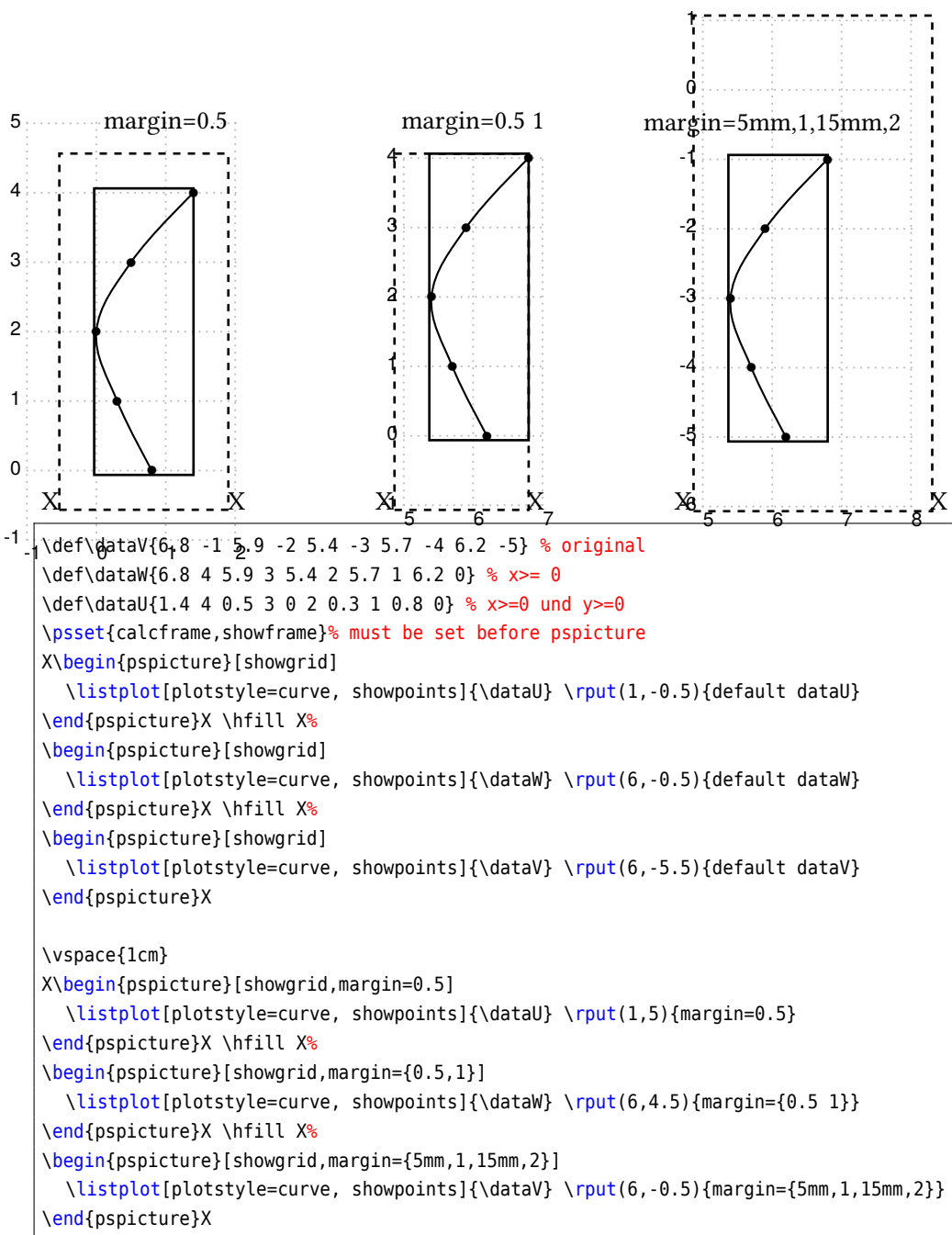
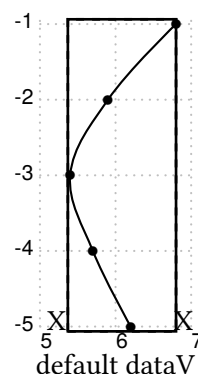
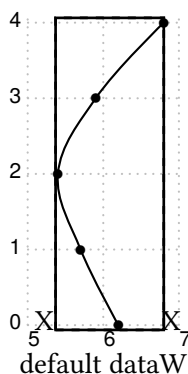
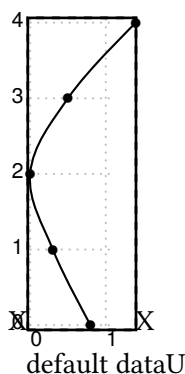
By default the coordinates (10,10) are used if the environment *pspicture* is called without any given coordinates. This behaviour can be changed if you are running the document with *lualatex*. Then you can use the optional argument *calcframe* to allow the internal calculation of the box width and 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.

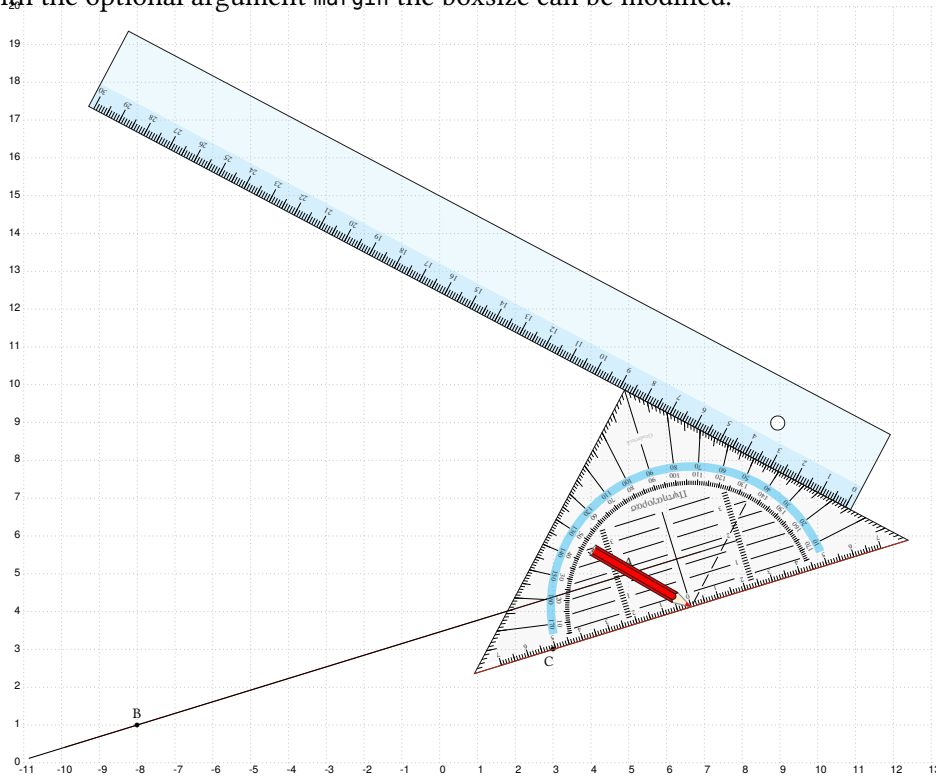
Without a given unit all values are used with the current defined PSTricks unit. But remember that this will only work with `lualatex`.

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



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.



```
\pscalebox{0.5}{%
\psset{calcframe}%
\begin{pspicture}[showgrid]% no coordinates are given
\node(5,5){A}\uput[90](A){A}
\node(-8,1){B}\uput[90](B){B}
\node(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,pencilCoIA=red,PenScale=0.5]{60}(M)
\end{pspicture}}
```

### 2.3. Colors

There are two new macros to get the color values:

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

An Example:

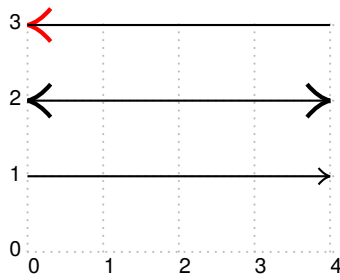
```
1 0.6 0.6
0.4 0.4 0 0
```

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

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

## 2.4. 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..

## 2.5. 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
```

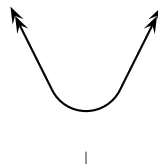
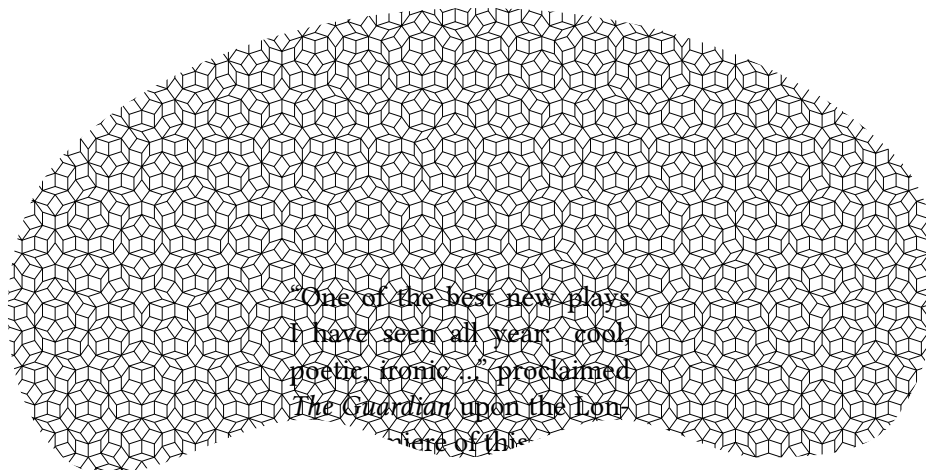
```
\pstGSfontsfalse % or true for using GS font
```

```
\input pstricks
```

```
...
```

## 2.6. 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{\pssccurve[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[lineararc=0.5cm,showpoints=true,dotstyle=|]{<<->}(-1,-2)(0,-4)(1,-2)
\endpspicture
```

### 3. Lua $\text{\LaTeX}$

Currently one has to use package `auto-pst-pdf-lua` if a document with PSTricks-code should be run *directly* with Lua $\text{\LaTeX}$ , 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 Goossens et al. *The  $\text{\LaTeX}$  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  $\text{\TeX}$  und  $\text{\LaTeX}$* . 7th ed. Heidelberg and Berlin: DANTE – Lehmanns Media, 2016.
- [6] Herbert Voß. *PSTricks – Graphics for  $\text{\LaTeX}$* . 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.  *$\text{\LaTeX}$  Quick Reference*. 1st ed. Cambridge/UK: UIT, 2011.
- [9] Herbert Voß.  *$\text{\LaTeX}$  Referenz*. 3rd ed. Heidelberg and Berlin: DANTE – lehmanns media, 2014.
- [10] Michael Wiedmann and Peter Karp. *References for  $\text{\TeX}$  and Friends*. 2003. URL: <http://www.miwie.org/tex-refs/>.