### **NAME**

gv\_ruby - graph manipulation in ruby

## **SYNOPSIS**

```
#!/usr/bin/ruby
require 'gv'
```

#### **USAGE**

## INTRODUCTION

gv\_ruby is a dynamically loaded extension for ruby that provides access to the graph facilities of graphviz.

### **COMMANDS**

# New graphs

```
New empty graph

graph_handle Gv.graph (name);

graph_handle Gv.digraph (name);

graph_handle Gv.strictgraph (name);

graph_handle Gv.strictdigraph (name);

New graph from a dot-syntax string or file

graph_handle Gv.readstring (string);

graph_handle Gv.read (string filename);

graph_handle Gv.read (channel);

Add new subgraph to existing graph

graph_handle Gv.graph (graph_handle, name);
```

### New nodes

Add new node to existing graph

```
node handle Gv.node (graph handle, name);
```

## New edges

Add new edge between existing nodes

```
edge_handle Gv.edge (tail_node_handle, head_node_handle);
```

Add a new edge between an existing tail node, and a named head node which will be induced in the graph if it doesn't already exist

```
edge_handle Gv.edge (tail_node_handle, head_name);
```

Add a new edge between an existing head node, and a named tail node which will be induced in the graph if it doesn't already exist

```
edge_handle Gv.edge (tail_name, head_node_handle);
```

Add a new edge between named tail and head nodes which will be induced in the graph if they don't already exist

```
edge_handle Gv.edge (graph_handle, tail_name, head_name);
```

## **Setting attribute values**

```
Set value of named attribute of graph/node/edge - creating attribute if necessary string Gv.setv (graph_handle, attr_name, attr_value); string Gv.setv (node_handle, attr_name, attr_value); string Gv.setv (edge_handle, attr_name, attr_value);

Set value of existing attribute of graph/node/edge (using attribute handle) string Gv.setv (graph_handle, attr_handle, attr_value); string Gv.setv (node_handle, attr_handle, attr_value);
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string Gv.setv (edge_handle, attr_handle, attr_value);
Getting attribute values
Get value of named attribute of graph/node/edge
        string Gv.getv (graph_handle, attr_name);
        string Gv.getv (node handle, attr name);
        string Gv.getv (edge handle, attr name);
Get value of attribute of graph/node/edge (using attribute handle)
        string Gv.getv (graph handle, attr handle);
        string Gv.getv (node_handle, attr_handle);
        string Gv.getv (edge_handle, attr_handle);
Obtain names from handles
        string Gv.nameof (graph_handle);
        string Gv.nameof (node_handle);
        string Gv.nameof (attr_handle);
Find handles from names
        graph_handle Gv.findsubg (graph_handle, name);
        node_handle Gv.findnode (graph_handle, name);
        edge_handle Gv.findedge (tail_node_handle, head_node_handle);
        attribute_handle Gv.findattr (graph_handle, name);
        attribute handle Gv.findattr (node handle, name);
        attribute_handle Gv.findattr (edge_handle, name);
Misc graph navigators returning handles
        node_handle Gv.headof (edge_handle);
        node_handle Gv.tailof (edge_handle);
        graph_handle Gv.graphof (graph_handle);
        graph_handle Gv.graphof (edge_handle);
        graph_handle Gv.graphof (node_handle);
        graph_handle Gv.rootof (graph_handle);
Obtain handles of proto node/edge for setting default attribute values
        node_handle Gv.protonode (graph_handle);
        edge handle Gv.protoedge (graph handle);
Iterators
Iteration termination tests
        bool Gv.ok (graph_handle);
        bool Gv.ok (node_handle);
        bool Gv.ok (edge_handle);
        bool Gv.ok (attr_handle);
Iterate over subgraphs of a graph
        graph handle Gv.firstsubg (graph handle);
        graph_handle Gv.nextsubg (graph_handle, subgraph_handle);
Iterate over supergraphs of a graph (obscure and rarely useful)
        graph_handle Gv.firstsupg (graph_handle);
        graph_handle Gv.nextsupg (graph_handle, subgraph_handle);
Iterate over edges of a graph
        edge_handle Gv.firstedge (graph_handle);
        edge_handle Gv.nextedge (graph_handle, edge_handle);
Iterate over outedges of a graph
        edge handle Gv.firstout (graph handle);
        edge_handle Gv.nextout (graph_handle, edge_handle);
```

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Iterate over edges of a node
        edge_handle Gv.firstedge (node_handle);
        edge_handle Gv.nextedge (node_handle, edge_handle);
Iterate over out-edges of a node
        edge_handle Gv.firstout (node_handle);
        edge_handle Gv.nextout (node_handle, edge_handle);
Iterate over head nodes reachable from out-edges of a node
        node_handle Gv.firsthead (node_handle);
        node_handle Gv.nexthead (node_handle, head_node_handle);
Iterate over in-edges of a graph
        edge_handle Gv.firstin (graph_handle);
        edge_handle Gv.nextin (node_handle, edge_handle);
Iterate over in-edges of a node
        edge_handle Gv.firstin (node_handle);
        edge_handle Gv.nextin (graph_handle, edge_handle);
Iterate over tail nodes reachable from in-edges of a node
        node_handle Gv.firsttail (node_handle);
        node_handle Gv.nexttail (node_handle, tail_node_handle);
Iterate over nodes of a graph
        node_handle Gv.firstnode (graph_handle);
        node_handle Gv.nextnode (graph_handle, node_handle);
Iterate over nodes of an edge
        node_handle Gv.firstnode (edge_handle);
        node_handle Gv.nextnode (edge_handle, node_handle);
Iterate over attributes of a graph
        attribute handle Gv.firstattr (graph handle);
        attribute_handle Gv.nextattr (graph_handle, attr_handle);
Iterate over attributes of an edge
        attribute_handle Gv.firstattr (edge_handle);
        attribute_handle Gv.nextattr (edge_handle, attr_handle);
Iterate over attributes of a node
        attribute_handle Gv.firstattr (node_handle);
        attribute_handle Gv.nextattr (node_handle, attr_handle);
Remove graph objects
        bool Gv.rm (graph_handle);
        bool Gv.rm (node_handle);
        bool Gv.rm (edge_handle);
Layout
Annotate a graph with layout attributes and values using a specific layout engine
        bool Gv.layout (graph_handle, string engine);
Render
Render a layout into attributes of the graph
        bool Gv.render (graph_handle);
Render a layout to stdout
        bool Gv.render (graph_handle, string format);
Render to an open file
        bool Gv.render (graph_handle, string format, channel fout);
```

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Render a layout to an unopened file by name
         bool Gv.render (graph_handle, string format, string filename);
Render to a string result
         string Gv.renderresult (graph_handle ing, string format);
         Gv.renderresult (graph_handle, string format, string outdata);
Render to an open channel
         bool\ \textbf{Gv.renderchannel}\ (graph\_handle,\ string\ format,\ string\ channelname);
Render a layout to a malloc'ed string, to be free'd by the caller
(deprecated - too easy to leak memory)
(still needed for "eval [gv::renderdata $G tk]")
         string Gv.renderdata (graph_handle, string format);
Writing graph back to file
         bool Gv.write (graph_handle, string filename);
         bool Gv.write (graph_handle, channel);
Graph transformation tools
         bool Gv.tred (graph_handle);
```

## **KEYWORDS**

graph, dot, neato, fdp, circo, twopi, ruby.