NUMERICAL RECIPES

Webnote No. 28, Rev. 1

Code for Rendering a Phylagglom Tree in Simple PostScript

phylo.h

```
void phyl2ps(char *filename, Phylagglom &ph, MatChar str, Int extend,
    Doub xl, Doub xr, Doub yt, Doub yb) {
```

Render a `Phylagglom` tree `ph` as a simple PostScript file. Text labels for the leaf nodes are input as the rows of `str`, each a null terminated string. The output file name is specified by `filename`. The left, right, top, and bottom coordinates of the tree are `xl`, `xr`, `yt`, and `yb`, respectively. Setting a nonzero `extend` causes leaf nodes to align at the right margin.

```
    Int i,j;
    Doub id,jd,xi,yi,xj,yj,seqmax,depmax;
    FILE *OUT = fopen(filename,"wb");
    fprintf(OUT,"%%!PS\n/Courier findfont 8 scalefont setfont\n");
    seqmax = ph.seqmax;
    depmax = ph.depmax;
    for (i=0; i<2*(ph.n)-1; i++) {
        j = ph.t[i].mo;
        id = ph.t[i].dep;
        jd = ph.t[j].dep;
        xi = xl + (xr-xl)*id/depmax;
        yi = yt - (yt-yb)*(ph.t[i].seq+0.5)/seqmax;
        xj = xl + (xr-xl)*jd/depmax;
        yj = yt - (yt-yb)*(ph.t[j].seq+0.5)/seqmax;
        fprintf(OUT,"%f %f moveto %f %f lineto %f %f lineto 0 setgray stroke\n",
            xj,yj,xj,yi,xi,yi);
        if (extend) {
            if (i < ph.n) {
                fprintf(OUT,"%f %f moveto %f %f lineto 0.7 setgray stroke\n",
                    xi,yi,xr,yi);
                fprintf(OUT,"%f %f moveto (%s (%02d)) 0 setgray show\n",
                    xr+3.,yi-2.,&str[i][0],i);
            }
        } else {
            if (i < ph.n) fprintf(OUT,"%f %f moveto (%s (%02d)) 0 setgray show\n",
                xi+3.,yi-2.,&str[i][0],i);
        }
    }
    fprintf(OUT,"showpage\n\004");
    fclose(OUT);
}
```