

L^AT_EX Week 3
Graphics, references, bibliographies, etc.

Mac Mason
mac@cs.hmc.edu

March 3, 2006

Today

Figures & Graphics

- ▶ What's a figure?
- ▶ Putting in graphics

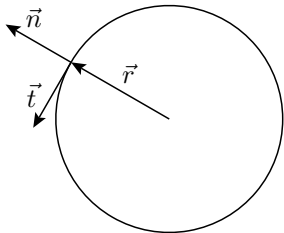
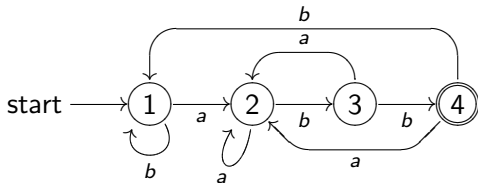
References & Footnotes

- ▶ Labels
- ▶ `\ref{}`

Bibliographies

- ▶ `\cite{}`
- ▶ Why BiBTeX makes this trivial

“...worth a thousand words”



Figures

An example with a figure

Mac Mason

March 2, 2006

1 A section without a figure in it

This is just a collection of letters, in order, trying to fill up some space on the page. If we're really, really lucky, it might take up several lines. If it doesn't, please see Figure 1, which will explain things.

2 A section with a figure

So, here's a figure:



Figure 1: A picture of Alaska

That was Figure 1. It didn't appear in Section 1.

Code

Generally

```
\begin{figure}[htb]
```

```
\centering
```

Some \LaTeX code that does something figureful

```
\caption{A caption for your figure}
```

```
\label{A label for your figure}
```

```
\end{figure}
```

Code

Generally

```
\begin{figure}[htb]
\centering
Some LATEX code that does something figureful
\caption{A caption for your figure}
\label{A label for your figure}
\end{figure}
```

Example

```
\usepackage{graphicx}
\begin{figure}[htb]
\centering
\includegraphics[width=0.5\textwidth]{akmap}
\caption{A picture of Alaska}
\label{akmap}
\end{figure}
```

[htb]?

Figures are “smart”

- ▶ They don't (necessarily) go exactly where you put them
- ▶ So you have to tell them how to behave

htb

h: “Here”

t: Top of Page

b: Bottom of Page

p: Figures Page

!: Quit thinking and *do what I say!*

Order matters: [htb] is different than [bth]

Be careful with !: it's not a good idea.

Including Graphics

```
\includegraphics[modifiers]{filename}
```

Modifiers

- ▶ width, height, and scale do exactly what you'd think.
- ▶ keepaspectratio makes sure you don't distort the image
- ▶ draft just puts in a rectangle, not the actual image
- ▶ rotate is crazy.

Formats

When compiling to PDF use a .jpg, .png, or .pdf file.

.ps and .eps *won't work!*

```
\includegraphics[width=50mm, keepaspectratio]{foo}
```

References

Let's say...

References

Let's say...

`\label{}` & `\ref{}`

If you want to be able to reference something, `\label` it.
When you want to talk about it, `\ref` it.

- ▶ `\section*{\label{problems}Error Analysis}`
- ▶ The figure label we saw earlier

References Example

An example with references

Mac Mason

March 3, 2006

1 A Section

1. This is an item
 - (a) and another item¹.

2 Another Section

I've going to reference item 1a in Section 1. I could also put a footnote right here², if I really wanted to.

Bibliographies

Bibliographies

file.bib

```
@book{iliad,  
  title='The Iliad of Homer',  
  editor='Richmond Lattimore',  
  publisher='University of Chicago Press',  
  year='1951',  
}
```

Bibliographies

file.bib

```
@book{iliad,  
  title='The Iliad of Homer',  
  editor='Richmond Lattimore',  
  publisher='University of Chicago Press',  
  year='1951'  
}
```

file.tex

```
\bibliographystyle{something}  
\begin{document}  
...  
\cite{iliad}  
...  
\bibliography{file}  
\end{document}
```

I run \LaTeX how many times?

Three!

- ▶ `latex file.tex`
- ▶ `bibtex file`
- ▶ `latex file.tex`
- ▶ `latex file.tex`

Luckily...

Graphical user interfaces usually do this for you.

Luckier...

You only have to re-do this when the bibliography changes.

`\newpage`

Forces \LaTeX to start a new page.