Building GUIs for

S-PLUS for Windows

Vertical Applications

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Overview

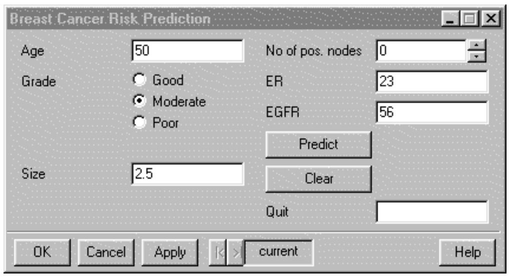
Goal is user-friendly interfaces, for those who have never used S-PLUS nor a command-line, maybe have only ever used a Mac.

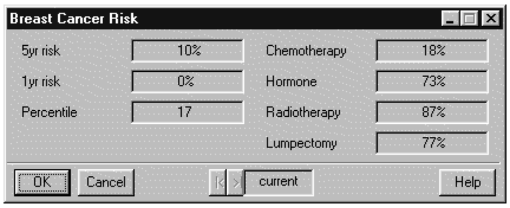
- S-PLUS's internal programmable menus and dialog boxes
- Communicate from another Windows application by DDE
- Communicate from another Windows application by 'ActiveX Automation' (formerly 'OLE Automation').

Programming guide planned for V&R3 vol 2 – see handout.

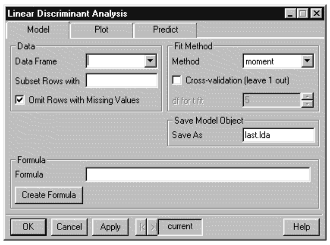
Breast Cancer Prognosis

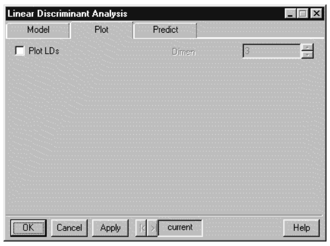
Neural-network based relapse predictions for a sub-class of primary breast cancer patients at the Churchill Hospital, Oxford. By Dr Ruth Ripley and Professors Adrian Harris and Lionel Tarassenko.

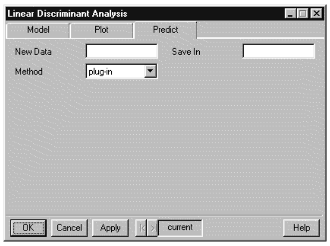




S-PLUS front end for LDA





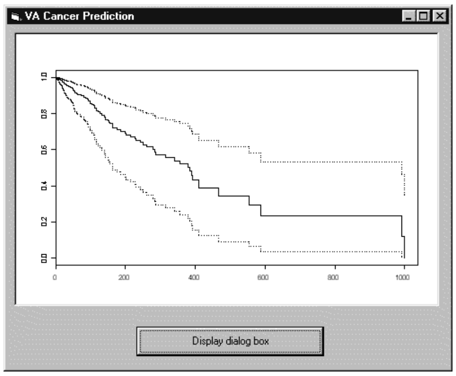


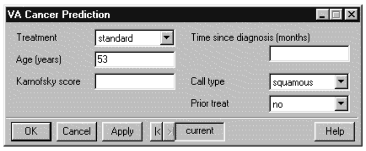
Customized dialog box for LDA.

Survival Prediction from Lung Cancer

Classic data set from Kalbfleisch & Prentice.

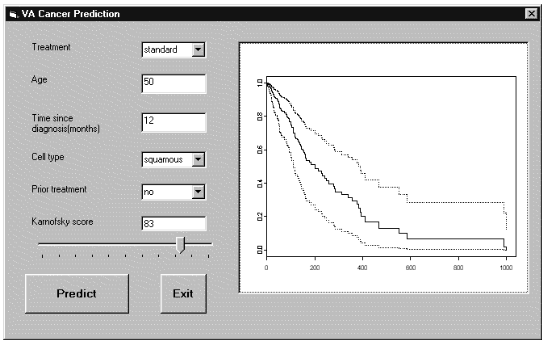
1) Interface built in Visual Basic with an embedded graphsheet, using ActiveX.





Visual Basic front-end

2) Complete interface in VB with an embedded graphsheet.



Issues

- *Input validation:* may need to communicate with the statistical application and/or databases.
- *Callbacks*: The hard work is writing the callbacks to enable / disable items, set limits, ...
- *Details*: Getting the interface details intuitive is tedious even in Visual Basic, utterly tedious and error prone at a low level (*cf* Guido's R console and graphics' windows).
- *Distribution*: Speed matters even on today's PCs, and ActiveX applications are often embedded rather than distributed even on a single machine.
- *Education*: It seems very hard to write a programmer's guide to this sort of thing.

Future R for Windows?

This sort of thing needs to be written in standard toolkits if to be done in reasonable time.

- Build R engine as a DLL which will accept commands asynchronously.
- Build an alternative front-end in VC++ than conforms to Windows 'standards' and so is an ActiveX automation server.
- Build 'glue' to make an embeddable ActiveX in-process server that calls the R engine.

[Not yet discussed fully with Guido.]