

# Intermediate LaTeX

---

SciPS course  
17 Mar 2010

# Outline and outcomes

- By the end of the session, you should...
  - ♦ Have finished your thesis\*
  - ♦ Have a good working knowledge of bibliographies, figures, tables
  - ♦ Know where to go for further information
- \* apart from the content

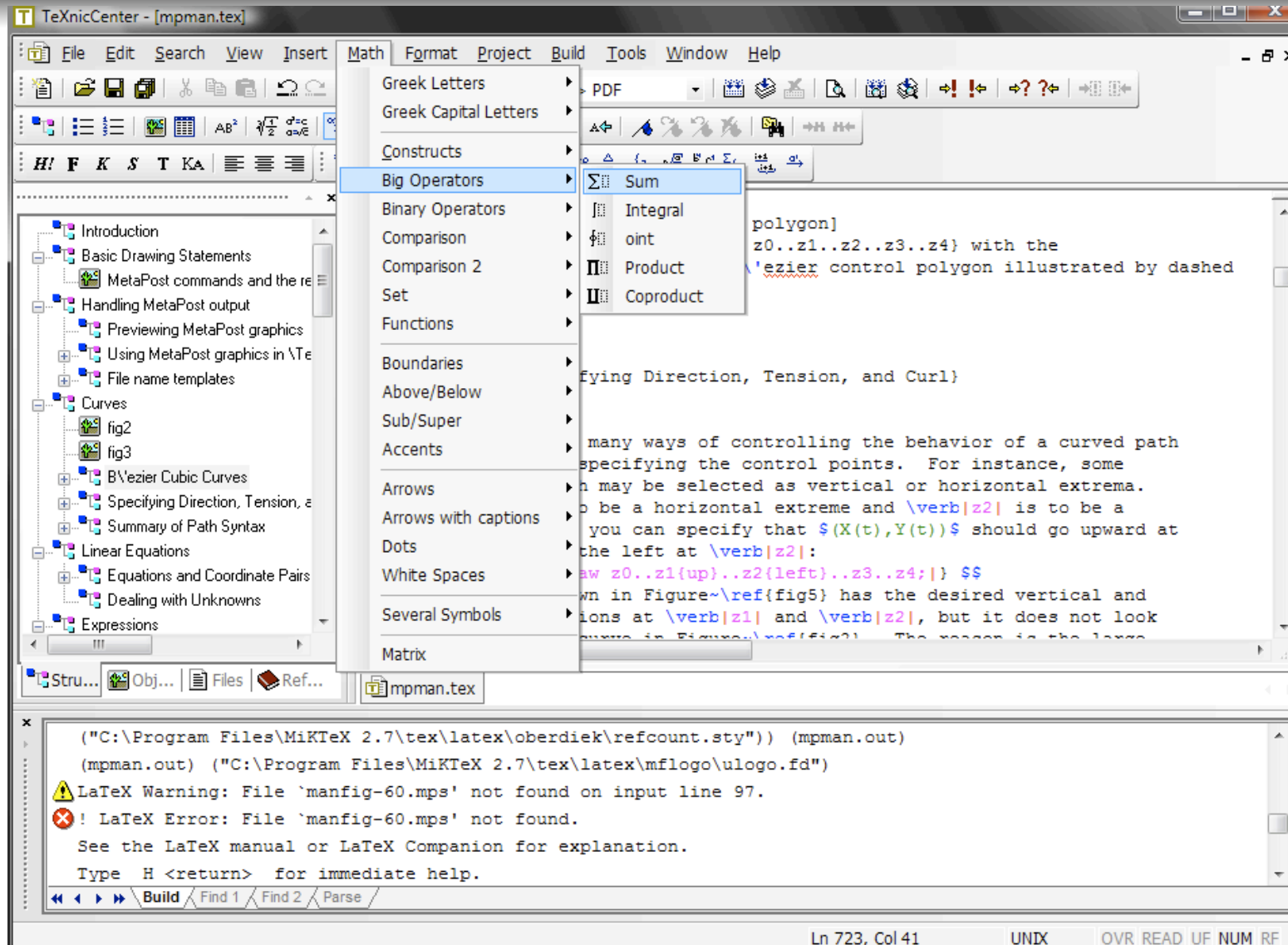
# LaTeX

- Very widely used in the sciences for document preparation – almost universally used in some disciplines
- Encourages you to focus on the **content** rather than the **appearance** (which it takes care of very well)
- Takes a *little* effort to get up to speed, but saves *hours* of tweaking the layout
- Runs very quickly even on large documents
- Excellent for figures, tables, citations...

# How to use LaTeX

- Many people use a text editor (e.g., Emacs) and compile the LaTeX source using the command line
  - ♦ “pdflatex my\_document” -> mydocument.pdf
- There are good, friendly LaTeX GUI applications around, for Windows, Linux and Mac

# TeXnicCenter: for Windows



# Sussex University thesis template

- University has regulations about the format of theses: margins, preamble, etc.
  - ♦ Though probably no one will notice...
- Simple template available  
<http://astronomy.sussex.ac.uk/~anthonys/latex/usthesis/>

# Types of LaTeX file

- “\*.tex” – LaTeX source file
- “\*.bib” – LaTeX bibliography database
- “\*.cls” – LaTeX class file
- “\*.sty” – *old* LaTeX style file
- Other files created automatically when the output is created

# Structure of a .tex file

- Preamble: before `\begin{document}`
  - ◆ Packages to include
  - ◆ Define handy macros
  - ◆ Layout of the document
  - ◆ The **style** of the document
- Document body: `\begin...`  
`\end{document}`
  - ◆ The **content** of the document



# Making the output file

- In the old days, people used DVI (DeVice Independent) and Postscript files for output
- Now we know better, and use PDF files
- The old way:
  - ♦ “`latex my_document`”
  - ♦ “`dvips my_document`”
- The new way:
  - ♦ “`pdflatex my_document`”
- Look for options in the GUI applications

# Managing large documents

---

- Easier if each chapter is in its own file
- Exercise...

# Bibliographies

---

- If you intend on writing more than one scientific document in your life, it's very handy to keep bibliographic data in a database.
- LaTeX does that using **BibTeX**
- Have a look at `bib.bib`

# Adding to bib.bib

---

- Have a look on the course page for a suitable online source of BibTeX data for your field
- Try to find a relevant paper, and find the BibTeX entry
- Copy and paste into bib.bib
- Include a citation in your new chapter
- Build thesis.tex (twice!)

# Figures

- LaTeX places figures in sensible places and can handle cross-references easily
  - ♦ Never enter “Figure 1” ... what if you add another figure before “Figure 1”?
  - ♦ Instead, use “Figure \ref{descriptive\_name}” and inside the figure caption put “\label{descriptive\_name}”
  - ♦ See thesis.tex for an example...
- Download the figures from the course page and try it out...

# Tables

- Easy within LaTeX
- Your favourite data analysis package may output data in LaTeX format
  - ♦ “&” between columns
  - ♦ “\\” at end of lines
- Try making a table using the sample data on the course page

# That's all...

- Other miscellaneous exercises on the sheet
- Further information in books/online
- Feel free to email me...

