Making My LyX Template 2015

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This is a making-template-20150827.lyx, a document the describes the steps I made to create the document template I'm currently using. It describes, step by step, the changes I made in to get this document to work the way I want. I began with the "blank" document in LyX, the default thing, with none of the LyX special templates in use.

If you want to start a new document, I suggest you begin with template-20150827.lyx, save it under a new name, delete the contents, and start writing.

Why Make a Template?

Lyx is a truly great program, but out of the box it does not provide documents that are exactly suited to your particular needs. Today, I've decided once-again to start with a clean file and system to see what changes I need to make in a document before it seems minimally reasonable to me.

If you go into Document -> Settings, you see a wealth of changes you *might* make. Most are OK as they are, but some are *really, very seriously in need of fixing.* Once you make changes you desire, you have 2 ways to make use of them in the future.

1. Most obviously, save your LyX file. Then copy it to new names and edit it whenever you like. That's what I intend you to do with template-20150827.lyx.

2. Use the LyX magic menus. In Document -> Settings, you should see a button named "Save Defaults". When you click that, you will see, very quickly flashing by, a message in the LyX bottom message buffer, saying that it has saved your defaults in ~/.lyx/templates/default.lyx.

   So far as I know, here is the result. Next time you start a new LyX file with File -> New, LyX will look at your defaults file and use those settings. That change will pick up everything that is a setting, of course, nothing inside the body of the document seems to come along for the ride.

   For the most part, that is OK with me, except there is one math macro I wish I could add to my template in a hidden way, but I can't. Thus, the template includes, in line 1, a macro that is described below. That's why I intend to make new documents

beginning from template-20150827.lyx. But, if you don't want the math macro \vb to get bold roman matrices, then there's no argument against +approach #1.

The Bare Minimum Changes (Even Novices Need)

List of changes, one-by-one.

1. Mandatory: Fix margins

   Document -> Settings -> Page Margins -> uncheck "Default Margins" and put 1 inch for top, bottom, inner, outer.

2. Mandatory: Fix Fonts

   Document -> Settings -> Fonts

   Choose anything except Default, which look horrible in PDF. I change "Roman", "Sans Serif" and "Typewriter" to Latin Modern Roman. Set Base Size to 12. I'm unsure/indifferent in "Use non-TEX fonts", but seriously considered trying it out.

3. Mandatory: Letter Size Paper

   Document -> Settings -> Page Layout -> Format : U S Letter

   I'm an American, and proud of it!

   On same panel, there is a chooser that allows you to put in fancy headers and such. I generally don't. But might. Sometimes.

More Changes I Need (from which Others May Benefit)

1. Mandatory: Enable Customized Lists. In the LYX menus, Choose Document -> Settings -> Module. Choose Customizable Lists (enumitem) and then Add. After that, a new LYX environment type becomes available, after Enumerated one should see Enumerate-Resume.

   The big benefit is that we can continue an enumerated list across the boundaries of a major section. This is impossible with an ordinary enumerated list.

   In the output of this writeup (but not within LYX, interestingly), the enumeration continues across sections.

2. Mandatory: Language Encoding

   Document -> Settings -> Language

   Unicode (utf8)

3. Optional: Document Style. Gaze in wonder at the LATEX document styles you might use. Your default document should be in the style "Article". You better check. Document -> Settings -> Document Style. Almost always, I change "article" to "article (KOMA-script)". I don't recall why I got in that habit, it opens up a few paragraph styles to easy access.

4. Look at the document pre-amble. It should be empty at the start. You can insert things there that you might want to have "automatically" for various paragraph or environment types. This is a personal thing, sometimes it can be trouble because you accumulate code you don't understand in your preamble and then it causes the compiler to fail.

   Here are some things I do generally insert there.

   a) Nearly Mandatory: Include code to automatically center contents of figure and table floats. This is just a convenience, not vital. You can always center them. But it is inconvenient. So I almost always have this in the preamble.

```
\usepackage{ifthen}
\renewenvironment{figure}[1][]{%
 \ifthenelse{\equal{#1}{}}{%
   \@float{figure}
 }{%
   \@float{figure}[#1]%
 }%
 \centering
}{%
 \end@float
}

\renewenvironment{table}[1][]{%
 \ifthenelse{\equal{#1}{}}{%
   \@float{table}
 }{%
   \@float{table}[#1]%
 }%
 \centering
}{%
 \end@float
}
```

   b) Nearly Mandatory: Customize Listings

   I *love* the listings package for LaTeX. It is, by far, the best way to include computer code listings in documents. The alternative, Verbatim, is bad on so many levels, well, I just hate it. In the preamble, I like to insert some standard settings for usages of listings.

```
\usepackage{listings}
\lstset{tabsize=2, breaklines=true}
```

   c) Becoming Mandatory: Configure the system to allow "bold roman math" fonts to represent matrices. This is a new thing for me, some publishers want this. A matrix is not to be referred to as X, it should be $\mathbf{X}$.

Somewhere in your document, before you want the bold math shortcut, insert this LyX macro magic. I found this very tricky to create, but you can just copy it over:

That creates a magic keystroke in math mode. Type "C-m \vb XYZ" When you hit "\vb" a special data entry thing will pop up, and inside there you type XYZ and you end up with **XYZ**.

This is not necessary. If you are typing math, you can always enter the usual way XYZ and then go back and insert "bold roman" character styles. But if you type lots of matrices, you will hate doing that.

d) Becoming Mandatory: Right-click style chooser for example code. I recently learned this trick and have begun to like it a lot (see full writeup `http://pj.freefaculty.org/blog/?p=233`).

   i. Document -> Settings -> Modules -> Logical Markup : Add.

   ii. Document -> Settings -> Local Layout, insert some code that creates "typewriter font" character styles for computer code of various types.

   After you do that, then when you write in something like "consider the R function `glm`" you can use a LyX right click menu to choose Text Style -> Rfunction. This is not really mandatory, but it is something the famous people do when they are writing about computer programs. So we might as well try to do that as well.

Preference Changes that apply across documents

While working on the template, I noticed that I really missed one other change I had implemented in my setup: a keyboard customization to automatically number equations. Thus, I add:

Optional: Keyboard shortcuts to suit yourself.

I generally DO NOT customize keyboards because I become paralyzed when I have to help students with their computers. However, there is one I've found truly invaluable and not harmful. I want to make all equations inserted in display format to be numbered. So when I hit C-S-m I get a label automatically. I do that by fiddling with keyboard shortcuts. Tools -> Preferences -> Editing -> Shortcuts. To tell you the truth, I think the LyX menus are a little complicated. It writes a file in your personal LyX config folder, "bind/user.bind". Here's what I'm aiming at.

```
## This file is automatically generated by lyx
## All modifications will be lost
```

```
Format 1

\unbind "C-M-n" "command-sequence math-display; math-number-toggle
    ;"
\unbind "C-S-m" "math-display"
\unbind "C-S-n" "buffer-new-template"

\bind "C-S-m" "command-sequence math-display; math-number-toggle;"
\bind "C-S-n" "math-display"
```

As you can see, I've unset their default keystrokes for some actions, and then I've added in new ones to suit my needs. To me, the key here is that I've got C-S-m linked together with steps to create a display math equation and then insert a number for the equation. If I don't want a number, I insert the equation with C-S-n.

C-M-m means Control-Alt-m. (M stands for Meta, which is Alt on most American computers).

Optional: Bibliography Related

Assume you have a BibTEX formatted bibliography called Stats.bib. Don't worry where that comes from at the moment.

1. Document -> Settings -> Bibliography. Choose "Natbib". For most social sciences, we use "author-year" format. For Processor, choose "bibtex8" if available. (Note to self: transition to biblatex will happen before 2015, probably. Maybe.)

2. Go to end of document, pull down Insert -> List/TOC -> BibTEX Bibliography.

    a) In the main box, you select the Database "bib" file, that is your cites. This folder has an example Stats.bib. Choose the "Add" button, it will offer some bib files, you don't want one, choose "browse" and find Stats.bib.

    b) In the Style pulldown, you have to choose a "bst" file. In the current directory, you should find "apalike2.bst" . You need to change that out for different journals and fields.

    c) Make sure the citations work. Pull down Insert -> Citation. Pick one. Right here, I'm going to insert a citation to the single most influential journal article I'm aware of Dempster et al. (1977).

    Because you chose "natbib" style citations, you will notice the citation creator offers a wealth of insertion types. One can cite things by last name, as in Fan & Li (2001), or one might refer to fabulous authors (McCullagh & Nelder, 1983), and one can even insert a page number where desired (Lancaster, 2004, p. 54).

References

Dempster, A. P., Laird, N. M., & Rubin, D. B. (1977). Maximum likelihood from incomplete data via the EM algorithm. *Journal of the Royal Statistical Society, Series B*, 39(1), 1—38.

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Lancaster, T. (2004). *Introduction to Modern Bayesian Econometrics*. Wiley-Blackwell.

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