LaTeX Magazine Template

by

Christelinda Laureijs

A template for creating magazine-style layouts with R and LaTeX

September 20, 2024

Alice in Wonderland

This excerpt from Alice's Adventures in Wonderland *demonstrates the features of a LaTeX-based magazine template. It can be created by pasting plaintext files into R, adding some annotations to initiate custom environments, and knitting it to a PDF.*

The custom environments are for Q & A style articles, a simple block quote, references, author names and a preamble (such as this one).

ALICE was beginning to get very tired of sitting by her sister on the bank, and of having nothing to do: once or twice she had peeped into the book her sister was reading, but it had no pictures or conversations in it, "and what is the use of a book," thought Alice "without pictures or conversations?"

So she was considering in her own mind (as well as she could, for the hot day made her feel very sleepy and stupid), whether the plea-sure of making a daisy-chain would be worth the trouble of getting up and picking the daisies, when suddenly a White Rabbit with pink eyes ran close by her.

The White Rabbit

There was nothing so very re-markable in that; nor did Alice think it so very much out of the way to hear the Rabbit say to itself, "Oh dear! Oh dear! I shall be late!" (when she thought it over afterwards, it occurred to her that she ought to have wondered at this, but at the time it all seemed quite natural); but when the Rabbit actually took a watch out of its waistcoat-pocket, and looked at it, and then hurried on, Alice started to her feet, for it flashed across her mind that she had never before seen a rabbit with either a waistcoat-pocket, or a watch to take out of it, and burning with curiosity, she ran across the field after it, and fortunately was just in time to see it pop down a large rabbit-hole under the hedge.

In another moment down went Alice after it, never once considering how in the world she was to get out again. The rabbit-hole went straight on like a tunnel for some way, and then dipped suddenly down, so suddenly that Alice had not a moment to think about stopping herself before she found herself falling down a very deep well.

Either the well was very deep, or she fell very slowly, for she had plenty of time as she went down to look about her and to wonder what was going to happen next. First, she tried to look down and make out what she was coming to, but it was too dark to see anything; then she looked at the sides of the well, and noticed that they were filled with cupboards and book-shelves; here and there she saw maps and pictures hung upon pegs. She took down a jar from one of the shelves as she passed; it was labelled "ORANGE

MARMALADE", but to her great disappointment it was empty: she did not like to drop the jar for fear of killing somebody underneath, so managed to put it into one of the cupboards as she fell past it.

Falling

"Well!" thought Alice to herself, "after such a fall as this, I shall think nothing of tumbling down stairs! How brave they'll all think me at home! Why, I wouldn't say anything about it, even if I fell off the top of the house!" (Which was very likely true.)

Down, down, down. Would the fall never come to an end?

"I wonder how many miles I've fallen by this time?" she said aloud. "I must be getting somewhere near the centre of the earth. Let me see: that would be four thousand miles down, I think—" (for, you see, Alice had learnt several things of this sort in her lessons in the schoolroom, and though this was not a very good opportunity for showing off her knowledge, as there was no one to listen to her, still it was good practice to say it over) "—yes, that's about the right distance—but then I wonder what Latitude or Longitude I've got to?" (Alice had no idea what Latitude was, or Longitude either, but thought they were nice grand words to say.)

Presently she began again. "I wonder if I shall fall right through the earth! How funny it'll seem to come out among the people that walk with their heads downward! The Antipathies, I think—" (she was rather glad there was no one listening, this time, as it didn't sound at all the right word) "—but I shall have to ask them what the name of the country is, you know. Please, Ma'am, is this New Zealand or Australia?" (and she tried to curtsey as she spoke—fancy curtseying as you're falling through the air! Do you think you could manage it?) "And what an ignorant little girl she'll think me for asking! No, it'll never do to ask: perhaps I shall see it written up somewhere."

Down, down, down. There was nothing else to do, so Alice soon began talking again.

"Dinah'll miss me very much to-night, I should think!" (Dinah was the cat.) "I hope they'll remember her saucer of milk at tea-time. Dinah my dear! I wish you were down here with me! There are no mice in the air, I'm afraid, but you might catch a bat, and that's very like a mouse, you know. But do cats eat bats, I wonder?" And here Alice began to get rather sleepy, and went on saying to herself, in a dreamy sort of way, "Do cats eat bats? Do cats eat bats?" and sometimes, "Do bats eat cats?" for, you see, as she couldn't answer either question, it didn't much matter which way she put it. She felt that she was dozing off, and had just begun to dream that she was walking hand in hand with Dinah, and saying to her very earnestly, "Now, Dinah, tell me the truth: did you ever eat a bat?" when suddenly, thump! thump! down she came upon a heap of sticks and dry leaves, and the fall was over.

Q What happened to Alice after that?

A Alice was not a bit hurt, and she jumped up on to her feet in a moment: she

looked up, but it was all dark overhead; before her was another long passage, and the White Rabbit was still in sight, hurrying down it. There was not a moment to be lost: away went Alice like the wind, and was just in time to hear it say, as it turned a corner, "Oh my ears and whiskers, how late it's getting!" She was close behind it when she turned the corner, but the Rabbit was no longer to be seen: she found herself in a long, low hall, which was lit up by a row of lamps hanging from the roof.

There were doors all round the hall, but they were all locked; and when Alice had been all the way down one side and up the other, trying every door, she walked sadly down the middle, wondering how she was ever to get out again.

Suddenly she came upon a little three-legged table, all made of solid glass; there was nothing on it except a tiny golden key, and Alice's first thought was that it might belong to one of the doors of the hall; but, alas! either the locks were too large, or the key was too small, but at any rate it would not open any of them. However, on the second time round, she came upon a low curtain she had not noticed before, and behind it was a little door about fifteen inches high: she tried the little golden key in the lock, and to her great delight it fitted!

Alice opened the door and found that it led into a small passage, not much larger than a rat-hole: she knelt down and looked along the passage into the loveliest garden you ever saw. How she longed to get out of that dark hall, and wander about among those beds of bright flowers and those cool fountains, but she could not even get her head through the doorway; "and even if my head would go through," thought poor Alice, "it would be of very little use without my shoulders. Oh, how I wish I could shut up like a telescope! I think I could, if I only knew how to begin." For, you see, so many out-of-the-way things had happened lately, that Alice had begun to think that very few things indeed were really impossible.

There seemed to be no use in waiting by the little door, so she went back to the table, half hoping she might find another key on it, or at any rate a book of rules for shutting people up like telescopes: this time she found a little bottle on it, ("which certainly was not here before," said Alice,) and round the neck of the bottle was a paper label, with the words "DRINK ME," beautifully printed on it in large letters.

Lewis Carroll

1 . Carroll, Lewis. (2006). Alice in Wonderland. Urbana, Illinois: Project Gutenberg. https://www.gutenberg.org/cache/epub/11/pg11-images.html 2. Veeterzy. (2016). Green Leafed Tree. https://www.pexels.com/photo/green-leafed-tree-38136/

Editor Instructions

This document will help you get up and running with magazine creation. If you're thinking, "What is LaTeX?", I have a short intro section at the end of this document!

Overview

1. Write your article
2. Decide if your article needs any subsection headers to break up the text
3. Identify if your article has any of the following:
   - A disclaimer/preamble before the main content
   - Subsection headers
   - A Q&A
   - An author name
   - References
   - Any background images
   - Any special characters, superscripts, or subscripts
4. Read through the instructions below to identify the environment tags you'll need.
5. Add the tags to your document. For example, you may need to surround the author name with \begin{author-name} and \end{author-name}.
6. If using background images, create an 8.5" x 11" image (.PNG at at least 300 DPI or a .PDF)
7. Copy the Blank-article.Rmd, save it as an .Rmd file with a new title, and insert your content
8. Through RStudio, knit the article to a PDF and tweak the output until you're satisfied

Note: It may take a long time to knit the document the first time, since R will likely need to install some packages.

Title

Use the \section{} argument for article titles.

```
\section{Article title}
```

If you have a dark background image, you may want to change the text color. Use the following code for the title:

\section{\color{white} Alice in Wonderland}

For example,   (it's here, you just can't see it because it's white!)

Columns

This template uses the multicols package to enable columns. Right after the article title, insert this code to begin the 3-column layout.

```
\begin{multicols}{3}
```

```
Entire article content goes here (preamble, main text, author name, references
```

```
\end{multicols}
```

Preamble

Some articles require some explanatory text or a disclaimer before the main content. Use the preamble environment for this.

```
\begin{preamble}
```

```
Insert disclaimer text here, an intro, etc...
```

```
\end{preamble}
```

Drop caps

Drop caps are a fun way to emphasize the first letter of the first word of the article. Use the \lettrine{}{} command to insert a drop cap on the first word of the article. This requires two sets of parentheses. Put the first letter in the first set of brackets, and the rest of the word in the other brackets.

After you add this code, LaTeX will put in a drop cap and make the rest of the word in small caps to emphasize it.

```
\lettrine{D}{rop} caps are a fun way to emphasize the first letter...
```

Section headers

For subsections, use \subsection{} (equivalent to Heading 2 in Word) and \subsubsection{} (i.e. Heading 3)

Heading 2

Heading 3

Q&A

Q How do you make the "Q" and "A" stand out in a Questions & Answers article?

A Type \Q and then the question. Type \A before the answer. The letters will then have specialized drop-caps to make them stand out nicely.

```
\Q What happened to Alice?
\A She saw a stressed rabbit.
```

Background images

This template uses full-bleed background images. They must be 8.5 in x 11 in, and they can be either .PDF or .PNG files (if .PNG, try to have at least 300 DPI).

I've created a new command called \InsertBackgroundPicture{}, which uses \AddToShipoutPictureBG* from the *eso-pic* package. This allows you to place a full-size background picture on a specific page. The command accepts one argument, which is the filepath for the image. I'm using two

dots at the beginning of the name (../) to specify that LaTeX needs to move up one folder level (relative to this *.Rmd* file) and then into the *Images/* folder.

```
\InsertBackgroundPicture{../Images/Alice-article-background-A.png}
```

Superscripts/subscripts

Use the caret (^) symbol on both sides of the character that will become the superscript. Use the tilde (~) symbol on both sides of the character that will become the subscript.

```
H~2~O
```

```
R^2^
```

Author names

To insert an author's name, type in the following code near the end of the article.

```
\begin{author-name}
Lewis Carroll
\end{author-name}
```

The line will automatically stretch to fill the current text container. In the following example, I placed the author environment before \end{multicols} to have it only take up one column.

Lewis Carroll

References

Use the references environment tag.

```
\begin{references}
Paste in references here...
\end{references}
```

What is LaTeX?

LaTeX (pronounced lay-tech) is a free program used to create beautifully typeset documents like books, theses, and newsletters. It is very different than Microsoft Word. Instead of selecting text and clicking on a button to make it bold or *italicized*, you write code like \textit{} for italics. There are several advantages to using LaTeX.

Beautiful typography

LaTeX automatically handles a lot of typesetting details including:

- Kerning - aesthetically pleasing spacing between letters based on their shapes
- Ligatures - new characters for letter combinations like fi and ff, which often crash into each other in Word documents (see Figure 1 for a comparison).
- Text justification without creating white rivers of blank spots
- Consistent styles for section headers, citations, figure captions and numbering, etc.
- and more!

Really, only typography nerds will notice these details. But professional-quality typesetting does have a huge impact on the appearance of the document. Your work will look neat, elegant, and perfectly arranged with minimal work.

No manual formatting

You don't need to manually adjust the spacing, figure numbers, or page numbers. Details like this are all specified in the document preamble, and LaTeX will handle the rest. This is such an efficient system, because it allows you to focus on the content and not waste time trying to get it to look nice. You won't ever need to manually renumber your table of contents, or figure captions!

Uses Plaintext

Word documents often crash when they get too large or have too many images. Since LaTeX uses plaintext files (.txt) and sources images externally, your document stays small and portable. Plaintext files can open on any operating system, and they aren't locked into a specific version or program. You can open decades-old .txt files and they still work. You can easily link your writing to version control software like Git.
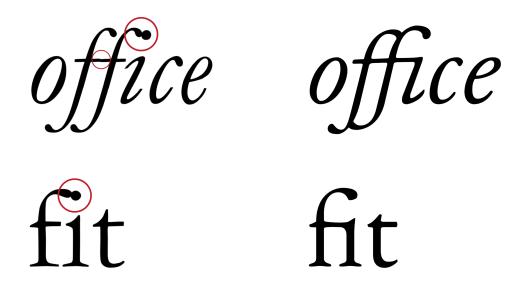
office *office*

fit fit

Figure 1: Ligatures are specialized characters that replace letter combinations like *fi*. Left: Word does not automatically include ligatures, so these letters clash. In this Word example, notice the collision between the curve of the *f* and the dot in *i*. The word *office* also has slightly misaligned *f*'s. Disclaimer: I used a Garamond typeface that doesn't have ligatures, which is why the letters look different than the ones on the right. Right: LaTeX has full support for ligatures. These words showcase the *ffi* and *fi* ligatures.

Alice was beginning to get ▪ very ▪ tired ▪ of sitting by her sister on the bank, and of having nothing to do: once or twice she had peeped into the book her sister was reading, but it had ▪ no ▪ pictures ▪ or conversations ▪ in ▪ it, ▪ "and what is the use of a book," thought ▪ Alice ▪ "without pictures or conversations?"

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Figure 2: This figure highlights some key differences between typesetting in Word (left) and LaTeX (right). Notice how Word creates a misaligned drop-cap and awkward justification, with several gaps (highlighted in red). LaTeX produces neatly aligned text, and it even uses small caps to emphasize the first word.

Handles large, complex documents well

LaTeX makes it easy for you to manage large documents like a thesis or book because it allows for easy cross-referencing of figures, footnotes, quotes, and citations. To add a list of figures, just type \listoffigures!

Inserting a new page or image into a lengthy document (typically a harrowing process in Word) is not difficult in LaTeX and you have a lot of control over the layout of your sections. It's easy to move things around, and LaTeX will automatically re-number all your figures and footnotes.

Mathematics

One of the best features of LaTeX is its mathematical typesetting. This includes auto-aligned equations and the ability to add specialized mathematical notation.

$$\int_a^b u \frac{d^2v}{dx^2} \, dx = u \frac{dv}{dx}\bigg|_a^b - \int_a^b \frac{du}{dx}\frac{dv}{dx} \, dx.$$