Metodología para la redacción de trabajos científicos (II)

LaTeX para la generación de documentos y presentaciones científicas

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Universidad de Granada

07/07/2014

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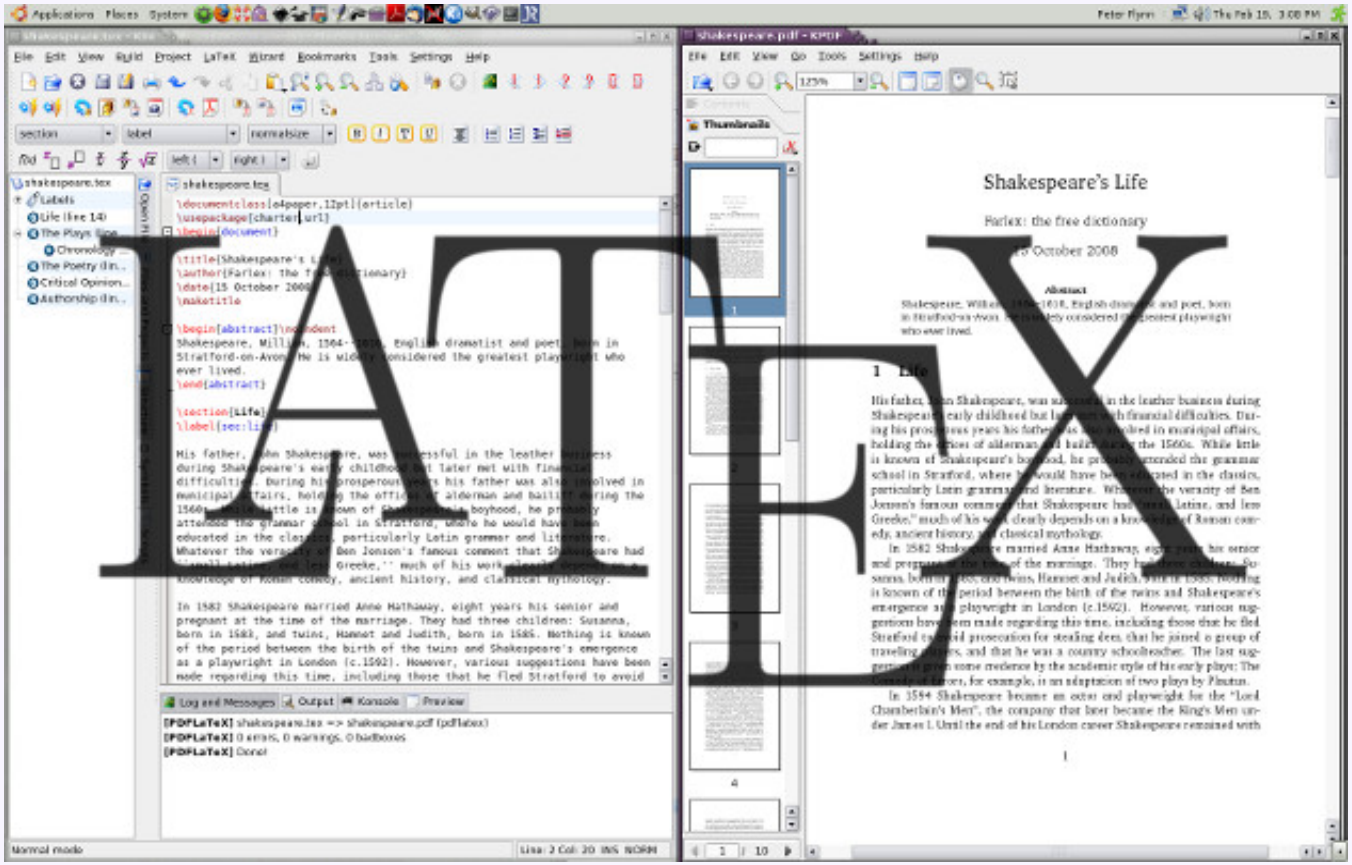
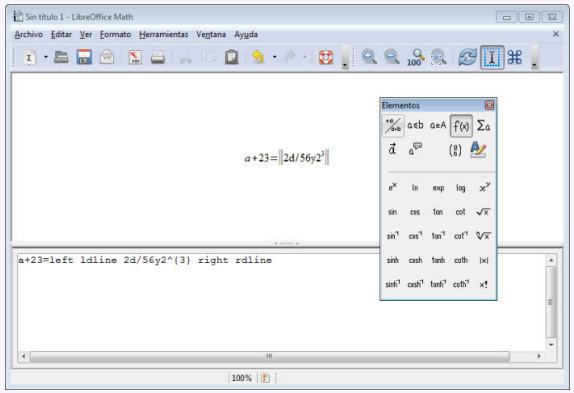
¿Problemas con los documentos?



¿Qué es LaTeX?

¿Qué no es?

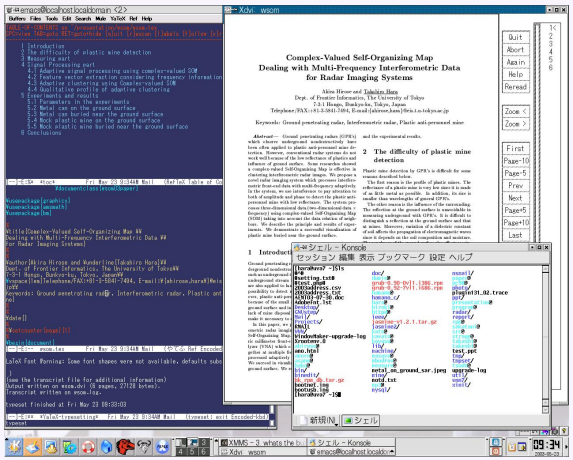
- No es un procesador de textos WYSIWYG.
- No es un programa con interfaz de usuario.
- No pertenece a empresas comerciales de ningún tipo.

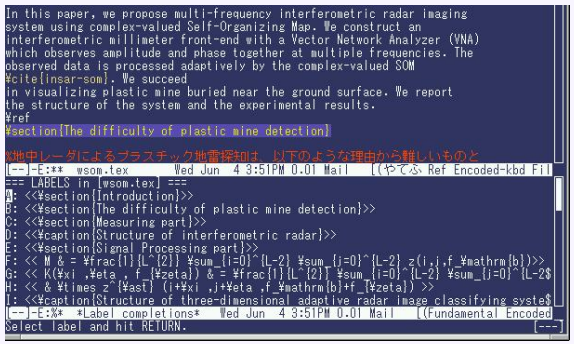


¿Qué es LaTeX?

¿Qué es?

- Es un poderoso lenguaje de composición tipográfica.
- Es un software gratuito *(open-source)* y multiplataforma.
- Es un lenguaje estándar usado por la mayor parte de los editores de libros y revistas científicas (Springer, CRC Press, ACM, IEEE, etc.).





¿Qué es LaTeX?

LaTeX sigue una estructura de programación clásica:

- Se escribe en texto plano (código).
- Hay paquetes (librerías).
- Los paquetes se incluyen (usan).
- Cada paquete tiene funciones (órdenes y macros).
- Hay que compilar el código fuente para generar el documento.
- Devuelve los errores para poder depurar el código.

Inconveniente

¡Suena más complicado que un procesador de textos!

¿Qué es LaTeX?

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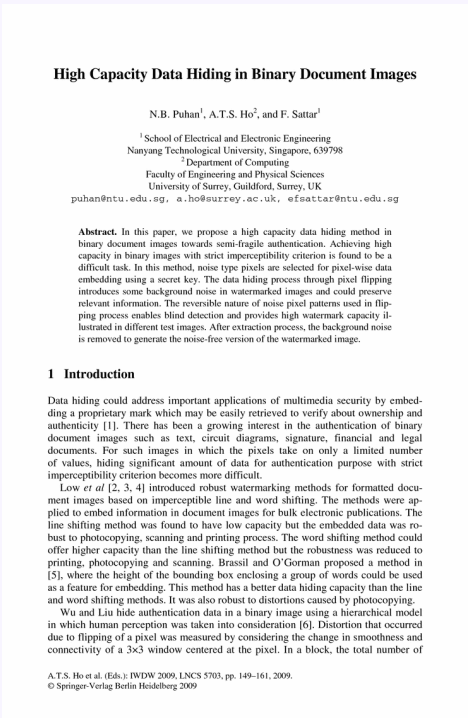
¿Cuándo usar LaTeX?

http://mrnonnymouse.blogspot.com.es/2011/09/what-does-ed-miliband-really-believe-in.html

¿Cuándo usar LaTeX?

Fichero corrupto

Pérdidas de datos en ficheros comprimidos, o de formato propietario.



High Capacity Data Hiding in Binary Document Images

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Abstract. In this paper, we propose a high capacity data hiding method in binary document images towards semi-fragile authentication. Achieving high capacity in binary images with strict imperceptibility criterion is found to be a difficult task. In this method, noise type pixels are selected for pixel-wise data embedding using a secret key. The data hiding process through pixel flipping introduces some background noise in watermarked images and could preserve relevant information. The reversible nature of noise pixel patterns used in flipping process enables blind detection and provides high watermark capacity illustrated in different test images. After extraction process, the background noise is removed to generate the noise-free version of the watermarked image.

1 Introduction

Data hiding could address important applications of multimedia security by embedding a proprietary mark which may be easily retrieved to verify about ownership and authenticity [1]. There has been a growing interest in the authentication of binary document images such as text, circuit diagrams, signature, financial and legal documents. For such images in which the pixels take on only a limited number of values, hiding significant amount of data for authentication purpose with strict imperceptibility criterion becomes more difficult.

Low *et al* [2, 3, 4] introduced robust watermarking methods for formatted document images based on imperceptible line and word shifting. The methods were applied to embed information in document images for bulk electronic publications. The line shifting method was found to have low capacity but the embedded data was robust to photocopying, scanning and printing process. The word shifting method could offer higher capacity than the line shifting method but the robustness was reduced to printing, photocopying and scanning. Brassil and O'Gorman proposed a method in [5], where the height of the bounding box enclosing a group of words could be used as a feature for embedding. This method has a better data hiding capacity than the line and word shifting methods. It was also robust to distortions caused by photocopying.

Wu and Liu hide authentication data in a binary image using a hierarchical model in which human perception was taken into consideration [6]. Distortion that occurred due to flipping of a pixel was measured by considering the change in smoothness and connectivity of a 3×3 window centered at the pixel. In a block, the total number of

A.T.S. Ho et al. (Eds.): IWDW 2009, LNCS 5703, pp. 149–161, 2009.

¿Cuándo usar LaTeX?

Dependencias de formatos

Problemas de conversión, fuentes instaladas, sistema operativo, etc.

Rich Text Format toolbar for comments is "broken" [New] Options

02-29-2012 03:15 AM - last edited on 02-29-2012 03:17 AM

THE FORMATTING (e.g. bold, italic, font size, color) FOR COMMENTS DOES NOT WORK PROPERLY! *Very frustrating.*

Here's an example. All the type is the same size. Yet when I posted it as a comment under a topic about the Hallmark channel, it didn't read properly in that section or in this section. This has happened on numerous comments I've posted. Please fix.

The fact that there are multiple threads that overlap tells me that this is a popular topic & **important issue** for Verizon to address.

For the life of me, I don't understand the logic of many of the channel decisions. One that totally puzzles me is why the *Current* channel is listed on demand under "FREE;" yet I'm unable to view the channel with the package I have. When Keith Olbermann switched over from *MSNBC* to *Current*, I'd expected to still be able to watch the show.

¿Cuándo usar LaTeX?

Dependencias de formatos

No se puede hacer (no es extensible).

- ¿Cómo escribo LaTeX sin usar imágenes?
- ¿Cómo escribo esta fórmula compleja?

$$\lim_{x\to 0}\frac{e^x-1}{2x}\overset{\left[\frac{0}{0}\right]}{\underset{\text{H}}{=}}\lim_{x\to 0}\frac{e^x}{2}=\frac{1}{2}$$

- ¿O marco una fórmula con notas?

$$z=\overbrace{\underbrace{x}_{\text{real}}+i\underbrace{y}_{\text{imaginary}}}^{\text{complex number}}$$

¿Cuándo usar LaTeX?

Dependencias de formatos

No se puede hacer fácilmente (no es extensible).

- ¿Cómo represento gráficas/algoritmos, cómo realizo acciones automáticas? 1 2 3 4

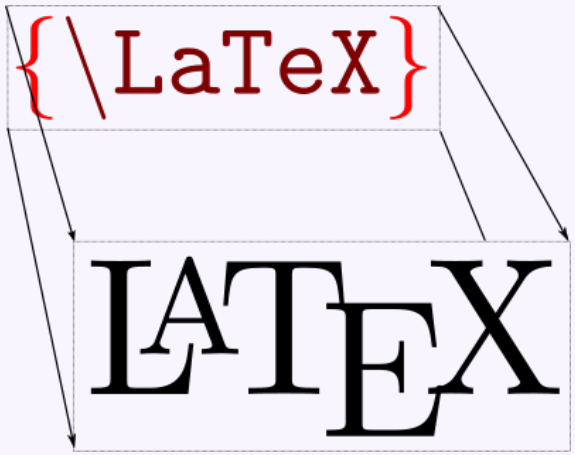
- ¿Cómo escribo código automático?

```
1 // Esta cabecera permite usar los objetos que encapsulan los descriptores
2 #include <iostream>
3 using namespace std;
4 int main() {
5     cout << "Hola mundo" << endl;
6     cin.get();
7     return 0;
8 }
```

¿Cuándo usar LaTeX?

Separar el texto del formato

La ventaja fundamental es no tener que preocuparse del formato del texto, solamente de escribir.



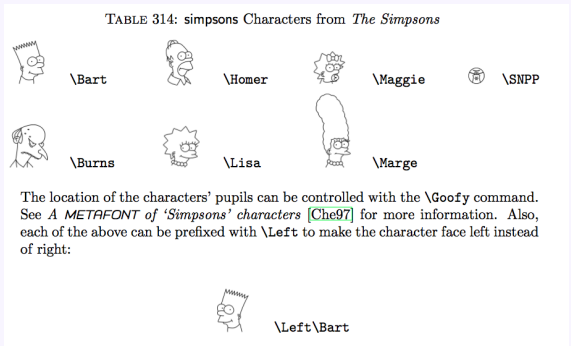


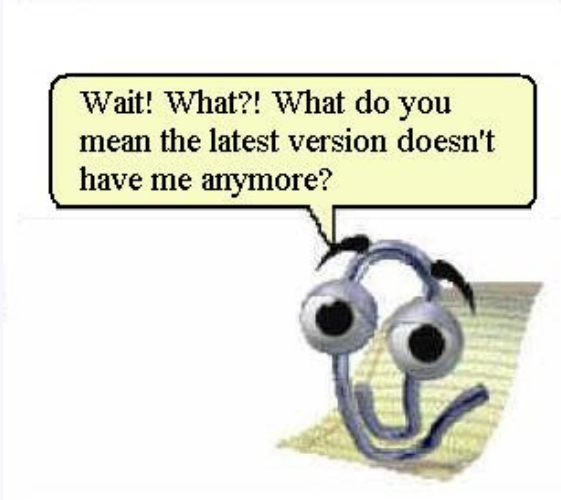
TABLE 314: simpsons Characters from *The Simpsons*

\Bart \Homer \Maggie \SNPP

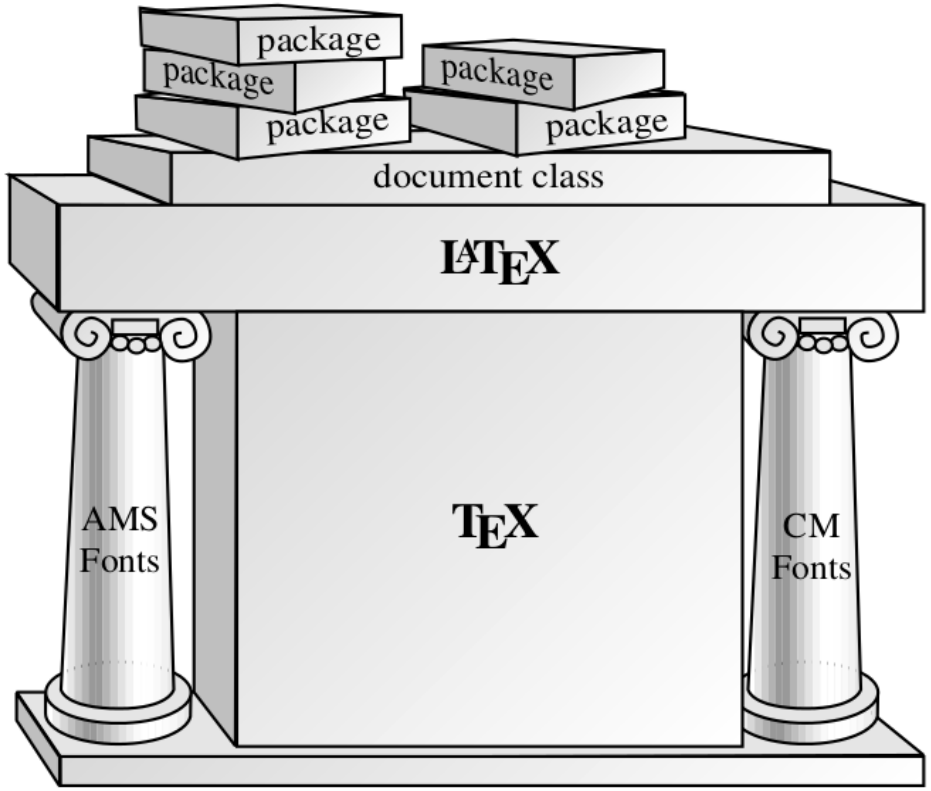
\Burns \Lisa \Marge

The location of the characters' pupils can be controlled with the \Goofy command. See *A METAFONT of 'Simpsons' characters* [Che97] for more information. Also, each of the above can be prefixed with \Left to make the character face left instead of right:

\Left\Bart



¿Cómo funciona LaTeX?



[Mittlebach, 1996] George Grätzer
Math into LaTeX: An Introduction to LaTeX and AMS-L TeX, 1996

Un poco de historia

- Entonces LaTeX no es más que un conjunto de macros hechas en TeX y Metafont.
- *Donald Knuth* empezó a escribir TeX porque se sentía molesto con la calidad *cada vez menor* de la tipografía de sus volúmenes de su obra "The Art of Computer Programming".
- Objetivos:
  1. Permitir a cualquier persona producir libros de alta calidad con un esfuerzo razonablemente mínimo.
  2. Proveer un sistema que diera el mismo resultados en cualquier computadora, ahora y siempre.

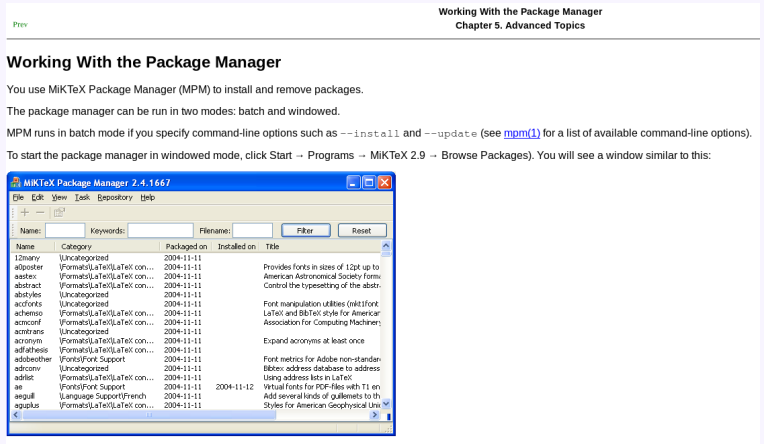
¿Cómo empezar?: Instalación.

MS. Windows : MikTeX

`http://www.miktex.org/about`

Instalación de paquetes

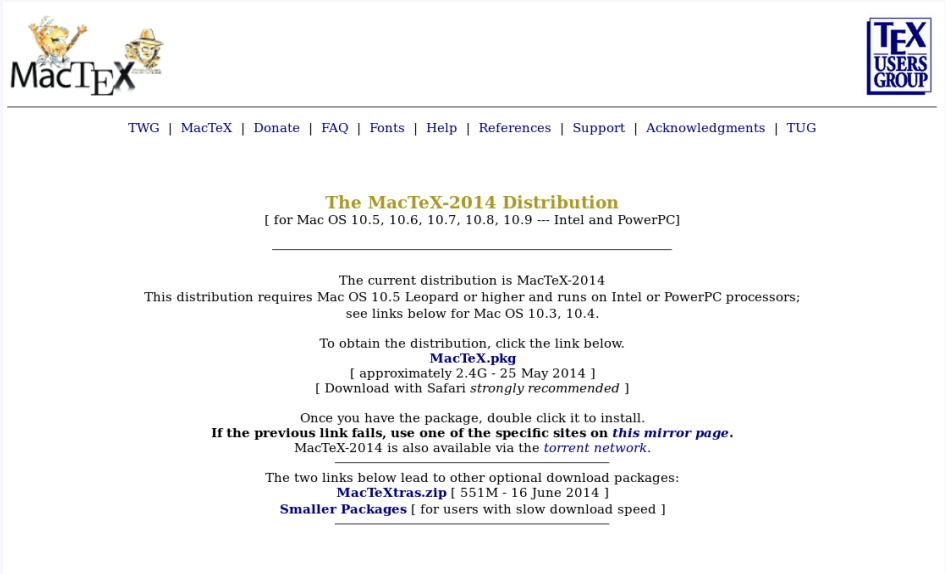
`http://docs.miktex.org/manual/pkgmgt.html`



¿Cómo empezar?: Instalación.

Apple MacOs

Opción sencilla: MacTeX (`http://www.tug.org/mactex/`)

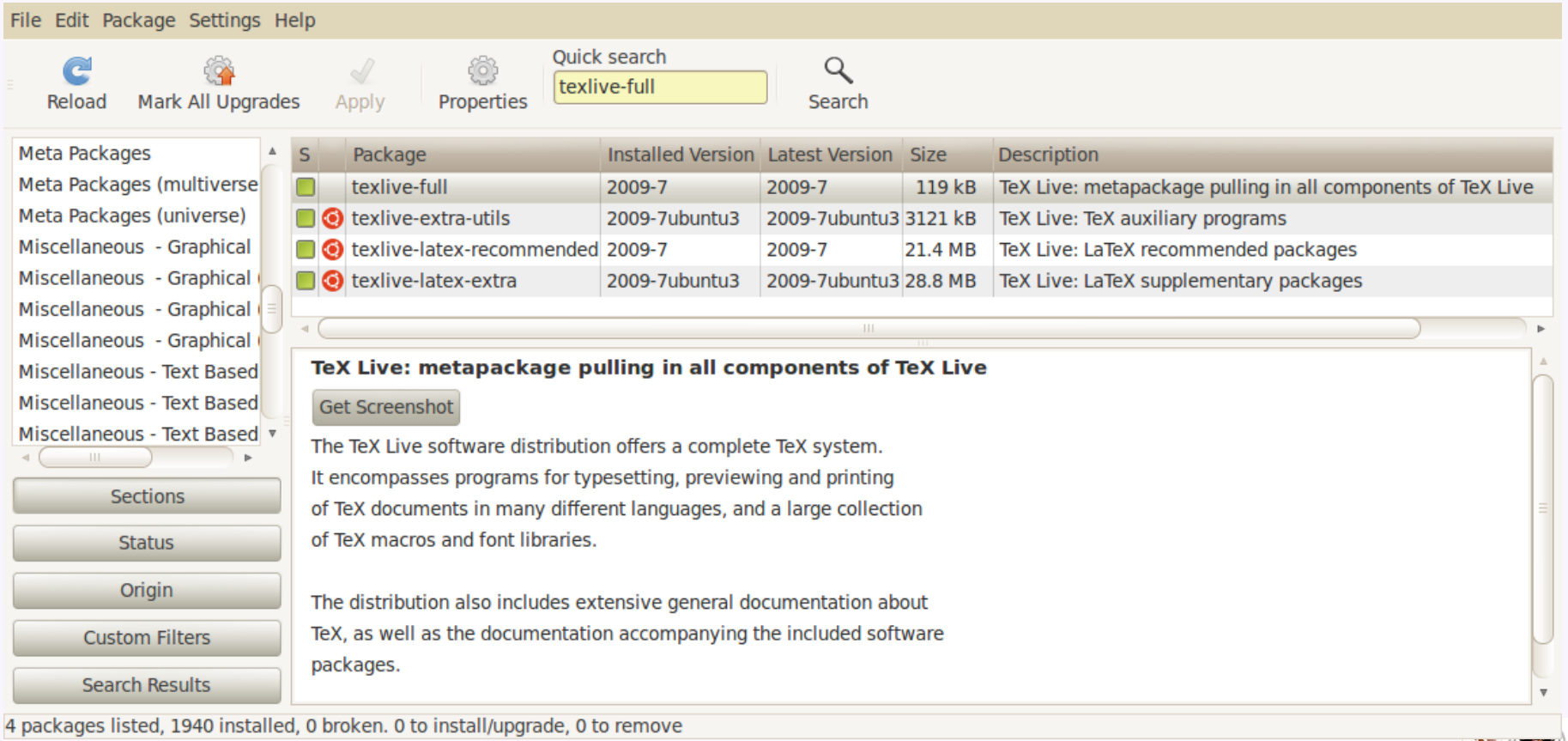


Opción complicada: i-Installer (`ftp://ftp.nluug.nl/pub/comp/macosx/volumes/ii2/`)

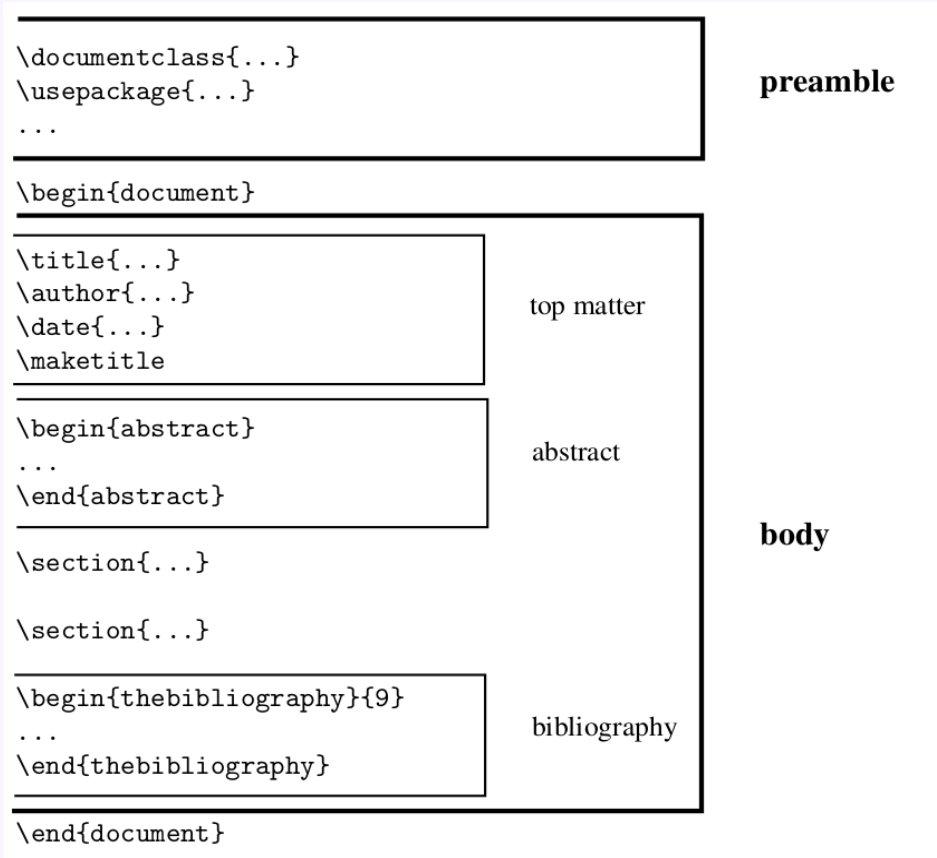
1. Bajar e instalar *i-Installer*.
2. Ejecutar la aplicación (en /Applications/Utilities/).
3. Ir al menú *i-Package* elegir known packages i-directory.
4. Elegir el directorio.
5. Encontrar el paquete *gwTeX based on TeX Live* y abrir.
6. Click en *install and configure*.
7. Elegir *Basic Installation*.
8. Buscar el paquete *'Ghostscript 8'*, instalar y configurar.

¿Cómo empezar?: Instalación.

GNU Linux : Instalar el paquete.

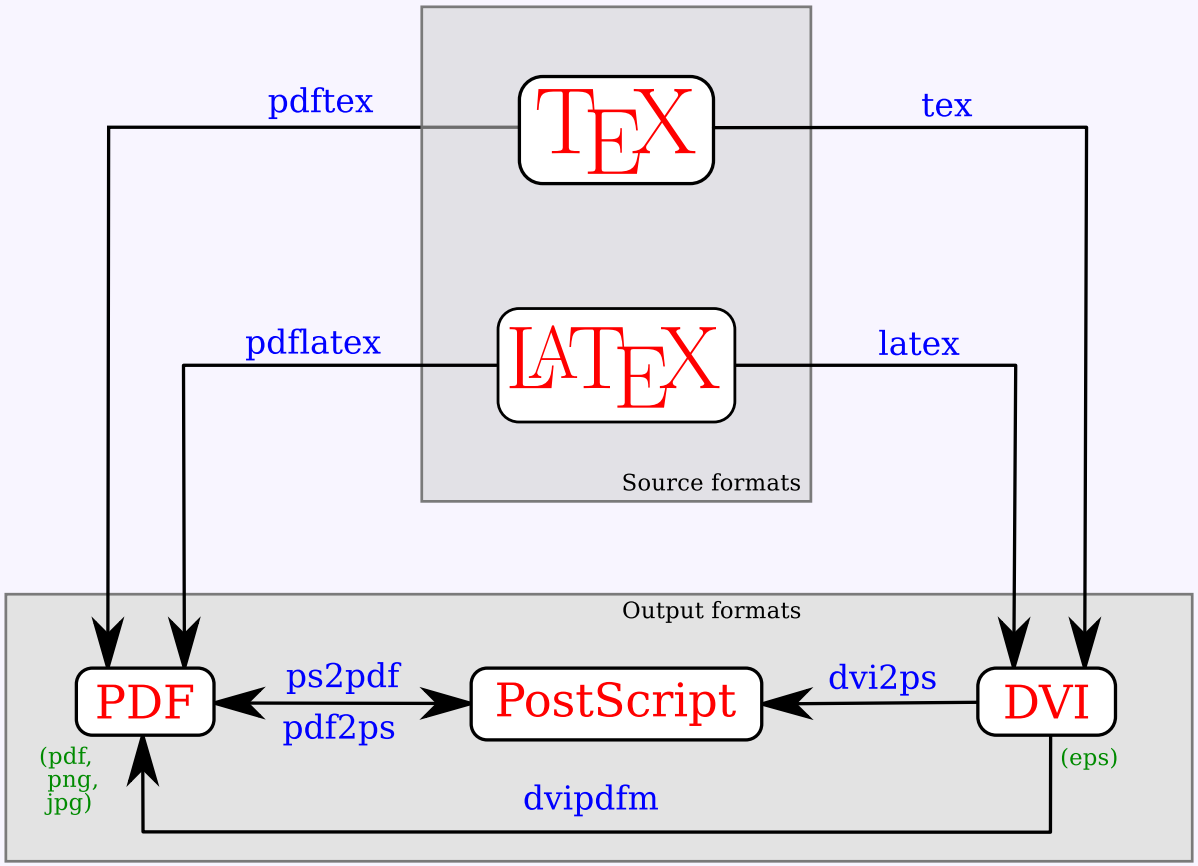


Estructura de un documento



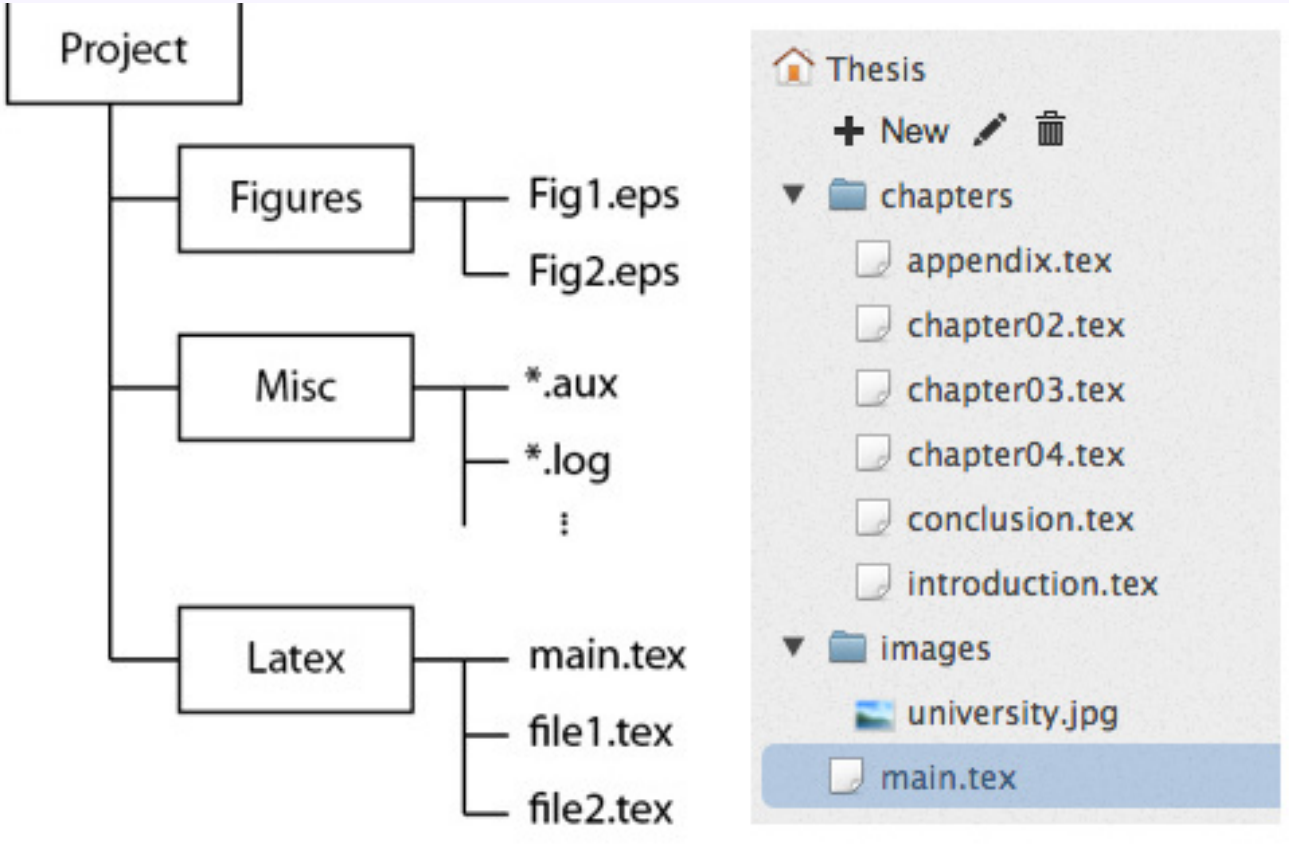
[Mittlebach, 1996] George Grätzer
Math into LaTeX: An Introduction to LaTeX and AMS-L TeX, 1996

Proceso de generación



Compresión del PDF: gs -dBATCH -dNOPAUSE -q -sDEVICE=pdfwrite -sOutputFile=”Compressed.pdf” ”Original.pdf”

Organizando el proyecto en LaTeX



Generación, la vida más sencilla: Makefile (I)

Fichero *Makefile*:

```
1  # Name of the document
2  DOC=documento
3
4  # Tools for compiling
5  #RM=yes | rm -rf # it is usually well defined by make
6  LATEX=pdflatex
7  READER=gedit
8  #PDFREADER=acroread
9  PDFREADER=evince
10
11
12
13 # ------------------------------------------------------------
14
15 # make: by default build the pdf
16 all: $(DOC).pdf
17
18 # make rebuild: remove just the pdf, and rebuild the project
19 rebuild: cleanPDF $(DOC).pdf
20
21 # make log: display the log of LATEX
22 log:
23 ----->$(READER) "$(DOC).log"
```

Generación, la vida más sencilla: Makefile (II)

```
24
25 # make clean: remove auxiliary files
26 clean:
27 ——————→$(RM) "$(DOC).toc" "$(DOC).nav" "$(DOC).out" "$(DOC).aux" "$(DOC).log"
28
29 # make clean: remove auxiliary files, the pdf, and temporal files
30 cleanAll: clean cleanPDF
31 ——————→$(RM) *~
32
33 # make cleanPDF: remove just the pdf
34 cleanPDF:
35 ——————→$(RM) "$(DOC).pdf"
36
37 # make read: display the final pdf
38 read: $(DOC).pdf
39 ——————→$(PDFREADER) "$(DOC).pdf"
40
41 # make file.pdf: build the pdf
42 $(DOC).pdf: $(DOC).tex
43 ——————→$(LATEX) "$(DOC).tex"
```

Mi primer documento en LaTeX

```
\documentclass[b5paper]{article}
\input{nomargins} %for a speech only

\title{Hello, Cruel World!}
\author{Obedient Grad Student}

\begin{document}
\Large %this is for a speech only!

\maketitle

\section{Introduction}
This is where you tell people why they should bother reading your article.

\section{Literature Review}
This is the section $2$ that is invariably much longer than it should be, and
where everyone tries to impress peers about how easy it is to locate various
references in online databases.
\newline

Bullets:
\begin{itemize}
\item First item.
\item Second item.
\end{itemize}

Numbered:
\begin{enumerate}
\item First item.
\item Second item.
\end{enumerate}

\section{Conclusion}
Not much of a paper, but it's a start.
```

Hello, Cruel World!

Obedient Grad Student

July 7, 2014

1 Introduction

This is where you tell people why they should bother reading your article.

2 Literature Review

This is the section 2 that is invariably much longer than it should be, and where everyone tries to impress peers about how easy it is to locate various references in online databases.

Bullets:

- First item.
- Second item.

Numbered:

1. First item.
2. Second item.

3 Conclusion

Not much of a paper, but it's a start.

1

File: *ejemplo06/documento.tex*

Imágenes en LaTeX

```
\documentclass[b5paper]{article}
\usepackage{hyperref} %package for urls
\usepackage{graphicx} %package for images

\input{nomargins} %for a speech only

\title{Cool Images everywhere!}
\author{Obedient Grad Student}

\begin{document}
\large %this is for a speech only!

\maketitle

\section*{Adding figures and images}
This is a new icon: \includegraphics[width=0.5cm,keepaspectratio]{Chick1.png},
        can be embeded into the text. Or we can add figures as Figure~\ref{fig
        :exampleFigure}.
\begin{figure}[h] % h, t, b, p, !
  \caption{One day of my life!}\label{fig:exampleFigure}
  \centering
  \includegraphics[height=0.25\textheight,keepaspectratio]{comic00.png}
\end{figure}

If you are compiling with pdflatex to produce a PDF, you have a wider choice.
        You can insert raster and vectorial graphics: JPG, PNG, PDF and EPS.


Additional info in:
\newline
\small\url{http://en.wikibooks.org/wiki/LaTeX/Importing_Graphics#
        The_graphicx_package}
\newline
\url{http://en.wikibooks.org/wiki/LaTeX/Floats,_Figures_and_Captions}


\end{document}
```

Cool Images everywhere!

Obedient Grad Student

July 7, 2014

Adding figures and images

This is a new icon: , can be embeded into the text. Or we can add figures as Figure 1.

Figure 1: One day of my life!

If you are compiling with pdflatex to produce a PDF, you have a wider choice. You can insert raster and vectorial graphics: JPG, PNG, PDF and EPS.
Additional info in:
http://en.wikibooks.org/wiki/LaTeX/Importing_Graphics#The_graphicx_package
http://en.wikibooks.org/wiki/LaTeX/Floats,_Figures_and_Captions

File: *ejemplo07/documento.tex*

Tablas en LaTeX

```
\documentclass[b5paper]{article}
\usepackage{shortvrb} %to write the symbol \
\usepackage[table]{xcolor} %colors
\usepackage{colortbl} %colors in tables
\usepackage{multirow} %multiples rows

%define colors
\definecolor{gris}{rgb}{0.5, 0.5, 0.5}
\definecolor{rojo}{rgb}{0.9, 0.6, 0.6}


\input{nomargins} %for a speech only

\title{Tables in \LaTeX}
\author{Obedient Grad Student}

\begin{document}
\Large %this is for a speech only!

\maketitle



\section{A simple table}

{\scriptsize
  \begin{tabular}{|l|r|}
    \hline
    \& & column separator \\ \hline
    \verb|\\| & start new row) \\ \hline
    \verb|\|hline & horizontal line \\ \hline
    \verb|\|newline & start a new line within a cell (in a paragraph column) \\
                \hline
    \verb|\|cline{i-j} & partial horizontal line from column i to column j\\
    \hline
  \end{tabular}
```

File: *ejemplo10/documento.tex*

Tables in LaTeX

Obedient Grad Student

July 7, 2014

1 A simple table

&	column separator
\\	start new row)
\hline	horizontal line
\newline	start a new line within a cell (in a paragraph column)
\cline{i-j}	partial horizontal line from column i to column j

1	2	3
4	5	6
7	8	9

7C0	hexadecimal
3700	octal
11111000000	binary
1984	decimal

2 Complex tables and References

Colors!		
odd	odd	odd
even	even	even
odd	odd	odd
even	even	even

Left.Right
3.14159
16.2
123.456

Team sheet		
Goalkeeper	GK	Paul Robinson
Defenders	LB	Lucus Radebe
	DC	Michael Duburry
	DC	Dominic Matteo
	RB	Didier Domi

Table 1 is important!.

1	2	3
4	5	6
7	8	9

Table 1: A simple table

1

Matemáticas en LaTeX

```
\documentclass[b5paper]{article}
\usepackage{amssymb} %more symbols
\usepackage{amsmath} %still more symbols
\usepackage{mathtools}

\DeclarePairedDelimiter\abs{\lvert}{\rvert}%
\DeclarePairedDelimiter\norm{\lVert}{\rVert}%

\input{nomargins} %for a speech only

\title{Math example!}
\author{Obedient Grad Student}

\begin{document}
\Large %this is for a speech only!

\maketitle

\section{Simple ecuations}
A simple ecuation is: $m=ec^2$, we can group parts: $x = y^{2*\pi}$. Another
        example with greek letters: $\alpha = \rho * \Pi$.
I $\heartsuit$ \LaTeX.


\section{Complex ecuations and posibilities}
More complex (one-line) ecuations can be created the same way:
\begin{equation} %complex ecuations
  \sqrt{\frac{n_x}{n_y-1}} S} + \sqrt[3]{2} \neq \int_{\abs{n_x-n_y} < x}x^2 +
          \sum_{i=1}^{k} n_i
\end{equation}

\begin{equation*} %positive and negative spaces
  \forall x \in X, \quad \exists y \leq \epsilon \;\;\; x \rightarrow y x \rightleftharpoons z
\end{equation*}

\end{document}
```

Math example!

Obedient Grad Student

July 7, 2014

1 Simple ecuations

A simple ecuation is: $m = ec^2$, we can group parts: $x = y^{2*\pi}$. Another example with greek letters: $\alpha = \rho * \Pi$. I ♡ LaTeX.

2 Complex ecuations and posibilities

More complex (one-line) ecuations can be created the same way:

$$\sqrt{\frac{n_x}{n_y - 1}} S + \sqrt[3]{2} \neq \int_{|n_x - n_y| < x} x^2 + \sum_{i=1}^{k} n_i \tag{1}$$

$$\forall x \in X, \quad \exists y \leq \epsilon \quad x \to yx \rightleftharpoons z$$

File: *ejemplo08/documento.tex*

Bibliografía en LaTeX

```
\documentclass[b5paper]{article}

\input{nomargins} %for a speech only

\title{Dealing with bibliography in \LaTeX}
\author{Obedient Grad Student}

\begin{document}
\Large %this is for a speech only!

\maketitle


\section{A reference to the work of some important guy}

\noindent This is a reference to a book of \LaTeX\cite{lamport:94}!

\noindent This is a journal of \LaTeX\cite{greenwade:93}!

\noindent These are several references to find stuff about \LaTeX\cite{
        greenwade:93,lamport:94}!

\begin{thebibliography}{9} %max number of references


\bibitem{greenwade:93}
  George D. Greenwade,
  \emph{The Comprehensive \TeX Archive Network (CTAN)}.
  TUGBoat,
  volume 14, number 3,
  1993.

\bibitem{lamport:94}
  Leslie Lamport,
  \emph{\LaTeX: a document preparation system}.
```

Dealing with bibliography in LaTeX

Obedient Grad Student

July 7, 2014

1 A reference to the work of some important guy

This is a reference to a book of LaTeX[2]!
This is a journal of LaTeX[1]!
These are several references to find stuff about LaTeX[1, 2]!

References

[1] George D. Greenwade, *The Comprehensive TeXArchive Network (CTAN)*. TUGBoat, volume 14, number 3, 1993.

[2] Leslie Lamport, *LaTeX: a document preparation system*. Addison Wesley, Massachusetts, 2nd edition, 1994.

File: *ejemplo11/documento.tex*

Internacionalización en LaTeX

```
\documentclass[b5paper]{article}

\usepackage{graphicx}

\usepackage[utf8]{inputenc} %podemos escribir con acentos
\usepackage[spanish]{babel} %para el cambio de las secciones


\input{nomargins} %solamente para la presentación

\title{¡\LaTeX~ también en español!}
\author{Estudiante de máster obediente}

\begin{document}
\large %¡esto es solo para la presentación!

\maketitle



\section{Un ejemplo de escritura en español}

\subsection{Las subsecciones también están traducidas}

La Figura~\ref{fig:figura}, tablas, referencias bibliográficas\cite{lamport94},
        etc. también se traducen automáticamente.

\begin{figure}[h] % h, t, b, p, !
  \caption{¡Lo que pasó ayer!}\label{fig:figura}
  \centering
  \includegraphics[height=0.25\textheight,keepaspectratio]{phdComicsTopic.png}
\end{figure}


Siempre podemos revisar los documentos en inglés con la orden:
\begin{verbatim}
```

File: *ejemplo12/documento.tex*

¡LaTeX también en español!

Estudiante de máster obediente

7 de julio de 2014

1. Un ejemplo de escritura en español

1.1. Las subsecciones también están traducidas

La Figura 1, tablas, referencias bibliográficas[1], etc. también se traducen automáticamente.

Figura 1: ¡Lo que pasó ayer!

Siempre podemos revisar los documentos en inglés con la orden:

```
#    aspell check file1.tex
```

Y en español con la orden:

```
#    aspell --master=spanish check fichero1.tex
```

Referencias

[1] Leslie Lamport, *LaTeX: a document preparation system*. Addison Wesley, Massachusetts, 2nd edition, 1994.

Extendiendo órdenes en LaTeX

```
\documentclass[b5paper]{article}
\usepackage{amssymb} %more symbols
\usepackage{amsmath} %still more symbols
\usepackage{mathtools}
\usepackage{hyperref} %for url


\DeclarePairedDelimiter\abs{\lvert}{\rvert}%
\DeclarePairedDelimiter\norm{\lVert}{\rVert}%

\input{nomargins} %for a speech only

\title{Extending \LaTeX!}
\author{Obedient Grad Student}

\begin{document}
\large %this is for a speech only!

\maketitle


\newcommand{\ecuacion}{$m=ec^2$}
\newcommand{\informatico}{\textbf{Alan Turing}}
\newcommand{\ama}{\textbf{LOVE}}
\renewcommand{\ama}{$\heartsuit$}
\renewcommand{\LaTeX}{\textbf{LaTeX}}


\newenvironment{caja}
               {
                 \begin{center}
                   \begin{tabular}{|p{0.9\textwidth}|}
                     \hline\\
               } %before
               {
```

Extending LaTeX!

Obedient Grad Student

July 7, 2014

1 New/Renew commands

A computer scientist named **Alan Turing** didn't develop this equation: $m = ec^2$. And he didn't ♡ **LaTeX**. Ey, but I do ♡ **LaTeX**!

2 Counters and Environments

Different numeration for equations:

$$\sqrt[3]{x^2} = x^{2/3} \tag{1}$$

$$\sqrt{x^2} = x \tag{iii}$$

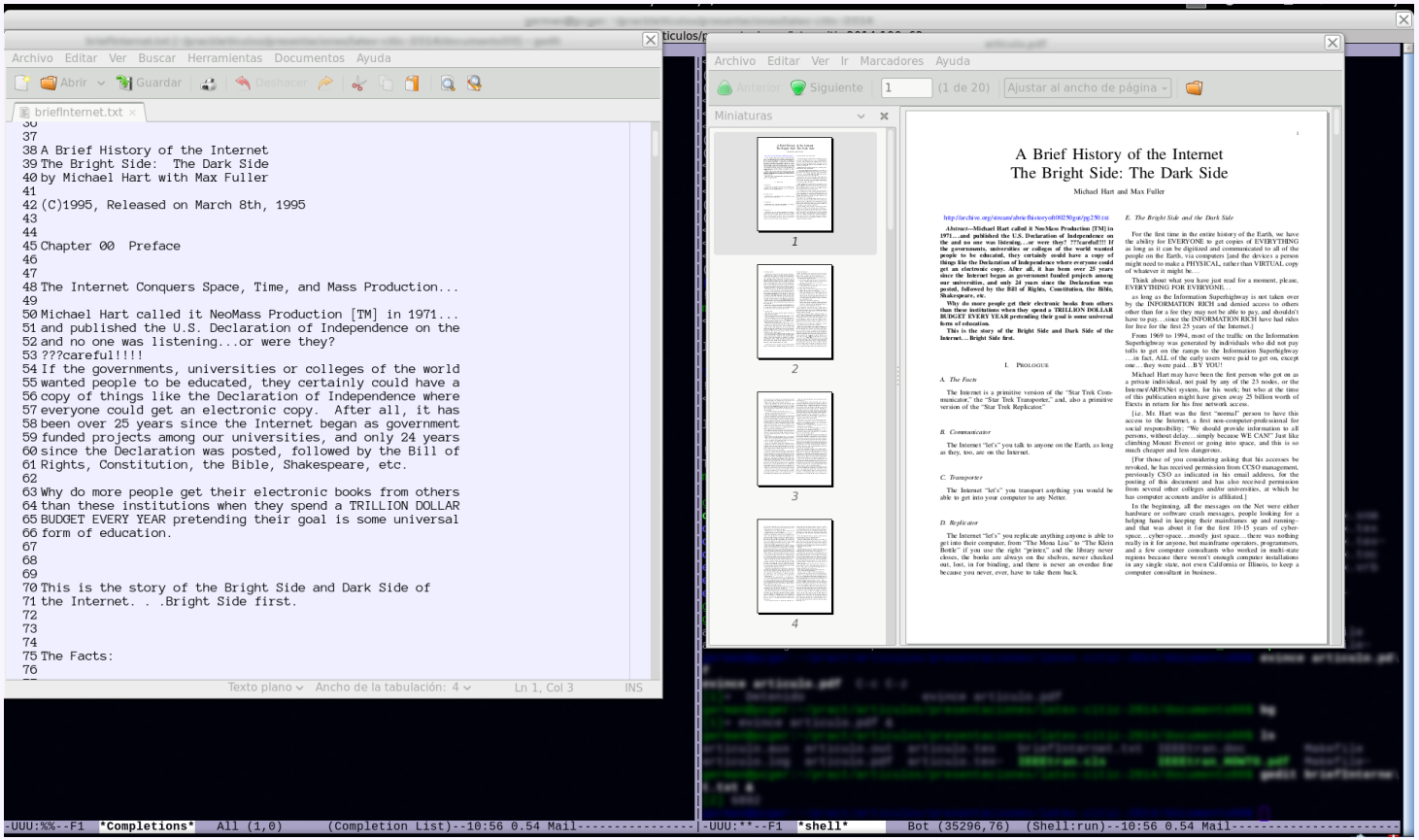
Btw, look at the number of page!

This text will be centred since it is inside a special environment. Environments provide an efficient way of modifying blocks of text within your document. This environment will draw a box around the text within.

More information in "Creating your own package":
`http://en.wikibooks.org/wiki/LaTeX/Creating_Packages`

File: *ejemplo09/documento.tex*

Dando formato a un documento plano en LaTeX



¿Problemas con la bibliografía?

¿Qué es BibTeX ?

BibTeX

BibTeX es un software gestor de listas de referencias bibliográficas. La herramienta BibTeX se suele usar típicamente con LaTeX para la preparación de un documento final (artículos, libros, tesis, etc.).

Historia

Oren Patashnik y Leslie Lamport crearon BibTeX en 1985. Patashnik fue estudiante de Donald Knuth. Leslie Lamport también fue ganador del premio Turing.

¿Cómo funciona BibTeX ?

① Run LaTeX, which generates a list of `\cite` references in its auxiliary file, `.aux`.

② Run BibTeX, which reads the auxiliary file, looks up the references in a data base (one or more `.bib` files), and then writes a file (the `.bbl` file) containing the formatted references according to the format specified in the style file (the `.bst` file). Warning and error messages are written to the log file (the `.blg` file). It should be noted that BibTeX never reads the original LaTeX source file.

③ Run LaTeX again, which now reads the `.bbl` reference file.

④ Run LaTeX a third time, resolving all references.

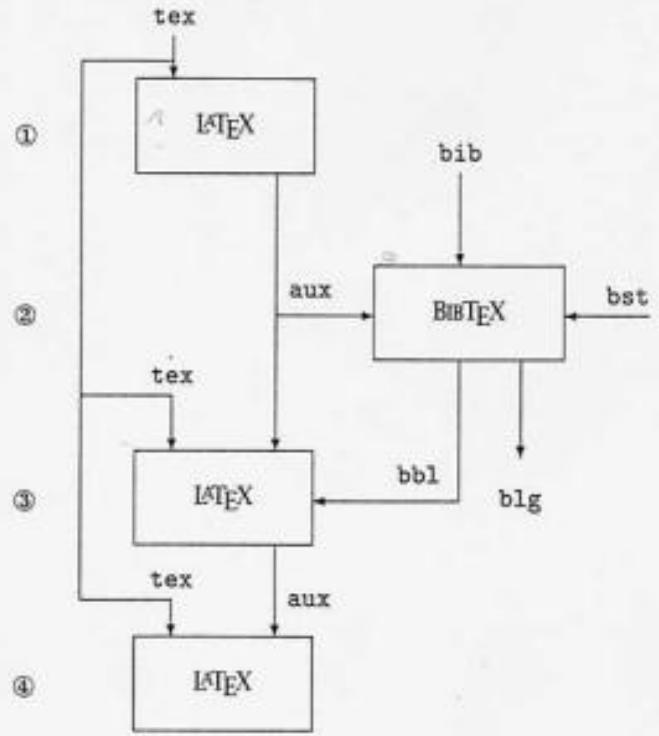


Figure 13.1: Data flow when running BibTeX and LaTeX

Sintaxis de BibTeX

```
@article{Xarticle,
    author    = "",
    title     = "",
    journal   = "",
    %volume   = "",
    %number   = "",
    %pages    = "",
    year      = "XXXX",
    %month    = "",
    %note     = "",
}

@book{Xbook,
    author    = "",
    title     = "",
    publisher = "",
    %volume   = "",
    %number   = "",
    %series   = "",
    %address  = "",
    %edition  = "",
    year      = "XXXX",
    %month    = "",
    %note     = "",
}

@booklet{Xbooklet,
    %author   = "",
    title     = "",
    %howpublished   = "",
    %address  = "",
    year      = "XXXX",
    %month    = "",
    %note     = "",
}
```

File: *ejemplo13/bibtex-templates.bib*

```
@Book{Gooch:2001,
author ={Bruce Gooch and Amy Gooch},
ALTeditor ={},
title ={Non-photorealistic Rendering},
publisher ={A. K. Peters},
year ={2001},
OPTkey ={},
OPTvolume ={},
OPTnumber ={},
OPTseries ={},
OPTaddress ={},
OPTedition ={},
month ={July},
OPTnote ={},
OPTannote ={}
}

@InProceedings{Lu:2003,
author ={A. Lu and C. Morris and J. Taylor and D. Ebert
        and P. Rheingans and C. Hansen and M. Hartner},
title ={Illustrative Interactive Stipple Rendering},
booktitle ={IEEE Transactions on Visualization and Computer
        Graphics},
OPTcrossref ={},
OPTkey ={},
pages ={127--138},
year ={2003},
OPTeditor ={},
volume ={9},
number ={2},
OPTseries ={},
OPTaddress ={},
OPTmonth ={April-June},
OPTorganization ={},
OPTpublisher ={},
OPTnote ={},
OPTannote ={}
```

File: *ejemplo13/bibtex-examples.bib*

Tipos de documentos en BibTeX

- **@article**: Un artículo de una revista.
- **@book**: Un libro ya publicado.
- **@booklet**: Un trabajo sin editorial o espónsor.
- **@conference**: Igual a **inproceedings**.
- **@inbook**: Una sección de libro sin título propio.
- **@incollection**: Una sección de libro con título propio.
- **@inproceedings**: Un artículo en una conferencia.

Tipos de documentos en BibTeX

- **@manual**: Manual técnico.
- **@mastersthesis**: Trabajo de fin de máster.
- **@phdthesis**: Tesis doctoral.
- **@proceedings**: Artículo de una revista en “proceedings”.
- **@techreport**: Reporte técnico para educación, instituciones, comercial, etc.
- **@unpublished**: Un trabajo no publicado.
- **@misc**: Plantilla para otros tipos de publicación.

Campos de BibTeX

- **address**: dirección de la editorial (normalmente la ciudad y país).
- **annote**: una anotación para los estilos de la bibliografía (no usual).
- **author**: el nombre o nombres de los autores separados por **and**.
- **booktitle**: el título del libro (solo si parte de él es citado).
- **chapter**: el número de capítulo.
- **crossref**: un identificador para la entrada de referencias cruzadas.
- **edition**: edición de un libro (sin abreviar).
- **editor**: el nombre o nombres de los editores.
- **eprint**: especificación de la publicación electrónica (para reports).

Campos de BibTeX

- **howpublished**: cómo se publicó, si fue un método no estándar.
- **institution**: la institución involucrada en el proceso de edición (no el editor).
- **journal**: la revista donde se publicó.
- **key**: campo oculto, sobreescribe el orden alfabético de las entradas, no está relacionado con **crossref**.
- **month**: mes de la publicación.
- **note**: información extra.
- **number**: el número de la revista (“(issue) number”).

Campos de BibTeX

- **organization**: el espónsor de la conferencia.
- **pages**: las páginas separadas por comas (,) o dobles guiones (- -).
- **publisher**: nombre de la editorial.
- **school**: la escuela o facultad donde se leyó el trabajo.
- **series**: series de libros donde el libro se publicó, ejemplo: “The Hardy Boys” o “Lecture Notes in Computer Science”, etc.
- **title**: el título del trabajo.
- **type**: este tipo sobreescribe el tipo por defecto de la publicación, ejemplo: “Research Note” para un report técnico, “PhD dissertation” para una tesis, “Section” para un capítulo de libro, etc.
- **url**: la dirección WEB.
- **volume**: el volumen de una revista o un libro.
- **year**: el año de publicación.

Tabla de campos de BibTeX

Standard BibTeX entry and field types

	article	book	booklet	inbook	incollection	inproceedings ≈ conference	manual	mastersthesis, phdthesis	misc	proceedings	tech report	unpublished
address		o	o	o	o	o	o	o		o	o	
annote												
author	+	*	o	*1	+	+	o	+	o		+	+
booktitle					+	+						
chapter				*2	o							
crossref												
edition		o		o	o		o					
editor		*		*1	o	o				o		
howpublished			o						o			
institution											+	
journal	+											
key												
month	o	o	o	o	o	o	o	o	o	o	o	o
note	o	o	o	o	o	o	o	o	o	o	o	+
number	o	o		o	o	o				o	o	
organization						o	o			o		
pages	o			*2	o	o						
publisher		+		+	+	o				o		
school								+				
series		o		o	o	o				o		
title	+	+	+	+	+	+	+	+	o	+	+	+
type				o	o			o			o	
volume	o	o		o	o	o				o		
year	+	+	o	+	+	+	o	+	o	+	+	o

+ Required fields, O Optional fields

Usando BibTeX en LaTeX

```
\documentclass{article}

\input{nomargins} %solamente para la presentación

\title{¡\LaTeX~ (BibTeX powered)!}
\author{Obedient Grad Student}


\begin{document}
\Large %¡esto es solo para la presentación!

\maketitle


\section{Introduction}

\nocite{Lu:2003} %add a reference without cite before


OBS(Obedient Grad Student)'s first paper\cite{Schlechtweg:2005} was written
        before my first
paper\cite{Secord:2002}.

See below the bibliography imported in \LaTeX~ from the database.

\nocite{Gooch:2001}  %add two references without cite before
\nocite{Deussen:2000}

\bibliographystyle{unsrt}    %this means that the order of references
                             %is dtermined by the order in which the
                             %\cite and \nocite commands appear

\bibliography{bibtex-examples}  %list here all the bibliographies that you
        need.
\end{document}
```

File: *ejemplo13/documento.tex*

LaTeX (BibTeX powered)!

Obedient Grad Student

July 7, 2014

1 Introduction

OBS(Obedient Grad Student)'s first paper[2] was written before my first paper[3].
See below the bibliography imported in LaTeX from the database.

References

[1] A. Lu, C. Morris, J. Taylor, D. Ebert, P. Rheingans, C. Hansen, and M. Hartner. Illustrative interactive stipple rendering. In *IEEE Transactions on Visualization and Computer Graphics*, volume 9, pages 127–138, 2003.

[2] Stefan Schlechtweg, Tobias Germer, and Thomas Strothotte. Renderbots: Multi agent systems for direct image generation. *Computer Graphics Forum*, 24:283–290, 2005.

[3] Adrian Secord. Weighted voronoi stippling. In *Proceedings of NPAR*, pages 37–43. ACM Press, 2002.

[4] Bruce Gooch and Amy Gooch. *Non-photorealistic Rendering*. A. K. Peters, July 2001.

[5] Oliver Deussen, Stefan Hiller, Cornelius Van Overveld, and Thomas Strothotte. Floating points: A method for computing stipple drawings. *Computer Graphics Forum*, 19:40–51, 2000.

1

Estilos para LaTeX+ BibTeX , ejemplo real

JS

A Rejection Sampling Framework for Stippling Illustrations

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arroyo@ugr.es

ACM Reference Format:
ACM 1, 3, Article JS (January 2015), 10 pages.
DOI:http://dx.doi.org/10.1145/0000000.0000000

1. INTRODUCTION

Stippling is the technique of drawing using dots, which are composed of pigment in a single colour applied with a pen or a brush, changing the density to obtain different shades. The stippling technique can be altered to use colours. The technique should not be confused with pointillism, which uses small distinct dots of colour to create the impression of a wide selection of other colours and blending. The technique of coloured stippling allows overlapping of dots to shade the illustration, which pointillism does not permit.

Several problems arise when an artist attempts to stipple an illustration using colour felt-tip pens. The first problem is the limited choice of colours available. A second problem is that the amount of ink in the sac and the porosity of the tip makes stippling complete illustrations expensive, especially with medium-tip markers. The quality of the paper must also be considered, as thin paper cannot tolerate a great amount of ink and may therefore tear, whereas thick paper may cause the ink to spread so much that shapes become blurred and poorly defined.

These kinds of illustrations are visually interesting but they are very hard to produce. If artists were able to efficiently use this technique, they could produce highly aesthetic images that maintain detail and shading even with large dots. We aim to provide the tools to produce these kinds of illustrations using a computer and an input photograph or image.

There are a number of previous works about stippling[Ross Maciejewski and Tobias Isenberg and William M Andrews and David S Ebert and Mario Costa Sousa, 2007; David Mould, 2007] but they use only one ink and do not simulate felt-tip pens. In this paper we present a new algorithm that uses the information about the contrast, the borders and the histogram to define a set of cells with a certain probability. The algorithm uses this probability to render the dots in a specific order, adding detail in every iteration. The algorithm can be stopped at any moment by the user but it also detects when the illustration has finished, and thus stops automatically.

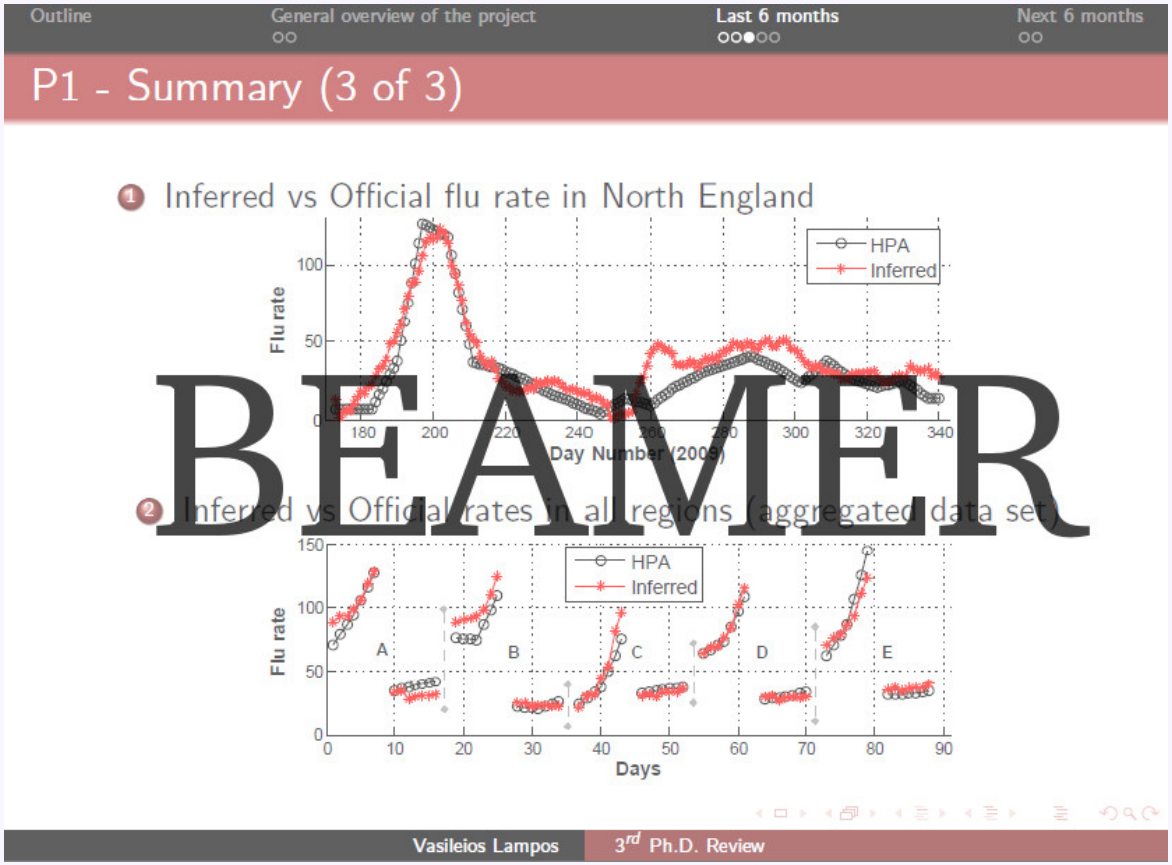
This paper is structured as follows: In Section 2 we discuss related works. In Section 3 we present an overview of our system. In Section 4 we explain the algorithms in detail. Section 5 discusses the results of our approach. The paper is concluded in Section 6.

2. PREVIOUS WORKS

Abstract representation of still images was introduced by Haeberli[P. Haeberly, 1990] using image colour gradient and user interactivity for painting. Hertzmann[A. Hertzmann, 1998] places curved brush strokes of multiple sizes on images for painterly rendering. The technique fills with colour by using large strokes in the middle of a region and progressively smaller strokes as one approaches the edges of the region. Shiraishi and Yamaguchi[M. Shiraishi and Y. Yamaguchi, 2000] improve the performance of the above method approximating the continuous strokes by placing rectangular strokes discreetly along the edges

Estilos en bibliografía

¿Problemas con las presentaciones?



Presentaciones y LaTeX: Beamer

¿Qué es Beamer?

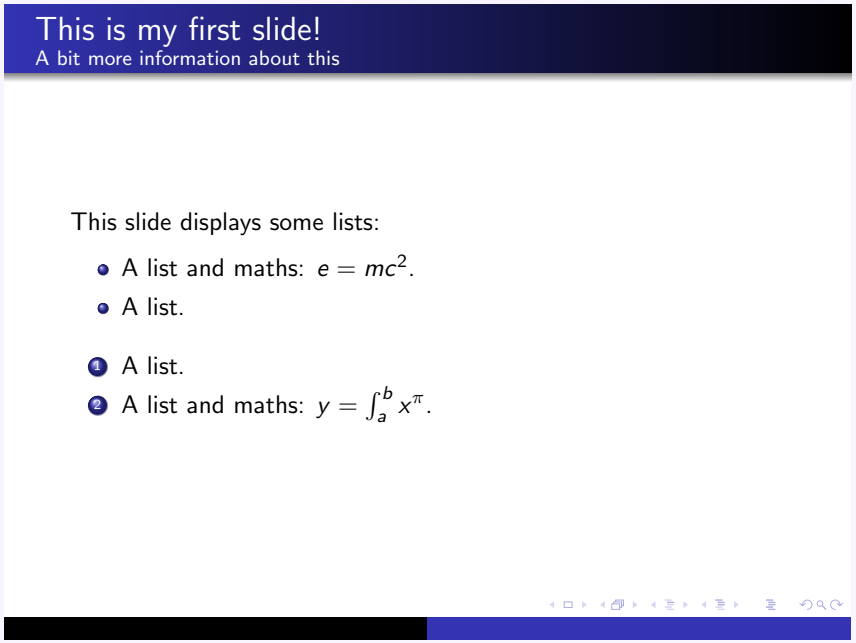
Beamer es un paquete de LaTeX que incluye un tipo especial de documento orientado a presentaciones.

¡Cuidado!

Beamer no es lo más apropiado para cualquier tipo de presentación, solamente aquellas con alto contenido matemático, o con gráficas o gráficos en general.

La primera transparencia en Beamer

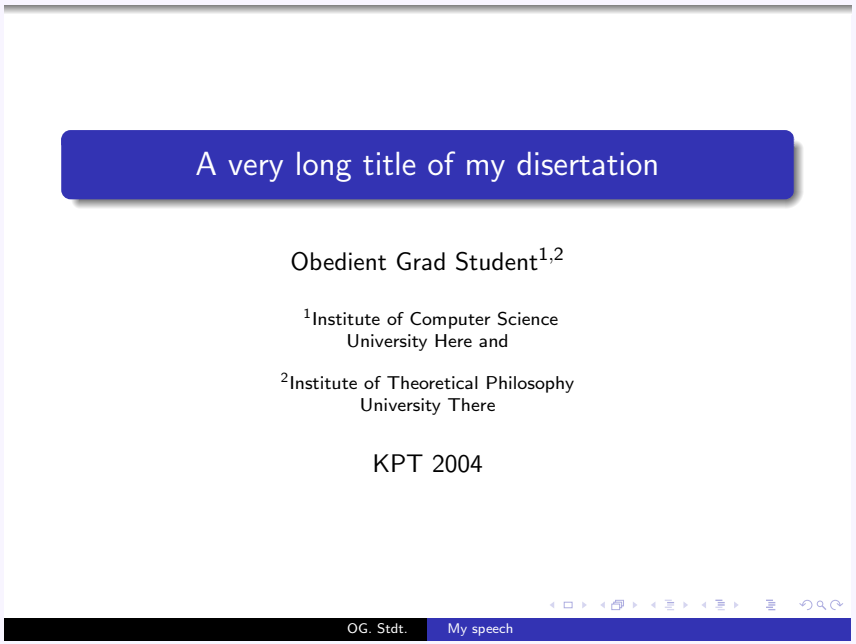
```
\documentclass{beamer}

%\author{Obedient Grad Student}
\input{theme} %we will see this later... be patient

\begin{document} %begin all the speech

%-------------------------------------------------------
\begin{frame} %my first slide
  \frametitle{This is my first slide!}
  \framesubtitle{A bit more information about this}

  This slide displays some lists:

  %More content goes here
  \begin{itemize}
    \item A list and maths: $e=mc^2$.
    \item A list.
  \end{itemize}

  \begin{enumerate}
    \item A list.
    \item A list and maths: $y=\int_{a}^{b} x^\pi$.
  \end{enumerate}

\end{frame} %end of the slide
%-------------------------------------------------------

\end{document} %end the speech
```



File: *ejemplo14/documento.tex*

Creando la portada

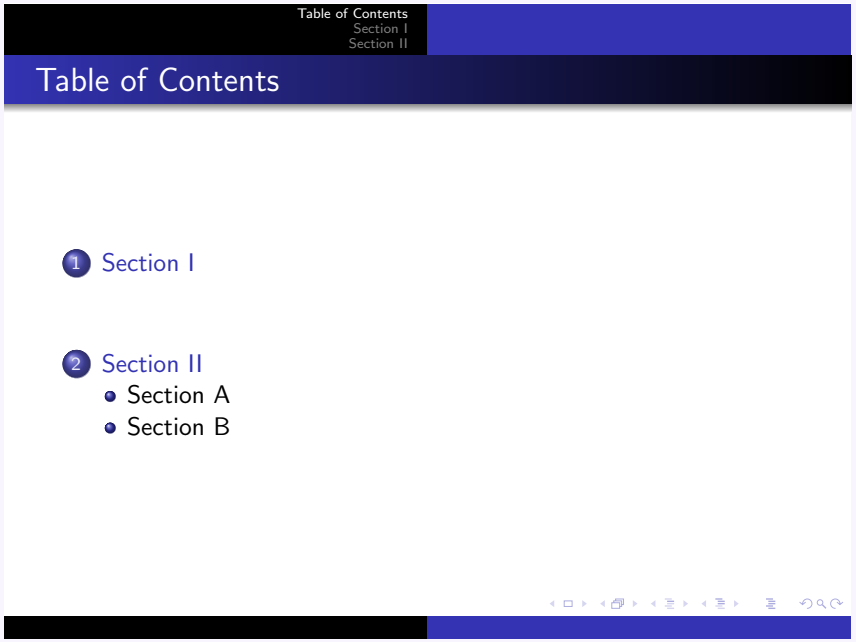
```
\documentclass{beamer}

\input{theme} %we will see this later... be patient

\begin{document} %begin all the speech


\title[My speech] %(optional, only for long titles)
{A very long title of my disertation}
\author[OG. Stdt.]{Obedient Grad Student\inst{1,2}}
\institute[Some University Here] %(optional)
{
  \inst{1}%
  Institute of Computer Science\\
  University Here
  and
  \and
  \inst{2}%
  Institute of Theoretical Philosophy\\
  University There
}
\date{KPT 2004} %(optional)

\subject{Computer Science}



%------------------------------------------------------
\begin{frame} %my slide
  \titlepage
\end{frame} %end of my slide
%------------------------------------------------------

\end{document} %end the speech
```



File: *ejemplo15/documento.tex*

Tabla de contenidos

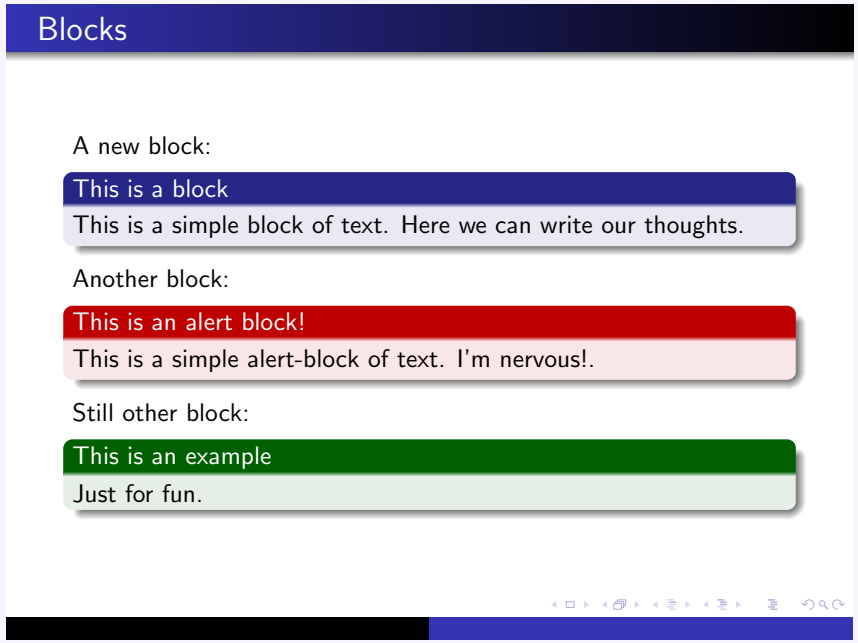
```
\documentclass{beamer}

\input{theme} %we will see this later... be patient

\begin{document} %begin all the speech


%---------------------------------------------------------
\section*{Table of Contents}
\begin{frame} %my slide
  \frametitle{Table of Contents}
  %\tableofcontents[currentsection]
  \tableofcontents
\end{frame} %end of my slide
%---------------------------------------------------------

%---------------------------------------------------------
\section{Section I}
\begin{frame} %my slide
  \frametitle{frame 1}
  Slide ONE.
\end{frame} %end of my slide
%---------------------------------------------------------

%---------------------------------------------------------
\section{Section II}
\subsection{Section A}
\begin{frame} %my slide
  \frametitle{frame 2}
  Slide TWO.
\end{frame} %end of my slide
%---------------------------------------------------------

%---------------------------------------------------------
\subsection{Section B}
```



File: *ejemplo16/documento.tex*

Bloques de texto

```
\documentclass{beamer}

\input{theme} %we will see this later..., be patient

\begin{document} %begin all the speech


%---------------------------------------------------------
\begin{frame} %my slide
  \frametitle{Blocks}
  A new block:
  \begin{block}{This is a block}
    This is a simple block of text. Here we can write our thoughts.
  \end{block}

  Another block:
  \begin{alertblock}{This is an alert block!}
    This is a simple alert-block of text. I'm nervous!.
  \end{alertblock}

  Still other block:
  \begin{exampleblock}{This is an example}
    Just for fun.
  \end{exampleblock}
\end{frame} %end of my slide
%---------------------------------------------------------

\end{document} %end the speech
```



File: *ejemplo17/documento.tex*

Insertando imágenes

```
\documentclass{beamer}

\usepackage{graphicx}

\input{theme} %we will see this later..., be patient

\begin{document} %begin all the speech


%-------------------------------------------------------
\begin{frame} %my slide
   \frametitle{Including an image and Centering}
   \begin{center}
      \includegraphics[height=0.8\textheight]{program-images.png}
   \end{center}
\end{frame} %end of my slide
%-------------------------------------------------------

\end{document} %end the speech
```

File: *ejemplo18/documento.tex*

Including an image and Centering

Código de programación

```
\documentclass{beamer}

\usepackage{listings}

\input{theme} %we will see this later..., be patient

\begin{document} %begin all the speech


%---------------------------------------------------------
\begin{frame} %my slide
  \frametitle{Source code}
  \lstinputlisting[language=C++,caption=First C++ Example]{hello.cpp}
\end{frame} %end of my slide
%---------------------------------------------------------

\end{document} %end the speech
```

File: *ejemplo19/documento.tex*

Source code

Listing 1: First C++ Example

```
#include <iostream>

int main(int argc, char *argv[])
{
    std::cout << "Hello World!" << endl;
    return 0;
}
```

Columnas

```
\documentclass{beamer}

\usepackage{graphicx}
\usepackage{listings}

\input{theme} %we will see this later..., be patient

\begin{document} %begin all the speech


%----------------------------------------------------------
\begin{frame} %my slide
  \frametitle{Columns}

  First C++ Example and its related joke:

    \begin{columns}[t] %the ''t'' option specifies top vertical alignment

      % left column
      \begin{column}{.4\textwidth}
        \vspace{1cm}
        \tiny
        \lstinputlisting[language=C++]{hello.cpp}
      \end{column}


      % right column
      \begin{column}{.4\textwidth}
        \begin{center}
          \includegraphics[height=0.5\textheight]{program-images.png}
        \end{center}
      \end{column}

    \end{columns}
```

Columns

First C++ Example and its related joke:

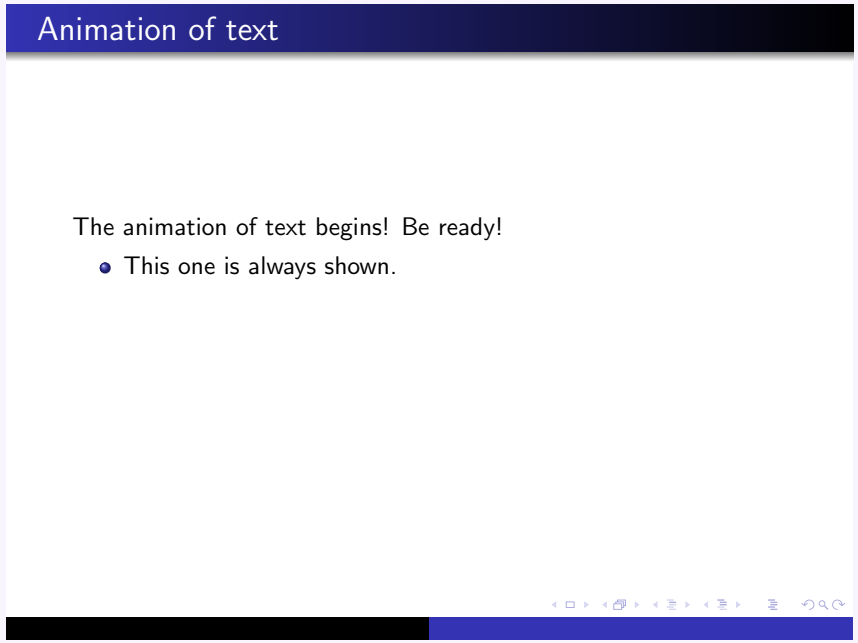
```
#include <iostream>

int main(int argc, char *argv[])
{
    std::cout << "Hello World!" << endl;
    return 0;
}
```

File: *ejemplo20/documento.tex*

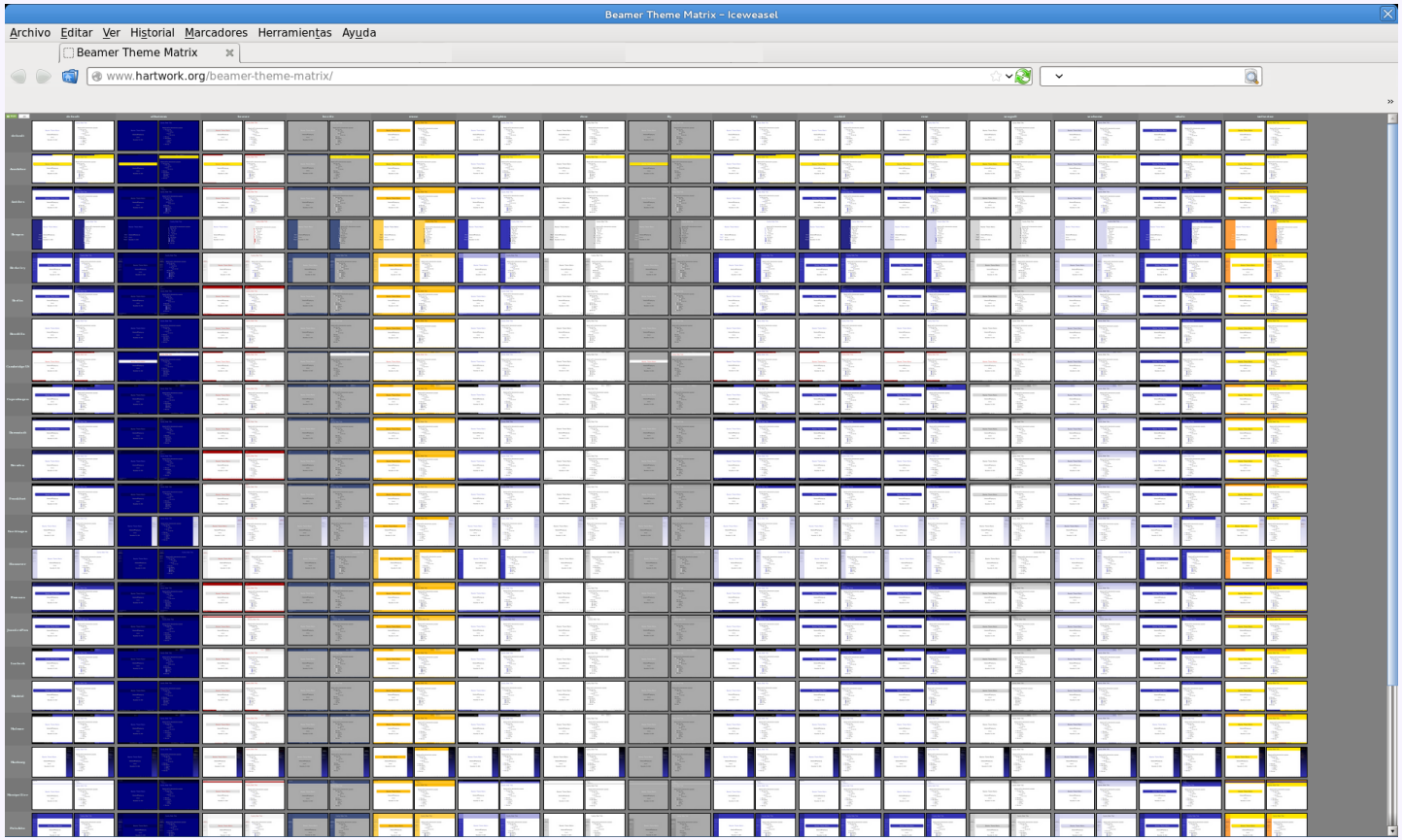
Animaciones de texto

```
\documentclass{beamer}

\input{theme} %we will see this later..., be patient

\begin{document} %begin all the speech


%---------------------------------------------------------
\begin{frame} %my slide
  \frametitle{Animation of text}
  \only<1>{The animation of text begins! Be ready!}
  \only<2>{First time!:}
  \only<3>{Second time!:}
  \only<4>{Third time!:}
  \begin{itemize}
  \item This one is always shown.
  \item<3-> Since the second time.
  \item<3-4> The second time and third.
  \item<2,4> Both the first and third time.
    \only<3> {This one is shown at the second time, but it will hide soon (on
              the next event after the slide loads).}
  \end{itemize}
\end{frame} %end of my slide
%---------------------------------------------------------

\end{document} %end the speech
```

File: *ejemplo21/documento.tex*

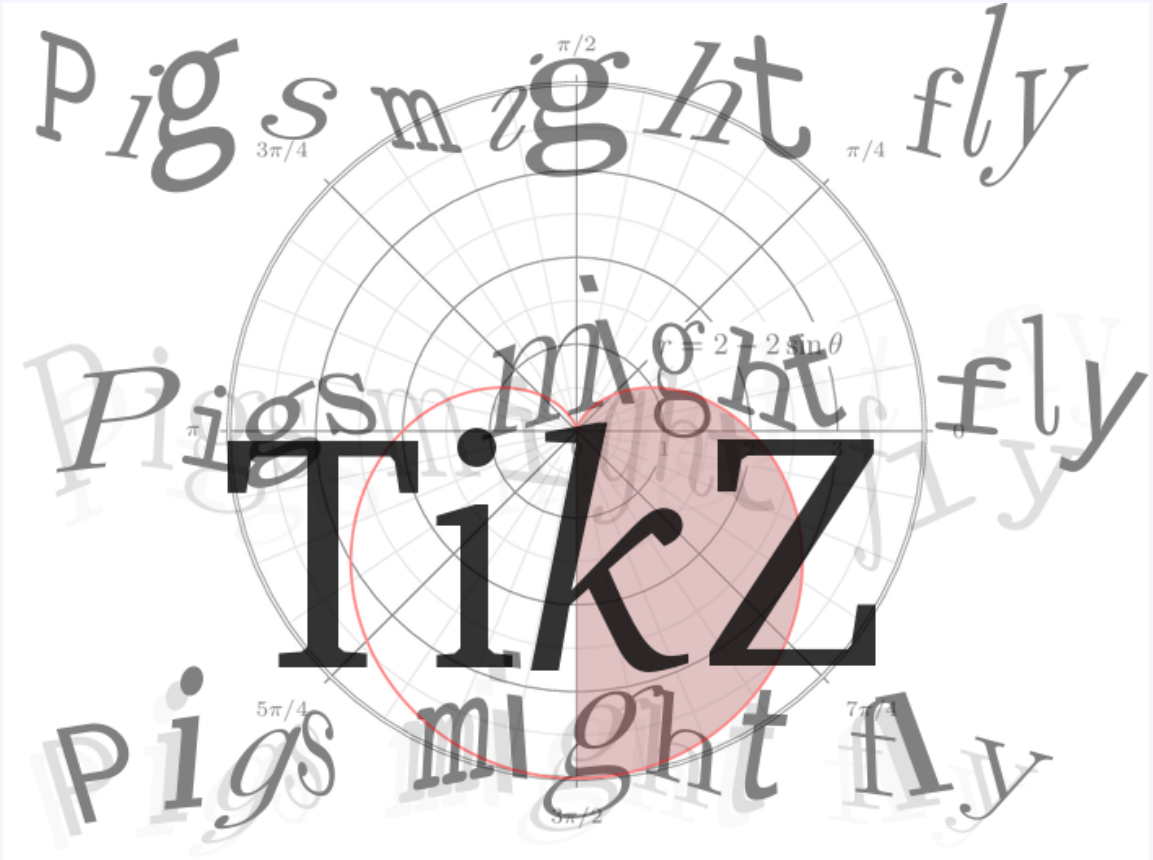


Temas para beamer



http://www.hartwork.org/beamer-theme-matrix/

¿Problemas con los gráficos?



¿Qué es TikZ?

TikZ

TikZ es un paquete de LaTeX que permite la creación de diagramas y gráficos vectoriales mediante el lenguaje de bajo nivel PGF.

Curiosidades

TikZ viene de la definición recursiva alemana: “ TikZ ist kein Zeichenprogramm”.
Dado que su creador, Till Tantau (también el creador de Beamer), es profesor de la Universidad de Lubeck (Alemania).

Comienzo

Plantilla de comienzo en TikZ:

```
%primero añadimos el documento
\usepackage{tikz}

%después en el preámbulo la lista de librerías
%algunas son: arrows, automata, backgrounds, calendar, chains, matrix, mindmap, patterns, petri, shadows, shapes.geometric, shapes.misc, spy, trees.
\usetikzlibrary{list of libraries separated by commas}

%después dibujamos con órdenes TikZ/PGF el dibujo
\begin{tikzpicture}[options]
  tikz commands
\end{tikzpicture}

%o alternativamente
\tikz[options]{tikz commands}
```

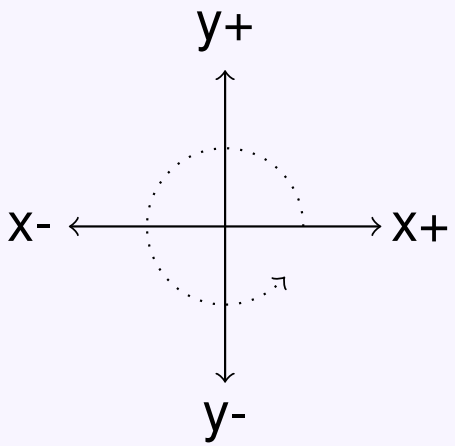
Opciones interesantes:

- **baseline=(dimension)**: centra la base del dibujo a la línea de texto. Alinea con los caracteres.
- **scale=(factor)**: escala el dibujo de forma uniforme.

Coordenadas en TikZ

Coordenadas en TikZ:

- Coordenadas: se dan en medidas LaTeX estándar: **(1cm, 2pt)**.
- Coordenadas polares: 1cm en dirección 30^o: **30:1cm**.
- Coordenadas relativas: 2 unidades desde el punto anterior a la derecha **++(2,0)**.



Órdenes en TikZ: draw vs. drawfill

```
\documentclass[b5paper]{article}

\usepackage[spanish]{babel}
\usepackage[utf8]{inputenc}

\usepackage{tikz}

\input{nomargins} % for a speech only

\title{Primer tutorial de Ti\emph{k}Z}
\author{Estudiante de máster obediente}

\begin{document}
\Large % this is for a speech only!

\maketitle

\section{Plantilla de muestra Ti\emph{k}Z}

%-----------------------------------------------------------
\emph{filldraw} dibuja los círculos dados por las coordenadas entre paréntesis.
          Cada círculo es una orden \emph{circle}, con un parámetro que es el
          radio.

\emph{draw} dibuja una curva Bèzier donde \emph{controls} indica los puntos de
          control (sin contar el inizial y el final.

\begin{center}
  \begin{tikzpicture}
    \filldraw [gray] (0,0) circle [radius=2pt]
                     (1,1) circle [radius=2pt]
                     (2,1) circle [radius=2pt]
                     (2,0) circle [radius=2pt];
    \draw (0,0) .. controls (1,1) and (2,1) .. (2,0);
  \end{tikzpicture}
\end{center}

%-----------------------------------------------------------
```

File: *ejemplo22/documento.tex*

Primer tutorial de Ti*k*Z

Estudiante de máster obediente

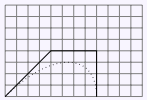
7 de julio de 2014

1. Plantilla de muestra Ti*k*Z

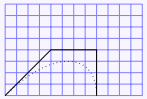
filldraw dibuja los círculos dados por las coordenadas entre paréntesis. Cada círculo es una orden *circle*, con un parámetro que es el radio.

draw dibuja una curva Bèzier donde *controls* indica los puntos de control (sin contar el inizial y el final.

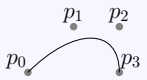
Podemos dibujar líneas, y fácilmente cambiar el estilo:



Podemos cambiar los estilos con *tikzset*:



Podemos dibujar texto con *node*:



Usando las librerías de TikZ

```
\documentclass[b5paper]{article}

\usepackage[spanish]{babel}
\usepackage[utf8]{inputenc}

\usepackage{tikz}

% Flechas
\usetikzlibrary{arrows}
% Fractal y decoraciones de pie de página
\usetikzlibrary{decorations.fractals}
\usetikzlibrary{decorations.footprints}
% Sombras a las figuras
\usetikzlibrary{shadows}
% Decora los nodos
\usetikzlibrary{decorations.pathmorphing}
% Decora el texto
\usetikzlibrary{decorations.text}

\input{nomargins} % for a speech only


\title{Tutorial de Ti\emph{k}Z: Uso de librerías}
\author{Estudiante de máster obediente}

\begin{document}
\large % this is for a speech only!

\maketitle

\section{Plantilla de muestra Ti\emph{k}Z}

%-------------------------------------------------------
Simples nodos con la orden \emph{path} y muestra del espaciado:~
\begin{tikzpicture}[baseline=0.8cm]
```

File: *ejemplo23/documento.tex*

Tutorial de Ti*k*Z: Uso de librerías

Estudiante de máster obediente

7 de julio de 2014

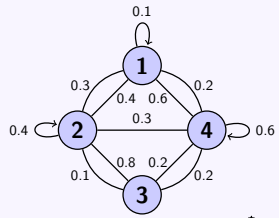
1. Plantilla de muestra Ti*k*Z

Simples nodos con la orden *path* y muestra del espaciado:

Esta orden se puede abreviar con:

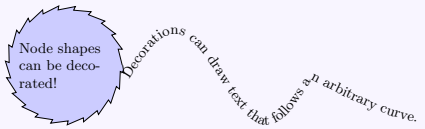
```
\node
```

Nodos algo más complejos con posicionamiento relativo y nombres:



Muestra de fractales:

Más diagramas y flujos:



Gráficas en TikZ

```
\documentclass[b5paper]{article}

\usepackage[spanish]{babel}
\usepackage[utf8]{inputenc}

\usepackage{tikz}

\usepackage{amsmath} % requerido para \varPsi


\input{nomargins} % for a speech only

% Para las flechas
\usetikzlibrary{arrows, decorations.markings}

\title{Tutorial de Ti\emph{k}Z: Gráficas}
\author{Estudiante de máster obediente}

\begin{document}
\Large % this is for a speech only!

\maketitle

\section{Plantilla de muestra Ti\emph{k}Z}

%-----------------------------------------------------------
La siguiente gráfica se ha generado con el código del fichero gnuplot.plot:
\begin{center}
  \begin{tikzpicture}
    \draw[very thin,color=gray] (-0.1,-1.1) grid (10,2); % dibuja rejilla

    \draw[mark=x,smooth] plot file {sine.table} node[right] {\tiny $f(x) = \sin
          (x)$};
    \draw[smooth,color=red] plot file {cosine.table}  node[right] {\tiny $g(x)
          = \cos(x)$};

    \draw (-0.2,0) -- (11,0) node[right] {$x$};
```

File: *ejemplo24/documento.tex*

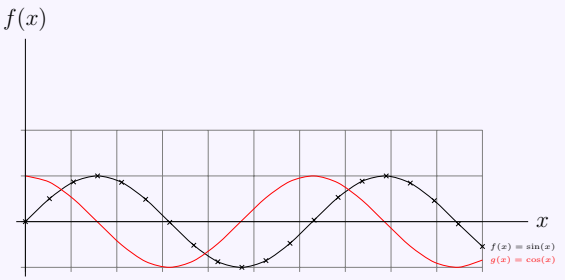
Tutorial de Ti*k*Z: Gráficas

Estudiante de máster obediente

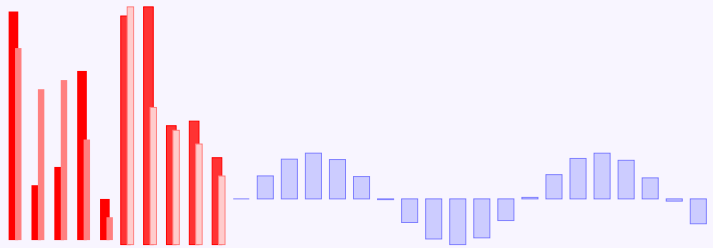
7 de julio de 2014

1. Plantilla de muestra Ti*k*Z

La siguiente gráfica se ha generado con el código del fichero gnuplot.plot:



Las gráficas de barras son sencillas:



Bucles en TikZ

```
\documentclass[b5paper]{article}

\usepackage[spanish]{babel}
\usepackage[utf8]{inputenc}

\usepackage{tikz}

\usetikzlibrary[topaths]

\input{nomargins} % for a speech only


\title{Tutorial de Ti\emph{k}Z: Bucles}
\author{Estudiante de máster obediente}

\begin{document}
\Large % this is for a speech only!

\maketitle

\section{Plantilla de muestra Ti\emph{k}Z}

%-----------------------------------------------------------
El siguiente dibujo muestra el poder de los bucles en Ti\emph{k}Z:
\begin{center}
  \begin{tikzpicture}
    \foreach \x in {0,...,36} {
      \draw (0, 0) -- (5*\x:2) {};
    }
  \end{tikzpicture}

  \begin{tikzpicture}
    \foreach \x in {0,...,10} {
      \draw (0.2 * \x, 0) -- (0.2 * \x, 2) {};
    }
```

File: *ejemplo25/documento.tex*

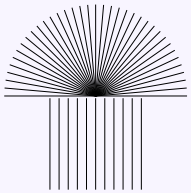
Tutorial de Ti*k*Z: Bucles

Estudiante de máster obediente

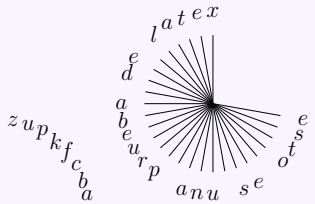
7 de julio de 2014

1. Plantilla de muestra Ti*k*Z

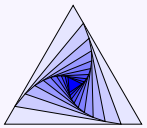
El siguiente dibujo muestra el poder de los bucles en Ti*k*Z:



El poder de los bucles con letras y varias secuencias:



Una figura más con bucles:



Editores y suites para LaTeX

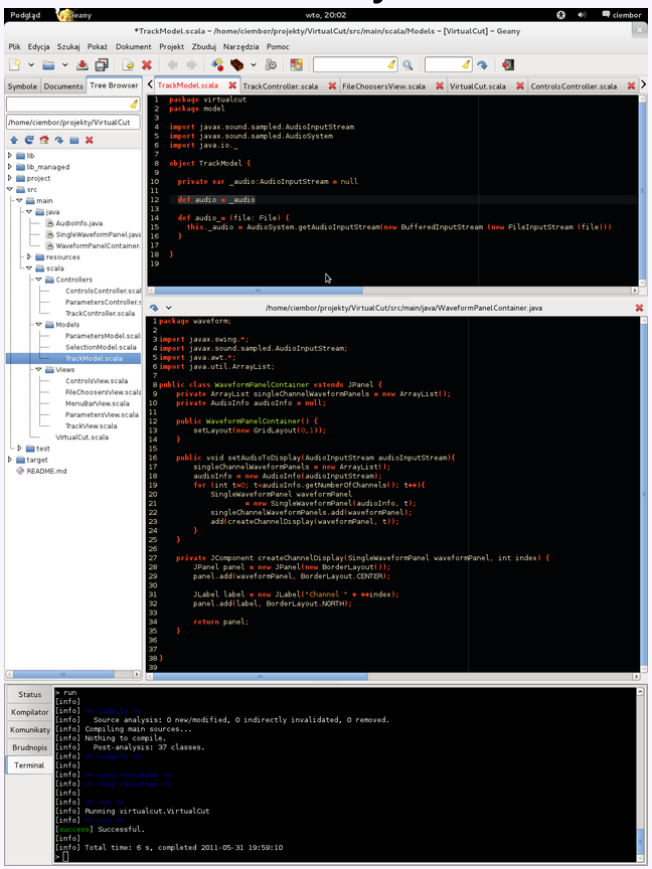
Properties of TeX editors

	Editing style[Note 1]	Native operating systems[Note 2]	Latest stable version	Costs	License	Configurable	Integrated viewer	Inverse search[Note 3]	DDE support[Note 4]	Organises Projects	Menu for inserting symbols	Document comparison	Spell-checking	Multiple undo-redo	Collapsible sections	Find and replace using RegEx	*Intelligent* error handling	Autocompletion of LaTeX commands	Parenthesis matching	Starts up to previous state[Note 5]	Unicode support	RTL Support	
AUCTeX	Source	L, M, W	11.87 (2012-11-30)	Free	GPL	Yes	Yes	Yes	?	?	Yes	Yes	Yes[Note 6]	Yes	Yes	Yes	Yes	Yes	Yes	Yes[Note 7]	Yes	Yes	AUCTeX
BaKoMa TeX *Home*	WYSIWYG / Source	W, M, L	10.40 (2014-04-14)	cost/-	Proprietary	Yes (scriptable)	Yes (Live update)	Yes	Yes	Partial[Note 8]	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Partial[Note 8]	Yes	?	BaKoMa TeX
Eclipse (By plugin TeXlipse)	Source	L, M, W	1.5.0 (2011-11-26)	Free	EPL	Yes[Note 9]	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	?	Eclipse (By plugin TeXlipse)
EmiTex *Home*	Source	W	1.2.80 (2014)	Free	Proprietary	Yes	Yes	Yes	N/A	Yes	No	No	Yes	Yes	No	No	Yes	No	Yes	No	Yes	?	EmiTex *Home*
Fidus Writer *Home*	Source / partial-WYSIWYG	B	1.1-beta (2014-04-01)	Free	AGPL[1]	?	Yes	?	?	No	Yes	No	Yes	Yes	No	No	No	No	No	No	Yes	?	Fidus Writer *Home*
Geany LaTeX Plugin *Home*	Source	L,W	0.50 (2010-06-12)	Free	GPL	Yes	Yes	No	N/A	Yes	Yes	No	Yes	Yes	No	Yes	No	Yes	Yes	Yes	Yes	?	Geany LaTeX Plugin
Gedit LaTeX Plugin *Home*	Source	L	3.8 (2013-07-11)	Free	GPL	Yes	Yes	Yes	N/A	Yes	Yes	No	Yes	Yes	Yes[2]	Yes[Note 10]	Yes	Yes	Yes	No	Yes	Yes	Gedit LaTeX Plugin
Gummi	Source	L, W	0.6.5 (2012-10-20)	Free	MIT	Yes	Yes (Live update)	Yes	N/A	Yes	No	No	Yes	Yes	No	No	No	Yes	Yes	No	Yes	?	Gummi
Inlage	Source	W	5 (2013-06-27)	Non-free	Proprietary	Yes	No	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	?	Inlage
JaxEdit *Home*	Source	B	0.30(2013-12-13)	Free	Free	Yes	Yes	Yes	N/A	No	No	No	No	Yes	No	No	No	No	Yes	Yes	Yes	?	JaxEdit
JLatexEditor *Home*	Source	L (M, W)	0.2.10	Free	GPL	Yes	No	Yes	No	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Partial[Note 11]	No	JLatexEditor
SCaVIS	Source	L (M, W)	1.7 (2014-04-01)	Free	Free	Yes	No	Yes	No	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	?	SCaVIS
Kile	Source	L (M, W)[Note 12]	2.1.3 (2012-09-23)	Free	GPL	Yes	Yes (Quick preview)	Yes	No	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Kile
LaTeXila	source	L	2.12 (2014-03-21)	Free	Free	Yes	No	Planned	No	Yes	Yes	No	Yes (in beta)	Yes	Planned	Yes	Yes	Yes	Yes	(just same files)	Yes	?	LaTeXila
LatexLab *Home*	Source	B	?	Free	Apache License	?	Yes	Yes	N/A	?	Yes	No	Yes	Yes	No	No	No	No	Yes	No	Yes	?	LatexLab *Home*
Latexian *Home*	Source	M	1.0.6	cost/-	Proprietary	Yes	Yes (Live Preview)	Yes	No	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	?	Latexian *Home*
Sublime Text (By plugin LaTeXing)	Source	L, M, W	1.2.1(2014-06-14)	Non-free	Proprietary	Yes	No	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Sublime Text (By plugin LaTeXing)
LEd	Source	W	0.53 (2009-10-09)	Free	Proprietary	?	Yes (dvi)	Yes	?	Yes	Yes	No	Yes	Yes	Yes	Yes	?	Yes	Yes	No (just same files)	No	?	LEd
LyX	WYSIWYM	L, M, W	2.1.0 (2014-4-25)	Free	GPL	Yes	Yes (InstantPreview *)	Yes	?	No	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	LyX
MeWa	Source	W	1.4.0 (2007-06-06)	Free	GPL	Yes	No	No	No	No	Yes	No	Yes	Yes	No	Yes	No	No	No	No	Yes	?	MeWa
Notepad++	Source	W	6.6.6(13-06-2014)	Free	GPL	Yes	No, but can be integrated [Note 13]	Yes, with SumatraPDF	Yes, with a DDE client	Yes	Partial[Note 14]	Yes	Yes	Yes	Yes	Yes	No	Partial[Note 15]	Yes	Yes	Yes	Yes	Notepad++
Scientific WorkPlace	WYSIWYM	W	5.5	cost/-	Proprietary	Yes	Yes (TrueTeX® *)	N/A	?	?	Yes	No	Yes	No (one level)	No	?	?	N/A	Yes	No	Yes	?	Scientific WorkPlace
ShareLaTeX *Home*	Source	B	N/A	Free	Proprietary	Yes	Yes	Yes	No	Yes	No	No	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	?	ShareLaTeX
cloudTeX *home*	Source	B	20.11.2013	pricing/-	Proprietary	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes	No	No	Yes	No	Yes	Yes	Yes	Yes	cloudTeX
TeXCoding *Home*	Source	W	2011.6	cost/-	Proprietary	Yes	Yes (pdf, dvi)	Yes	No	Yes	Yes	No	No	Yes	Yes	Yes	?	Yes	Yes	No	Yes	?	TeXCoding
	Editing style	**Native operating systems**	**Latest stable version**	**Costs**	**License**	**Configurable**	**Integrated viewer**	**Inverse search**	**DDE support**	**Organises Projects**	**Menu for inserting symbols**	**Document comparison**	**Spell-checking**	**Multiple undo-redo**	**Collapsible sections**	**Find and replace using RegEx**	***Intelligent* error handling**	**Autocompletion of LaTeX commands**	**Parenthesis matching**	**Starts up to previous state**[Note 16]	**Unicode support**	**RTL Support**	
Texmaker	Source	L, M, W	4.2 (2014-05-01)	Free	GPL2	Yes	Yes	Yes	No	Partial (master file)	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Texmaker *Home*
TeXnicCenter	Source	W	2.02 Stable (September 29, 2013) [4]	Free	GPL	Yes	No	Yes	Yes	Yes	Yes	No	Yes	Yes	since v2.0	since v2.0	Yes	Yes	Yes	Yes	since v2.0	?	TeXnicCenter
Texpad *Home*	Source	M, iOS	1.6.12	Non-free	Proprietary	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	?	Texpad
TeXShop	Source	M	3.36.2 (2014-06-06)	Free	GPL	Yes	Yes (InstantPreview with Flashmode *)	Yes	No	No	Yes[Note 17]	No	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	?	TeXShop
TeXstudio	Source	L, W, M	2.8.0 (2014-06-21)	Free	GPL2	Yes	Yes (pdf, selection with dvi2png)	Yes	Yes	Partial (master file)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	TeXstudio *Home*
TeXworks	Source	L, M, W	0.4[5]	Free	GPL	No	Yes (pdf)	Yes	No	No	No	No	Yes[Note 18]	Yes	No	Yes[Note 19]	No	Yes[Note 20]	Yes	No	Yes	Yes	TeXworks
RTextDoc	Source	M, iOS, W, L (Java enabled)	1.9 (2013-11-19)	Free	Proprietary	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	?	RTextDoc
Verbosus	Source	B, A[4] , iOS[5]	3.8.7(2014-04-01)	Free[6]	Non-free	Yes	Yes (pdf)	No	No	Yes	Yes	No	No	Yes	No	No	Yes	Yes	Yes	No	Yes	?	Verbosus
Vim with plugin vim-latex-suite	Source	L, M, W	7.4(2013-08-10)	Free	Free	Yes	No	Yes	?	Partial (master file and Makefile)	Yes	Yes	Yes	Yes	Yes	Yes	?	Yes	Yes	?	Yes	No	Vim
WinEdt *Home*	Source	W	8.2 (2014-06-13)]	cost/-	Proprietary	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes (modified)	Yes	Yes	Yes	Yes	Yes	?	WinEdt
Winefish	Source	L	1.3.3	Free	GPL	Yes	No	No	N/A	Yes	No	No	Yes	Yes	No	Yes	Yes	Yes	Yes	No	Yes	?	Winefish
WinShell	Source	W	3.3.2.6	Free	Proprietary	Yes	No	Yes	No	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No (just same files)	Yes	?	WinShell
writeLaTeX *Home*	Source / partial-WYSIWYG	B	N/A	Free	Proprietary	Yes	Yes	No	N/A	Yes	No	No	Yes	Yes	No	Yes	Yes	Yes	Yes	No	Yes	?	writeLaTeX *Home*
	Editing Style	**Native Operating Systems**	**Latest stable version**	**Costs**	**License**	**Configurable**	**Integrated viewer**	**Inverse search**	**DDE Support**	**Organises Projects**	**Menu for inserting symbols**	**Document comparison**	**Spell-checking**	**Multiple undo-redo**	**Collapsible sections**	**Find and replace using RegEx**	***Intelligent* error handling**	**Autocompletion of LaTeX commands**	**Parenthesis matching**	**Starts up to previous state**[Note 21]	**Unicode support**	**RTL Support**	

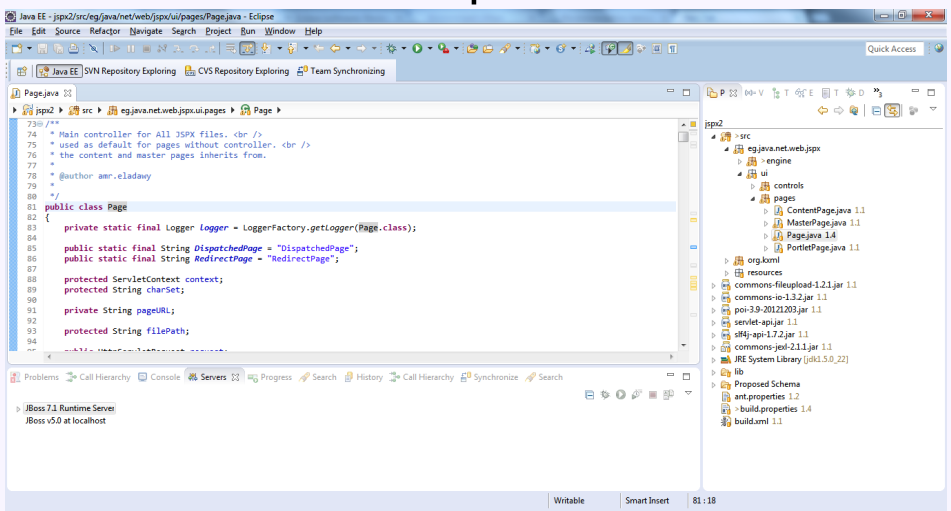
http://en.wikipedia.org/wiki/Comparison_of_TeX_editors

Editores corrientes

Geany



Eclipse



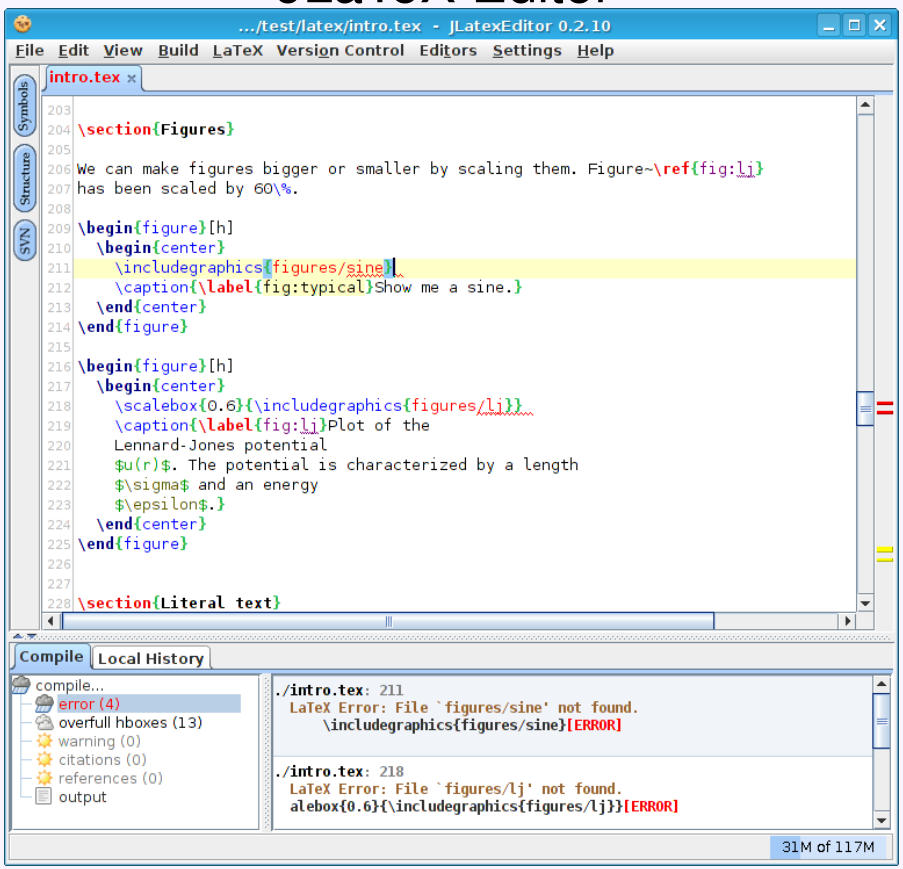
Geany vs. Eclipse

Geany				
Editing style	Native operating systems	License	Configurable	Integrated viewer
Source		GPL	YES	YES
Inverse search	Organises Projects	Menu for inserting symbols	Document comparison	Spell-checking
NO	YES	YES	NO	YES
Multiple undo-redo	Collapsible sections	Find/Replace by RegEx	Intelligent error handling	Autocompletion
YES	NO	NO	NO	YES
Parenthesis matching	Starts up to previous state	Unicode support	RightToLeft Support	Standard shortkeys
YES	configurable	YES	YES	YES

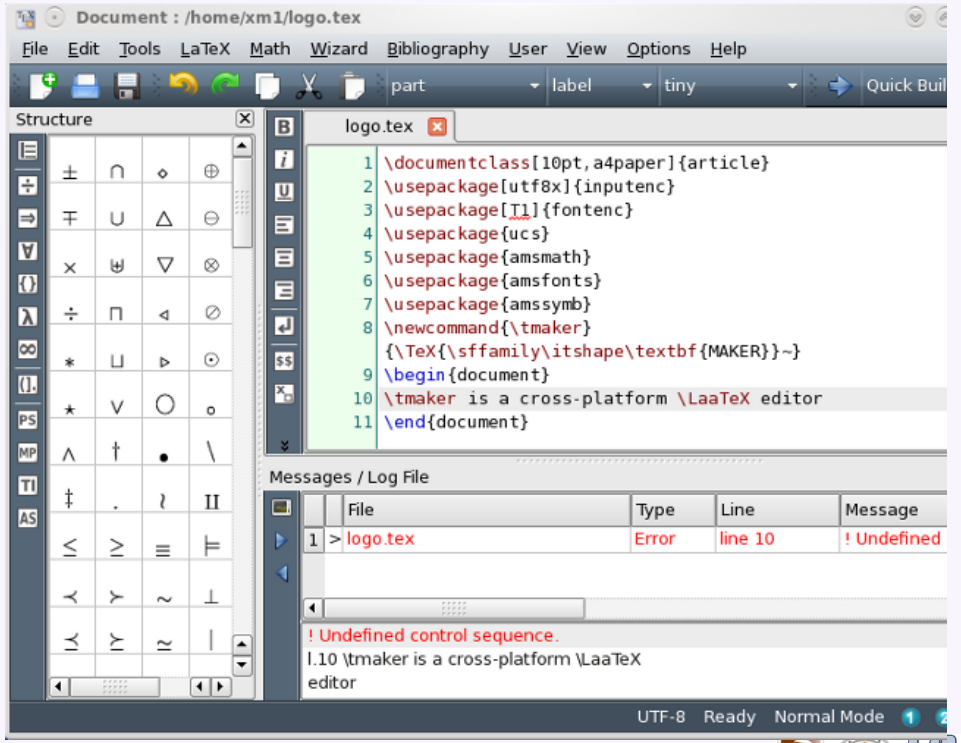
Eclipse				
Editing style	Native operating systems	License	Configurable	Integrated viewer
Source		EPL	YES	plugin
Inverse search	Organises Projects	Menu for inserting symbols	Document comparison	Spell-checking
YES	YES	YES	YES	YES
Multiple undo-redo	Collapsible sections	Find/Replace by RegEx	Intelligent error handling	Autocompletion
YES	YES	YES	YES	YES
Parenthesis matching	Starts up to previous state	Unicode support	RightToLeft Support	Standard shortkeys
YES	YES	YES	YES	YES

Editores específicos

JLaTeX Editor



TexMaker



JLaTeX vs. TeXMaker

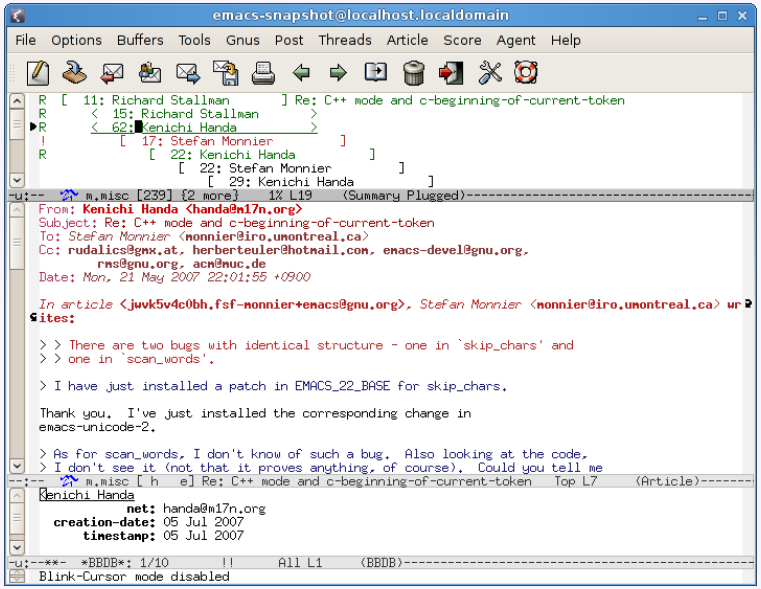
JLaTeX Editor				
Editing style	Native operating systems	License	Configurable	Integrated viewer
Source	, (,)	GPL	YES	NO
Inverse search	Organises Projects	Menu for inserting symbols	Document comparison	Spell-checking
YES	YES	YES	YES	YES
Multiple undo-redo	Collapsible sections	Find/Replace by RegEx	Intelligent error handling	Autocompletion
YES	NO	YES	YES	YES
Parenthesis matching	Starts up to previous state	Unicode support	RightToLeft Support	Standard shortkeys
YES	YES	Not really	YES	YES

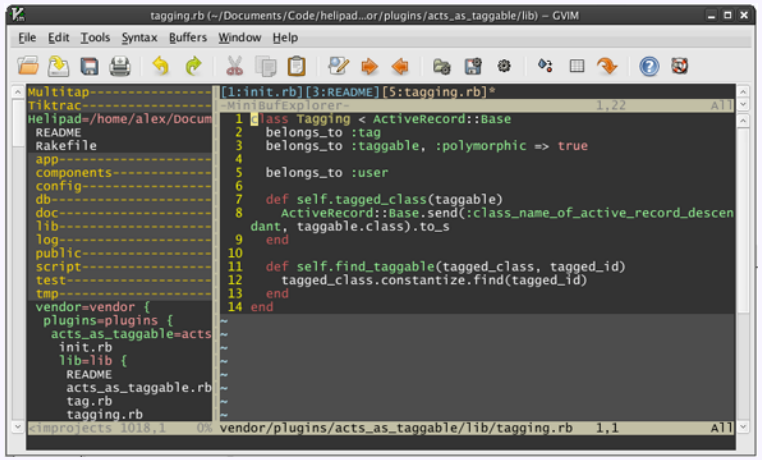
TeXMaker				
Editing style	Native operating systems	License	Configurable	Integrated viewer
Source	, ,	GPL	YES	YES
Inverse search	Organises Projects	Menu for inserting symbols	Document comparison	Spell-checking
YES	Partial (master file)	YES	NO	YES
Multiple undo-redo	Collapsible sections	Find/Replace by RegEx	Intelligent error handling	Autocompletion
YES	YES	YES	YES	YES
Parenthesis matching	Starts up to previous state	Unicode support	RightToLeft Support	Standard shortkeys
YES	YES	YES	YES	YES

Editores inteligentes: Emacs y Vim

Extensible, personalizable, programable, y más, . . . , ¡mucho más!

http://en.tiraecol.net





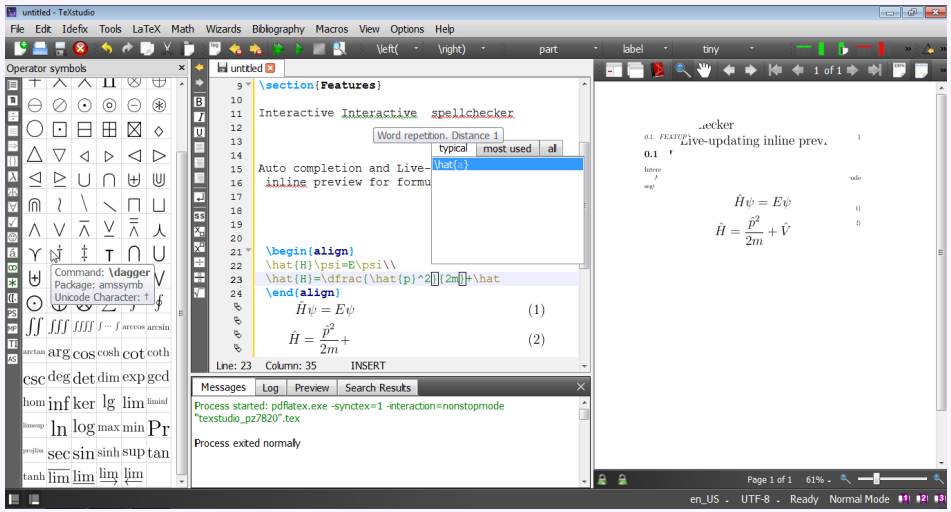
Emacs vs. Vim

Emacs				
Editing style	Native operating systems	License	Configurable	Integrated viewer
Source		GPL	YES	YES
Inverse search	Organises Projects	Menu for inserting symbols	Document comparison	Spell-checking
YES	via plugin	YES	YES	YES
Multiple undo-redo	Collapsible sections	Find/Replace by RegEx	Intelligent error handling	Autocompletion
YES	YES	YES	YES	YES
Parenthesis matching	Starts up to previous state	Unicode support	RightToLeft Support	Standard shortkeys
YES	configurable	YES	YES	barely

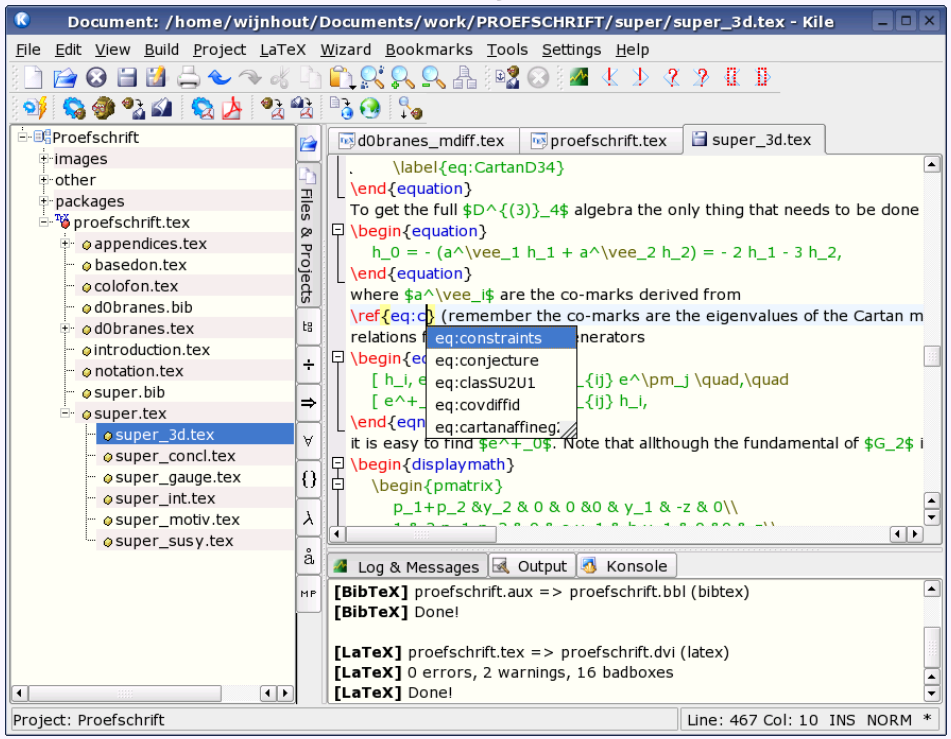
Vim				
Editing style	Native operating systems	License	Configurable	Integrated viewer
Source		GPL+BSD	YES	NO
Inverse search	Organises Projects	Menu for inserting symbols	Document comparison	Spell-checking
YES	partial (master file)	YES	YES	YES
Multiple undo-redo	Collapsible sections	Find/Replace by RegEx	Intelligent error handling	Autocompletion
YES	YES	YES	NO	YES
Parenthesis matching	Starts up to previous state	Unicode support	RightToLeft Support	Standard shortkeys
YES	?	YES	YES	NO

Suites específicas

TexStudio



Kile



TeXStudio vs. Kile

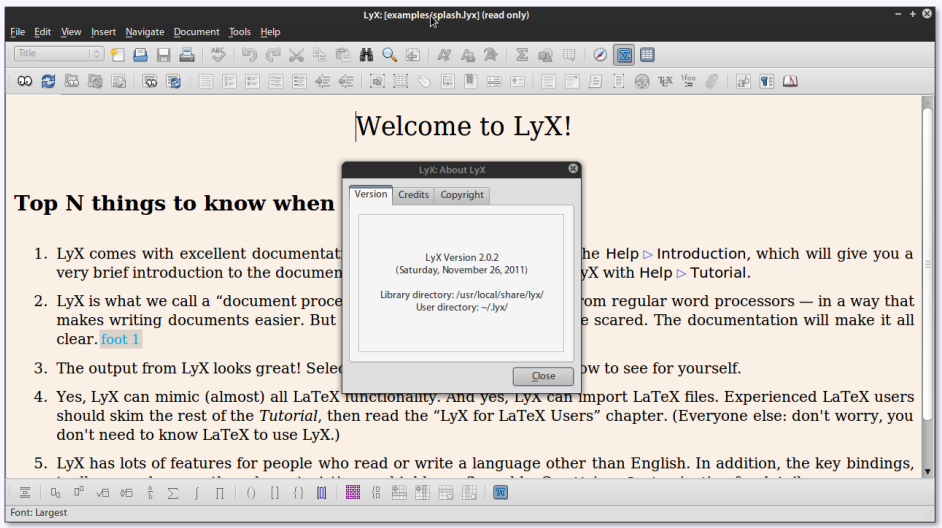
TeXStudio				
Editing style	Native operating systems	License	Configurable	Integrated viewer
Source		GPL	YES	YES (all formats)
Inverse search	Organises Projects	Menu for inserting symbols	Document comparison	Spell-checking
YES	Partial (master file)	YES	YES	YES
Multiple undo-redo	Collapsible sections	Find/Replace by RegEx	Intelligent error handling	Autocompletion
YES	YES	YES	YES	YES
Parenthesis matching	Starts up to previous state	Unicode support	RightToLeft Support	Standard shortkeys
YES	YES	YES	YES	YES

Kile				
Editing style	Native operating systems	License	Configurable	Integrated viewer
Source		GPL	YES	YES (preview)
Inverse search	Organises Projects	Menu for inserting symbols	Document comparison	Spell-checking
YES	YES	YES	NO	YES
Multiple undo-redo	Collapsible sections	Find/Replace by RegEx	Intelligent error handling	Autocompletion
YES	YES	YES	YES	YES
Parenthesis matching	Starts up to previous state	Unicode support	RightToLeft Support	Standard shortkeys
YES	YES	YES	YES	YES

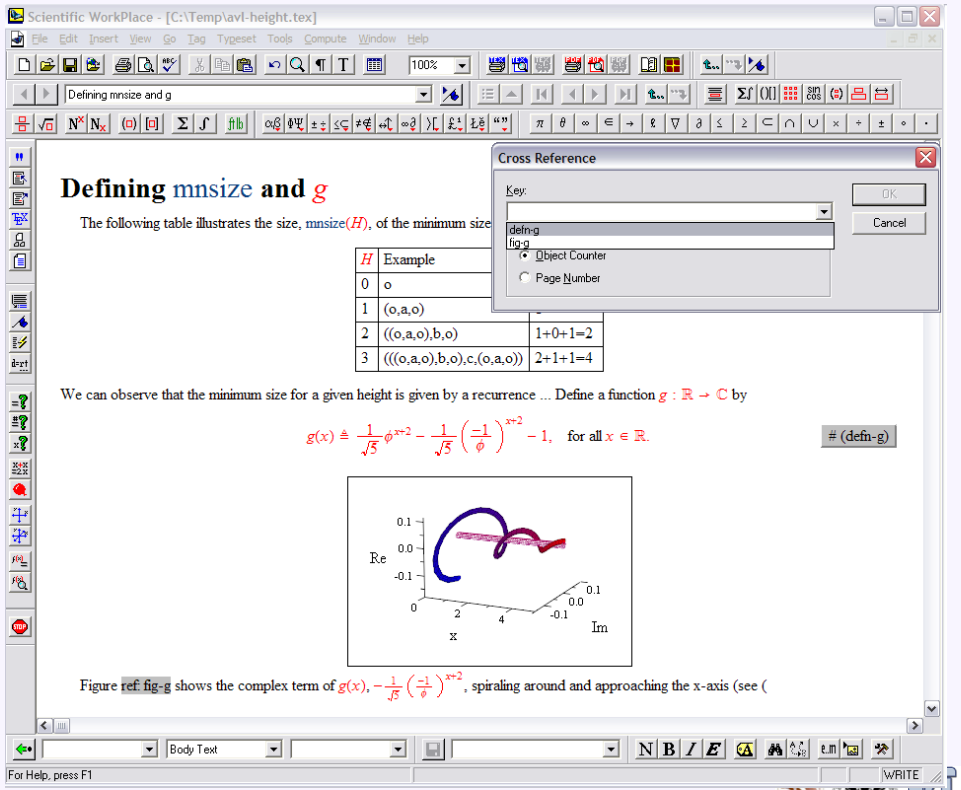
Puros WYSIWYM (no WYSIWYG)

Estructura (mean) vs. Apariencia (get)

LyX



Scientific WorkPlace



LyX vs. Scientific WorkPlace

LyX				
Editing style	Native operating systems	License	Configurable	Integrated viewer
WYSIWIM		GPL	YES	YES (instant preview)
Inverse search	Organises Projects	Menu for inserting symbols	Document comparison	Spell-checking
YES	NO	YES	YES	YES
Multiple undo-redo	Collapsible sections	Find/Replace by RegEx	Intelligent error handling	Autocompletion
YES	YES	NO	YES	YES
Parenthesis matching	Starts up to previous state	Unicode support	RightToLeft Support	Standard shortkeys
YES	YES	YES	YES	YES

Scientific WorkPlace				
Editing style	Native operating systems	License	Configurable	Integrated viewer
WYSIWIM		Propietary	YES	YES (via TrueText®)
Inverse search	Organises Projects	Menu for inserting symbols	Document comparison	Spell-checking
?	?	YES	NO	YES
Multiple undo-redo	Collapsible sections	Find/Replace by RegEx	Intelligent error handling	Autocompletion
NO	NO	?	?	YES
Parenthesis matching	Starts up to previous state	Unicode support	RightToLeft Support	Standard shortkeys
YES	YES	YES	YES	YES

Conclusiones

- LaTeX es muy útil para la creación de artículos y documentos académicos en general.
- La documentación es amplia:
  - Manuales de cada paquete: algunos, como TikZ , con más de 1.200 páginas.
  - Google es nuestro amigo: mucha documentación y ejemplos.
- LaTeX es extensible: disponemos de paquetes para casi todo.
- Existen editores y suites para todos los gustos que permiten crear documentos LaTeX fácilmente.

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