## SUPER LONG AND CRYPTIC TITLE EXPLAINING WHY YOU HAVE HAD NO LIFE FOR THE PAST N-YEARS

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by I. M. D. Author

a dissertation submitted to the Faculty of Graduate Studies of York University in partial fulfilment of the requirements for the degree of

#### **DOCTOR OF PHILOSOPHY**

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- 4. Fourth Examiner
- 5. Fifth Examiner
- 6. Sixth Examiner

### Abstract

This is the abstract. It's probably the only part people will actually read.

### Acknowledgements

This is where your acknowledgements go, because it's important to be nice. Usually thanking people like your supervisor, family, and those who read through your work is a good idea.

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### 1 Background Chapter

This is chapter 1, which cites Chalmers (2012).

### 1.1 A section

Some text in a section new text.

#### 1.1.1 A subsection

Some test in a subsection (probably as low as you need to go).

Equation example:

$$P(1|\theta,\phi) = \frac{1}{1 + \exp\left[-1.702 \cdot (\alpha_1 \theta_1 + \alpha_2 \theta_2 + \beta)\right]}$$
(1.1)

As can be seen in (1.1)...blah blah blah.

Alternatively, one can use L<sub>Y</sub>X macros to render equations with shorthand notation (define it in one location, but reference it globally). The below equation is generated

simply by opening a math environment and typing \twoPL.

$$\frac{\exp(\alpha + \beta \theta)}{1 + \exp(\alpha + \beta \theta)}$$

This correctly renders the equation in LyX, and puts the macro in with the standard LATeX format (view the source code panel with View -> Source Pane). The macro itself was defined in an external file called custom\_macros, and allows equations and such to be reused by other documents in the future. No more copy-and-pasting! Macros can also have optional and required inputs, like so  $\frac{\exp(\alpha)^{20}}{1+\exp(\beta)^{30}}$ , where the required inputs were left blank when first defined.

### 2 New Material Chapter

This is chapter 2, which also references Equation 1.1. References carry across documents because the master file (*york-thesis.lyx*) has two children: *chapter-1.lyx* and *chapter-2.lyx*.

Include figures and tables by placing them in "floating environments". So for a figure, use Insert -> Float -> Figure, and then inside the generated box point to your external figure files with Insert -> Graphics. Labels are added with Insert -> Label and are references with Insert -> Cross-Reference.



Figure 2.1: My figure title

Figure 2.1 is an image of York University's logo. Same thing is done for tables; use Insert -> Float -> Table, and then inside the generated box point to your external figure files with Insert -> Table.

a	b	c
1	2	3
4	5	6

Table 2.1: My table

### 3 Extras

#### 3.1 Section With R Code

It is also possible to include R code directly by using the knitr module, and switching to LyX's ERT mode ("Evil Red Text" for raw LaTeX code). First, open the master document and go to Document -> Settings -> Modules, find the module called Rnw (knitr), then select it and click Add; do the same for this file as well. This will make LyX know to Call R and use the knitr package. Next build an R chunk in ERT like so:

```
x <- rnorm(100)
head(x)
## [1] -1.831420 -0.009848 -0.865746 -0.790287 -0.850725 1.188178
hist(x)</pre>
```

Defining in-line calls to evaluated results from R is also possible with ERT; e.g., the first element of x was -1.8314.

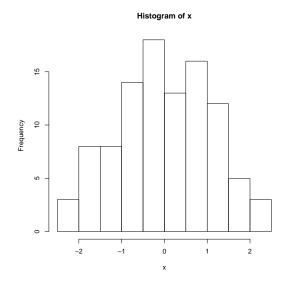


Figure 3.1: My histogram

Although I generally prefer to build figures outside of the document system (i.e., with an R script that can be changed later), for including code examples in the text or in an Appendix knitr can be useful.

### **Bibliography**

Chalmers, R. P. (2012). York thesis in LyX. *Journal of Awesome*, 1, 1–1.