

Bugs and annoyances

Input/output

- When you save the current state of an animation using **File->Export** on the graph panel some of the information might not be saved. In particular, weights and labels are saved, but highlighting is not (since it is not equivalent to an actual color change of a node or edge).

Text editing (of programs or graphs)¹

- Tabs for graphs and algorithms are often hard to deal with: (a) if you reread a graph or algorithm, it appears twice; (b) you can only run an algorithm on a graph if the tabs for the two appear at the top of the window at the same time – this may be impossible if there are other intervening graphs and algorithms and the window is not wide enough.
- If you attempt to do anything in the text window (File menu or tabs) while an algorithm is running, Galant hangs; it appears that you can exit (quit) from the file menu of the graph window, however.
- Syntax highlighting of functions and macros is oblivious of comments. Thus, if the name of a Galant function such as `edges` appears in a comment, it will be highlighted.

Graph editing (in graph panel or via keyboard shortcuts)

- Nodes have to be moved individually. In a large graph there is no way to select a collection of nodes and move them all at once.
- The force directed layout algorithm clusters nodes too close to each other when there are cliques or near cliques.
- Semantics of force directed layout when combined with adding edges is not intuitive (force directed layout takes over if the button is pressed, so state dependent).
- It is not possible to change the thickness of an edge or node boundary directly from the editor or an algorithm nor is it possible to change the fill color of a node. The only way to change these properties is via highlighting, selecting, and marking nodes/edges during the animation.
- A change in color of an edge does not appear to take place while the edge is selected for editing – its color stays blue during that time. Only when focus is no longer on the edge does it change color.
- If a node is selected for editing (other than immediately on creation) its weight is set to 0 when the spinner shows up. Initially a node has no weight at all; this should continue to be the case unless the user specifies a weight.
- If user attempts to change weight/label of a node/edge and clicks on the graph panel in the middle of the operation, the change is lost. There is no “ok” prompt as there is with color.
- When user creates a new edge via keyboard shortcut, there is no obvious way to enter the weight and label.

Compilation and execution

- Every once in a while an exception occurs when an error-free algorithm is executed or when Galant initially fires up, but it is possible to step through the animation normally after hitting the Continue button.
- Compiler error messages can be cryptic (but at least they refer to the correct line numbers). Because of the macro preprocessing, it may be necessary to look at the console to get an idea of what is causing a particular error.

¹ Galant's editor is primitive, but programs can easily be edited externally. Text representations of graphs can either be edited or generated externally.

- Line numbers do, however, get out of sync if the header of a function declaration takes up more than one line. For example, in

```
function foo(Node v,
              Node w,
              Edge e) {
}
```

The first three lines are treated as one.

- If a macro is used incorrectly, the preprocessor does not report a line number.
- A query, if the user ignores it and advances the algorithm, will treat the answer as if it were whatever the answer to the previous such query, if any, was.
- In a force-directed layout the bottom of the graph may end up in the part of the window that gets covered up by the run buttons.
- There is no way to execute the animation in a continuous fashion with a controllable speed. The current workaround is the use of arrow keys as keyboard shortcuts for stepping forward or backward – these can be held down to generate multiple steps in rapid succession, but finer grained control is difficult.