PSTricks

News -- 2021

new macros and bugfixes for the basic package.

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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

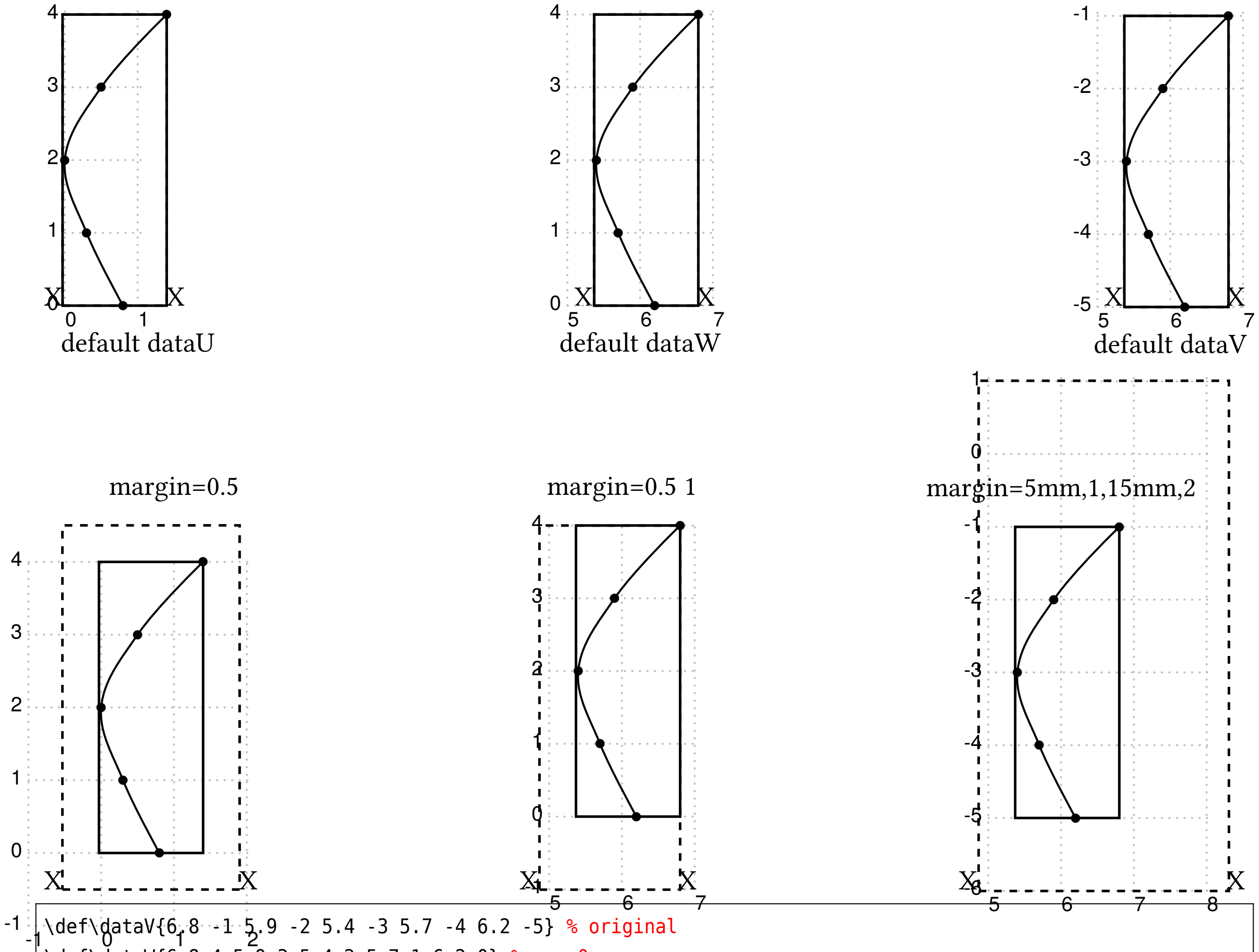
By default the coordinates `(10,10)` are used if the environment `pspicture` is called without any given coordinates. This behaviour can be changed if you are running the document with `lualatex`. Then you can use the optional argument `calcframe` to allow the internal calculation of the box width and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

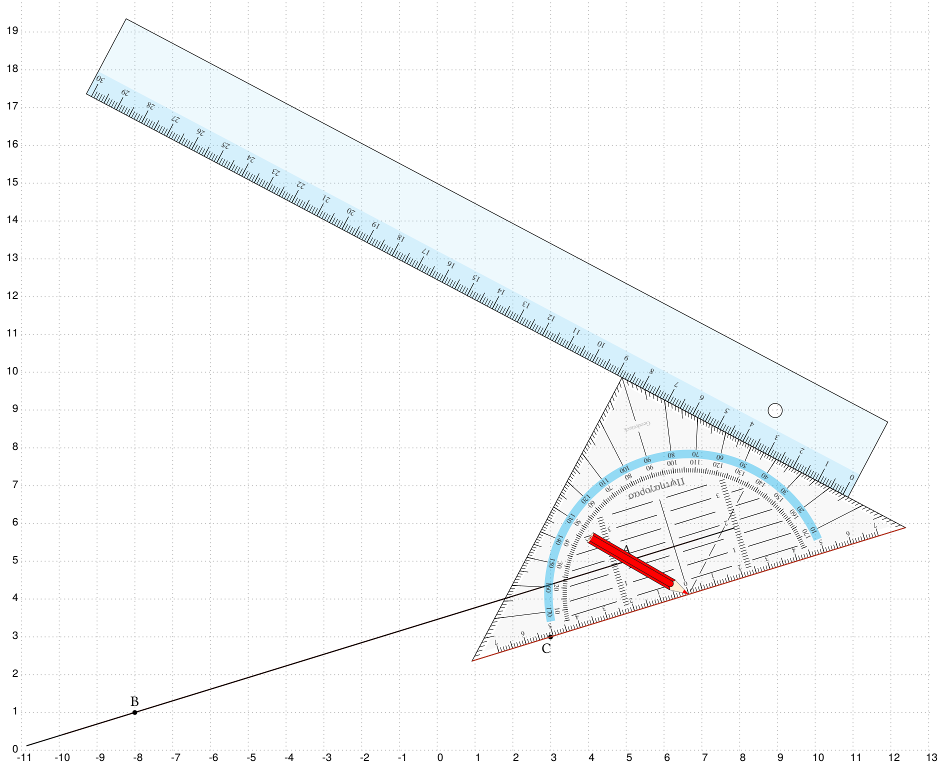
The following example shows the same curve, but with different coordinates.



```
\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:

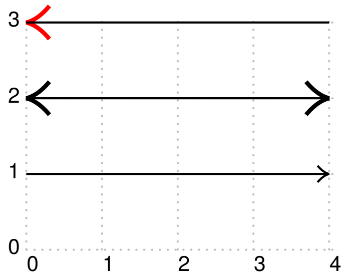
1 0.6 0.6
0.4 0.4 0 0

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

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

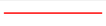
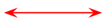
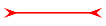
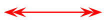
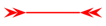
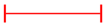
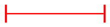
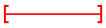
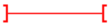
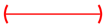
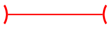
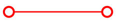
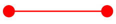
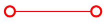
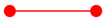
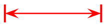
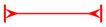
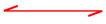
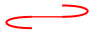
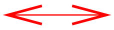
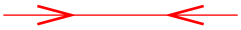
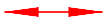
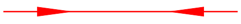
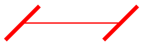
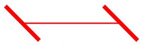
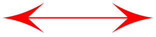
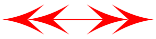
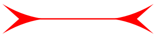
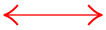
2.3. Arrows

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}
```

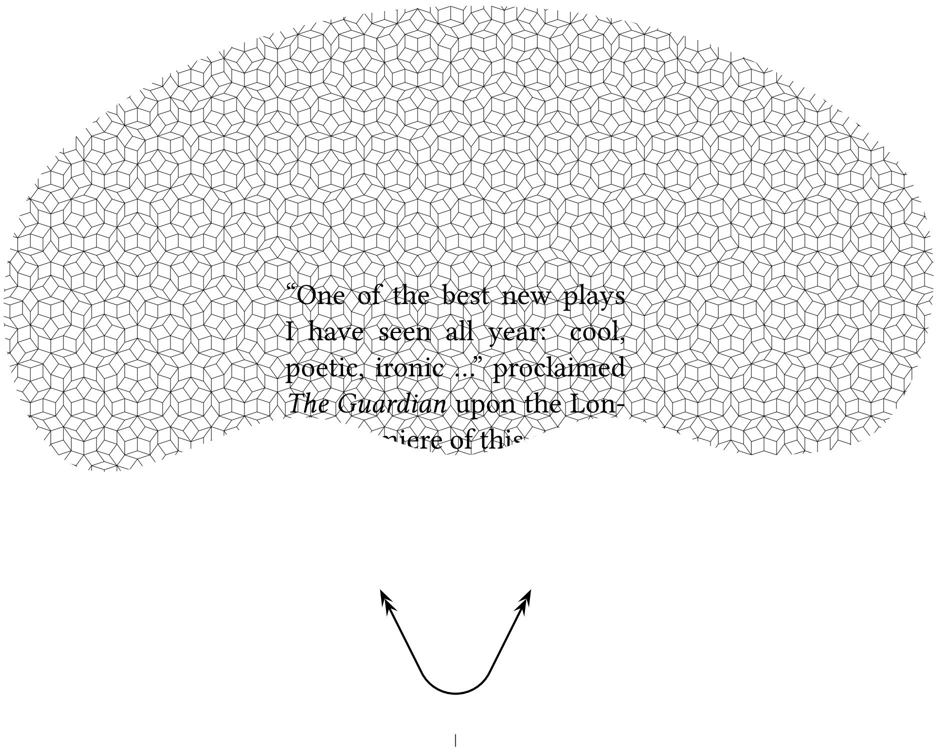
TeX-users have to define the switch and

```
\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.



“One of the best new plays I have seen all year: cool, poetic, ironic ...” proclaimed *The Guardian* upon the Lon-
iere of this

```
\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/.