

L^AT_EX and Friends

Tables

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Tables

Why Use Tables?

Table Taxonomy

Table Anatomy

Table Design

Aligning Columns with Numbers

The `table` Environment

Wide Tables

Multi-page Tables

Databases and Spreadsheets

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About this Document

- List numbers in systematic fashion.
- Tables supplement, simplify, explain, and condense information.
- Well-designed tables are easily understood.
 - Patterns and exceptions can be made to stand out.
 - They are more flexible than graphs.

Kinds of Tables

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demonstration tables Organise figures to show trend.

reference tables Provide extra, comprehensive information.

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Anatomy of Tables

number and title: Labels and describes the purpose

Table 3.1. GP and diabetic services, 2000

Towns	Number	Number providing diabetic services	GP Practices % Providing diabetic services
Town A	40	38	95
Town B	29	27	93
Town C *	29	25	86
Town D	34	29	85
Town E	36	30	83
Town F	<u>62</u>	<u>32</u>	<u>52</u>
Total	230	181	82

Source: Health Authority annual Report, 2001

* Two practices closed in April.

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column headings: Describe the data in the columns

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row headings: Describes what's in the rows.

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body: Facts, numbers, patterns, trend, exceptions

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trend: Describes the general pattern

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exception: An exception of the trend

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source: Reference

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footnote: Additional information

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Designing Tables: How *Not* To

Chilled Meats	Calories
Beef (4 oz/100 g)	225
Chicken (4 oz/100 g)	153
Ham (4 oz/100 g)	109
Liver sausage (1 oz/25 g)	75.023
Salami (1 oz/25 g)	125

- Dazzling gridlines.
- Poor alignment.
- Poor use of units.
- Different precision.

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- ❑ Dazzling gridlines.
- ❑ Poor alignment.
- ❑ Poor use of units.
- ❑ Different precision.
- ❑ **But, what's really wrong with this table?**

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Designing Tables: How to improve the table

- Scale all data to same unit: 100 g (4 oz).
- Reorder rows to show trend.
- Reduce the grid to a minimum.
- Present all numbers using three digits.
- Align all columns to the left.
- Align all numbers to the right.
- Make Column Headings stand out.

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Chilled Meats	Calories per 100 g (4 oz)
Salami	500
Liver sausage	300
Beef	225
Chicken	153
Ham	109

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 - what Describe subject of table. E.g., Increase in income.
 - where Describe the geographic location. E.g., Europe.
 - when Dates. E.g., 2002, 1900–1940, May,
 - units E.g., € per year, m/s, Pa,

Don't mix units.
- Align numbers so as to facilitate comparison:
 - Use monospaced typeface.
 - Align whole numbers to the right.
 - Align fractional numbers to the decimal point.
 - Use scientific notation if there's much variance: $1.4 \cdot 10^{+4}$ and $2.3 \cdot 10^{-3}$.
 - Consider scaling numbers to thousands, millions,
- Reduce whitespace.
- Long tables: add extra linespace after each fourth or fifth line.

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 - units** E.g., € per year, m/s, Pa,

Don't mix units.
- Align numbers so as to facilitate comparison:
 - Use monospaced typeface.
 - Align whole numbers to the right.
 - Align fractional numbers to the decimal point.
 - Use scientific notation if there's much variance: $1.4 \cdot 10^{+4}$ and $2.3 \cdot 10^{-3}$.
 - **Consider scaling numbers to thousands, millions,**
- Reduce whitespace.
- Long tables: add extra linespace after each fourth or fifth line.

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Design of Tables

- Simple, uncluttered tables.
 - No vertical grid lines.
 - Other gridlines should be kept to a minimum.
- Align numbers and column headings to the right.
- Table titles:
 - what** Describe subject of table. E.g., Increase in income.
 - where** Describe the geographic location. E.g., Europe.
 - when** Dates. E.g., 2002, 1900–1940, May,
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Aligning Columns by Hand

L^AT_EX Input

```
\begin{tabular}{rr}  
  \toprule  
  \textbf{Data} & \textbf{Data}  
  \\\midrule  
  111 & 45.67  
  \\\ 45 & 56.78  
  \\\bottomrule  
\end{tabular}
```

Data	Data
111	45.67
45	56.78

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Problematic Cases

L^AT_EX Input

```

\begin{tabular}{rr}
\toprule
\textbf{Data} & \textbf{Data} \\
\\midrule
.2\hphantom{0} & 0.00 \\
\\ 1.11 & 45.67 \\
\\ 45.\hphantom{00} & 56.78 \\
\\bottomrule
\end{tabular}

```

Data	Data
.2	0.00
1.11	45.67
45.	56.78

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L^AT_EX Input

```
\begin{tabular}{r@{.}lr@{.}l}  
  \toprule  
  \multicolumn{2}{r}{\textbf{Data}}  
& \multicolumn{2}{r}{\textbf{Data}}  
  \\\midrule  
    &2 & 0&00  
  \\\ 1&11 & 45&67  
  \\\ 45& & 56&78  
  \\\bottomrule  
\end{tabular}
```

Data	Data
.2	0.00
1.11	45.67
45.	56.78

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The `siunitx` Package

L^AT_EX Input

```
\begin{tabular}{SS}
  123   & 23
\\ 45.   & 1.09
\\   .1 & 678.999
\\   7.7 & 1e10
\\  33.3 & 2.2e-5
\end{tabular}
```

L^AT_EX Output

123	23
45.	1.09
.1	678.999
7.7	1×10^{10}
33.3	2.2×10^{-5}

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The `table` Environment

- The `table` environment creates a *floating* table.
- Table placement is controlled with an optional argument.
- Works just as with `figure`.
- Inside the table, `\caption` defines a caption.
- Also works as with `figure`.
- `table*` for two-column documents.

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Creating a Table

L^AT_EX Usage

```

\begin{table}[tbp]
  \begin{tabular}{ll}
    \toprule
      \textbf{Chilled Meats}
      & \textbf{Calories per} \\
      & \textbf{100\,g/4\,oz} \\
    \midrule
      ...
    \bottomrule
  \end{tabular}
  \caption[Calories of chilled meats]
    {Calories of chilled meats per weight. ...}
    \label{tab:meat}}
\end{table}

```

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More Commands

```
\cmidrule(<trim>){<first column>-<second column>}
```

Draws horizontal rule from start of `<first column>` to end of `<second column>`.

□ `<trim>` is optional.

l Trims left part of rule with default length.

r Trims right part of rule with default length.

l{<length>} Trims `<length>` from left part.

r{<length>} Trims `<length>` from left part.

```
\addlinespace{<length>}
```

Adds extra linespace.

□ You should use this immediately after `\\`.

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Exercise: Typeset the Following Table

Item		
Animal	Description	Price (€)
Gnat	per gram	13.65
	each	0.01
Gnu	stuffed	92.50
Emu	stuffed	33.33
Armadillo	frozen	8.99

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Wide Tables

- Sometimes tables are too wide for the current page.
- In this case, you may consider using the `rotating` package.

L^AT_EX Usage

```
\begin{sidewaystable}  
  <stuff>  
\end{sidewaystable}
```

- Inside `<stuff>`, the command `\caption` works as usual.

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Multi-page Tables: `longtable`

- The `longtable` environment is for multi-page tables.
- May require multiple L^AT_EX runs.
- Inside the `longtable` `\caption` works as usual.

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`\endfirsthead`

Specifies end of first column headings.

`\endhead`

Specifies end of remaining column headings.

`\endfoot`

Specifies end of the first foots.

`\endlastfoot`

Specifies end of the last foot.

L^AT_EX Usage

```

\begin{longtable}{lr}
  \toprule
  \textbf{Meats}
  & \multicolumn{1}{l}{\textbf{Calories per 100\,g}}
  \\ \midrule
\endfirsthead
  \toprule
  \multicolumn{2}{c}{\textbf{\tablename~\thetable\ Continued}}
  \\ \midrule
  \textbf{Meats}
  & \multicolumn{1}{l}{\textbf{Calories per 100\,g}}
  \\ \midrule
\endhead
  \midrule
  \multicolumn{2}{l}{\textbf{Continued on next page}}
  \\ \bottomrule
\endfoot
  \\ \bottomrule
\endlastfoot
  Salami & 500
  \\ Liver sausage & 300
  \\
  :
\end{longtable}

```

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`datatool` Very comprehensive:

- Creation and manipulation of databases.
- Create bar and pie charts.

`pgfplotstable` Read in tab-separated data and typeset as `tabular`.

`calctab` Commands for defining rows. Provides result queries.

`spreadtab` Spreadsheet like `tabular` environment.

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The datatool Package

StudentScores.csv

```
FirstName, SurName, StudentNo, Score
John, "Smith, Jr", 102689, 68
Jane, Brown, 102647, 75
Andy, Brown, 103569, 42
Zöe, Adams, 105987, 52
Roger, Brady, 106872, 58
Clare, Verdon, 104356, 45
```

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L^AT_EX Output

Table: Student scores

First Name	Surname	Score (%)
John	Smith, Jr	68
Jane	Brown	75
Andy	Brown	42
Zöe	Adams	52
Roger	Brady	58
Clare	Verdon	45

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The datatool Package

L^AT_EX Input

```
\DTLloaddb{scores}
  {StudentScores.csv}
\begin{table}[tbp]
  \caption[Student scores]
  \centering
  \begin{tabular}{llr}
    \toprule
    \bfseries First Name &
    \bfseries Surname &
    \bfseries Score (\%)
    \DTLforeach{scores}
      {\firstname=FirstName,
       \surname=Surname,
       \score=Score}
      {\ifthenelse{\value{DTLrowi}=1}
        {\\ \midrule}
        {\\}}
        \firstname & \surname & \score}
    \\ \bottomrule
  \end{tabular}
\end{table}
```

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AMS American Mathematical Society

API Application Programming Interface

APL A Programming Language

CTAN Comprehensive T_EX Archive Network

CD Compact Disk

FAQ Frequently Asked Question

GUI Graphical User Interface

IDE Integrated Development Environment

ISBN International Standard Book Number

SI Système International d'Unités/International System of Units

OS Operating System

TUG T_EX Users Group

URL Uniform Resource Locator

WYSIWYG What You See is What You Get

About this Document

- This document was created with `pdflatex`.
- The LaTeX document class is `beamer`.
- The main font is *TeX Gyre Heros Condensed*.
 - You may obtain the font from <http://www.gust.org.pl>.