

Ggobi is a high-dimensional, interactive, direct manipulation data visualization system. It is a re-write of *xgobi*. One of the drawbacks of *xgobi* was its separation from other data analysis environments, e.g. *S*. One had to manually marshal (i.e. export) data to and from the data analysis environment to the visualization system. This usually led to the preference of the simpler, but often less informative, static graphics provided in these statistical environments. The visualization system was not being used primarily because of the expense in shipping data (both input and output) between the different systems used in the data analysis process.

The architecture of *ggobi* attempts to remedy the separation between the visualization system and the data analysis environment. It allows the visualization engine to be embedded in other applications defines a programming interface to allow those applications to both query and control its current state. Data can be easily introduced into *ggobi* and the current view programmatically set. The combination of a high-level programming language for data analysis such as *S* and an interactive graphics system yields the power of both and more. One can create “movies” or animations as a sequence of views generated and controlled by the programming environment.

In this document, we describe some of the features resulting from embedding *ggobi* in one application, namely *R*. (The same applies equally to *SPlus* as the interface is written using (pre-processor) macros which allow the same code to be compiled for either system, with few or no changes.)

## 1 The *ggobi* Framework

Before discussing the interface between *R* and *ggobi*, we start with a brief introduction to the structure of *ggobi* from the user’s perspective.

One starts a *ggobi* session by creating a *ggobi* instance. Usually, one specifies the name of a file on the command line or immediately select one within the application (via a file selection dialog) that identifies one or more datasets. These datasets are loaded into the *ggobi* instance’s variable selection window and a default plot created. One can create new plots such as Ash plots, scatter plots, parallel coordinates and scatter plot matrices. When such a plot is created, it is

So within a *ggobi* instance, we have one or more datasets.