1 Introduction

The ability to paint shadows on arbitrary shapes is a standard feature of PSTricks. However, these shadows are always ‘hard’:

\begin{figure}
\centering
\begin{tabular}{ccc}
\includegraphics[width=0.3\textwidth]{square}
& \includegraphics[width=0.3\textwidth]{circle}
& \includegraphics[width=0.3\textwidth]{triangle}
\end{tabular}
\end{figure}

The \texttt{pst-blur} package provides blurred shadows for closed shapes drawn with PSTricks:

\begin{figure}
\centering
\begin{tabular}{ccc}
\includegraphics[width=0.3\textwidth]{square}
& \includegraphics[width=0.3\textwidth]{circle}
& \includegraphics[width=0.3\textwidth]{triangle}
\end{tabular}
\end{figure}

It also provides a new box command \texttt{\psblurbox}, which is similar to \texttt{\psshadowbox}, but gives the box a blurred shadow.

The new graphics parameters and macros provided by the package are described in section 2 of this document. Section 3, if present, documents the implementation consisting of a generic \TeX file and a PostScript header for the dvi-to-PostScript converter. You can get section 3 by calling \LaTeX as follows on most relevant systems:

latex '\AtBeginDocument{\AlsoImplementation}\input{pst-blur.dtx}''

2 Package Usage

To use \texttt{pst-blur}, you have to say

\begin{verbatim}
\usepackage{pst-blur}
\end{verbatim}

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To paint shapes with blurred shadows, set the graphics parameters `shadow` and `blur` to `true`, e.g.

```latex
\psset{unit=1cm}
\pscircle[shadow=true,blur=true](0,0){0.5}
```

for a circle with a blurred shadow. The parameter `blur` has no influence if `shadow` is `false`.

The rendering of blurred shadows is controlled by a number of additional graphics parameters. The offset of the shadow is controlled by the parameters `shadowsize` and `shadowangle`, which are the same as for ordinary shadows.\(^1\)

The size of the blurring effect is controlled by the parameter `blurradius`, see Fig 1. The default value for `blurradius` is 1.5pt, which fits nicely with the default `shadowsize` of 3pt.

The inner, usually darkest part of the shadow is painted in the colour defined by `shadowcolor`. In the range defined by `blurradius`, the colour gradually fades to the background colour set by `blurbg`. The default value for `blurbg` is white. You should change this parameter when you want to paint shapes over a coloured background, i.e.

```latex
\psframe[fillstyle=solid,fillcolor=yellow](-.7,-.7)(.7,.7)
\pscircle[shadow=true,blur=true,blurbg=yellow](0,0){0.4}
```

\(^1\)In particular, `shadowangle` has to be negative for the usual placement of shadows below and to the right of shapes.
The number of distinct colour steps painted between \texttt{shadowcolor} and \texttt{blurbg} is controlled by the parameter \texttt{blursteps}. The default value for \texttt{blursteps} is 20, which is usually more than sufficient. Note, that higher values for \texttt{blursteps} result in proportionally slower rendering. This can be very tiresome with complex shapes.

Using a \texttt{psframebox} with a blurred shadow in the middle of some text produces poor results, because \TeX{} does not know about the extra space taken by the shadow. For normal shadows, this problem is solved by the \texttt{psshadowbox} macro, which adds the extra space around the box for the shadow. For blurred shadows, this is not sufficient: an extra \texttt{blurradius} has to be added. This is done by the macro \texttt{psblurbox}, which is otherwise identical to \texttt{psshadowbox}. Note, that \texttt{psblurbox} shares a deficiency of \texttt{psshadowbox}: It only works correctly with \texttt{shadowangle} = $-45$, because \TeX{} does not provide trigonometric operations.