

Label replacement in graphics

Jenny Levine*

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To Steve Grathwohl, in honor of his fifty-third birthday.

Abstract

In this paper I show how graphics are manipulated to our (DMJ) style. I give some examples and a step-by-step approach to assessing a figure file, removing its labels, and placing new ones using `graphicx` and `overpic`.

This is done to maintain a consistent style. Our labels should be in a compatible font and should match the look of the journal as well as that of the article (size, placement, emphasis, etc.).

One option in producing a peer-reviewed academic journal such as the Duke Mathematical Journal (DMJ) is to typeset the journal in-house. One small part of my job as compositor is to prepare accepted articles for DMJ to be edited. There are several stages involved, but I will focus on one specific detail of this process.

I take accepted `.tex` files and make sure they are at least double-spaced, in 12 point type, and in a usable, DMJ-friendly ($\text{\LaTeX} 2_{\epsilon}$) format.

Fairly often, these articles are accompanied by graphics. When these graphics arrive with labels in them, they must be altered to conform to DMJ font and size so as to be consistent with our style as well as to be usable by our printer.

To do this, I basically make a `.pdf` file from the `.eps` (or `.ps` or `.tex`) figure file by using our `testfig.tex` file. To place the figures, I use a very useful package called `overpic` (see [N]), as well as `graphicx`.

*Duke University Press, 905 W Main St, Brightleaf Square, Suite 18B, Durham, NC 27701, USA; jlevine@dukeupress.edu

I have included the `.tex` file of the article used in this example (`sample.tex`), plus the `testfig.tex` file, and the figure files mentioned below.
(<http://www.tug.org/pracjourn/2004-1/levine>)

These are the steps:

1. Open the figure file in a text editor (I use WinEdt), strip out the labels, and save the file as `FIGUREx.eps`

Here is an example of some code in a figure (`.eps`) file; I deleted the characters within parentheses (`y`, `H`, and `y`) and saved the figure as `horox.eps`:

```
/Times-Italic ff 300.00 scf sf
7920 8565 m gs 1 -1 sc (y) col0 sh
gr /Times-Italic ff 360.00 scf sf
7650 8475 m gs 1 -1 sc (H) col0
sh gr /Times-Italic ff 360.00 scf sf
600 8700 m gs 1 -1 sc (y)
col0 sh gr $F2psEnd rs
```

2. Open a `testfig.tex` file (this was crafted for us by Steve Grathwohl)

Here is the entire `testfig.tex` file:

```
%&latex
\documentclass[]{article}
\usepackage{amsfonts,amssymb,amsmath,amsthm,latexsym}
\usepackage{overpic} %overpic automatically loads graphicx
%\usepackage{epstopdf} % for use with pdftex

\pagestyle{empty} %VERY important!
\begin{document}
\begin{figure}%[htbp]
  \begin{center}
    \begin{overpic}[width=3in, grid]
      {horox.eps}
      % \put(9,5){\small{$y$}} \put(88,6){\small{$H_{y}$}}
    \end{overpic}
  \end{center}
\end{figure}
\end{document}
```

3. Add the new figure name (`horox.eps` above)
4. Run the file with `overpic`, and view the `.ps` file (I keep this file open to determine the bounding box (size) of the figure for the article file; we will need these numbers in step 11)
5. Also at this stage, add the `overpic` option `grid` (after `width` above); this aids in the placement of labels (see Fig. 2)
6. Return to the `testfig` file and add labels with ‘put’ commands (based on grid x,y numbers)
7. Run file again and view label placement/size (adjust as necessary)
8. Remove `grid` for the final run
9. Note: during the `dvips` run, we always use the “-E” option to create an `.eps` file with a tight bounding box
10. When labels are perfect, create a `.pdf` with the file name `FIGUREx.pdf` (we convert the `testfig.ps` file to `horox.pdf`)
11. Back in the article file, we comment out the author’s original code for the figure and add the new figure file:

```

\begin{figure}[htb]\label{fig:horox}
\begin{center}
\includegraphics[bb=135 342 354 533]{horox.pdf}
\end{center}
\caption{A long closed horocycle  $H_y$  passes randomly
through many fundamental domains for  $\mathbb{Z}^2$ .}
\end{figure}

```

12. The bounding box (“bb=” above) info. is determined by the figure in the `.ps` file; in `ghostview`, drag the mouse over the lower left corner (this gives the first two bb numbers) and then over the upper right corner (for the last two bb numbers)
13. Run article file and view new figure with perfect labels!

References

[N] Rolf Niepraschk, *overpic* package, available on CTAN.

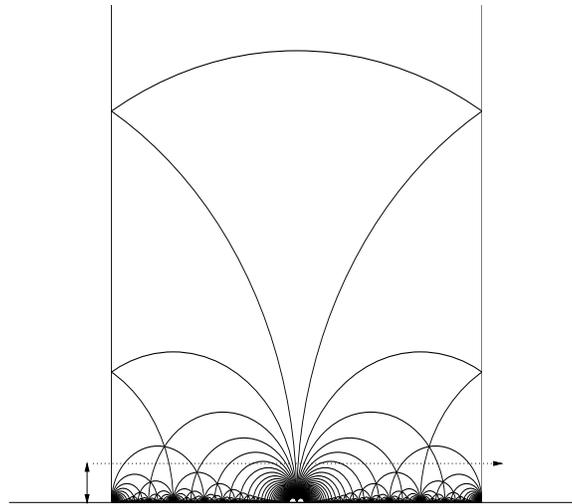


Figure 1: Figure with labels stripped out.

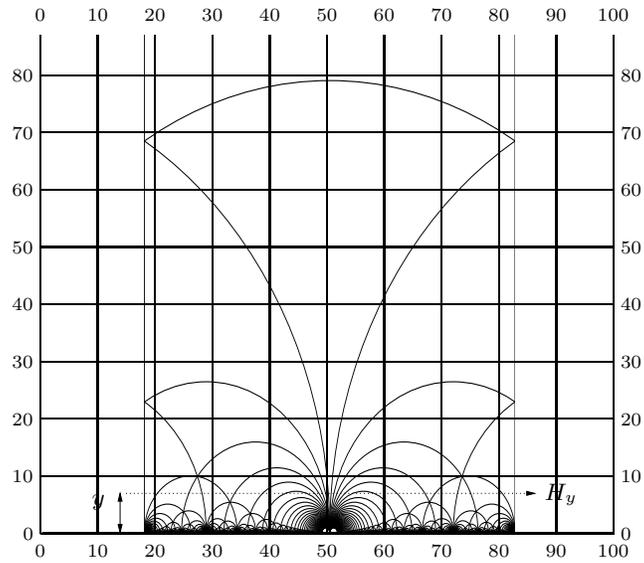


Figure 2: Figure with grid option.

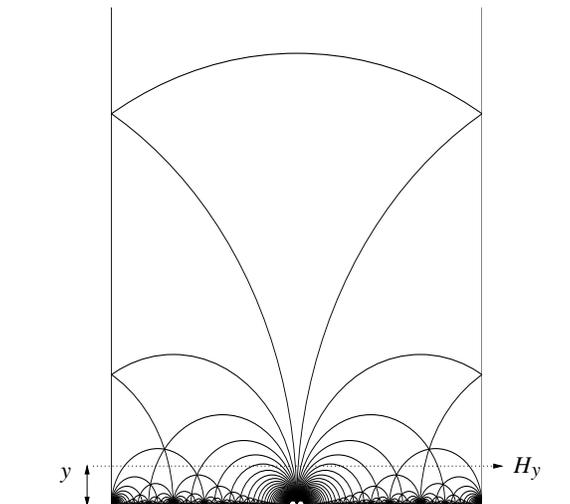


Figure 3: New figure with labels in our font, accurately placed.