LaTeX tutorial

Jérôme Gilles

Department of Mathematics, UCLA
jegilles@math.ucla.edu

Generalities - What is LaTeX?

LaTeX is a “high level” programming language over TeX

$\Rightarrow$ source file (*.tex*) + *“compiler” = document*

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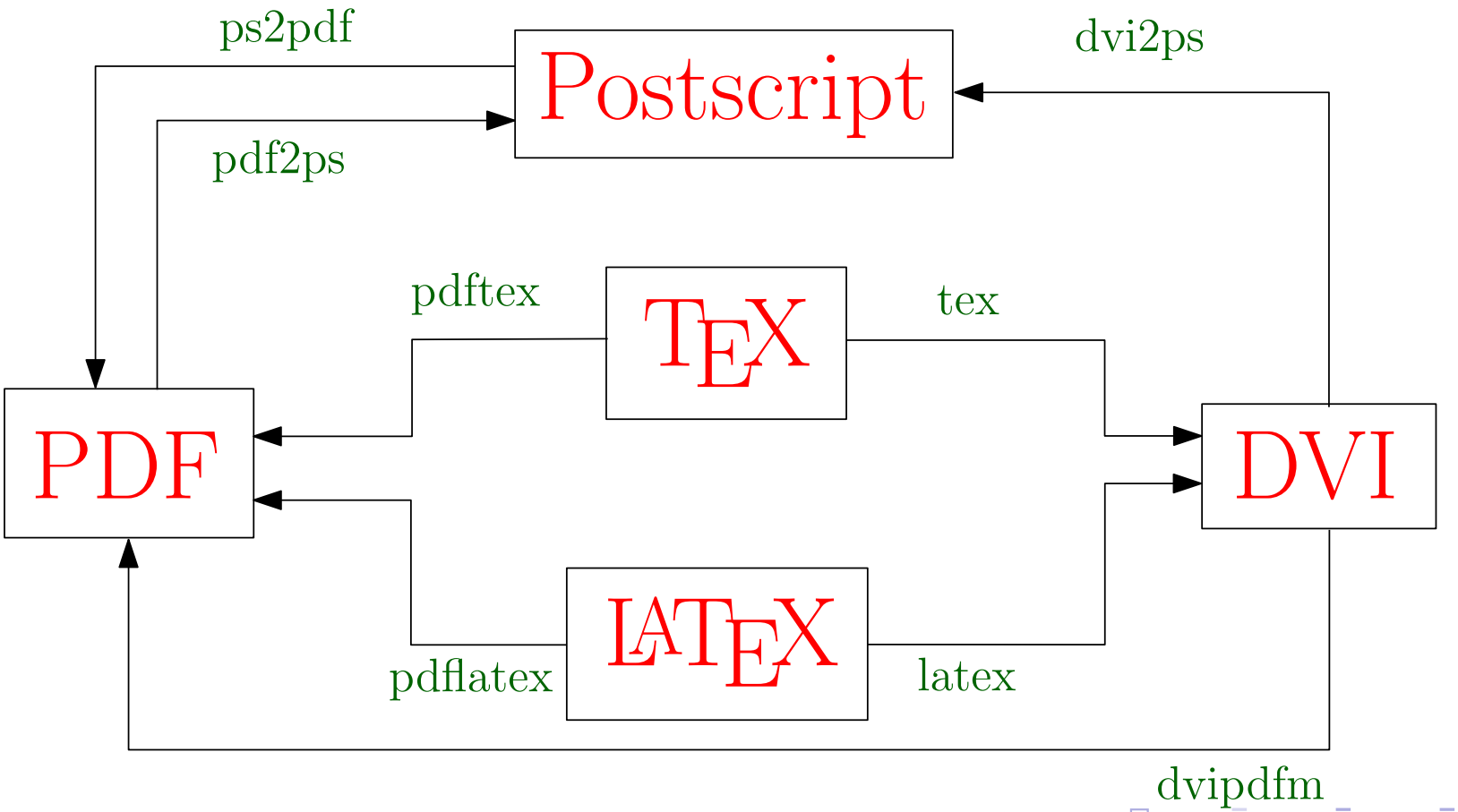


Generalities - Tools

Unix/Linux

commands: latex, dvi2ps, ps2pdf, bibtex, pdflatex
IDE: Kile
`http://kile.sourceforge.net/`

Windows

MikTeX+ TeXnicCenter + Ghostview (freeware)
`http://www.miktex.org`
`http://www.texniccenter.org/`
`http://www.cs.wisc.edu/~ghost/`

Mac

MacTeX+ TeXshop + TeXnicscope
`http://www.tug.org/mactex/`
`http://www.uoregon.edu/~koch/texshop/`
`http://www.software112.com/products/texniscope.html`

IPE: `http://lamut.informatik.uni-wuerzburg.de/mediawiki/ipe7/index.php/Main_Page`

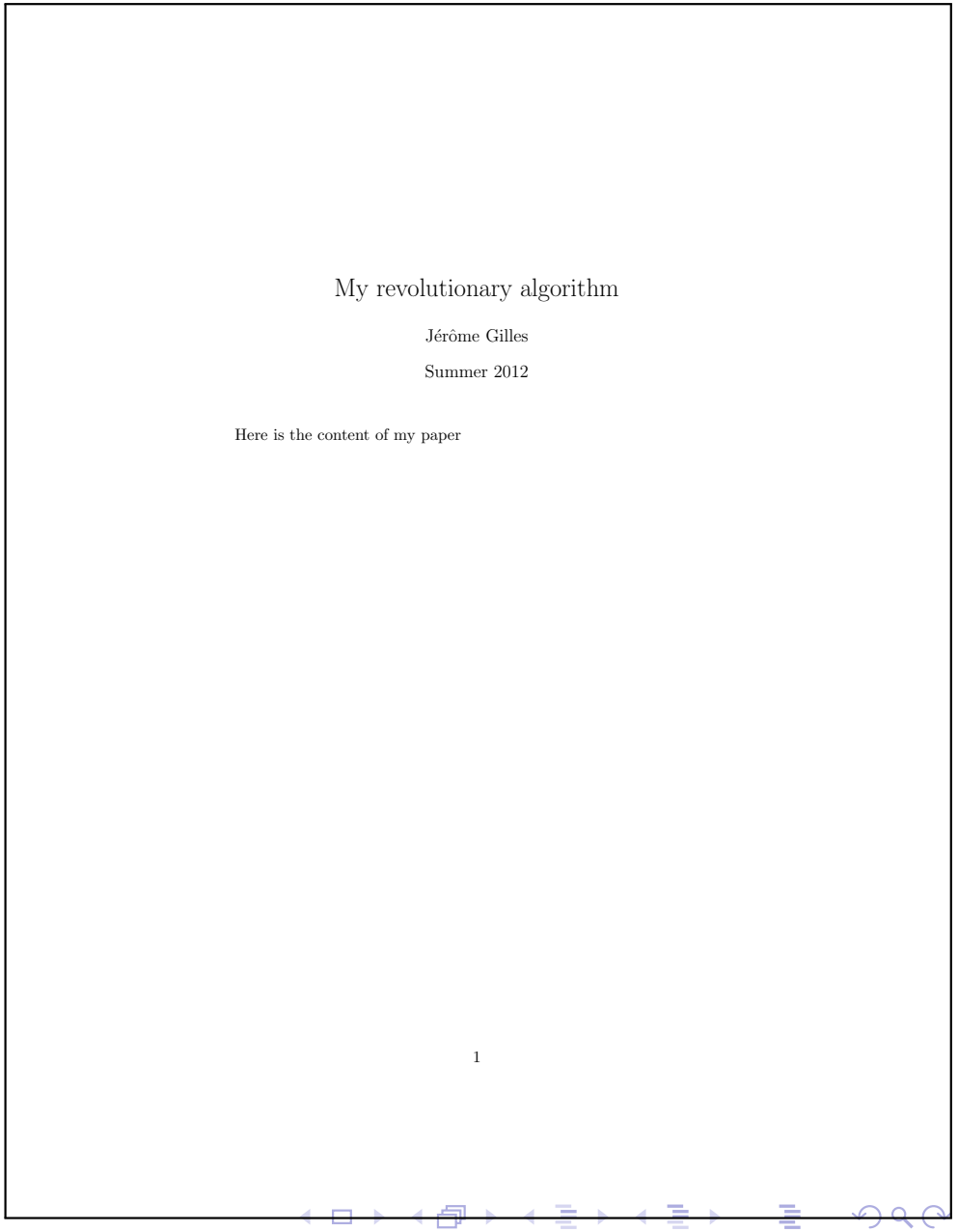
General structure of a LaTeXfile

```
% is a comment
\documentclass[11pt,letterpaper]{article}
\usepackage{amsmath}
\usepackage{amssymb}
\usepackage{epsfig}

% define used "variables"
\title{My revolutionary algorithm}
\author{J\'er\^ome Gilles}
\date{Summer 2012}

% content of the paper
\begin{document}
\maketitle

Here is the content of my paper
\end{document}
```



Document Class

documentclass[options]{type of document}

Document type

- article
- letter
- report
- book
- specific (IEEE, SPIE, SIAM, ...)

Options

- font size (10pt,11pt,12pt)
- paper size (letter,a4paper)
- twocolumn
- twoside

Packages

usepackage[options]{package name}

Common packages:

- global:
  babel,url,array,fancyheadings,fancybox,fancyhdr,. . .
- *mathematics:*
  amsmath,amsfonts,amssymb,theorem,vector,. . .
- *graphics:*
  graphicx,epsfig,psboxit,pstricks,rotating,. . .

Merging LaTeX files

ex2.tex

```
\documentclass[11pt,letterpaper]{report}
\usepackage{amsmath}
\usepackage{amssymb}
\usepackage{epsfig}

% define used "variables"
\title{My revolutionary algorithm}
\author{J\'er\^ome Gilles}
\date{Summer 2012}

% content of the paper
\begin{document}
\maketitle
\include{chapter1}
\include{chapter2}
\end{document}
```

chapter1.tex

```
\chapter{Introduction}
Here is the text corresponding to
    my introduction.
```

chapter2.tex

```
\chapter{Our new approach}
Here I describe my new amazing
    algorithm!
```

See ex2.pdf

Reserved symbols

%	Comments	\	Command
{. . .}	Processing block	~	Nonbreaking space
$	Math mode	&	Alignment tag in arrays
#	Macro parameter	^ and _	upperscript and subscript

Reserved symbols

%	Comments	\	Command
{. . .}	Processing block	~	Nonbreaking space
$	Math mode	&	Alignment tag in arrays
#	Macro parameter	^ and _	upperscript and subscript

%	\%	\	\textbackslash
{. . .}	\{. . .\}	~	\textasciitilde
$	\$	&	\&
#	\#	^ and _	\textasciicircum and _

Basics: spaces and carriage return

```
\documentclass[11pt,letterpaper]{article}

% define used "variables"
\title{My revolutionary algorithm}
\author{J\'er\^ome Gilles}
\date{Summer 2012}

% content of the paper
\begin{document}
\maketitle

This
is a    test
  on spaces

This is an example of carriage return\\

This is the beginning of a new paragraph.
\end{document}
```

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This is a test on spaces
This is an example of carriage return

This is the beginning of a new paragraph.

Basics: document structure

Command	Comment
\part{}	available only for report or book
\chapter{}	available only for report or book
\section{}	
\subsection{}	
\subsubsection{}	
\paragraph{}	
\subparagraph{}	
\appendix	indicate the beginning of appendices

Nb: if you want to remove the numbering $\Rightarrow$ put a star between the command and the brackets: \chapter*{}

Basics: font size

\tiny	this text is tiny
\scriptsize	this text is scriptsize
\footnotesize	this text is footnotesize
\small	this text is small
\normalsize	this text is normalsize
\large	this text is large
\Large	this text is Large
\LARGE	this text is LARGE
\huge	this text is huge
\Huge	this text is Huge

Can be use as \large{text} or in an environment:

begin{large}
text
end{large}

Basics: font type

\textnormal	{\normalfont ...}	Normal
\textbf	{\bfseries ...}	**Bold**
\textit	{\itshape ...}	*Italic*
\textrm	{\rmfamily ...}	Roman font
\textsf	{\sffamily ...}	Sans Serif font
\texttt	{\ttfamily ...}	`Typewriter font`
\emph	{\em ...}	*Emphasize*
\textup	{\upshape ...}	Upright
\textsl	{\slshape ...}	*Slanted*
\textsc	{\scshape ...}	SMALL CAPITAL

Basics: environments

Some part of the code is specific or must have a temporary property: environment:

begin{} ... **end**{}

```
\begin{center}
This text is\\
\begin{LARGE}
centered
\end{LARGE}
\end{center}

\begin{flushleft}
This text is\\
\textit{aligned on left}
\end{flushleft}

\begin{flushright}
This text is\\
\textsc{aligned on right}
\end{flushright}
```

This text is
centered

This text is
aligned on left

This text is
ALIGNED ON RIGHT

Listing environments

- itemize: unnumbered listing
- enumerate: numbered listing
- description: description listing

```
\begin{itemize}
\item[-] first element
\item[*] a star
\item a nice bullet\\
\end{itemize}

\begin{enumerate}
\item first property
\item second property\\
\end{enumerate}

\begin{description}
\item[Definition 1:]{the first definition}
\item[Definition 2:]{the second definition}
\end{description}
```

- first element

* a star

- a nice bullet

1. first property
2. second property

Definition 1: the first definition

Definition 2: the second definition

Crossreferences

Sometimes you want to refer to another section, chapter, equation, figure . . . ⇒ \label{} and \ref{} commands

```
\documentclass[11pt,letterpaper]{article}

% define used "variables"
\title{My revolutionary algorithm}
\author{J\'er\^ome Gilles}
\date{Summer 2012}

% content of the paper
\begin{document}
\maketitle
\section{Introduction}\label{sec:intro}
This is the introduction

\section{Principle}
As mentioned in section~\ref{sec:intro}, it
      was the introduction.
\end{document}
```

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1 Introduction

This is the introduction

2 Principle

As mentioned in section 1, it was the introduction.

Table and Figure environments

```
\begin{table}[!ht]
\centering
% definition of the table
\caption{Table legend}
\label{tab:myTab}
\end{table}
```

```
\begin{figure}[!ht]
\centering
% insert your figure
\caption{Figure legend}
\label{fig:myFig}
\end{figure}
```

Option	Meaning
h	“here”: do its best to put the environment closest as possible from the text it is declared
H	“HERE”: put the environment exactly here
t	“top”: put the environment on top of the page
b	“bottom”: put the environment on bottom of the page
p	“page of float”: put the environment on an extra page without any text

Including images

Needs the package *graphicx*

Two cases:

- *use of latex command: accepts only postscript images (.eps)*
- *use of pdflatex command: accepts PNG,JPG and PDF files*

The command is:

\includegraphics[option]{image_filename}

Options are:

- [scale=0.3]: scale the image to 30% of its original size
- [width=4cm]: fix the width of the image to 4cm
- [height=50mm]: fix the height of the image to 50mm
- [angle=45]: rotate the image by an angle of 45 degres

Useful variables:

\textwidth,**\textheight**,**\columnwidth**

Including images

ex6.tex

```
\documentclass[11pt,letterpaper]{article}
\usepackage{graphicx}

\title{My revolutionary algorithm}
\author{J\'er\^ome Gilles}
\date{Summer 2012}

% content of the paper
\begin{document}
\maketitle

This an example of how we can include figures! (see
        Fig.~\ref{fig1} and \ref{fig2})

\begin{figure}[!t]
\centering\includegraphics[scale=0.3]{lena}
\caption{This the first figure}
\label{fig1}
\end{figure}

\begin{figure}[!h]
\centering\includegraphics[width=\textwidth]{latex}
\caption{This the second figure}
\label{fig2}
\end{figure}

\end{document}
```

Figure 1: This the first figure

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This an example of how we can include figures! (see Fig. 1 and 2)

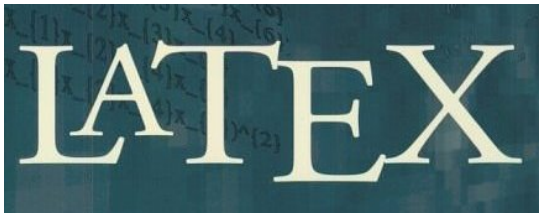

Figure 2: This the second figure

1

Including tables

Needs the package *tabular (array in math mode)*
A table is defined from the commands:

***__*begin*__*{tabular}[pos]{columns definition}* ***__*hline*__
*xxx & xxx & ... & *
*yyy & yyy & ... & * ***__*hline*__
***__*end*__*{tabular}*

pos $\Leftrightarrow$ see table environment

columns can be defined by:

- *l: element are left justified*
- *r: element are right justified*
- *c: element are centered*
- *|: put a vertical bar*
- *p{w}: a column of width w*

\hline draw an horizontal line

Each column elements on a same row are separated by the & symbol

Including tables

ex6.tex

```
\documentclass[11pt,letterpaper]{article}
\usepackage{array}

\title{My revolutionary algorithm}
\author{J\'er\^ome Gilles}
\date{Summer 2012}

% content of the paper
\begin{document}
\maketitle

\begin{table}[!h]
\centering
\begin{tabular}{|l|c|p{5cm}|} \hline
A & B & end of first row \\ \hline
CGHIJ &  & D \\
E & FKL & end of table \\ \hline
\end{tabular}
\end{table}

\end{document}
```

Other usefull commands:

\multicolumn,\multirow,\backslashbox

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A	B	end of first row
CGHIJ E	 FKL	D end of table

Mathematics in LaTeX

Needs (at least) packages *amsmath,amsfonts,amssymb*

Two cases: equation embedded **in** ($...$) the text or equation on **separate** line (\begin{equation} ... \end{equation}).

```
\documentclass[11pt,letterpaper]{article}
\usepackage{amsmath,amsfonts,amssymb}

\begin{document}
The Cartesian equation of a straight line is of the form $ax+by+c=0$ where $a,b,c$ are
    constants.
\end{document}
```

The Cartesian equation of a straight line is of the form $ax + by + c = 0$ where a, b, c are constants.

Mathematics in LaTeX

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Two cases: equation embedded **in** the text ($...$) or equation on **separate** line (\begin{equation} ... \end{equation}).

```
\documentclass[11pt,letterpaper]{article}
\usepackage{amsmath,amsfonts,amssymb}

\begin{document}
The Cartesian equation of a straight line is
      of the form
\begin{equation}
ax+by+c=0
\end{equation}
where $a,b,c$ are constants.
\end{document}
```

The Cartesian equation of a straight line is of the form

$$ax + by + c = 0 \tag{1}$$

where a, b, c are constants.

Special fonts

\mathbb{...}	*blackboard* alphabet: $\mathbb{A}, \mathbb{B}, \mathbb{N}, \mathbb{R}, \mathbb{Z}$
\mathcal{...}	*calligraphied* alphabet: $\mathcal{A}, \mathcal{B}, \mathcal{N}, \mathcal{R}, \mathcal{Z}$
\mathbf{...}	**bold** alphabet: $\mathbf{A}, \mathbf{B}, \mathbf{N}, \mathbf{R}, \mathbf{Z}$
\mathit{...}	*italic* alphabet: A, B, N, R, Z

Special symbols

\hat{a}	$\hat{a}$	\acute{a}	$\acute{a}$	\bar{a}	$\bar{a}$	\dot{a}	$\dot{a}$	\breve{a}	$\breve{a}$
\check{a}	$\check{a}$	\grave{a}	$\grave{a}$	\vec{a}	$\vec{a}$	\ddot{a}	$\ddot{a}$	\tilde{a}	$\tilde{a}$

\overleftarrow{abc}	$\overleftarrow{abc}$	\overrightarrow{abc}	$\overrightarrow{abc}$
\overline{abc}	$\overline{abc}$	\underline{abc}	$\underline{abc}$
\widetilde{abc}	$\widetilde{abc}$	\widehat{abc}	$\widehat{abc}$
\xrightarrow{\text{abc}}	$\xrightarrow{\text{abc}}$	\xleftarrow{\text{abc}}	$\xleftarrow{\text{abc}}$
\overbrace{abc}	$\overbrace{abc}$	\underbrace{abc}	$\underbrace{abc}$

Mathematics in LaTeX

Greek letters

\alpha	α	\beta	β	\gamma	γ	\delta	δ
\theta	θ	\vartheta	ϑ	\iota	ι	\kappa	κ
\lambda	λ	\mu	μ	\nu	ν	\xi	ξ
\pi	π	\varpi	ϖ	\rho	ρ	\varrho	ϱ
\sigma	σ	\varsigma	ς	\tau	τ	\upsilon	υ
\phi	ϕ	\varphi	φ	\chi	χ	\psi	ψ
\omega	ω	\Gamma	Γ	\Delta	Δ	\Theta	Θ
\Lambda	Λ	\Xi	Ξ	\Pi	Π	\Sigma	Σ
\Upsilon	Υ	\Phi	Φ	\Psi	Ψ	\Omega	Ω

Variable sized symbols

\sum	$\sum$	\prod	$\prod$	\int	$\int$
\oint	$\oint$	\bigcap	$\bigcap$	\bigcup	$\bigcup$

Mathematics in LaTeX

Standard functions

\cos, \sin, \log, \ln, \arg, \inf, \sup, . . .

Ex: \cos(\alpha+\beta)=\cos\alpha\cos\beta - \sin\alpha \sin\beta
gives $\cos(\alpha+\beta) = \cos\alpha\cos\beta - \sin\alpha\sin\beta$

Superscript and subscript

x_i	x_i	x^i	x^i
x_{i-1}^{j-1}	x_{i-1}^{j-1}	x_{u_n}	x_{u_n}

Fraction

\frac{num}{den}, Ex: \frac{3x+1}{1-x^2} gives $\frac{3x+1}{1-x^2}$

Roots

\sqrt[n]{arg}, Ex: \sqrt[q]{1-x^2} gives $\sqrt[q]{1-x^2}$
\sqrt{x+3} gives $\sqrt{x+3}$

Mathematics in LaTeX: sums, products and integrals

```
\documentclass[11pt,letterpaper]{article}
\usepackage{amsmath,amsfonts,amssymb,wasysym}

\begin{document}
\begin{equation}
\sum_{k=1}^n k=\frac{n(n+1)}{2}
\end{equation}

\begin{equation}
\prod_{k=1}^m k=m!
\end{equation}

\begin{equation}
\int_0^{+\infty} x^n e^{-x}dx=n!
\end{equation}

\begin{equation}
\oiint_{\partial \Omega}
      (\mathbf{F}\bullet\mathbf{n})dS=
            \iiint_{\Omega}(\nabla\bullet\mathbf{F})dV
\end{equation}
\end{document}
```

$$\sum_{k=1}^{n} k = \frac{n(n+1)}{2}$$

$$\prod_{k=1}^{m} k = m!$$

$$\int_0^{+\infty} x^n e^{-x} dx = n!$$

$$\oiint_{\partial\Omega} (\mathbf{F} \bullet \mathbf{n}) dS = \iiint_{\Omega} (\nabla \bullet \mathbf{F}) dV$$

Derivatives

\frac{df}{dx}	$\frac{df}{dx}$	\frac{d^nf}{dx^n}	$\frac{d^nf}{dx^n}$
\frac{\partial f}{\partial x}	$\frac{\partial f}{\partial x}$	\frac{\partial^nf}{\partial x^n}	$\frac{\partial^nf}{\partial x^n}$

Absolute values and norms

|x| gives $|x|$

\|x\| gives $\|x\|$

Matrices

```
\documentclass[11pt,letterpaper]{article}
\usepackage{amsmath,amsfonts,amssymb}

\begin{document}

\begin{equation}
\begin{pmatrix}
a_{1,1} & a_{1,2} & \dots & a_{1,n} \\
a_{2,1} & a_{2,2} & \dots & a_{2,n} \\
\vdots & \vdots & \ddots & \vdots \\
a_{m,1} & a_{m,2} & \dots & a_{m,n}
\end{pmatrix}
\end{equation}

\begin{equation}
\begin{vmatrix}
a_{1,1} & a_{1,2} & \dots & a_{1,n} \\
a_{2,1} & a_{2,2} & \dots & a_{2,n} \\
\vdots & \vdots & \ddots & \vdots \\
a_{m,1} & a_{m,2} & \dots & a_{m,n}
\end{vmatrix}
\end{equation}

\end{document}
```

$$\begin{pmatrix} a_{1,1} & a_{1,2} & \dots & a_{1,n} \\ a_{2,1} & a_{2,2} & \dots & a_{2,n} \\ \vdots & \vdots & \ddots & \vdots \\ a_{m,1} & a_{m,2} & \dots & a_{m,n} \end{pmatrix}$$

$$\begin{vmatrix} a_{1,1} & a_{1,2} & \dots & a_{1,n} \\ a_{2,1} & a_{2,2} & \dots & a_{2,n} \\ \vdots & \vdots & \ddots & \vdots \\ a_{m,1} & a_{m,2} & \dots & a_{m,n} \end{vmatrix}$$

Group of equations

```
\documentclass[11pt,letterpaper]{article}
\usepackage{amsmath,amsfonts,amssymb}

\begin{document}
\begin{gather}
\frac{d}{dx}(f(x)+g(x))=\frac{df}{dx}(x)+\frac{dg}{dx}(x)\\
\frac{d}{dx}(f(x)g(x))=f(x)\frac{dg}{dx}(x)+g(x)\frac{df}{dx}(x)
\end{gather}

\begin{align}
\frac{d}{dx}(f(x)+g(x))&=\frac{df}{dx}(x)+\frac{dg}{dx}(x)\\
\frac{d}{dx}(f(x)g(x))&=f(x)\frac{dg}{dx}(x)+g(x)\frac{df}{dx}(x)
\end{align}

\begin{equation}
\chi(x)=
\begin{cases}
0 \qquad \text{if} \quad x\geqslant 0\\
1 \qquad \text{if} \quad x< 0
\end{cases}
\end{equation}
\end{document}
```

$$\frac{d}{dx}(f(x)+g(x)) = \frac{df}{dx}(x) + \frac{dg}{dx}(x)$$
$$\frac{d}{dx}(f(x)g(x)) = f(x)\frac{dg}{dx}(x) + g(x)\frac{df}{dx}(x)$$

$$\frac{d}{dx}(f(x)+g(x)) = \frac{df}{dx}(x) + \frac{dg}{dx}(x)$$
$$\frac{d}{dx}(f(x)g(x)) = f(x)\frac{dg}{dx}(x) + g(x)\frac{df}{dx}(x)$$

$$\chi(x) = \begin{cases} 0 & \text{if} \quad x \geqslant 0 \\ 1 & \text{if} \quad x < 0 \end{cases}$$

Theorems

Needs the package *theorem*. We first specify the different kind of statements (before the \begin{document}) with the command \newtheorem{thm}{Theorem} and then we use the command \begin{thm}. . .\end{thm}

```
\documentclass[11pt,letterpaper]{article}
\usepackage{amsmath,amsfonts,amssymb}
\usepackage{theorem}

\newtheorem{thm}{Theorem}

\begin{document}


\begin{thm}
The sum of the angles of a triangle is $\pi$
\end{thm}

\end{document}
```

Theorem 1 *The sum of the angles of a triangle is* π

Original approach: `bibitem`

```
\documentclass[11pt,letterpaper]{article}

\begin{document}
In \cite{les85}, the authors propose to ... while in \cite{don89} ...

\begin{thebibliography}{99}
\bibitem{les85} Leslie Lamport, 1985. \emph{\LaTeX---A Document Preparation System---User's Guide and
        Reference Manual},
Addison-Wesley, Reading.
\bibitem{don89} Donald E. Knuth, 1989. \emph{Typesetting Concrete Mathematics}, TUGBoat, 10(1):31-36.
\end{thebibliography}

\end{document}
```

In [1], the authors propose to ... while in [2] ...

References

[1] Leslie Lamport, 1985. *LaTeX–A Document Preparation System–User's Guide and Reference Manual*, Addison-Wesley, Reading.

[2] Donald E. Knuth, 1989. *Typesetting Concrete Mathematics*, TUGBoat, 10(1):31-36.

Bibliography

Advanced approach: BibTeX

References are contained in an external “mybiblio.bib” file which will be called by the command \bibliography{mybiblio}.
We must specify a bibliography style by using \bibliographystyle{style} where the most used styles are

- **plain:** Standard BibTeX style. Entries sorted alphabetically with numeric labels.
- **unsrt:** Similar to **plain**, but entries are printed in order of citation, rather than sorted.
- **alpha:** Similar to **plain**, but the labels of the entries are formed from the author’s name and the year of publication.
- **abbrv:** Similar to **plain**, but entries are more compact, since first names, month, and journal names are abbreviated.

```
\documentclass[11pt,letterpaper]{article}

\begin{document}
In \cite{les85}, the authors propose to ...

\bibliographystyle{plain}
\bibliography{mybiblio}

\end{document}
```

Steps to generate the bibliography

1. Run LaTeX: list of \cite ref in the .aux file,
2. Run BibTeX: extract the cited ref from the .bib file, format and save them in the .bbl file,
3. Run LaTeX again: read the .bbl file,
4. Run LaTeX a third time to resolve all references.

Bibliography

BibTeX database

Each reference is described in the following way:

```
@entry_type{key,
 field_name = {field text},
 ...
 field_name = {field text}
}
```

article	entry for an article from a journal or magazine
required fields:	author, title, journal, year
optional fields:	volume, number, pages, month, note.
book	entry for a book with a definite publisher
required fields:	author or editor, title, publisher, year
optional fields:	volume or number, series, address, edition, month, note
conference	entry for an article in conference proceedings
required fields:	author, title, booktitle, year
optional fields:	editor, volume or number, series, pages, address, month, ...

Bibliography

.bib file

```
@ARTICLE{Gilles2010a,
  author = {J\'er\^ome Gilles and Yves Meyer},
  title = {Properties of BV−G structures + textures decomposition models. Application
to road detection in satellite images},
  journal = {IEEE Transaction in Image Processing},
  year = {2010},
  volume = {19},
  pages = {2793−−2800},
  number = {11}
}

@BOOK{Triebel3,
  title = {Theory of Function Spaces III},
  publisher = {Birkhauser Verlag},
  year = {2006},
  author = {Hans Triebel},
  series = {Monographs in Mathematics}
}
```

To manage reference databases: JabRef (`http://jabref.sourceforge.net/`)

Other useful formatting tools

Table of Content (ToC)

Just add the command `\tableofcontents` where you want to see your ToC!

Lists of figures or tables

Just add the command `\listoffigures` or `\ listoftables`

Footnotes

Use `\footnote{your note}`

Page, line break

Use `\newpage` or `\linebreak`

Algorithm - Pseudocode

See packages `algorithm, algorithmic,listings`

Presentations: the Beamer class

```
\documentclass{beamer}
\mode<presentation>

\usetheme{Warsaw}

\title{\LaTeX\ tutorial}

\author[]{J\'er\^ome Gilles}
\institute[UCLA]{Department of Mathematics, UCLA\\jegilles@math.ucla.edu}
\date{}

\begin{document}
...
\end{document}
```

Presentations: the Beamer class

Slides: the `frame` environment

\begin{frame}
\titlepage
\end{ frame}

\begin{frame}{Title}

\end{ frame}

Group of elements: the `block` environment

\begin{block}{block title}
Elements of this block
\end{block}

Positioning: the `textblock` environment

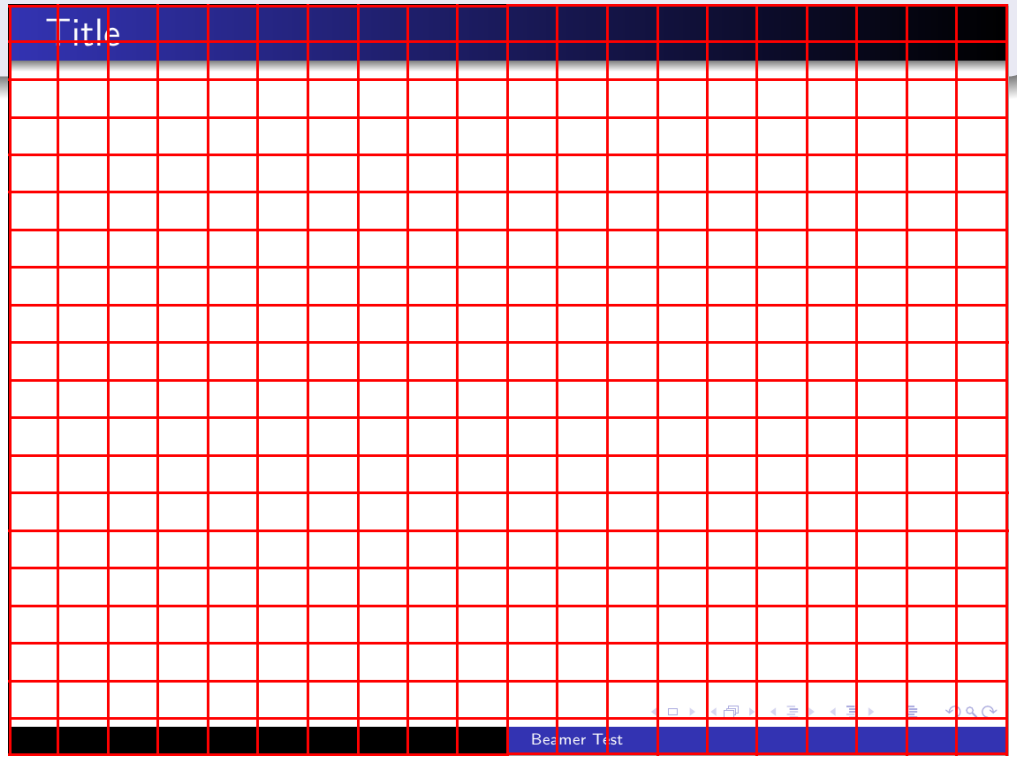
Need first to define a “virtual” grid (before \begin{document})

```
\usepackage[overlay,absolute]{textpos}

\TPGrid{20}{20}
\textblockorigin{0mm}{0mm}
\setlength{\parindent}{0pt}
```

```
\begin{textblock}{width}(x,y)

\end{textblock}
```



Presentations: Overlays

The `pause` command

```
\begin{itemize}
 \item First item
\pause
 \item Second item
 \item Third item
\pause
 \item Forth item
\end{itemize}
```

```
\begin{itemize}
 \item<1-> First point
 \item<2| alert@2> Second
       only point
 \item<3-> Third point
\end{itemize}
```

General overlay specifications

We can specify overlay specifications by associating `<spec>` to some commands like:

```
\textbf{Allways bold}
\textbf<2->{Bold from the second slide}
```

Notations:

- `<N>` $\Leftrightarrow$ on slide N only,
- `<-N>` $\Leftrightarrow$ from first slide to slide N,
- `<N->` $\Leftrightarrow$ from slide N,
- `<N-M>` $\Leftrightarrow$ from slide N to slide M.

Presentations: Overlays

Incremental specifications

```
\begin{itemize}
 \item<+-| alert@+> First item
 \item<+-| alert@+> Second
       item
 \item<+-| alert@+> Third item
 \item<+-| alert@+> Forth item
\end{itemize}
```

. . . equivalent to

```
\begin{itemize}[<+-| alert@+>]
 \item First item
 \item Second item
 \item Third item
 \item Forth item
\end{itemize}
```

overlay on a block

```
\only<1->{
\begin{textblock}{15}(2,2)
\begin{block}{Top block}
Here is the block I want to see from the first slide
\end{block}
\end{textblock}}

\only<2->{
\begin{textblock}{18}(6,6)
\includegraphics[scale=0.3]{lena}
\end{textblock}}
```

Useful links about LaTeX

LaTeX wikibook: `http://en.wikibooks.org/wiki/LaTeX`

Symbol list: `http://mirrors.ctan.org/info/symbols/comprehensive/symbols-letter.pdf`

Beamer manual: `http://www.ctan.org/tex-archive/macros/latex/contrib/beamer/doc/beameruserguide.pdf`

LaTeX Tutorial: `http://www.tug.org.in/tutorials.html`