TEX for Everyone !?*

Theo Jurriens

Kapteyn Astronomical Institute
University of Groningen
P.O. Box 800
9700 AV Groningen
The Netherlands
taj@kapteyn.astro.rug.nl

Abstract

In this article author tries to defend a more general use of TEX outside the world of mathematics, astronomy, physics etc. The ! or ? in the title of this paper is the question.
Several examples are shown why TEX is much powerful than a dull word-processing package.

Keywords: METAFONT, PostScript, organisation, education

1 General

In this article TEX and LATEX have the same meaning. TEX or LATEX are extremely powerful tools to do your favourite job. Author prefers LATEX because for non-scientists (secretaries) it's much easier to learn then plain TEX.

The use of TEX is widely discussed in national and international magazines. An often forgotten fact of TEX is the stability of the program. There are not a bunch of updates every month. The change to TEX3 was the most relevant and important change in the last years.

The increase of e-mail will encourage the growth of TEX users. The latter is the best tool to prepare documents and exchange them machine-independent.

2 METAFONT

METAFONT is a difficult tool to make your own character-sets. In several journals, a lot of examples are given concerning the use of TEX in oriental languages. Impressive but once again coding both in the METAFONT source-file or the TEX input-file is not easy. Although I am not an expert in METAFONT, I was able to design a font for printing the phases of the Moon.

1992 sep 14
1992 sep 15
1992 sep 16
1992 sep 17
1992 sep 18
1992 sep 19
1992 sep 20

An example of including PostScript files within a TEX/LATEX document.

3 PostScript

In the last years the use of PostScript increased a lot. The use of PostScript fonts and including of graphics has given TEX new horizons. Since a few months I am editor of a local newsleaflet concerning the well-being of the inhabitants of my apartment building. The building is called oyster-catcher. Of course a proper picture, drawing of this bird may not be left-out.

Recently I used TEX and PostScript to design a poster for announcing a public lecture.

Advantages of using PostScript:

- An easy way to include graphics,
- In case of using PS fonts, small file sizes,
- A large collection of fonts, at unlimited sizes, is available/possible (see fig 1),
- High-quality output on film and paper is available,
- The bag of tricks (rotating text, shadowing, a better picture enviroment) is big.

*Presented at EuroTEX '92, September 14–18, Prague, Czechoslovakia.

```
\font\test=rptmr at 5pt
```

5pt

```
\font\test=rptmr at 25mm
```

25mm

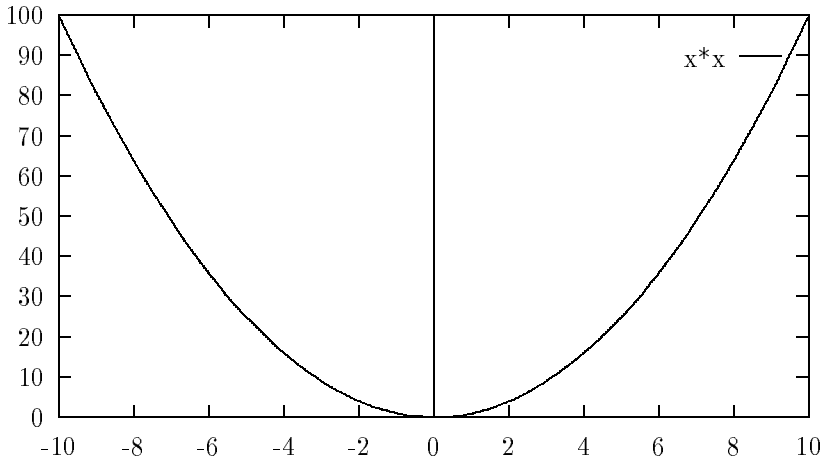
```
\font\test=rptmr at 0.75in
```

0.75in

Figuur 1: *Example of several fontsizes within PostScript.*

4 Graphics

Due to the increase of fast-machines/X11 based, doing and including graphics is simplified a lot. Also a lot of standard packages are able of producing PostScript-files. They can be included as described in the previous section. GNUPLOT is a tool available on several platforms. The graph, in figure 2 is made with this program (output: LaTeX picture environment file).



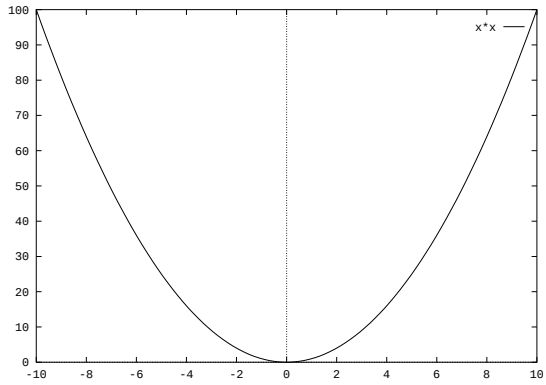
Figuur 2: *The graph $f(x) = x^2$ made with GNUPLOT*

A disadvantage is the rather big files produced by GNUPLOT. The file belonging to graph:

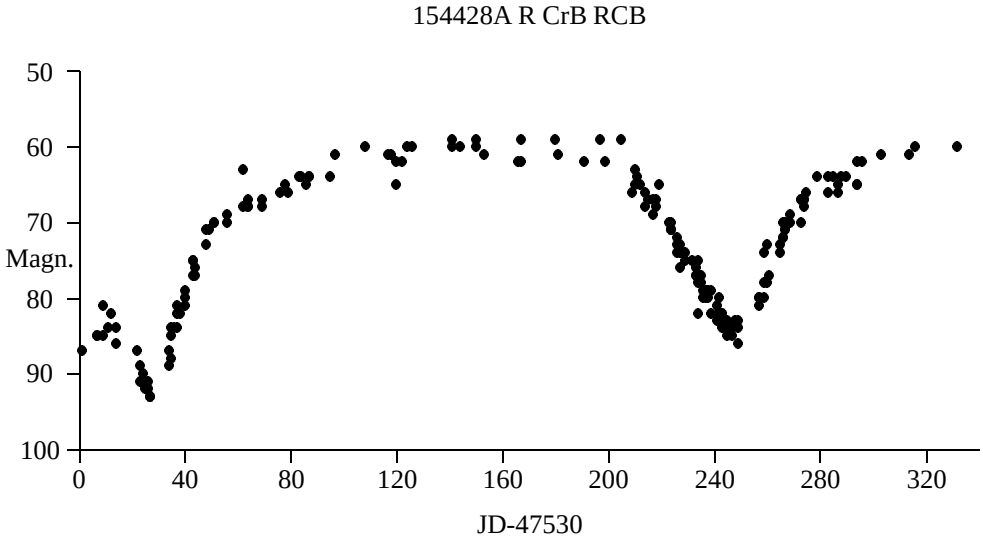
```
-rw-r--r--   1 taj   kapteyn 42555
             Jul 23 11:31 test.gnu
```

is big. GNUPLOT can also produce directly PostScript. In that case the files are much smaller.

```
-rw-r--r--   1 taj   kapteyn  5313
             Jul 23 11:39 gnuplot.eps
```



Figuur 3: *The same plot as Figure 2, now included as a postscript file.*



Figuur 4: *This plot is made with the help of PICTEX.*

4.1 PICTEX

Also PICTEX is a useful tool but requires a lot of memory and a high level of users experience. The plot in Figure 4 is made with PICTEX.

5 Education

It's often forgotten but education is needed to spread TEX around the world and around all different users. Concerning the training of secretaries I set up the 'Golden' rules (see previous MAPS).

References

[1] Theo Jurriens, "TEXniques in Siberia", in *Proceedings of the sixth EuroTEX Conference*, P. Louarn Ed., *Cahiers GUTenberg*, no. 10-11, September 91, pp. 7–13.