Body

Spacing, Paragraphs, and Sectioning

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This Presentation

- Spacing

- Creating linebreaks.

- Creating paragraphs

- Creating chapters and sections.

Spacing

- LATEX feeds the input document line–by–line and assembles it according to your commands and document class.

- When it sees multiple spaces, it treats it as one ordinary space.

- Trying to create a certain "look" by using a lot of spaces is difficult in LATEX.

- This is because LATEX is trying to organize the document using a logical and consistent fashion.

- Nevertheless, we can use the `\hspace{`*`length`*`}` to create a long space.
  Ex: `Here is a \hspace{`*`1in`*` long space.}`
  Here is a   long space.

Creating Linebreaks

- There are two ways of creating linebreaks:
  - Typing a return at the end of the line (Enter key).
  - Using two backslashes (\\) at the end of the line.
- Typically, using the enter key is adequate.
- \\ is sometimes needed while making tables.
- If the output file doesn't have a linebreak where it should, then use \\.

Creating Paragraphs

- Using two line breaks—either two returns or two sets of `\\` will create a new paragraph.

- LaTeX automatically indents for a normal document (`article`,`book`, etc. classes).

- The author may use commands to force indentation or to tell LaTeX not to.

- `\noindent` forces LaTeX not to indent the new paragraph.

- `\indent` forces LaTeX to create an indentation.

- Use either command before starting a new paragraph—creating an indent is by default.

Creating Paragraphs (con't)

- An author may not want to indent or may want to change how big the default indentation is.

- We can use `\setlength{\parindent}` in the preamble to change the indentation.

```
\documentclass[pdf]{article}
⋮
\setlength{\parindent}{#pt}
\begin{document}
```

- Insert a number to represent the number of pixel spaces it will indent—0 will have no indent.

Creating Paragraphs (con't)

- Likewise we may want to adjust the space between paragraphs (from where one ends to where the next one begins).

- We can use `\setlength{\parskip}` in the preamble.
  ```
  \documentclass[pdf]{article}
  ```
  ⋮

  ```
  \setlength{\parskip}{#pt plus #pt minus #pt}
  \begin{document}
  ```

- The first # tells LaTeXyour preferred length, but can vary by "plus #" or "minus #" if necessary.

Creating Paragraphs (con't)

- More importantly, we can change the spacing between lines (i.e. double spacing).

- You can use another form of a `\setlength`, but the `setspace` package is tremendously powerful.

```
\documentclass[pdf]{article}
\usepackage{setspace}
```

⋮

```
\begin{document}
\doublespacing
Double--spaced text.
\singlespacing
Now we're back to single--spaced.
\onehalfspacing
There is also one and a half spacing.
```

Creating Paragraphs (con't)

- When using the `setspace` package, everything after `\doublespacing`, `\singlespacing`, `\onehalfspacing`.

- You can put `\doublespacing`, `\singlespacing`, or `\onehalfspacing` in the preamble so the entire document is the same.

- However, you may not want to double space certain parts of your document (i.e. abstract), so you may want to place it later in the document.

Chapters and Sections

- One of the most powerful features of LaTeX is sectioning.

- LaTeXwill automatically number chapters, sections, and subsections.

- These will automatically appear in our table of contents if we choose to have one.

- The most basic command is `\section{`*Section Name*`}`, with the *section name* and number appearing at the top of that section. `\begin{document}`
`\section{Introduction}`
`Introductory portion of our paper...`
`\section{Experiment}`
`Experimental portion--LaTeX will`
`automatically number these sections.`

Chapters and Sections (con't)

- `\section` works for all classes.

- `\chapter` can only be used in the `report` or `book` class.

- `\chapter{Chapter Name}` will create a chapter with the *chapter name* and number at the top.

- You can use the `chapter` and `section` commands in the same document.

Chapters and Sections (con't)

- You may also want to create subsections under other sections. This can be done with the `\subsection{`*Subsection Name*`}` command.

- LATEX also uses `\paragraph{`*Paragraph Name*`}` and `\subparagraph{`*Subparagraph Name*`}`, although they are infrequently used.

- If you have chapters and want to separate the book into parts, you may use the `\part{`*Part Name*`}` command, which won't interfere with chapter numbers.

Chapters and Sections (con't)

- Sometimes we may not want to include chapter, section, subsection, etc. numbers in our paper.

- `\section*{`*Section Name*`}` and `\chapter*{`*Chapter Name*`}` will put the title above the section or chapter, but without the autonumbering.

- You may use the * to also stop other sectioning commands from numbering.

Chapters and Sections (con't)

- If we're using a table of contents, some of our chapters or sections may have long names that we don't want to have in our table of contents.

- We can use brackets to make a name that appears in the body of our paper and another name in the table of contents.

- `\section[`*Table of Content's Name*`]{`*The Longer Name for the Actual Paper*`}` command will parse out two different section names.

- The same command can be used with parts, chapters, subsections, etc.

- It can also use the asterisk to exclude autonumbering.

1 Section

Some text...

1.1 Subsection

More text...

Numberless Section

Even more text...

Spacing, Paragraphs, and SectioningReview

- Linebreaks can be created using the Return key or \\.

- A pair of linebreaks will create a new paragraph.

- There are a handful of ways to change the line spacing in the document.

- Chapters and sections are autonumbering and ties in with the table of contents.