

Font Forum

Introducing METAPOST

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I am pleased that the article by Yannis Haralambous which immediately follows these comments is available. People using METAFONT should find it of great interest and significance.

It has long been clear that METAFONT things are of interest to only a limited subset of $\text{T}_{\text{E}}\text{X}$ or $\text{L}_{\text{A}}\text{T}_{\text{E}}\text{X}$ users. Who, after all, has the time to design fonts? The event that I wish now to report should significantly alter this perception. As of April of 1995, John Hobby's METAPOST program has been placed in the public domain, and I'd like to comment on this turn of events.

METAPOST is similar to the METAFONT language, so METAPOST input files look a lot like METAFONT files. However, the output is different — METAPOST produces PostScript output rather than generic font files, so it is printable on any PostScript device. It's not really possible to produce fonts with METAPOST. Its *raison d'être* is really toward the production of high quality graphics for inclusion in a $\text{T}_{\text{E}}\text{X}$ or $\text{L}_{\text{A}}\text{T}_{\text{E}}\text{X}$ document.

There are differences between METAFONT and METAPOST, and these are necessitated by the differences in use and environment. PostScript descriptions are to be device independent, so all of METAFONT's pixel-handling constructs have been removed. Things like the sharp convention and commands like `cullit` are not part of the METAPOST language. Certain enhancements have been added to the METAPOST language in aid of fine graphics.

For example, METAPOST is also able to easily include $\text{T}_{\text{E}}\text{X}$ or $\text{L}_{\text{A}}\text{T}_{\text{E}}\text{X}$ text within its graphic output, so tags on graphs and drawings can now match the text font exactly. The METAPOST package includes special macro packages for drawing graphs and for drawing boxes and ovals. The silly graph in figure 1 (everything above the caption) was produced entirely by METAPOST—it read the data points, connected them with a smooth curve, prepared the coordinate axes, and integrated the $\text{L}_{\text{A}}\text{T}_{\text{E}}\text{X}$ labels and tags all by itself.

The output of a successful METAPOST run is a sequence of files with names like `foo.1`, `foo.2`, and so on. With the `epsf` macro package they are easily included in any document that is post-processed by Tom Rokicki's `dvips` (although it may be that other

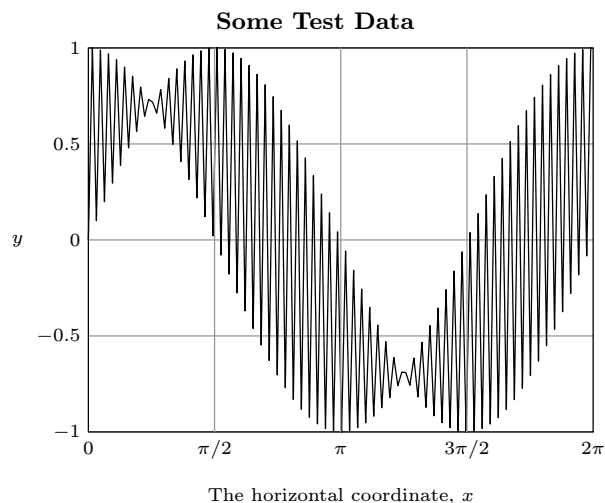


Figure 1: A sample METAPOST graphic.

post-processors can also incorporate them as well). Plain $\text{T}_{\text{E}}\text{X}$ authors include lines like

```
\input epsf
...
\epsfbox{foo.1}
```

in their document, while $\text{L}_{\text{A}}\text{T}_{\text{E}}\text{X}$ users say something like

```
\usepackage{epsf}
...
\begin{center}
\leavevmode\epsfbox{foo.1}
\end{center}
```

in their documents. (You may use `\noindent` in place of `\leavevmode` if you wish. These are often, but not always, needed in $\text{L}_{\text{A}}\text{T}_{\text{E}}\text{X}$ environments.)

METAPOST is available from any CTAN archive in the path `tex-archive/systems`. At least two executables already exist, for DOS and for OS/2, and (I believe) it is now part of the Unix `web2c` kit. To learn how to use METAPOST, consult the original *METAFONTbook* (usable by virtue of the many similarities between the two languages), and also the two technical reports by John Hobby. These two reports, numbered 162 and 164, are part of the package, but can be obtained by sending email `send 162` or `send 164` to `netlib@research.com`. These reports are valuable not only for their explications of METAPOST but for the alternative perspectives they also provide for METAFONT.

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