

# Customizing L<sup>A</sup>T<sub>E</sub>X

Son To \*

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18th June,2017

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# 1 New commands, Environments and Packages

## 1.1 New commands

The format for the new commands is:

`\newcommand{name}[num]{definition}`

An example of this is The not so short introduction to L<sup>A</sup>T<sub>E</sub>X 2<sub>ε</sub>, and hey, we have The not so short introduction to L<sup>A</sup>T<sub>E</sub>X 2<sub>ε</sub>.

Another example is:

- This is the *not so* short Introduction to L<sup>A</sup>T<sub>E</sub>X 2<sub>ε</sub>
- This is the *very* long Introduction to L<sup>A</sup>T<sub>E</sub>X 2<sub>ε</sub>

L<sup>A</sup>T<sub>E</sub>X will allow overwriting available commands only if we use `\renewcommand`, with the same syntax as `\newcommand`. Also, the `\providecommand` works the same as `\newcommand`, but L<sup>A</sup>T<sub>E</sub>X will silently ignore it if the command exists!

## 1.2 New environments

`newenvironment{name}[num]{before}{after}`

Let's try an example.

■ I am Edward Longsharks... ■

Similar to new commands, we have `\renewenvironment`

## 1.3 Extra space

I lied.

I have an healthy baby boy.

Same

here.

When creating a new environment, extra spaces can easily creep in. Fix this problem with `\ignorespaces` and `\ignorespacesafterend`

I lied.

I have an healthy baby boy.

Same

here.

## 1.4 Own package

Use `\ProvidesPackage{package name}` on .sty files containing new modifications.

# 2 Fonts and Sizes

## 2.1 Changing Font commands

- Groups are important for limit the effect of font size (and of most  $\text{\LaTeX}$  commands)
- Font size changes line spacing only if the paragraph ends within the group. See

My name is Darth Vader.

not Palpatine

and

My name is Darth Vader.

not Palpatine

## 2.2 L<sup>A</sup>T<sub>E</sub>X, the basic idea

The basic idea of L<sup>A</sup>T<sub>E</sub>X is to separate the logical from visual markup presentation.

Do not **enter** this room, it's occupied by **machines** of unknown origin and purpose.

`\emph{}` is context aware while changing fonts is absolute.

*You can also emphasize text if it is set in italics, in a sans-serif font, or in typewriter style.*

## 3 Spacing

### 3.1 Line Spacing

`\linespread{factor}`

to change line inter-line spacing in a document. Use `\linespread{1.3}` for “one and a half” line spacing. Use `\linespread{1.6}` for “double” line spacing.

Use the command

`\setlength{\baselineskip}{1.5\baselineskip}`

if you really want to space lines for good reason.

This paragraph is typeset with the baseline skip set to 1.5 of what it was before. Note the `par` command at the end of the paragraph.

This paragraph has a clear purpose: it shows that after the curly brace has been closed, everything is back to normal.

### 3.2 Paragraph Formatting

Use

```
\setlength{\parindent}{0pt}  
\setlength{\parskip}{1ex plus 0.5ex minus 0.2ex}
```

to influence paragraph formatting in L<sup>A</sup>T<sub>E</sub>X. Additionally, we can put

```
\indent and \noindent
```

at the beginning of the paragraph.

### 3.3 Horizontal space

`\hspace{length}` and `\stretch{n}` If a space should be kept no matter what, use `\hspace*`

### 3.4 Vertical space

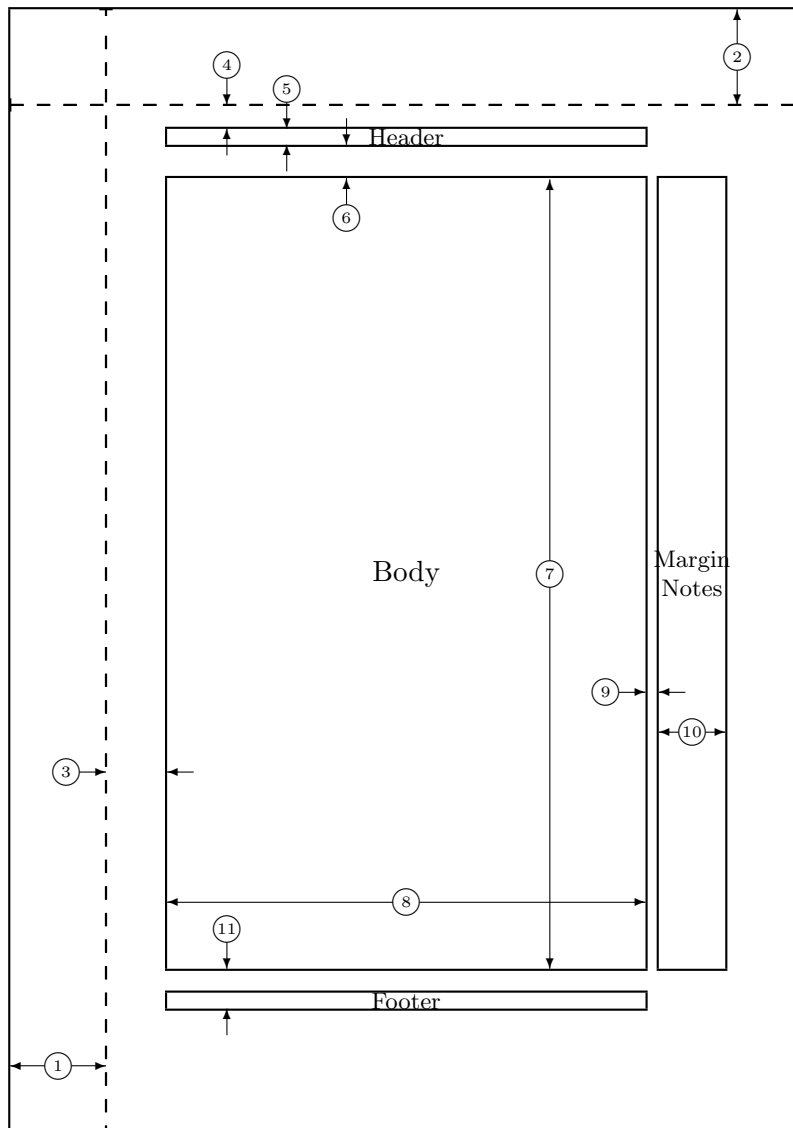
```
\vspace{length}  
\vspace{\stretch{1}}
```

 with `\pagebreak` typesets the last line of the page.  
Also, if two lines in the same paragraph, use `\\{length}`. Moreover, `\bigskip` and `\smallskip` come in handy vertically.

## 4 Page Layout

Pay attention to these two commands, especially the second one. And look at the layout in the next page.

```
\setlength{parameter}{length}  
\addtolength{parameter}{length}
```



- |    |                       |    |                                  |
|----|-----------------------|----|----------------------------------|
| 1  | one inch + \hoffset   | 2  | one inch + \voffset              |
| 3  | \oddsidemargin = 46pt | 4  | \topmargin = 18pt                |
| 5  | \headheight = 12pt    | 6  | \headsep = 25pt                  |
| 7  | \textheight = 595pt   | 8  | \textwidth = 360pt               |
| 9  | \marginparsep = 10pt  | 10 | \marginparwidth = 50pt           |
| 11 | \footskip = 30pt      |    | \marginparpush = 5pt (not shown) |
|    | \hoffset = 0pt        |    | \voffset = 0pt                   |
|    | \paperwidth = 597pt   |    | \paperheight = 845pt             |

## 5 More Fun With Lengths

A modification of format based on the size of other page elements is more useful.

```
\settoheight{variable}{text}  
\settowidth{variable}{text}  
\settodepth{variable}{text}
```

Now, an example with `\nicespace{}`...

$$a^2 + b^2 = c^2$$

Where:  $a, b$  – are adjoin to the right angle of a right-angled triangle.  
 $c$  – is the hypotenuse of the triangle and feels lonely.  
 $d$  – finally does not show up here at all. Isn't that puzzling?

## 6 Boxes

**Paragraph:** Pack a paragraph into a box with either

```
\parbox[pos]{width}{text} or  
\begin{minipage}[pos]{width}text\end{minipage}
```

with  $[pos]=c,t,b$

**Horizontally aligned box:** `\mbox` to prevent separation of a series of boxes. Also, `\makebox[width][pos]{text}` in which

- $[pos] = c, l, r, s$
- $[width]$  can be `\width`, `\height`, `\depth`, `\totalheight` w.r.t *text* width.
- `\framebox` works exactly the same with the addition of having a drawn box around.

Example:

c e n t r a l