

Introduction

1 GUI session

Import data

Open Excel
File - Open - mammals.xls
File - Save as - Save as type [CSV]
Close Excel

Open S-Plus
File - Import data - From file - Browse [mammals.csv]
Close data editor
Unselect mammals by clicking on the white space

Summarize data

Statistics - Data summaries - Summary statistics
Data set [mammals] - Variables [body and brain]
Close report window

Graph - 2D plot - Linear scatter plot
Data set [mammals] - x columns [body] - y columns [brain]

Graph - 2D plot - Log log scatter plot - Graph sheet [GS1]
Data set [mammals] - x columns [body] - y columns [brain]

Fit regression model

Statistics - Regression - Linear
Data set [mammals]
Create formula - Transformation
Select both body and brain - Log - Add
Select log(brain) - Response
Select log(body) - Main effect
Plots - Residuals vs. fit - Untick the "include smooth" option
Switch to the report window
Close the report window

Graph model fit to data

Graph - 2D plot - Log log fit power - Graph sheet [GS1]
Data set [mammals] - x columns [body] - y columns [brain]

Export graph to Word

Switch to the graph window, Edit - Copy
Open Word and paste special as picture, to keep the Word file small
Close Word and S-Plus

2 First encounter with objects in S

Open S-Plus

Close the object explorer and open the command line window

Objects are used to store anything

```
1+8
x <- 1+8
x
sqrt(x)
```

In particular, data, models, and functions

File - New - Object explorer

Right click - Create explorer page - Navigate to first workspace

Double click mammals, then close the data editor

Double click mammals.lm, then close the report window

Double click x, then close the data editor

Close the object explorer and open the command line window

```
ls()
mammals
mammals.lm
x
ls()
rm(x)
lm
sqrt
sqrt(2)
lm()
?sqrt
?lm
args(lm)
```

3 Command line session

Import data

```
mammals <- read.table("c:/projects/day1/mammals.csv", header=T, sep=";", row.names=1)
```

Summarize data

```
summary(mammals)
plot(mammals$body, mammals$brain)
plot(log(mammals$body), log(mammals$brain))
```

Fit regression model

```
mammals.lm <- lm(log(brain)~log(body), data=mammals)
summary(mammals.lm)
```

Graph model fit to data

```
abline(mammals.lm)
```

Export graph to Word

Switch to one of the graphs, Edit - Copy

(R: File - Copy - Metafile)

Open Word and paste special as picture

Close Word

4 New functions

Data manipulation	ls
	rm
Help	?
	args
Import/export	read.table
Basic statistics	summary
Mathematics	sqrt
	log
Graphics	plot
	abline
Modelling	lm
