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## Some L<sup>A</sup>T<sub>E</sub>X 2<sub>ε</sub> tricks and tips (IV)

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### 1 Introduction

As usual, in this article we shall give some L<sup>A</sup>T<sub>E</sub>X hints:

1. How to box an equation in an `align` (or its `align*` brother),
2. How to write a standard but elegant title page,
3. How to write text above and below an image,
4. How to modify spacing between lines,
5. How to write a left brace in a `subequations` environment.

### 2 Boxing an equation in an `align`-like environment

In [3], I wondered how I could *box an equation in an align-like environment*. Mr. Lars Madsen gave me the solution, also in [3], so thanks to him.

#### 2.1 Example

Here is the seductive example of what you might want to achieve:

$$\boxed{A = B}$$

$$A = B$$

$$= C$$

#### 2.2 Code

The solution is to use the `calc`, and (evidently) the `amsmath` package too. Then, one can define `\Aboxed` like this:

```
\makeatletter
\newcommand\Aboxed[1]{%
  % syntax: \Aboxed{ left & right }
  \@Aboxed#1\ENDDNE}
\def\@Aboxed#1&#2\ENDDNE{%
  % idea: get the left and right part
  % typeset them in a \boxed AFTER an '&'
  % and pull it backwards
  % but in order to get the horizontal
  % placement to work we need to set
  % some appropriate space to the left
  % of the '&'
  \settoheight\@tempdima{\displaystyle#1{}}%
  \setlength\@tempdima
    {\@tempdima+\fboxsep+\fboxrule}
  % \global does not always mix well
  % with \setlength
  \global\@tempdima=\@tempdima
  \kern\@tempdima
  &
  \kern-\@tempdima
  \boxed{#1#2}%
}
```

```
}
\makeatother
This can then be used in a document, like this:
\begin{align*}
  \Aboxed{A&=B}\\\
  A&=B\\
  &=C
\end{align*}
```

If one wants to box an entire equation complex, the `empheq` package is a good choice.

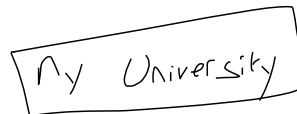
### 3 A standard title page

The *title page* is the first page that will be seen on your document, so it has a strong influence on the (potentially future) reader. Doing it with care is a good but difficult thing.

#### 3.1 Example

One can define a standard, but elegant, title page like the one which follows. (It has been scaled to TUGboat's column width. Vertical spaces will adjust appropriately.)

YOUR UNIVERSITY




---

The name of your book  
– in 1 pages, with 2 tables –

---

FIRSTNAME<sup>1</sup> LastName

City, Country

August 31, 2011

---

<sup>1</sup>FirstName.LastName@provider.domain

This is purely homemade, so I'm open to any suggestion(s) or remarks. This is a title page that I use for many booklets. For example, a slightly modified version of this can be found as the title page of [4]. I invite you to take a closer look at this title page.

Peter Wilson has developed a collection of title pages which can be found at [6]. This collection is worth reading.

### 3.2 Code

Here is the code which produced the expected title page.

```
\begin{titlepage}
\begin{center}

% Upper part of the page
\textsc{\LARGE YOUR UNIVERSITY}\\[1.5cm]

\includegraphics[width=0.50\textwidth]{img/your_university_logo.eps}\[1cm]

% Title
%\HRule \[0.4cm]
\rule{\textwidth}{1pt}\par
\vspace{0.50cm}
{\huge \bfseries The name of your book\ \
\Large -- in \ref{TotPages} pages,
with \AbsTables ~tables --}\[0.4cm]
\rule{\textwidth}{1pt}\par
%\HRule \[1.5cm]
\vfill

% Author
\Large{\textsc{FirstName}\footnote{\%
\href{mailto:FirstName.LastName@
provider.domain}{FirstName.LastName@
provider.domain}} LastName}
\vfill

City, Country
\vfill

% Bottom of the page
{\large \today}

\end{center}
\end{titlepage}
```

This can be put in your document, assuming the `hyperref`, `totpages`, and `graphicx` packages have been loaded before, having also defined `\AbsTables`. If `\AbsTables` is 1, you can use the `ifthen` package to modify “tables” to “table” automatically. (In the `memoir` class, the `totpages` package is not necessary, as `lastpage` and `lastsheet` are already defined.)

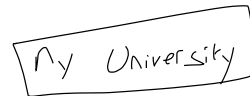
## 4 Text below an image

### 4.1 Example

One might appreciate being able to write this:

What could I say about it?

...



... Well, I won't say anything about it!

**Figure 1:** A caption

### 4.2 Code

This is achieved thanks to the following code, coming from [1].

```
\begin{figure}[!ht]
\centering
\parbox{0.25\linewidth}{%
Any Text that you want above \ldots\%
[\smallskipamount]
\includegraphics[width=0.2\textwidth]{myuniv.eps}\[
\smallskipamount]
\ldots or below the image.
}
\caption{A caption}\label{fig:label1}
\end{figure}
```

## 5 Modifying spacing between lines

Many universities require double spacing to provide examiners with room for annotations. This can be achieved easily thanks to the `setspace` package [5].

### 5.1 Example

With normal spacing, we get

Maecenas dui. Aliquam volutpat auctor lorem. Cras placerat est vitae lectus. Curabitur massa lectus, rutrum euismod, dignissim ut, dapibus a, odio. Ut eros erat, vulputate ut, interdum non, porta eu, erat. Cras fermentum, felis in porta congue, velit leo facilisis odio, vitae consectetur lorem quam vitae orci. Sed ultrices, pede eu placerat auctor, ante ligula rutrum tellus, vel posuere nibh lacus nec nibh. Maecenas laoreet dolor at enim. Donec molestie dolor nec metus. Vestibulum libero. Sed quis erat. Sed tristique. Duis pede leo, fermentum quis, consectetur eget, vulputate sit amet, erat.

With `\doublespacing`, we get

Maecenas dui. Aliquam volutpat auctor lorem. Cras placerat est vitae lectus. Curabitur massa lectus, rutrum euismod, dignissim ut, dapibus a, odio. Ut eros erat, vulputate ut, interdum non, porta eu, erat. Cras fermentum, felis in porta congue, velit leo facilisis odio, vitae consectetur lorem quam vitae orci. Sed ultrices, pede eu placerat auctor, ante ligula rutrum tellus, vel posuere nibh lacus nec nibh. Maecenas laoreet dolor at enim. Donec molestie dolor nec metus. Vestibulum libero. Sed quis erat. Sed tristique. Duis pede leo, fermentum quis, consectetur eget, vulputate sit amet, erat.

## 5.2 Code

You need only include the `setspace` package and then select `\singlespacing`, `\onehalfspacing` or `\doublespacing`.

## 6 Writing a left brace in a subequations environment

### 6.1 Example

One may want a result like this:

$$\left\{ \begin{array}{ll} a_1(x) = b_1 & (1a) \\ a_2(x) = b_2 & (1b) \\ a_3(x) = b_3 & (1c) \end{array} \right.$$

### 6.2 Code

This is achieved easily thanks to the inclusion of the `empheq` package, with the following code:

```
\begin{subequations}
\begin{empheq}[left=\empheqlbrace]{align}
  a_1(x) &= b_1 \\
  a_2(x) &= b_2 \\
  a_3(x) &= b_3
\end{empheq}
\end{subequations}
```

Thanks to Mr. Heller for this trick [2].

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## References

- [1] Donig, Thorsten. Giving source URL in Figure environment. *L<sup>A</sup>T<sub>E</sub>X Community (Forum)*, 2009. <http://www.latex-community.org/forum/viewtopic.php?f=44&t=5587>.
- [2] Heller, Martin and Maciel, Rui. Left brace on a subequations environment? *comp.text.tex discussion*, 2010.
- [3] Madsen, Lars, Merciadri, Luca. How can I use `\boxed{}` in align environment? *comp.text.tex discussion*, 2010.
- [4] Merciadri, Luca. Can a passive house be the solution to our energy problems, and particularly with solar energy?, 2008. Travail de fin d'études (secondaire); <http://hdl.handle.net/2268/19645>.
- [5] Talbot, Nicola. Writing a Thesis in L<sup>A</sup>T<sub>E</sub>X: hints, tips and advice, 2010. [http://uk.tug.org/wp-content/uploads/2009/01/talbot\\_slides.pdf](http://uk.tug.org/wp-content/uploads/2009/01/talbot_slides.pdf).
- [6] Wilson, Peter. Some Examples of Title Pages, 2010. <http://ctan.org/pkg/titlepages>.