MetaPost with groff

Since MetaPost is a picture-drawing language that outputs PostScript, it is necessary to use the `-mpspic` macro package, which is automatically included when *groff* is invoked with the `-Tps` option to prepare output for PostScript printers or previewers.

Suppose you have written some figures in MetaPost and placed the input in a file `fig-ures.mp`. Running

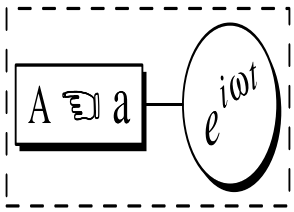
```
mp -T figures
```

to invoke the MetaPost interpreter produces output files `figures.1`, `figures.2`, ... which can be included in a *groff* document via macro calls such as

```
.PSPIC figures.1 width height
```

as explained in the *grops*(1) documentation. Note that the picture gets rescaled if the height and width in the `.PSPIC` command don't match *mp*'s idea of the picture dimensions.

For instance,



this figure was derived from a file `figs.mp` and included at this point by invoking the `.PSPIC` macro with height 1.08 inches and width 1.5 inches.

The file `figs.mp` looks like this:

```
prologues:=1;
input boxes
beginfig(1);
pair shadowshift; shadowshift=(1,-1)*bp;

def drawshadowed(text t) =
  forsuffixes $=t:
    fill bpath$ shifted shadowshift;
    unfill bpath$;
    drawboxed($);
  endfor
enddef;

boxit.a(btex \s8A\s+2 \(lh a etex);
circleit.b(btex $e sup {i omega t}$ etex rotated 20);
b.w - a.e = (10bp,0);
drawshadowed(a,b);
draw a.e..b.w;

draw bbox currentpicture dashed evenly;
endfig;
```

Note that the typesetting commands in the `btex...etex` blocks in the above example are processed by

```
eqn -d\$\$ | troff -Tpost
```

If a different *troff* pipeline is desired, it can be specified via the `TROFF` environment variable. For example,

```
TROFF='tbl | eqn -d\$\$ | troff -Tpost'
```

adds *tbl* to the pipeline in addition to *eqn*.

Macro definitions and such can be added via the standard `verbatimtex...etex` mechanism that adds the given material to the *troff* input. Such material should not generate any output since this would get mixed up with the next `btex...etex` block. Thus, newlines between `verbatimtex` and `etex` must be protected with `\`.

Unfortunately, typesetting of `btex...etex` blocks currently doesn't work with *groff* and equires a UNIX *troff* implementation, because MetaPost's `dmp` post-processor can't handle *groff*'s extended font and output file formats documented in *groff_font*(5) and *groff_out*(5). Nevertheless, using *troff* to prepare figures with MetaPost and *groff* to typeset them may still be a useful combination if your *troff* implementation doesn't provide the `-mpictures` macro packages.