pst-text

Manipulate text and characters; v.1.01

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Abstract

In general PostScriptdoes not know lines in the proper meaning of the word, but only paths and those can have any arbitrary form. Along such paths arbitrary text may be arranged. The package `pst-text` supports the setting of text along a path and other character manipulations, where several characters naturally result in a text again of course.

It should be noted that the correct result is not guaranteed with every `dvips` driver. This package was written for Rokicki's `dvips` programme, which is practically part of every TEX distribution.

Thanks to: Lars Kotthoff, Geoff Mercer

1 Text manipulations

The package pst-text defines only one macro for text manipulations.

`\pstextpath[(x,y)]{Graphic object}{Text}`

position specifies the alignment of the text referring to the path.

- *l* text starts at the beginning of the path (default).
- *c* text is aligned symmetrically to the middle of the path.
- *r* text ends at the end of the path.

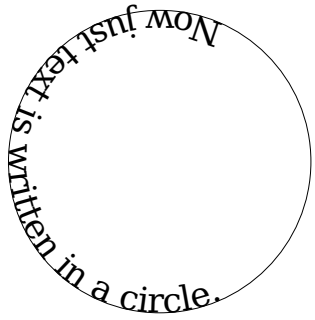
  As a basic principle it is to be kept in mind that when the text is longer than the path this option has no effect since the path is filled with text and any overflowing text disappears.

(x,y) is an offset and denotes the values by which the particular characters shall be translated in x and y direction relative to the path. (x,y) have to be cartesian coordinates as the support for special coordinates allowed by PSTricksis not possible here. The dimensions of x and y refer to the current scale. The default is (0,\TPoffset), where \TPoffset is set to a length of -0.7ex.

Graphic object any arbitrary object which creates a path.

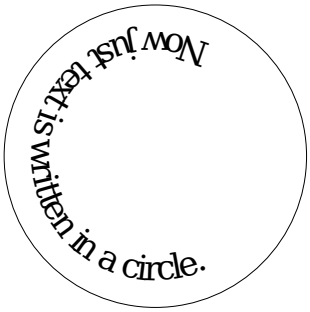
Text the text to set, which may only consist of alphanumeric characters. No macros are possible within the text, but the text may be put into a \parbox.

PostScriptdoes not reserve any space for the output, so that the current text is overwritten if corresponding white space has not been provided by TEX. This can be achieved with a vertical feed (\vspace) or with a pspicture environment.




```
\begin{pspicture}(-2,-2.5)(2,2.5)
\psset{linewidth=0.2pt}
\pstextpath[c](0,0){\pscircle{2}}%
   {\Large Now just text is written in a circle.}
\end{pspicture}
```

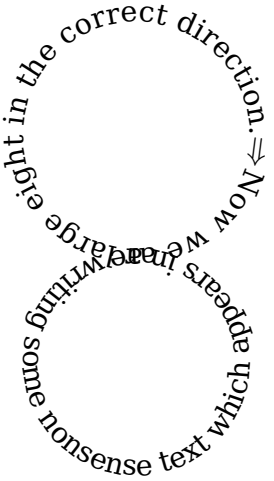
This first example shows the relatively easy use of the macro. If the path is not required to be drawn the line style can be set to none. The following example shows the use of the offset option. It is clear that every single character is translated, because the beginning and the end of the text stayed the same. Since the text was written in a circle, a positive specification for TPoffset causes a translation towards the centre of the circle.




```
\begin{pspicture}(-2,-2.5)(2,2.5)
\psset{linewidth=0.2pt}
\pstextpath[c](0,2ex){\pscircle{2}}%
   {\Large Now just text is written in a circle.}
\end{pspicture}
```

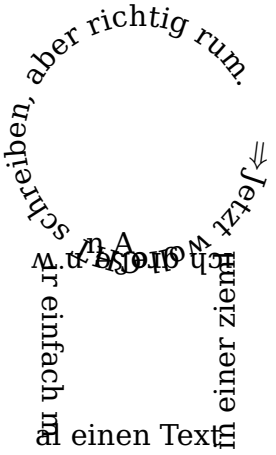
1.1 Examples

With \pscustom one is offered unlimited possibilities for paths. The following example uses the circle again, but forms an eight, which is composed of four circle parts to get a continuous path. In the second example a square has been appended to a circle. The starting point of the path is always the circle at 0, here marked by ⇒.




```
\psset{unit=0.75,linestyle=none}
\begin{pspicture}(-2,-4)(2,4)
\pstextpath[l](0,0){%
   \pscustom{
      \psarcn(0,2){2}{0}{-90}
      \psarc(0,-2){2}{90}{0}
      \psarc(0,-2){2}{0}{90}
      \psarcn(0,2){2}{-90}{0}
   }%
}{\large $\Rightarrow$Now we are writing some nonsense text which
    appears in
  a large eight in the correct direction.}
\end{pspicture}
```

It can be easily seen that in the above example the upper circle is larger than the lower. This is because the text is always written on the path, which faces towards the inner on the upper circle and towards the outer on the lower circle (or square) due to the change in direction.




```
\begin{pspicture}(-2,-3.25)(2,3.25)
\psset{linestyle=none}
\pstextpath[l](0,0){%
   \pscustom[unit=0.75]{
      \psarcn(0,2){2}{0}{-90}
      \pspolygon(0,0)(-1.7,0)(-1.7,-3.4)(1.7,-3.4)(1.7,0)(0,0)
      \psarcn(0,2){2}{-90}{0}
   }%
}{\large $\Rightarrow$Jetzt wollen wir
  einfach mal einen Text in einer
  ziemlich gro\ss en ACHT schreiben,
  aber richtig rum.}
\end{pspicture}
```

The setting of the text along a path is very memory and calculation intensive on the PostScriptside, so that with longer texts some seconds may pass until the desired result appears even on faster computers. This is shown in the following example. Note how the text is truncated as the path is too short to fit the entire text in.


```
%\usepackage{pst-plot}

\begin{pspicture}(-3,-3)(3,3)
\psset{linestyle=none}
\pstextpath[l](0,0){%
  \parametricplot[plotstyle=curve,%
    plotpoints=500]{0}{3000}{%
     /r {t 1000 div} def t sin r mul t cos r mul }
}{
Du nimmst alles wahr, die Augen sind offen -
Doch Du verstehst nichts, du bist zu betroffen -
Die Angst bestimmt dein Handeln -
Es ist, als w\"urdest du dich verwandeln -
Ein anderer Mensch scheint es sehr -
Bist du nun und es geht gar nichts mehr -
Verzweifelt legst du dich nieder -
Doch der Frieden, er kommt nicht wieder -
Die Augen sind hellwach -
Es beginnt doch erst die Nacht -
Leicht d\"ammerst du in den Schlaf -
und kommst dir vor, wie in einem Grab -
Mit einem Mal bist du hellwach -
Es ist, als h\"attest du dauernd gedacht, -
Nun verstehst du alles, wie es war \ldots
}
\end{pspicture}
```

2 Character manipulations

With character manipulations the same issue with the DVI-PS driver applies, namely that the results are only guaranteed for Rokicki's dvips programme.

2.1 \pscharpath

Although the macro \pscharpath has a name similar to \pstextpath, it has a completely different meaning.

```
\pscharpath [Options] {Text}
\pscharpath* [Options] {Text}
```

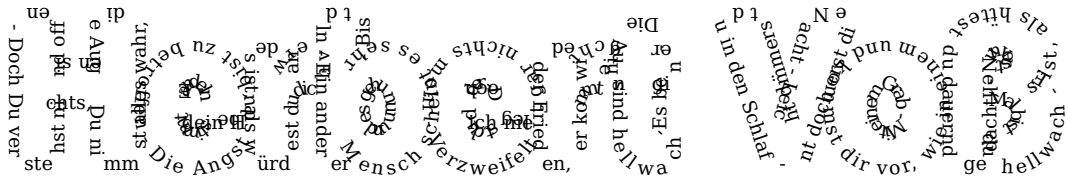
Options All PSTricksparameters, insofar as they make sense, may be specified here.

Text The text to set, which may only consist of alphanumeric characters, therefore no macros are possible within the text.

Normally, one will define ones own font size, which is best done with \DeclareFixedFont, since this macro is very fast because it simply sets the size without having to look up any font tables.


```
%\usepackage{pst-grad}
\DeclareFixedFont{\RM}{T1}{ptm}{b}{n}{2cm}
\pscharpath{\RM TeXnik}\\
\pscharpath[linecolor=lightgray]{\RM TeXnik}\\
\psset{fillstyle=gradient,gradbegin=red,gradend=cyan}
\pscharpath[gradangle=90]{\RM TeXnik}\\
\pscharpath[linestyle=none,gradangle=-90]{\RM TeXnik}
```

Normally the path, here the outer line of the characters, is deleted after the macro \pscharpath has ended. With the asterisk version it is preserved and can be used for other “baubles”, for instance for \pstextpath, where the saved path can be used as input for the text to set.



```
\DeclareFixedFont{\SF}{T1}{phv}{b}{n}{2.5cm}
\pstextpath(0,-1ex){%
  \pscharpath*[linestyle=none]{\SF Herbert Vo\ss}}{
    \scriptsize < ... Text ... >
  }
```

2.2 \pscharclip

\pscharclip is practically identical to \pscharpath with the only difference being that it sets the clipping path to the current path.

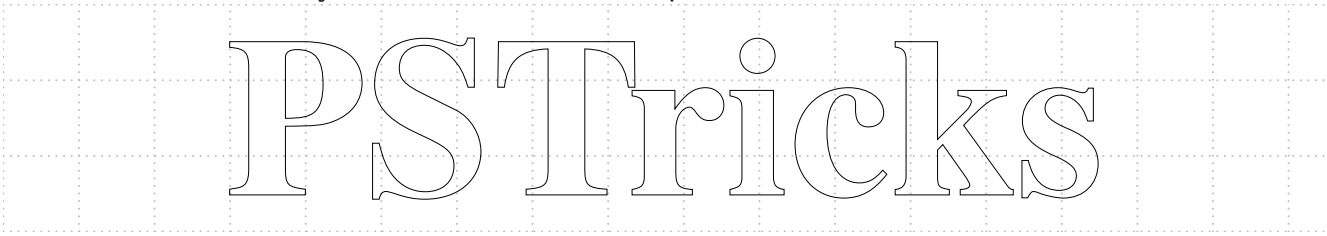
```
\pscharclip [Options] {<text>} % TeX example
  ...
\endpscharclip
\pscharclip* [Options] {<text>}% TeX example
  ...
\endpscharclip
\begin{pscharclip} [Options] {<text>} % LaTeX example
  ...
\end{pscharclip}
\begin{pscharclip*} [Options] {<text>}% LaTeX example
  ...
\end{pscharclip}
```

Using this one can “write” *within* a font, whereas it is not really easy to get the “base” congruent. How to deal with this best shall is shown in the following worked example.

The base is best formed as a `minipage`, thus enabling it to be moved to arbitrary spots. To have clear coordinates on one hand and only the interesting area shown on the other hand, one uses a `pspicture*` environment. Let us presume that we use a font size of 3cm and want to use the width of the whole page.

```
\begin{pspicture*}(\linewidth,3cm)
  ...
\end{pspicture}
```

The text can be set exactly into the centre with a `\rput` instruction.




```
\DeclareFixedFont{\RM}{T1}{ptm}{b}{n}{3cm}
\begin{pspicture*}[showgrid=true](\linewidth,3cm)
  \begin{pscharclip}[linewidth=0.1pt]{%
    \rput(0.5\linewidth,1.5){\RM PSTricks}}%
  \end{pscharclip}
\end{pspicture*}
```

The text “lying below” the font is put into a `minipage` of the width `\linewidth`. Since this text underlies the clipping path, it does not matter how long it really is, the essential thing is that the the whole area is covered. This is especially important when the text is further manipulated such as rotated. So one may view the following example with `\begin{minipage}{\linewidth}`.

```
\DeclareFixedFont{\Rm}{T1}{ptm}{m}{n}{2mm}
\begin{pspicture*}[showgrid=true](\linewidth,3cm)
  \rput{60}(0.5\linewidth,1.5){%
    \begin{minipage}{0.6\linewidth}
      \setstretch{0.5}
      \color{red}
      \multido{\i=1+1}{500}{\Rm PSTricks }
    \end{minipage}%
  }
\end{pspicture*}
```

Both of these can be overlaid where, because of the clipping path, only the inner of the large letters seems transparent. In the second example the `minipage` has been additionally rotated, the line colour was ignored and the line spacing within the `minipage` was halved (package `setspace`).

```
\DeclareFixedFont{\RM}{T1}{ptm}{b}{n}{3cm}
\DeclareFixedFont{\Rm}{T1}{ptm}{m}{n}{2mm}
\begin{pspicture*}(\linewidth,3cm)
  \begin{pscharclip}[linewidth=0.1pt]{%
    \rput(0.5\linewidth,1.5){\RM PSTricks}}%
  \rput{60}(0.5\linewidth,1.5){%
    \begin{minipage}{0.6\linewidth}
      \setstretch{0.5}
      \color{red}
      \multido{\i=1+1}{500}{\Rm PSTricks }
    \end{minipage}%
  }
  \end{pscharclip}
\end{pspicture*}

\begin{pspicture*}(\linewidth,3cm)
  \begin{pscharclip}[linewidth=0.1pt,linestyle=none]{%
    \rput(0.5\linewidth,1.5){\RM PSTricks}}%
    \rput{-60}(0.5\linewidth,1.5){%
      \begin{minipage}{0.6\linewidth}
        \setstretch{0.5}
        \multido{\i=1+1}{500}{\Rm PSTricks }
      \end{minipage}%
```

```
  }
  \end{pscharclip}
\end{pspicture*}
```

Generally it is not of interest what one bases `\pscharclip` on. Using things sucha as a graphic can lead to some interesting possibilities. It should be kept in mind that alternatively `\pscharpath` may be used in conjunction with `\psboxfill`.

3 Warping a text

`\psWarp[Options] [(x,y)] {Text}`

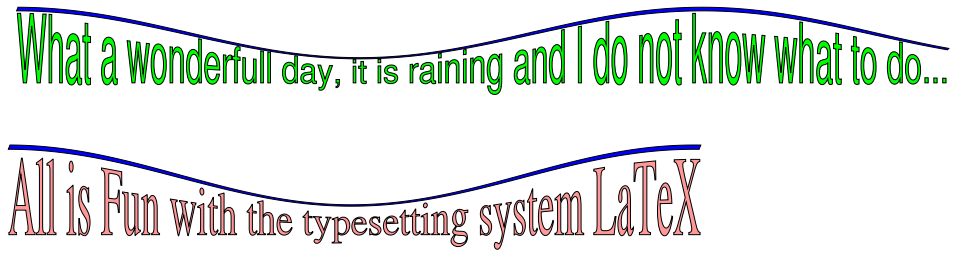
Optional arguments are

font Textfont, predefined as NimbusSanL-Regu. It must be a PostScript font.

fontsize Predefined to 24pt

fillcolor Predefined as red!40

doublecolor The fillcolor for the doubleline, predefined as blue




```
\begin{pspicture}(10,5)
\psWarp[fillcolor=red!40,fontsize=0.5cm,font=Times-Roman]{All is Fun with the typesetting
    system LaTeX}%
\psWarp[fillcolor=green,fontsize=12pt](0,2){What a wonderfull day, it is raining and
  I do not know what to do...}%
\end{pspicture}
```

References

[1] Denis Girou. “Présentation de PSTricks”. In: *Cahier GUTenberg* 16 (Apr. 1994), pp. 21–70.

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

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

[4] Herbert Voß. *PSTricks – Grafik für TeX und LaTeX*. 7th ed. Heidelberg and Berlin: DANTE and Lehmanns Media, 2017.

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

[6] Herbert Voß. *LaTeX Referenz*. 3rd ed. Heidelberg and Berlin: DANTE and Lehmanns Media, 2012.

[7] Timothy van Zandt. *PSTricks - PostScript macros for generic TeX*. 1993. URL: http://www.tug.org/application/PSTricks.

[8] Timothy Van Zandt and Denis Girou. “Inside PSTricks”. In: *TUGboat* 15 (Sept. 1994), pp. 239–246.

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