LaTeX Printing (the finer points)

The Basics

What LaTeX does is to *compile* you TeX file into a *dvi*. The second stage is printing which has to first convert this *device independent file* into a *Postscript* file which is send to your printer.

The *dvi* to *Postscript* converter is `dvips` which in this implementation outputs to a file. So to print file `foo.dvi` to GROUPPRINTER the simplest command is

```
dvips foo
lp -dgroupprinter foo.ps
```

Note: See documentation of `lp` for use of the PRINTER environmental variable.

Optimal Printing

The optimal conversion of a *dvi* file to *Postscript* is actually more complex than expected since each type of printer has a set of optimisable parameters such a resolution, linewidth and print engine. The above printing scheme uses a default, which is 600 dpi assuming the *HP LaserJet 4* print engine. This will give *acceptable* results on all modern *Postscript* printers[1]. However better results can be obtained by using the correct parameters for the specific printer, in particular its optimal resolution. To implement this the following printer options have been set-up:

1. `HP600` 600 dpi Hewlett-Packard printers such as *HP-4MPlus* and *HP-5MP*.

2. `HP1200` 1200 dpi Hewlett-Packard printers such as the *HP-4050*

3. `phaser` *Tektronix 850* colour "phaser" printer.

4. `lexmark45` *Lexmark-45* colour inkjet printer.

These options are used via the `-P` flag to `dvips`, so to print at 1200 dpi to your group *HP-4050* the command is:

```
dvips -PHP1200 foo
lpr -Pgroupprinter foo.ps
```

Please note the following:

1. Fonts are generated *as needed* and then cashed. This means that initial prints to a little used printer will be slow. This will however correct itself once the font cache has built up.

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[1]except old 300 dpi printers, most of which are in the skip by now!

2. Using the wrong flag to a printer may produce rubbish. In particular asking a printer to print at greater than its available resolution will fail, also sending a *lexmark* print output to a HP also unlikely to work[2]

   Note however most printers will operate correctly at "half" their resolution, so the 1200 dpi HP printers will operate at 600 dpi.

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[2]Failure usually means you printer producing dozens of not hundreds to almost blank pages which a few randon characters on easy.