Figure 1: This is the the graph that illustrates some main features, of the *InteractiveIGraph*, namely: changing attributes, grouping, blocking, deactivation, minimum spanning tree. All this is achieved purely interactively - no programming. Please see below to find out how to achieve this.
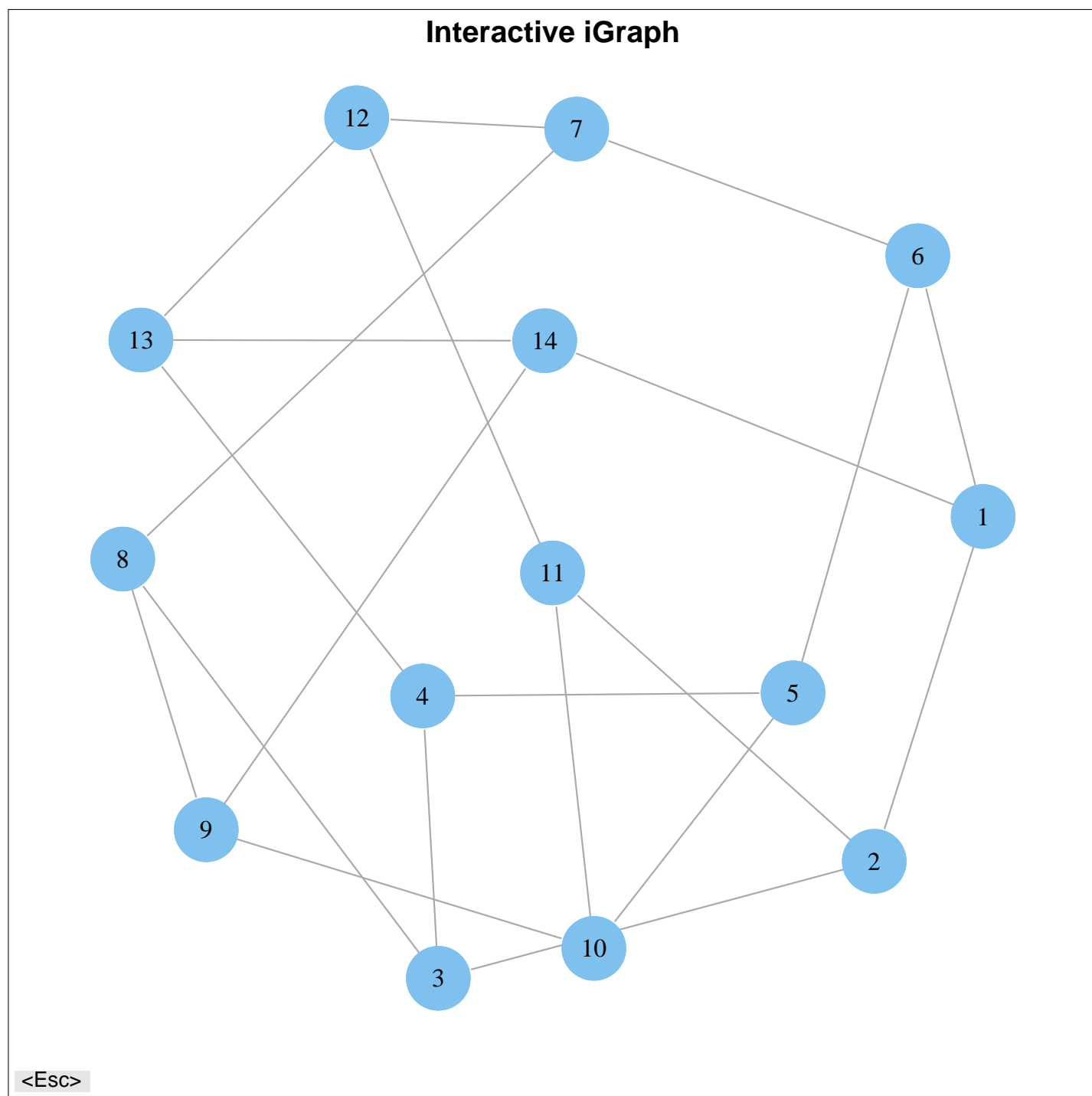
Interactive iGraph

<Esc>

Figure 2: This is starting graph. Nothing has been done yet. You can find this graph in *igraph* package under the name "Heawood".
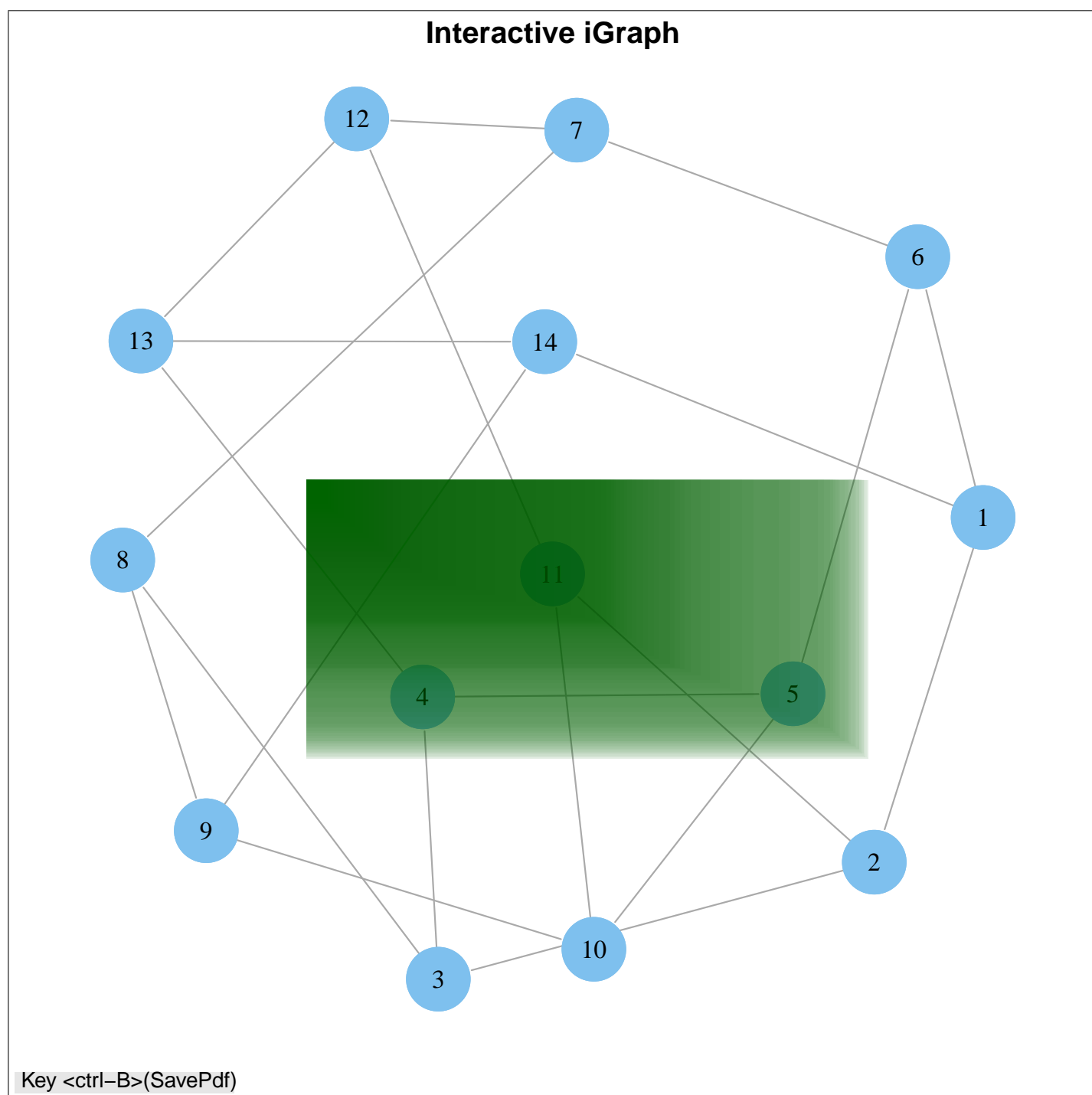
Figure 3: **Selecting the vertices.** You can select vertices similarly as in icons on you desktop. Just press the mouse button and drag the mouse.

Interactive iGraph
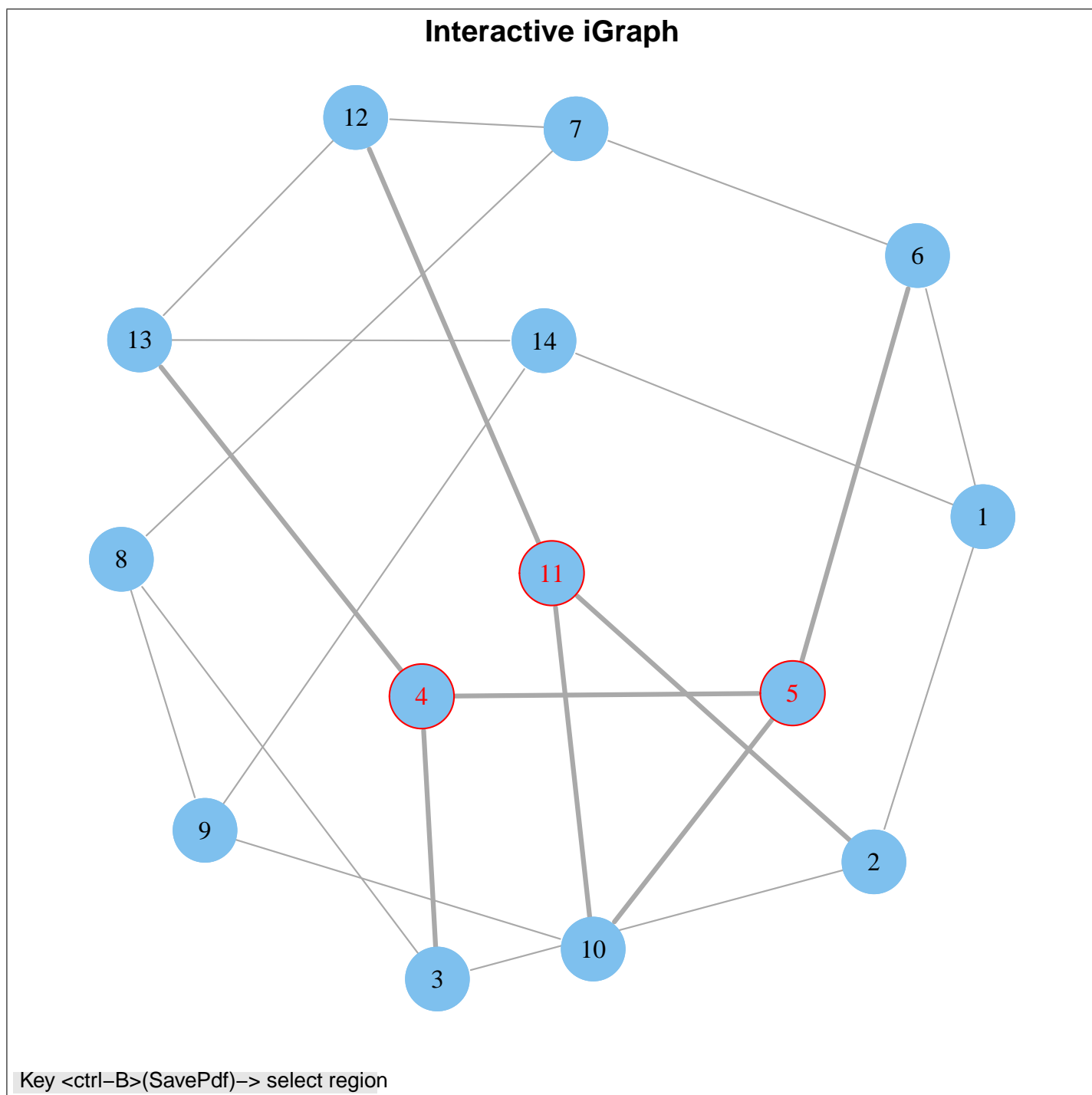
Key <ctrl–B>(SavePdf)–> select region

Figure 4: Now three vertices in the are selected. They are marked with red borders, namely it is 4,5 and 11. Any command of modification will be applied to those vertices.
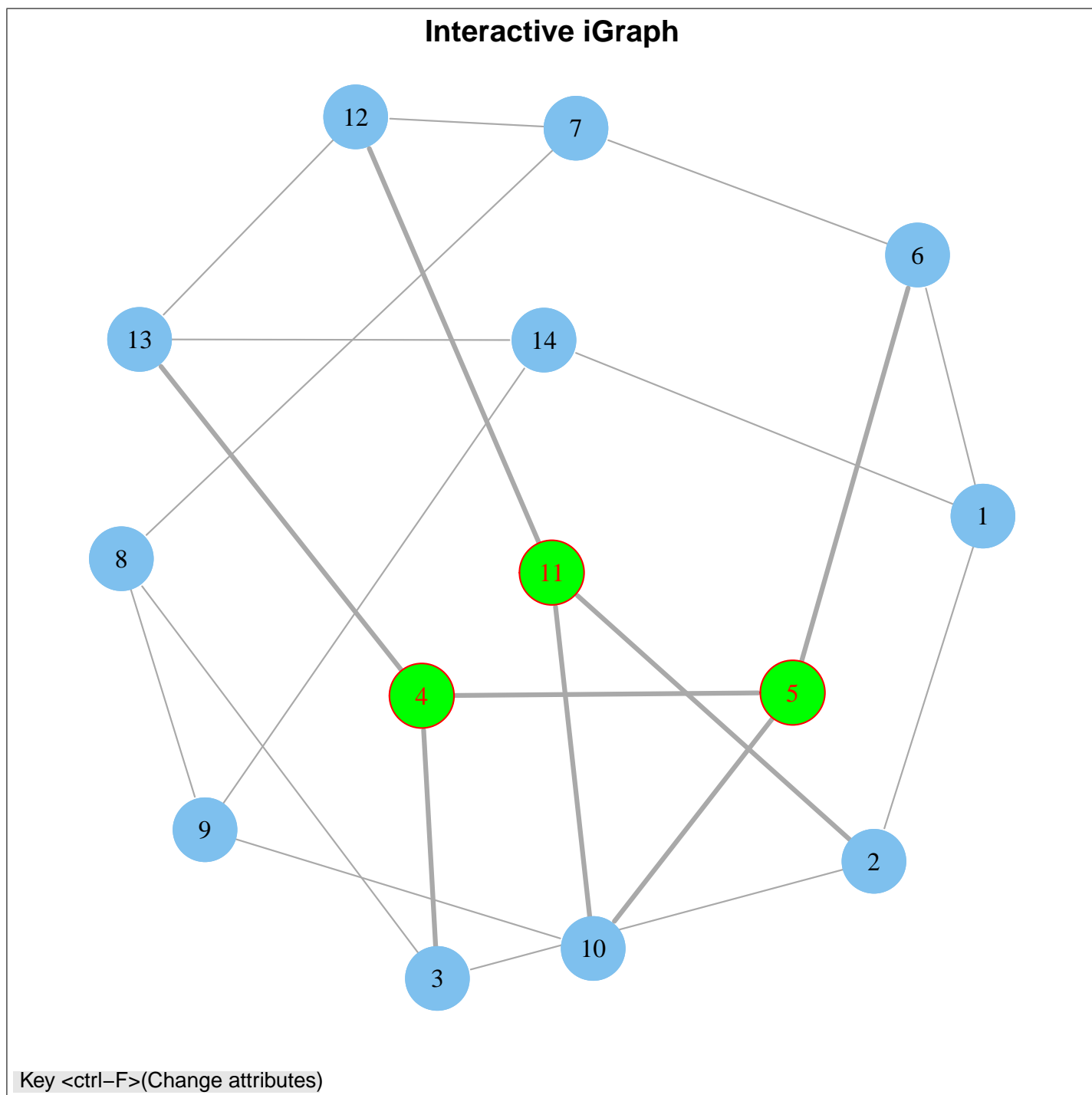
Figure 5: **Changing some attributes.** By pressing <Ctrl-F> you can change any attributes. For example: 1) Select vertices. 2) press <Ctrl-F>. 3) type "color='green'". 4) press <Enter>.
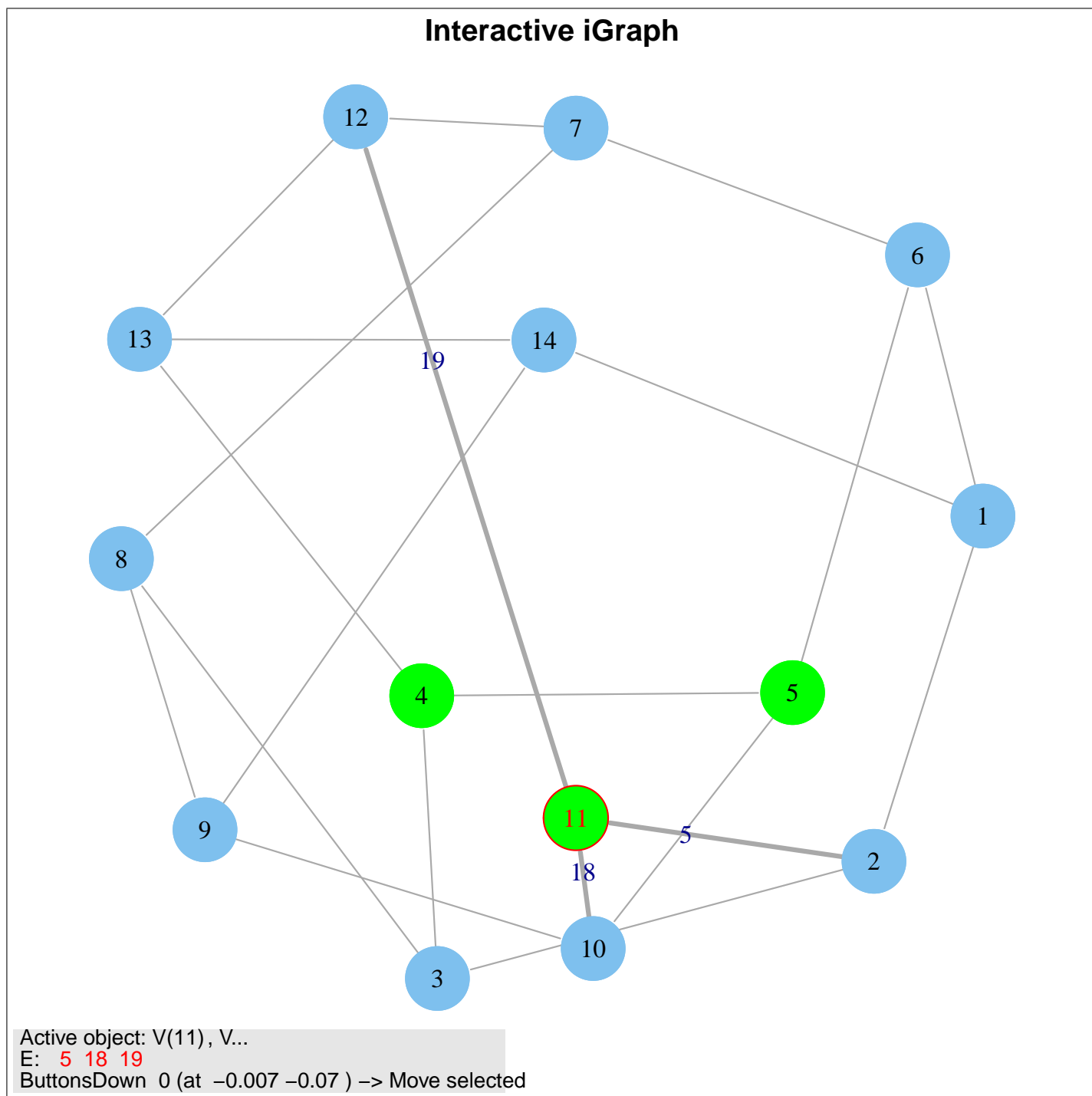
Figure 6: **Moving vertex.** Then the vertex is selected, you can grab it and move (look at the vertex 11). Please note that then one vertex is selected, then its edges has labels. The same labels appears in the bottom menu. Pressing number in bottom menu will select corresponding edge. Then you can change any attribute of edge as well.
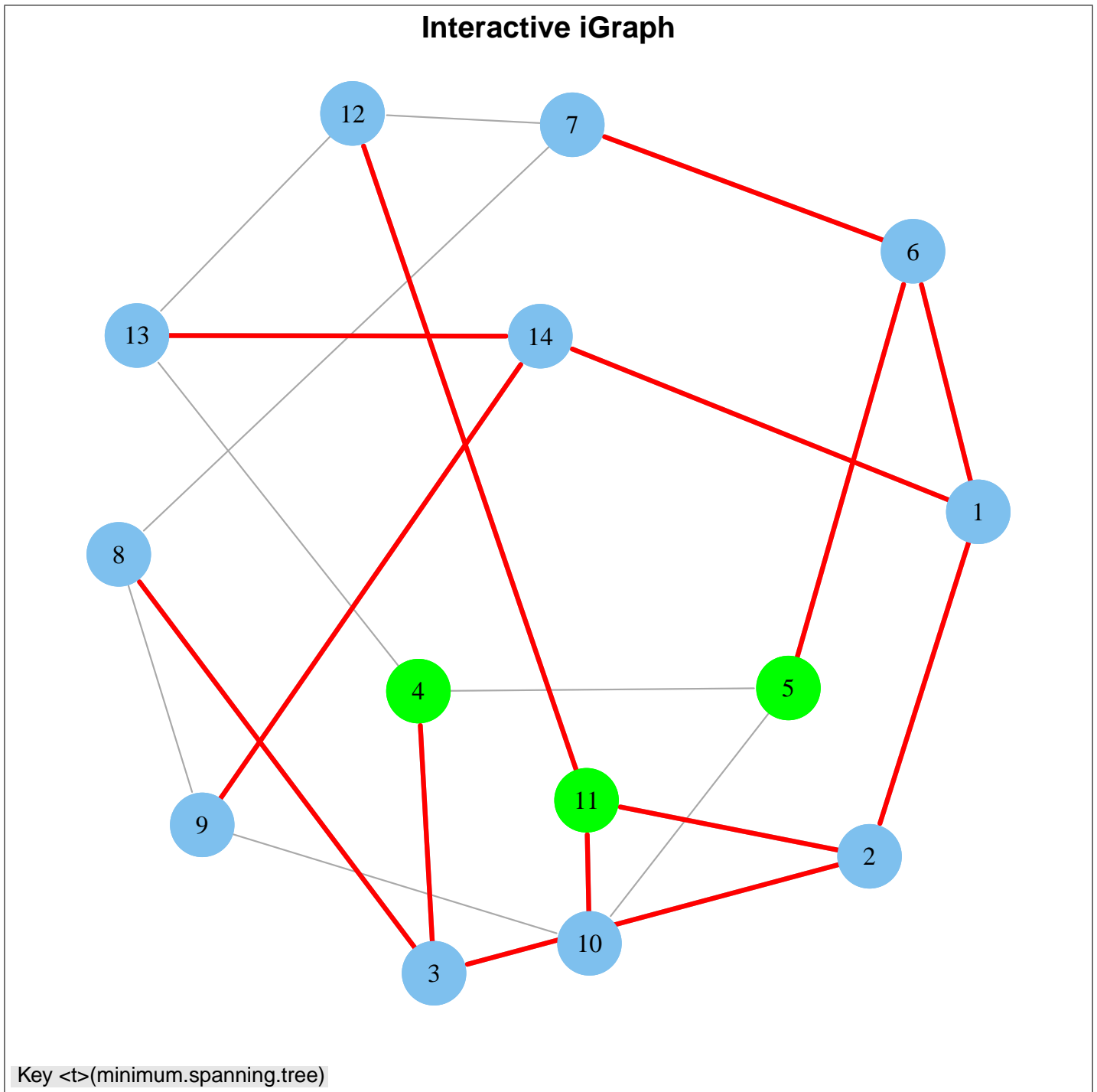
Figure 7: **Minimum spanning tree.** By pressing button <t> the program will find minimum spanning tree and select all the edges along it. As the edges are selected, you can change their attributes. For example: press <Ctrl-F>, type "width=3" and press <Enter>.
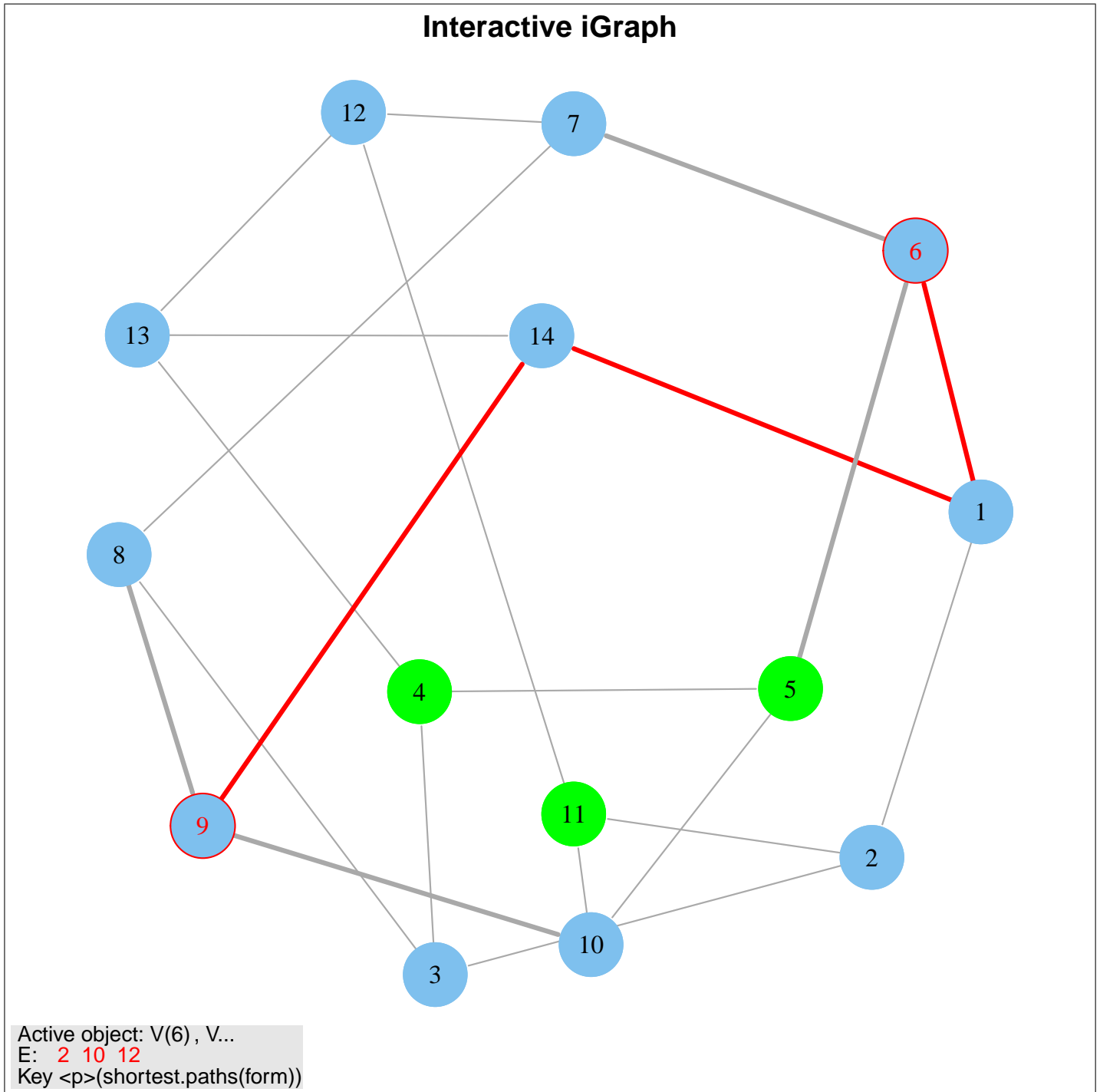
Figure 8: **Shortest path.** By pressing key <p> you can find the shortest path. To find a shortest path at least to vertices must be selected and at leas one of them must be active. The active object is the one that was pressed the last. The sequence of actions goes as follows: 1) Select any vertex, for example 9. 2) Press <s> - this activates "shift" mode and you can select other vertices without unselecting the old one. 3) select the second vertex, for example 6. 4) Press <p> to find the path (if it exist). Note: the the case of direct graph tree modes could be applied: "to"<p>, "from"<P> and "none"<Ctrl-P>.
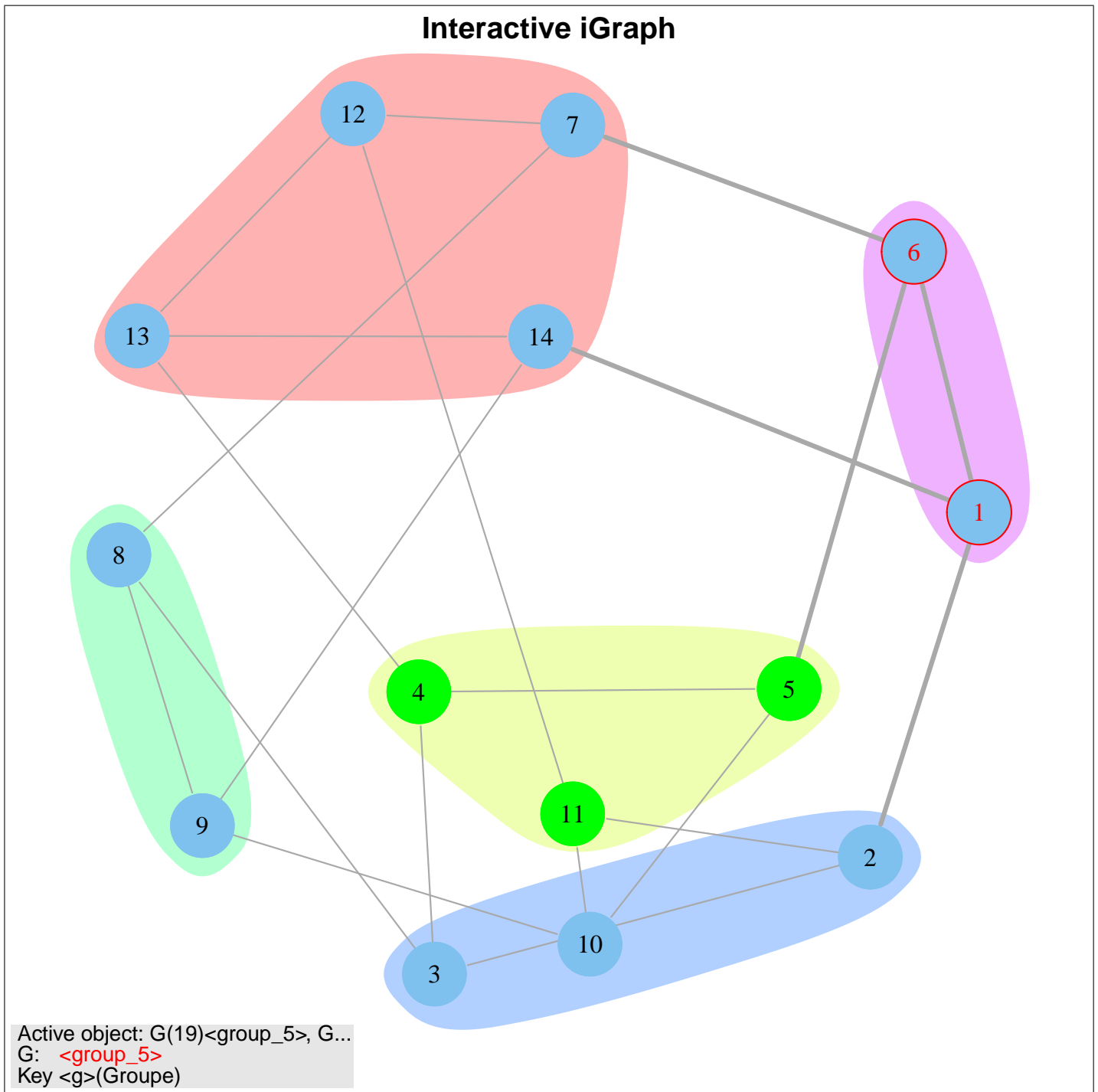
Figure 9: **Grouping.** Vertices might by joint into the groups. Just select some vertices and press <g>. New group will be created. Please note that the same vertex might belong to several groups. The groups might be in any combination: separated, mixed or hierarchical. Note: if you want to modify group you should be in its view mode - 1) select any vertex from the group. 2) in the bottom menu select the group 3) press <Enter>. After that in the 'main' you will see the "ViewObject:..." this means that this object is under the customisation. Just select any vertex and press <g> in this way new vertices might me joined or drooped out from the group. Most of the command might not work correctly in the view mode. To exit view mode pres <esc>.
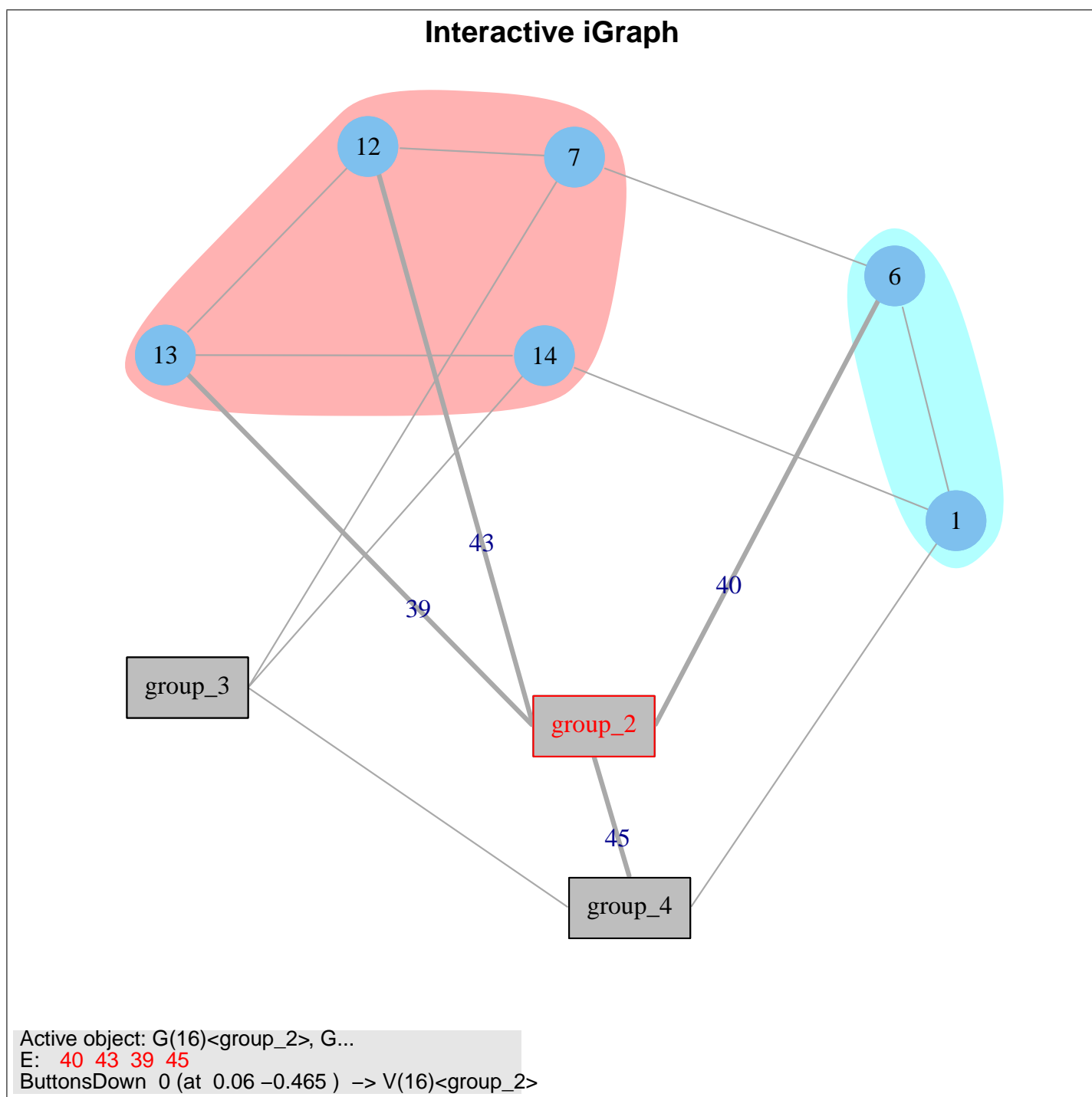
Figure 10: **Blocks.** Groups might be closed into the blocks. In this way you might isolate the details that are not under consideration. Activate any group by pressing vertex and selecting group from bottom menu. Then the group is selected press <b>. To open the block press <b> again.
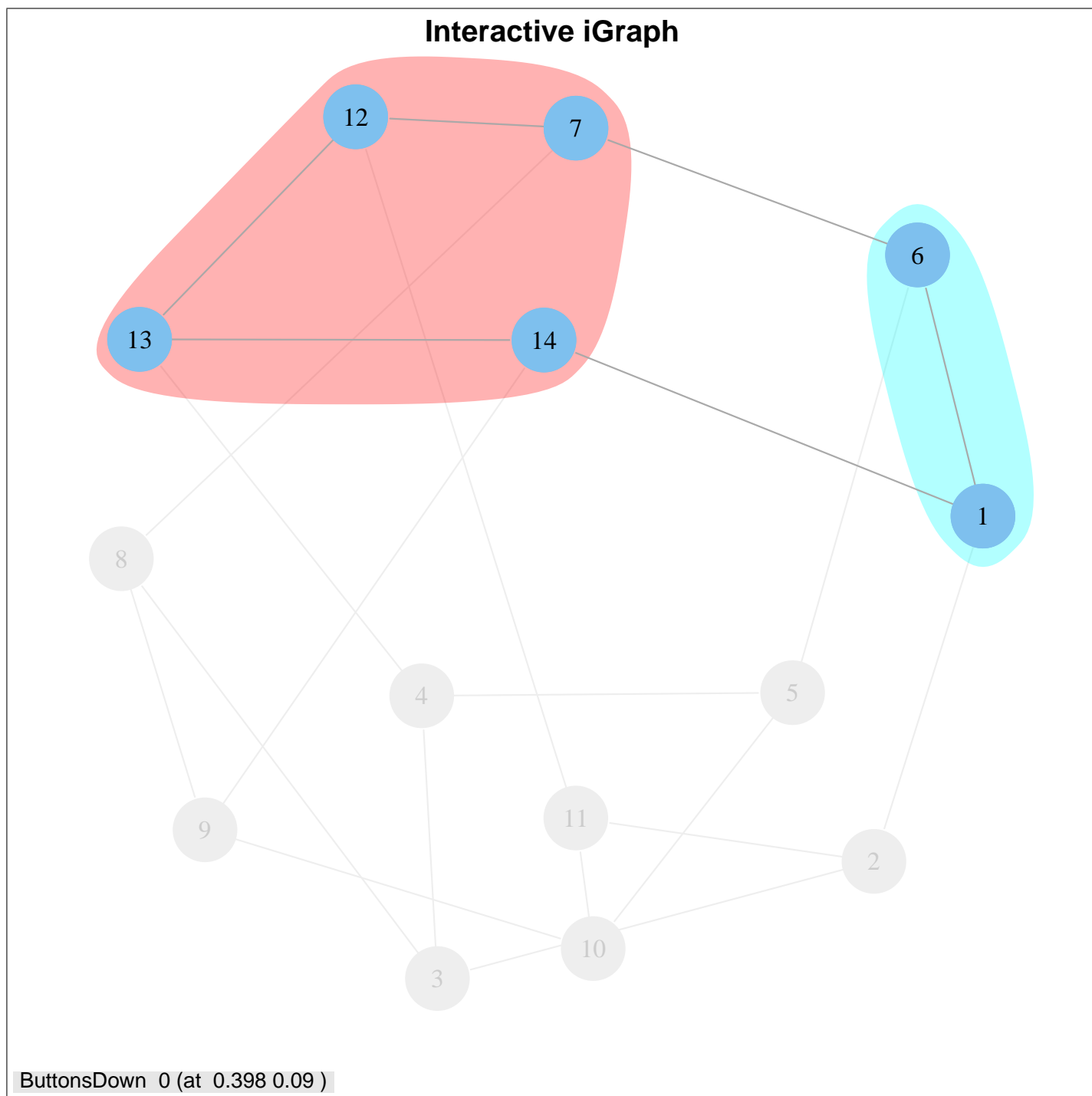
Interactive iGraph

ButtonsDown 0 (at 0.398 0.09)

Figure 11: **Inactivity.** Some of the vertices can my inactive. This can be done by <a> or <A>. This puts inactive vertices in background. To activate vertex select it and press <a>. If you want to activate all vertices press <Ctrl-A> ans <A>.
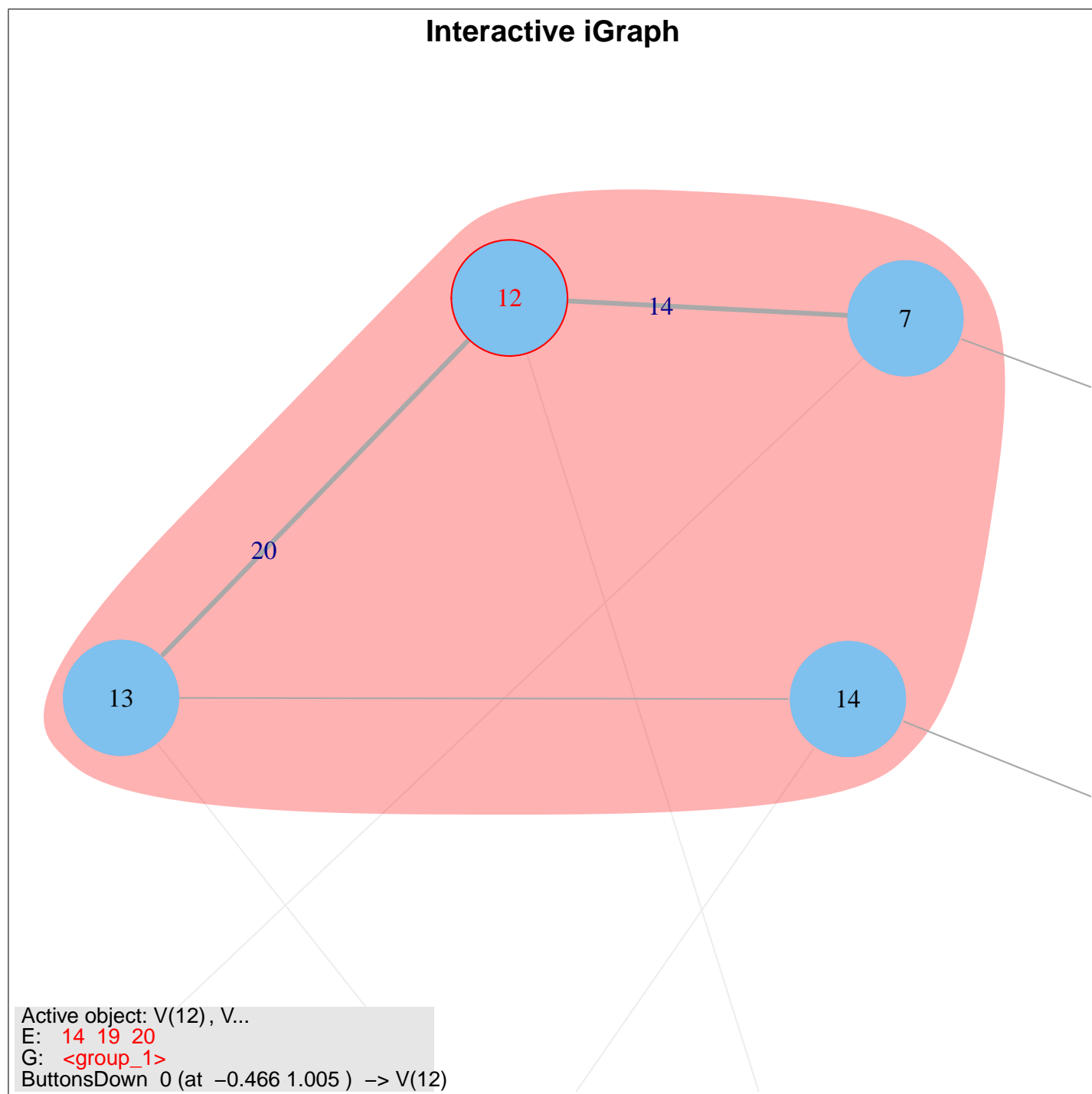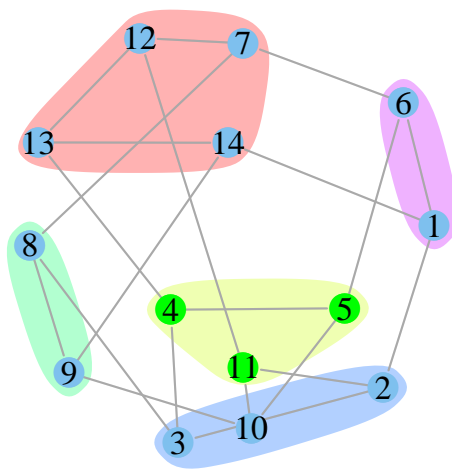
Interactive iGraph

Active object: V(12) , V...
E: 14 19 20
G: <group_1>
ButtonsDown 0 (at −0.466 1.005) −> V(12)

Figure 12: **Zooming.** You can zoom in and zoom out graph by applying <+>, <->, <left>, <rigth>, <up> and <down>.

Figure 13: **Zooming.** You can zoom in and zoom out graph by applying <+>, <->, <left>, <rigth>, <up> and <down>.