

L^AT_EX Cross Referencing

W. Ethan Duckworth, Loyola University Maryland, 2014

- L^AT_EX can keep track of cross references: things like equation numbers, section numbers, theorem numbers, page numbers, and bibliography references. But it needs your help: you have to label things to keep track of.
- Using `\label`, `\ref` and `\pageref`. Suppose in the following example that we have already had 3 previous sections.

Example 1. Input:

```
\section{How to use labels}
\label{using_labels}
Imagine a lot of stuff here.
```

```
\section{Chapter review}
Recall that in
Section~\ref{using_labels}, on
page~\pageref{using_labels}, we learned all
about everything.
```

Output:

4 How to use labels

Imagine a lot of stuff here.

5 Chapter review

Recall that in Section 4, on page 1, we learned all about everything.

- Two things to note: (1) When you mark something with `\label`, the numbers are stored in an external file named `foo.aux` (where your main file is `foo.tex`). For the numbers to be accurate, you need to `latex` your file twice. (2) It's good, but not mandatory, to enter `~` between things like "Section" and `\ref` so that a space will appear, but L^AT_EX will not ever break the line here.
- Other things that can be labelled. Imagine in the next example that we have had 17 previous theorems, and 5 previous equations.

Example 2. Input:

```
\begin{theorem}
\label{parity_results}
We have:
\begin{enumerate}
\item \label{even_even}
even + even = even
\item in other words
\begin{equation}
\label{general}
0 + 0 = 0 \pmod 2
\end{equation}
\end{enumerate}
\end{theorem}
```

Theorem~\ref{parity_results} had results about parity.

Part~\ref{even_even} showed that the sum of even numbers is even, and Equation~\ref{general} stated this result in terms of modular arithmetic.

Output:

Theorem 18. *We have:*

1. $even + even = even$

2. *in other words*

$$0 + 0 = 0 \pmod 2 \quad (6)$$

Theorem 18 had results about parity. Part 1 showed that the sum of even numbers is even, and Equation 6 stated this result in terms of modular arithmetic.

- Bibliographies.

Example 3. Input:

```
\documentclass{article}
\usepackage{amsrefs}
\begin{document}
You should read
\cite{duckworth1}.
```

Imagine we're now at the end of the document.

```
\begin{bibdiv} % bibliography heading
\begin{biblist} % list of citations
\bib{duckworth1}{article}
{ author = {Duckworth, W. Ethan},
  title = {Using LaTeX},
  journal = {Practical TeX},
  volume = {15},
  number = {111},
  pages = {1734--1745} }
\end{biblist}
\end{bibdiv}
```

Output:

You should read [1].

Imagine we're now at the end of the document.

References

[1] W. Ethan Duckworth, *Using LaTeX*, Practical TeX **15**, no. 111, 1734–1745.

- One thing to note: you would create a `\bib{foo}` entry for each entry in your bibliography.
- Other `amsrefs` features: there are other `\bib` types, such as `book`. There are other keys, such as `editor`, `address` and `date`. There are other options for how the list of references is formatted, such as `alphabetic` or `author-year`. For more information read the AMS References documentation `amsrdoc.pdf`.