NAME

twopi − preprocessor for radial layouts of graphs

SYNOPSIS

twopi [**−G***name*=*value*] [**−N***name*=*value*] [−E*name*=*value*] [**−T***lang*] [**−l** *libfile*] [**−o** *outfile*] [**−vV**] [files]

DESCRIPTION

twopi draws graphs using a radial layout (see G. Wills, Symposium on Graph Drawing GD'97, September, 1997). Basically, one node is chosen as the center and put at the origin. The remaining nodes are placed on a sequence of concentric circles centered about the origin, each a fixed radial distance from the previous circle. All nodes distance 1 from the center are placed on the first circle; all nodes distance 1 from a node on the first circle are placed on the second circle; and so forth.

Input files must be formatted in the *dot* attributed graph language. By default, the output of *twopi* is the input graph with layout coordinates appended. To make PostScript, use the **−Tps** option. FrameMaker MIF (**-Tmif**), HPGL (**-Thpgl**), JPEG (**-Tjpeg**), SVG (**-Tsvg**), and GIF (**-Tgif**) are other choices.

Here is a brief synopsis of the graph language.

graph *name* **{** *statement-list* **}** is the top level graph. Statements may be:

name=*val***;**
node [*name*=*val***];**
edge [*name*=*val***];** Set the default graph, node, or edge attribute *name* to *val*. Any subgraph, node, or edge specified after one of these statements inherits these attributes.

n0 [*name0=val0,name1=val1,...***];** Creates node **n0** if it does not exist, and sets its attributes according to the optional list.

n0 −− n1 −− *...* **−− nn [***name0=val0,name1=val1,...***];** Creates edges between nodes **n0**, **n1**, ..., **nn** and optionally sets the given attributes. Creates nodes as necessary.

subgraph *name* **{** *statement-list* **}** Creates a subgraph. A subgraph may appear in place of an individual node within an edge statement. The **subgraph** *name* part is optional. If missing, the subgraph is given an internal name.

While attribute names and values may be arbitrary strings, certain fixed attributes control *twopi*'s layout algorithm, as next described.

GRAPH ATTRIBUTES

Refer to *dot*(1) options to control the layout size. In addition, *twopi* recognizes the following:

root=*ctr*. This specifies the node to be used as the center of the layout. If not specified, *twopi* will randomly pick one of the nodes that are furthest from a leaf node, where a leaf node is a node of degree 1. If no leaf nodes exists, an arbitrary node is picked as center.

ranksep=*val*. Specifies the radial distance in inches between the sequence of rings. The default is 0.75.

overlap=*mode*. This specifies what *twopi* should do if any nodes overlap. If mode is *"false"*, the program uses Voronoi diagrams to adjust the nodes to eliminate overlaps. If mode is *"scale"*, the layout is uniformly scaled up, preserving node sizes, until nodes no longer overlap. The latter technique removes overlaps while preserving symmetry and structure, while the former removes overlaps more compactly but destroys symmetries. If mode is *"true"* (the default), no repositioning is done.

splines=*true/false*. If set to true, *twopi* will use the graphviz path planning library to draw edges as splines avoiding nodes. If the value is false, or some nodes overlap, edges are drawn as straight line segments connecting nodes. This is also the default style.

NODE ATTRIBUTES

Refer to *dot*(1) for options to control node labels, shapes, sizes, colors, fonts, etc.

EDGE ATTRIBUTES

Refer to *dot*(1) for options to control edge line style and labels.

COMMAND LINE OPTIONS

−v (verbose) prints the center node and the rank separation. **−V** (version) prints version information and exits.

BUGS

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SEE ALSO

dot(1), **circo**(1) **neato**(1) **fdp**(1)