

RnavGraph and the tk canvas widget

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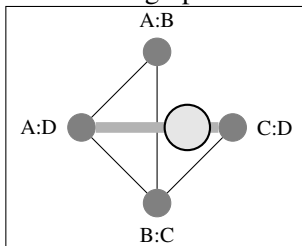
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We will demonstrate **RnavGraph**, an *R* package to explore and/or cluster interactively high dimensional data such as images, microarray or text data. The navigational infrastructure is provided by graphs (see Hurley and Oldford, 2011, *Comp. Stat.*). That is, the user moves on a graph a "You are here" circle, or "bullet", from one node to another along defined edges, causing some data visualization to be smoothly morphed from one plot (first node) into another plot (second node). Nodes of such graphs could for example represent 2d scatterplots and the edges rigid 3d rotations- or 4d transitions- from one scatterplot into another. We implemented our own 2d scatterplot display, called `tk2d` for this working example. `tk2d` can display either dots, images, star glyphs or text, and the data can be linked between displays.

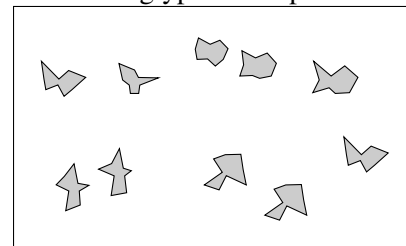
interactive graph



linked 2d image scatterplot



linked 2d glyph scatterplot



The **RnavGraph** package heavily uses *tcl* and *tk* through the **ttk** *R* package. Both the graph display and the `tk2d` display build upon the *tk* canvas widget. The `tk2d` display also makes use of the *C* API to achieve smooth morphing and image resizing results. Users can also easily extend the package and its predefined visualization instructions; this will be demonstrated during the talk.

For the second part of our presentation, we will present some of our insights gained while working with *tcl*, *tk* and *R*, especially with regard to the performance of the *tk* canvas widget. This will include some experimentation results, demonstration of some self-containing simple examples and some remarks about the *C* API to the *tk* canvas widget.