

The R Computing Environment

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Disclaimer

The views expressed on the following slides are my personal views.

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Brief History of S and R

- The **S language** was developed at AT&T Bell Labs (New Jersey, USA) in 1980s.
- In early 1990s it was “bought” by a Seattle-based consortium eventually named MathSoft and turned into **S-PLUS**.
- Over the 1990s **S-PLUS** become increasingly commercialised (Windows version, menus, graphical interface); more and more geared to “high end of town” (e.g. finance world).
- S-PLUS was recently bought by another US company named Insightful.

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- Early, 1990s: **Auckland, New Zealand**. Two members of Stats Dept there **Ross Ihaka** and **Robert Gentleman** started a “free ware” close relative of **S** and called it **R**.
- The R Project is now a highly organised enterprise involving statistical computing researchers around the world (I even have a five contributions e.g. **KernSmooth**). The web-site for the R project is:

cran.r-project.org

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Advantages of R over S-PLUS

- Can be downloaded for free.
- Owned and run by scientists (not corporations).
- Adopted by many prominent statistical researchers.
- Takes full advantage of the 'Internet age' → code sharing.

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Advantages of R Over Other Languages

- New statistical methodology is more likely to be implemented in R than any other language. This can be downloaded from the web and "added" to your R environment.
- Older statistical methodology is also more prevalent than, for example, Matlab.
- Simple syntax that is in keeping with written model formulation (unlike SAS!).
- Can be run both interactively and "in batch" (unlike SAS!).

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Advantages of S-PLUS over R

- Better support of graphical user interface (if you're into that scene).

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- Good for graphics (esp. statistical graphics).

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R Allows Simple Script Use

Statistical computing environments have the following dichotomy:

- Point & click with menus and boxes.
- Write a script (programme) and run it.

Each have their advantages.

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Comprehensive R Archive Network

This is the official web-site for the R language and has address:

`cran.r-project.org`

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Advantages of Script Approach

- You have a record of the analysis.
- Modifications are easier (i.e. don't have to repeat all that pointing and clicking!).
- Generalisations can be easier.
- Faster to run several related analysis using looping etc.
- Can be less error prone.

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BREAKING NEWS

**New York Times runs reature article on R
(7th January, 2009)!**

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Learning Some R in STAT 902

- Computer Labs.
- Example scripts.
- Assignments and exercises.

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R in Lectures

We also have the technology to muck around with R in lectures...

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