

Writing your PhD Thesis in IPython notebooks and L^AT_EX2e

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This dissertation is submitted for the degree of
Doctor of Philosophy

I would like to dedicate this thesis to my loving parents ...

Declaration

I hereby declare that except where specific reference is made to the work of others, the contents of this dissertation are original and have not been submitted in whole or in part for consideration for any other degree or qualification in this, or any other University. This dissertation is the result of my own work and includes nothing which is the outcome of work done in collaboration, except where specifically indicated in the text. This dissertation contains less than 65,000 words including appendices, bibliography, footnotes, tables and equations and has less than 150 figures.

John David Griffiths

2014

Acknowledgements

And I would like to acknowledge ...

Abstract

This is my abstract. I will write something amazing here. Probably.

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List of Tables

Chapter 1

An enchanting mock chapter 1 title goes here

Abstract

Important note about section headings:

In order to get both markdown (notebook) and latex playing ball, I: - Use heading one in the notebook for Chapter number - Use heading two in notebook for chapter title - Set chapter heading one block in nbconvert template file to blank - ... result = heading ones are omitted in latex docs. Latex adds its own titles anyway (this is why I wanted to sort this).

Now: the question is - will things be excluded because they are in markdown cells, of because of the nbconvert template.

Test:

- chapter sub title is current not in html tags and not blocked
- ... but chapter number is in markdown
- ... so: should be excluded in markdown

1: chapter 1 title and subtitle in heading 1, but chapter 1 number in html 2 - chapter 1 in title and chapter 2 in subtitle - switch on suppression of chapter in nbconvert

Lorem ipsum blah blah

1.1 Background

blah blah blah

1.2 Methods

blah blah blah

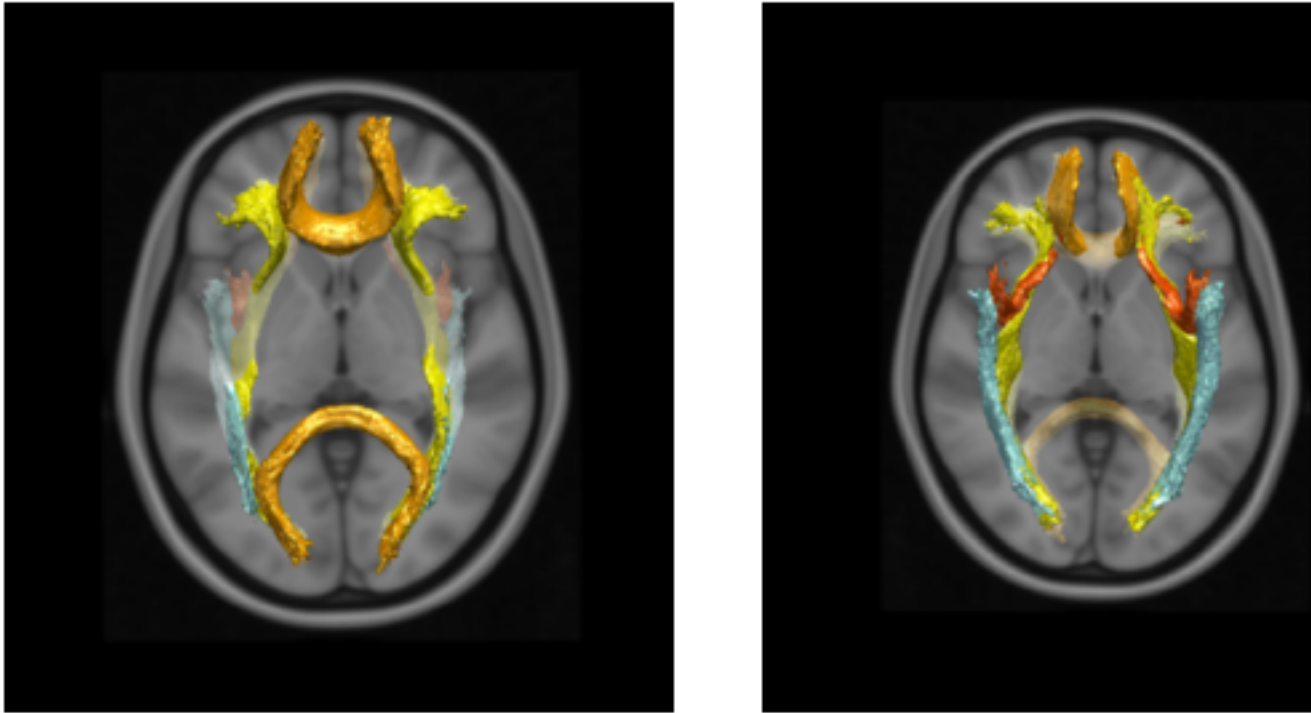


Fig. 1.1 JHU tracts { Adding a fuller caption which is what I would like to say about the JHU tracts. Hopefully this will not appear in the list of figures. If the label tag does its job, I think that's what should happen. But there's also this issue about closing the square bracket. . .

HTML caption here - JHU tracts Adding a fuller caption which is what I would like to say about the JHU tracts. Hopefully this will not appear in the list of figures. If the label tag does its job, I think that's what should happen. But there's also this issue about closing the square bracket. . .

blah blah blah

1.3 Results

blah blah blah

HTML caption here - SEM models

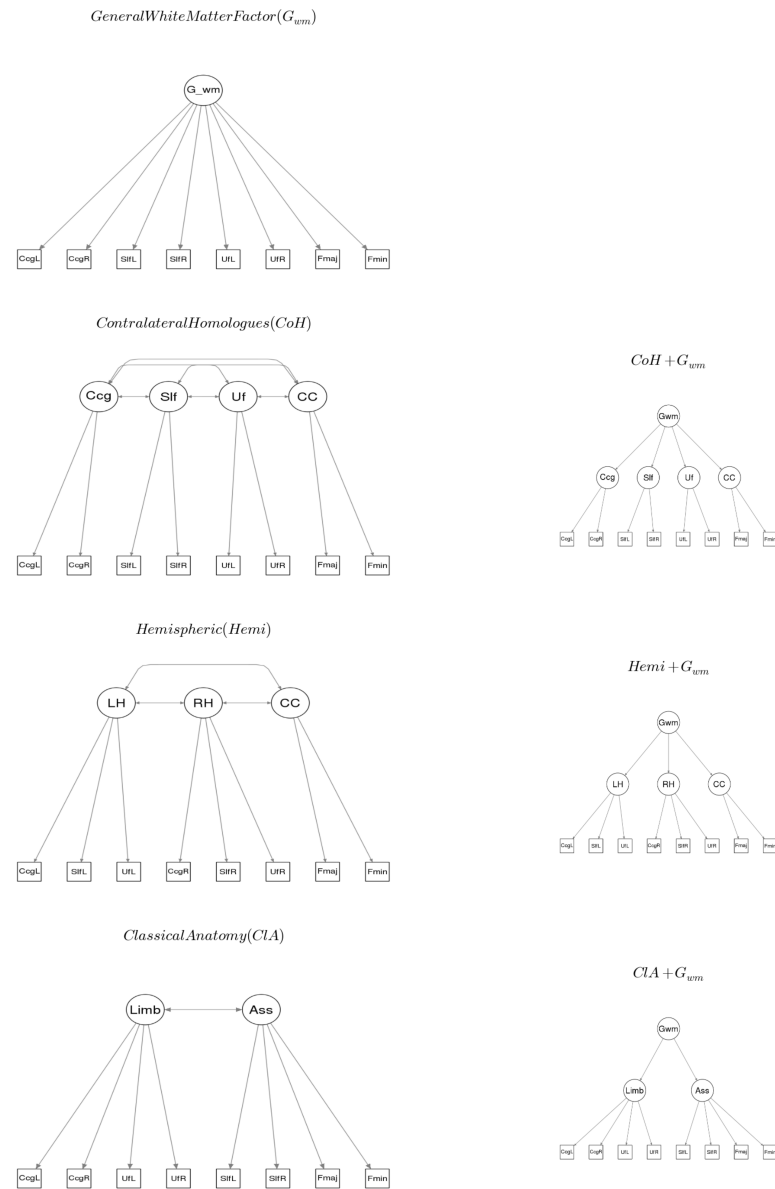
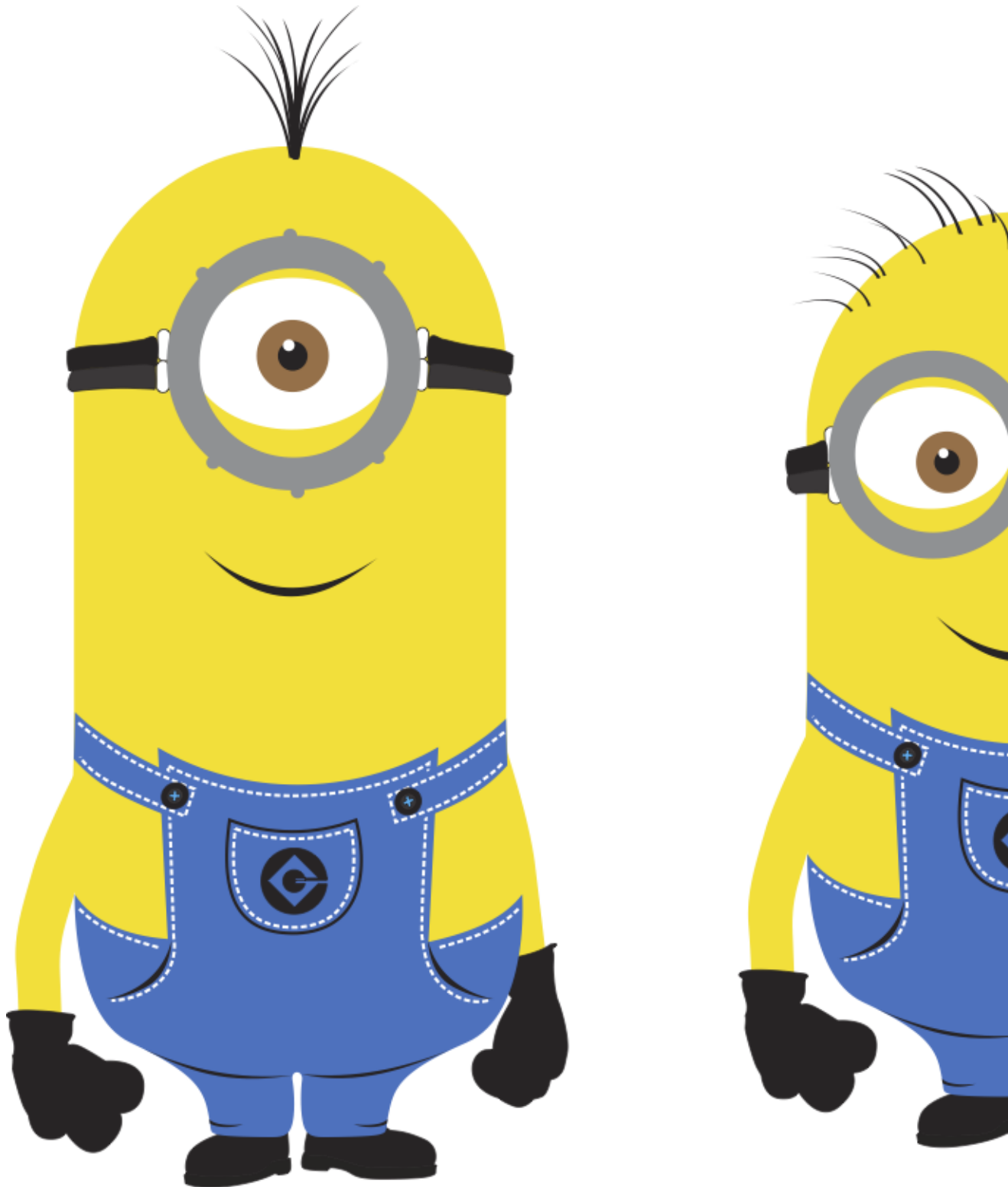


Fig. 1.2 SEM models

1.4 Discussion

Minion hyperlink test

(see here <https://groups.google.com/forum/#!msg/pandoc-discuss/MxGKvnNI08c/M6398LGWvqIJ>)



HTML caption - minion (original pandoc hyperlink test)

blah blah blah

Alternative hyperlink test - see here:

<http://stackoverflow.com/questions/9434536/how-do-i-make-a-reference-to-a-figure-in-m>

Wall E HTML caption goes here; shouldn't be see by latex.

blah blah blah

HTML caption here

blah blah blah

Mock Chapter 2

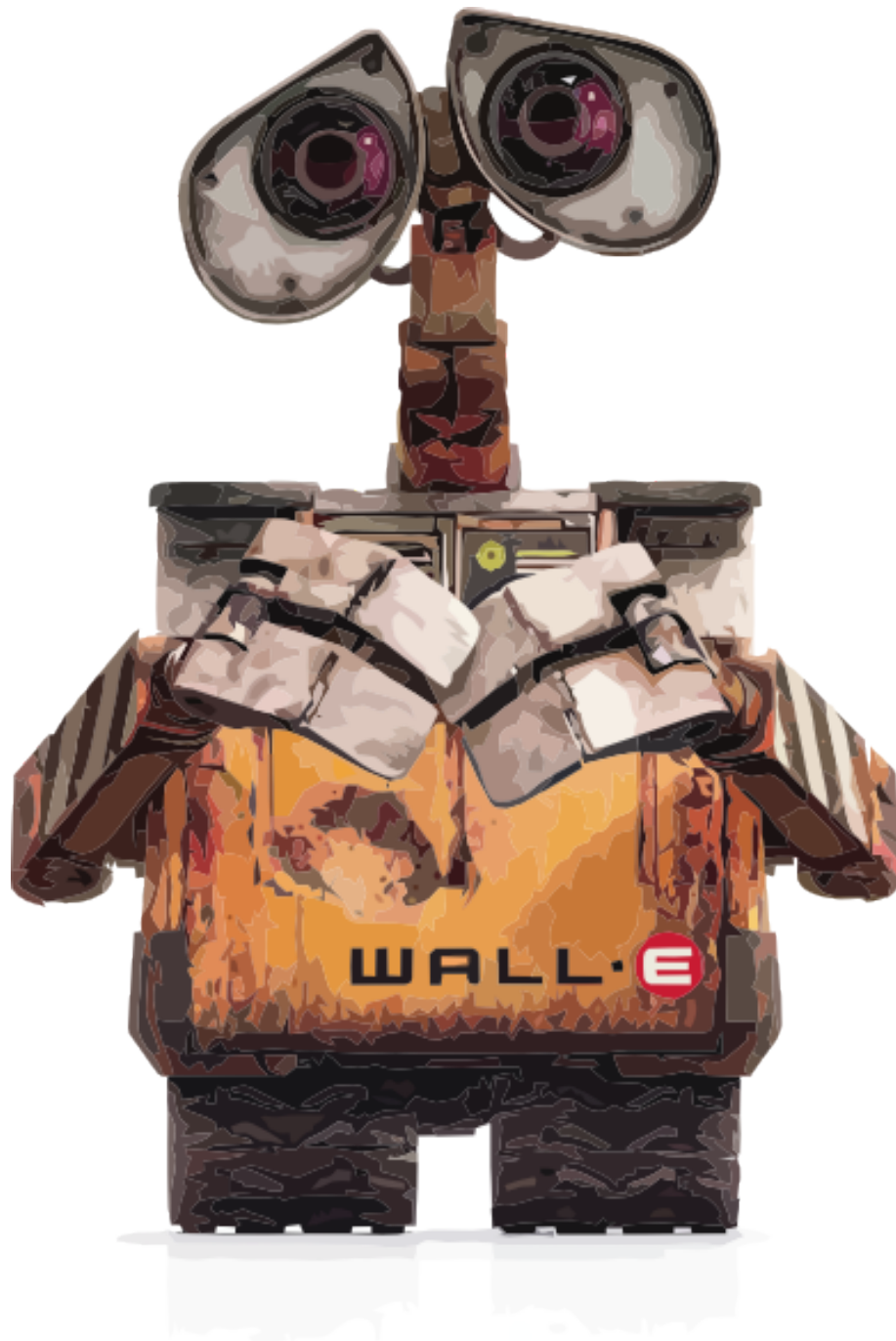


Fig. 1.3 WallE



Fig. 1.4 TomandJerry

Chapter 2

My Second Chapter

2.1 Reasonably Long Section Title

I'm going to randomly include a picture Figure 2.1.

If you have trouble viewing this document contact Krishna kks32@cam.ac.uk.

Fig. 2.1 This is just a long figure caption for the minion in Despicable Me from Pixar

Enumeration

1. The first topic is dull
2. The second topic is duller
 - (a) The first subtopic is silly
 - (b) The second subtopic is stupid
3. The third topic is dullest

itemize

- The first topic is dull
- The second topic is duller
 - The first subtopic is silly

- The second subtopic is stupid
- The third topic is duller

description

The first topic is dull

The second topic is duller

The first subtopic is silly

The second subtopic is stupid

The third topic is duller

2.2 Hidden Section

Lorem ipsum dolor sit amet, consectetur adipiscing elit. In magna nisi, aliquam id blandit id, congue ac est. Fusce porta consequat leo. Proin feugiat at felis vel consectetur. Ut tempus ipsum sit amet congue posuere. Nulla varius rutrum quam. Donec sed purus luctus, faucibus velit id, ultrices sapien. Cras diam purus, tincidunt eget tristique ut, egestas quis nulla. Curabitur vel iaculis lectus. Nunc nulla urna, ultrices et eleifend in, accumsan ut erat. In ut ante leo. Aenean a lacinia nisl, sit amet ullamcorper dolor. Maecenas blandit, tortor ut scelerisque congue, velit diam volutpat metus, sed vestibulum eros justo ut nulla. Etiam nec ipsum non enim luctus porta in in massa. Cras arcu urna, malesuada ut tellus ut, pellentesque mollis risus. Morbi vel tortor imperdiet arcu auctor mattis sit amet eu nisi. Nulla gravida urna vel nisl egestas varius. Aliquam posuere ante quis malesuada dignissim. Mauris ultrices tristique eros, a dignissim nisl iaculis nec. Praesent dapibus tincidunt mauris nec tempor. Curabitur et consequat nisi. Quisque viverra egestas risus, ut sodales enim blandit at. Mauris quis odio nulla. Cras euismod turpis magna, in facilisis diam congue non. Mauris faucibus nisl a orci dictum, et tempus mi cursus.

Etiam elementum tristique lacus, sit amet eleifend nibh eleifend sed ¹. Maecenas dapibus augue ut urna malesuada, non tempor nibh mollis. Donec sed sem sollicitudin, convallis velit aliquam, tincidunt diam. In eu venenatis lorem. Aliquam non augue porttitor tellus faucibus porta et nec ante. Proin sodales, libero vitae commodo sodales, dolor nisi cursus magna, non tincidunt ipsum nibh eget purus. Nam rutrum tincidunt arcu, tincidunt vulputate mi sagittis id. Proin et nisi nec orci tincidunt auctor et porta elit. Praesent eu dolor ac magna cursus euismod. Integer non dictum nunc.

¹My footnote goes blah blah blah! ...

(b)
A
Win-
End
Jerry

Fig. 2.2 Best Animations

Subplots

I can cite Wall-E (see Fig. 2.2b) and Minions in despicable me (Fig. 2.2c) or I can cite the whole figure as Fig. 2.2

]Add an exciting chapter 2 sub heading here>

Abstract

Important note about section headings:

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Lorem ipsum blah blah

Chapter 3

Background

blah blah blah

References

Appendix A

How to install L^AT_EX

Windows OS

TeXLive package - full version

1. Download the TeXLive ISO (2.2GB) from <https://www.tug.org/texlive/>
2. Download WinCDEmu (if you don't have a virtual drive) from <http://wincdemu.sysprogs.org/download/>
3. To install Windows CD Emulator follow the instructions at <http://wincdemu.sysprogs.org/tutorials/install/>
4. Right click the iso and mount it using the WinCDEmu as shown in <http://wincdemu.sysprogs.org/tutorials/mount/>
5. Open your virtual drive and run setup.pl

or

Basic MikTeX - TeX distribution

1. Download Basic-MiK_TE_X(32bit or 64bit) from <http://miktex.org/download>
2. Run the installer

3. To add a new package go to Start » All Programs » MikTeX » Maintenance (Admin) and choose Package Manager
4. Select or search for packages to install

TexStudio - Tex Editor

1. Download TexStudio from
<http://texstudio.sourceforge.net/#downloads>
2. Run the installer

Mac OS X

MacTeX - TeX distribution

1. Download the file from
<https://www.tug.org/mactex/>
2. Extract and double click to run the installer. It does the entire configuration, sit back and relax.

TexStudio - Tex Editor

1. Download TexStudio from
<http://texstudio.sourceforge.net/#downloads>
2. Extract and Start

Unix/Linux

TeXLive - TeX distribution

Getting the distribution:

1. TeXLive can be downloaded from
<http://www.tug.org/texlive/acquire-netinstall.html>.

2. TexLive is provided by most operating system you can use (rpm,apt-get or yum) to get TexLive distributions

Installation

1. Mount the ISO file in the mnt directory

```
mount -t iso9660 -o ro,loop,noauto /your/texlive####.iso /mnt
```

2. Install wget on your OS (use rpm, apt-get or yum install)
3. Run the installer script install-tl.

```
cd /your/download/directory  
./install-tl
```

4. Enter command 'i' for installation
5. Post-Installation configuration:
<http://www.tug.org/texlive/doc/texlive-en/texlive-en.html#x1-320003.4.1>
6. Set the path for the directory of TexLive binaries in your .bashrc file

For 32Bit OS

For Bourne-compatible shells such as bash, and using Intel x86 GNU/Linux and a default directory setup as an example, the file to edit might be

```
edit ~/.bashrc file and add following lines  
PATH=/usr/local/texlive/2011/bin/i386-linux:$PATH;  
export PATH  
MANPATH=/usr/local/texlive/2011/texmf/doc/man:$MANPATH;  
export MANPATH  
INFOPATH=/usr/local/texlive/2011/texmf/doc/info:$INFOPATH;  
export INFOPATH
```

For 64Bit

```
edit ~/.bashrc file and add following lines
PATH=/usr/local/texlive/2011/bin/x86_64-linux:$PATH;
export PATH
MANPATH=/usr/local/texlive/2011/texmf/doc/man:$MANPATH;
export MANPATH
INFOPATH=/usr/local/texlive/2011/texmf/doc/info:$INFOPATH;
export INFOPATH
```

Fedora/RedHat/CENTOS:

```
sudo yum install texlive
sudo yum install psutils
```

SUSE:

```
sudo zypper install texlive
```

Debian/Ubuntu:

```
sudo apt-get install texlive texlive-latex-extra
sudo apt-get install psutils
```

Appendix B

Installing the CUED Class file

\LaTeX .cls files can be accessed system-wide when they are placed in the $\langle\text{texmf}\rangle/\text{tex}/\text{latex}$ directory, where $\langle\text{texmf}\rangle$ is the root directory of the user's \TeX installation. On systems that have a local texmf tree ($\langle\text{texmflocal}\rangle$), which may be named “texmf-local” or “localtexmf”, it may be advisable to install packages in $\langle\text{texmflocal}\rangle$, rather than $\langle\text{texmf}\rangle$ as the contents of the former, unlike that of the latter, are preserved after the \LaTeX system is reinstalled and/or upgraded.

It is recommended that the user create a subdirectory $\langle\text{texmf}\rangle/\text{tex}/\text{latex}/\text{CUED}$ for all CUED related \LaTeX class and package files. On some \LaTeX systems, the directory look-up tables will need to be refreshed after making additions or deletions to the system files. For \TeX Live systems this is accomplished via executing “texhash” as root. \TeX users can run “initexmf -u” to accomplish the same thing.

Users not willing or able to install the files system-wide can install them in their personal directories, but will then have to provide the path (full or relative) in addition to the filename when referring to them in \LaTeX .

