The `ubcthesis` Package*

2012/04/07

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*This is ubcthesis.dtx version v1.70 dated 2012/04/07. Mercurial id: Id:f4c450ff6a3f, Rev:154, Tag:tip

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Part I
User Guide

1 Introduction

The `ubcthesis` class is a package designed for LaTeX2e to aid students in writing theses. This package originated at The University of British Columbia (UBC) in Vancouver, British Columbia, Canada in writing theses that conform the the format requirements of the Faculty of Graduate Studies. It has been redesigned to support thesis formats at various universities.

Support for various universities is provided by additional packages which redefine title pages etc. These hook into the general thesis class and provide university specific formatting. Packages exist for the following institutions:

UBC: The University of British Columbia, Vancouver, B.C., Canada.

MIT: Massachusetts Institute of Technology, Cambridge, Massachusetts, USA.

The output of the sample UBC thesis has been approved by the UBC FoGS and this class is presently sanctioned (see section 1.1).

This class is quite general and contains many options. Hopefully, there are enough options so that you will be able to use it to format a thesis at another institution. If not, please let me know so that I may modify it (I will send you an updated version as soon as possible). See also Section 5.

1.1 Disclaimer

The `ubcthesis` LaTeX class and the accompanying sample files are *unofficial* and are not officially supported by any universities. While I have attempted to make the style file and sample files conform to all of the requirements set forth by the respective institutions, you should always consult someone for assistance with problems *before* starting final draft. Information about the requirements may be gleaned from the following sources:

UBC:

- `http://www.grad.ubc.ca/`
- `http://www.grad.ubc.ca/current-students/dissertation-thesis-preparation`

MIT:

- `http://libraries.mit.edu/archives/thesis-specs/`
- `http://libraries.mit.edu/archives/index.html`

1.2 Versions

Manual Version: ubcthesis.dtx v1.70 2012/04/07.
This is the release version of this file.

HG Version: `Id:f4c450ff6a3f, Rev:154, Tag:tip`
This is the mercurial version. If no `Tag:` is present, or it does not match the manual version number above, then this is a development version not suitable for production use. Development versions of this project are maintained at

- `http://bitbucket.org/mforbes/ubcthesis`

2 Getting Started

This section describes how to get up and running with the `ubcthesis` class. You should make sure you have all the files, then unpack them and use the sample thesis as a guide to formatting your own thesis.

2.1 Obtaining the `ubcthesis` package

The `ubcthesis` package is presently being maintained by Michael M^{c}Neil Forbes and you can obtain the latest version from his website:

- `http://alum.mit.edu/www/mforbes/projects/ubcthesis/`

All the files should be packaged together with this document, however, the only required files are `ubcthesis.dtx` and `ubcthesis.ins`. From these, all other files (with the exception of `Makefile`, `README`, `TODO` and the sample figures) can be generated using the LaTeX program. This is described in Section 2.2. At the end of the day, the only files you actually need are the generic thesis class `genthesis.cls` and the appropriate flavour class (`ubcthesis.cls`, `mitthesis.cls` etc.) but these should not be distributed on their own as they contain no documentation.

If you cannot find the files at the aforementioned site, please try searching at one of the following places:

- `http://www.physics.ubc.ca/`
- `http://www.physics.ubc.ca/computer/`
- `http://www.physics.ubc.ca/computer/ubcthesis.phtml`

There may also be a reference to the package through the universities listed in Section 1.1.

2.1.1 Bleeding Edge Development Version

The development of this package is hosted at bitbucket:

- `http://bitbucket.org/mforbes/ubcthesis`

If you would like to help out with the development, this is the place to go, but the versions here should not be used for production: Use the version discussed in the previous section instead.

2.1.2 Files

The complete package should be called `ubcthesis.tgz` or `ubcthesis.tar.gz` or `ubcthesis.zip` or similarly depending on how it is packaged and includes the files:

`ubcthesis.dtx` This file contains the `genthesis.cls` class as well as the flavours (`ubcthesis.cls`, `mitthesis.cls` etc.) as well as a sample thesis and all of the documentation. It can be processed with LaTeX to generate the documentation (see Section 2.2.1).

`ubcthesis.ins` This file is a script that unpacks the `ubcthesis.dtx` file. It should be processed with LaTeX.

`fig.eps` This file is a sample figure for inclusion with the sample theses.

`fig.fig` This file is the `xfig` source for the `fig.eps` file.

`lyx` This directory contains some tools for using the LyX system (a WYSIWYG LaTeX editing system):

- `http://www.lyx.org/`

`lyx/ubcsamplelyx.lyx` This is a sample file for use with

Note: this may not be completely in sync with the `ubcsample.tex` file generated by running `latex ubcthesis.ins` which is the definitive edition. Please scan through that file to make sure that all of the requirements described there are met by your thesis.

`lyx/ubcthesis.layout` A simple LyX layout file.

2.2 Installing the `ubcthesis` package

To install the `ubcthesis` package you must have a working version of LaTeX installed on your system. The LaTeX program can them be used to generate the appropriate files and documentation. It is recommended that you copy all the files `ubcthesis.dtx`, `ubcthesis.ins`, `fig.eps` and `fig.fig` to a temporary directory first. The rest of the installation instructions will assume that you have done this.

Alternatively, if you have a version of `make` on your system, you might be able to use the accompanying `Makefile` by running

```
% make all
%
```

2.2.1 Documentation

To generate the documentation, run the following commands:

```
% latex ubcthesis.dtx
% makeindex -s gglo.ist -o ubcthesis.gls ubcthesis.glo
% makeindex -s gind.ist ubcthesis.idx
% latex ubcthesis.dtx
% latex ubcthesis.dtx
%
```

Running LaTeX three times is required to properly generate the cross-references. The makeindex program generates the index and change logs. This will produce the file `ubcthesis.dvi` which can then be viewed with the `xdvi` program:

```
% xdvi ubcthesis.dvi
%
```

In addition, the usual auxiliary LaTeX files will be produced. These may be discarded. Copy the documentation file `ubcthesis.dvi` to an appropriate location for future references.

2.2.2 Generating the `.cls` class files

To generate the generic class file `genthesis.cls`; flavours (`ubcthesis.cls`, `mitthesis.cls` etc); as well as the sample theses, run LaTeXonce on the `ubcthesis.ins` file:

```
% latex ubcthesis.ins
%
```

This will generate the following files:

`genthesis.cls` This is the generic thesis class which is the basis for all flavours.

`ubcthesis.cls` This is the `ubcthesis` class file with a decidedly west-coast flavour.

`mitthesis.cls` This is the `mitthesis` class file with a decidedly east-coast flavour.

`ubcthesis.drv` This is a driver file used to unpack the other files. It may be safely removed.

`ubcthesis.log` This is a log of what happened during the unpacking. If you have problems, you might check this, but it may not be easy to read. It may be safely removed.

`ubcsample.tex` This is the sample thesis file for producing UBC theses.

`mitsample.tex` This is the sample thesis file for producing MIT theses.

`sample.bib` This is a sample BIBTeX bibliography database for the sample thesis.

The sample thesis files should be moved to the same directory as the documentation files as they are very useful for someone writing a thesis. *These should be used as a template because they conform to the UBC thesis requirements.*

2.2.3 Sample Thesis

The sample UBC thesis consists of the files `ubcsample.tex` and `sample.bib`. It is setup to conform with the UBC standard and *should be used as a template* because it specifies the correct order of elements such as the abstract, table of contents etc. It also contains many examples of LaTeX features. To compile it, use the following commands:

```
% latex ubcsample
% bibtex ubcsample
% latex ubcsample
% latex ubcsample
%
```

The first time, a list of references will be produced in the file `ubcsample.aux`. Also, the list of tables `ubcsample.lot` and list of figures `ubcsample.lof` will be produced. The BIBTeX program will then use this and the list of bibliographic information in `sample.bib` to produce a properly formatted bibliography in `sample.bib`. The final calls to LaTeX will arrange all the cross-references correctly.

View the sample thesis using `xdvi`:

```
% xdvi ubcsample.dvi
%
```

There are additional flavours of thesis conforming to different standards. The `mitsample.tex` produces a thesis acceptable for use at the Massachusetts Institute of Technology for example.

The actual class file `genthesis.cls` as well as the desired flavour (`ubcthesis.cls`, `mitthesis.cls` etc.) must be installed somewhere that LaTeX can find. This should be on the TEXINPUTS path. Check with your system administrator for the correct location. It is likely somewhere like:

```
% /usr/local/texmf/
% /opt/local/teTeX/share/
%
```

Optionally, you can simply put a copy in the same directory as your thesis.

Be sure that when you distribute your thesis, you also include the `genthesis.cls` and the appropriate flavour file `ubcthesis.cls`, `mitthesis.cls` etc. (please consider including the entire `ubcthesis` distribution!) since it is not yet a standard LaTeX package.

2.3 Using with LyX

You should be able to use the files in the directory `lyx`: `lyx/ubcthesis.layout` and `lyx.ubcsamplelyx.lyx` files to generate a thesis using LyX:

- `http://www.lyx.org`

2.3.1 Warning

1. The LyX sample `ubcsamplelyx.lyx` may not be completely in sync with the `ubcsample.tex` file generated by running `latex ubcthesis.ins`. The latter is the definitive edition. Please scan through that file to make sure that all of the requirements described there are met by your thesis. (We are trying to make the two files the same, but this is an outstanding issue.)

2. There is some sort of bug with the `babel` package affecting especially Mac OS X users that leads to the message `! TeX capacity exceeded, sorry`.... Unfortunately, the only way we know to resolve this is to disable the use of `bable` in your LyX preferences. See the following for a discussion and relevant links:

   - `http://bitbucket.org/mforbes/ubcthesis/issue/6/lyx-issue`

3 Writing a Thesis

To begin writing a thesis using the `ubcthesis` class, you should start with the sample thesis as a template. In particular, the sample thesis shows you how order various sections and to ensure that pages are numbered appropriately. In addition, many useful options are demonstrated here. This sections describes how you can use the `ubcthesis` class to accomplish various tasks.

3.1 University Flavour

The first and major option is to select a university flavour to use. This is done by choosing the appropriate class. The following document classes are provided by this package:

`ubcthesis`: Theses for the University of British Columbia in Vancouver, B.C., Canada.

`mitthesis`: Theses for the Massachusetts Institute of Technology in Cambridge, Massachusetts, USA.

These select which flavour of university the thesis will be formatted for. These options trigger the generation of specific title pages, etc. required by each university, as well as

3.2 Page Style

You may wish to change the way that you pages look in your thesis. This section describes how to do this.

3.2.1 Headers and Footers

The terms "headers" and "footers" refer to text that appears at the top and bottom of the page. The `norunningheaders` option can be used to suppress the display of a header, and the `noheadline` option can be used to suppress the line drawn under the header.

To further customize the appearance of the headers and footers, use the `fancyhdr` package. This gives you much more control over the headers. See the documentation supplied with the `fancyhdr` package for more details.

If you do decide to define your own headers, be careful about page numbering: you may need to explicitly include a page number in your header to ensure that each page is numbered.

3.3 Class Options

Most of the behaviours of the `genthesis` class are controlled through flags that are set in the `\documentclass[]{ubcthesis}` or `\documentclass[]{mitthesis}` statement that occurs at the start of your document. Options are specified in the square brackets, for example the `ubcsample.tex` sample file uses the options `msc` and `oneside`.

Options usually appear in pairs that enable or disable a feature. As the `genthesis` class was derived from the standard book class, many of the options are still supported. In this section we describe all options that are different from the standard LaTeX `book` class and a few of the relevant options that have been maintained. The default option values for the `genthesis` class are underlined. Note: the default options vary depending on the flavour of the class. See the corresponding sections in Part V

`draft` `final`
: **draft/<u>final</u>** These toggle between draft and final modes. Use the final mode for submission. Note: in the draft version, graphics are not necessarily displayed depending on the graphics package you use. Additionally, the draft mode places black boxes to the right of lines that are too long, making it easy to visually note the places where LaTeX has difficulty formatting the text properly.

`10pt` `11pt` `12pt`
: **<u>10pt</u>/11pt/12pt** Sets the font size.

`oneside` `twoside`
: **<u>oneside</u>/twoside** Single verses double sided. This just offsets the pages: you must specify to print (for example, use the command `lpr -Zsimplex ...` for one side or `lpr -Zduplex ...` for two). If you are handing in your thesis single sided (the current requirement) then be sure to use the oneside option.

`pagenumTR` `pagenumBC` `pagenumBR`
pagenumTR/pagenumBC/pagenumBR Sets the location of the page number: Top Right, Bottom Center, and Bottom Right respectively (Right means outside edge for twoside format).

`upper` `noupper`
upper/noupper Upper case chapters and part headings.

`tocupper` `notocupper`
tocupper/notocupper Upper case in the table of contents.

`tocitalic` `notocitalic`
tocitalic/notocitalic Italicize chapter titles (for non-main matter) in table of contents.

`chapterheads` `nochapterheads`
chapterheads/nochapterheads Display "Chapter #" before chapter titles in the main matter of the thesis.

`headcount` `noheadcount`
headcount/noheadcount Toggles the display of the numbers in chapter headings.

`msc` `ma` `masc` `meng` `phd`
msc/ma/masc/meng/phd Sets the style. Sets degreetitle to "DOCTOR OF PHILOSOPHY", "MASTER OF SCIENCE" etc. in the title page. The number of signature lines is also changed.

`appendixpart` `noappendixpart`
appendixpart/noappendixpart Specifies that the appendices should be treated as a numbered part of the document. Otherwise, the appendices are simply announced in the table of contents and the chapter numbering is changed to lettering.

`appendixpage` `noappendixpage`
appendixpage/noappendixpage Puts a page separator between the main body and the start of the appendices. Has no effect if the option "appendixpart" is specified since parts are already separated by a separate page.

`appendicestoc` `noappendicestoc`
appendicestoc/noappendicestoc Puts a dividing line with `\appendicesname` in the table of contents before the appendices.

`hangingcaptions` `nohangingcaptions`
hangingcaptions/nohangingcaptions These options determine whether or not figure and table captions should "hang". Hanging captions are justified so that all the caption text comes after the caption label.

`runningheaders` `norunningheaders`
runningheaders/norunningheaders These display or suppress running headers that contain the current chapter name and number. If they are suppressed, only the page number will be displayed.

`headline` `noheadline`
headline/noheadline These display or suppress a horizontal line running under the headers at the top of the page.

`crosshair` `nocrosshair`
crosshair/nocrosshair These toggle between crosshair and nocrosshair modes. The crosshair mode puts a large X on empty pages. (Pages with pagestyle *empty*).

committee **committee** Use this option when producing the version to send to your thesis committee if they want the document with 1.5 spacing so there is some room for comments between the lines. You may change the spacing by redefining the `\committeespacing` command in the preamble (before the `\begin{document}` command). The following command would give double spacing for example.

```
%    \renewcommand{\committeespacing}{2}
%
```

chapternotereset
nochapternotereset **chapternotereset/nochapternotereset** These options specify whether or not the footnote counter should be reset each chapter or not.

bibnum
nobibnum **bibnum/nobibnum** Specify whether or not to Number the bibliography chapter (or section if sectionbib is used) if it is in the mainmatter.

sectionbib **sectionbib** Treat the bibliography as a section rather than a chapter.

starmark
nostarmark **starmark/nostarmark** This option provides for a departure from the standard class marking mechanism that causes the starred version of `\chapter*`, `\section*` etc. commands to call `\chapterstarmark`, `\sectionstarmark` etc. This allows these to reset the markings without the user explicitly having to include this.

4 Interface Guidelines

This section lists all of the commands supported by the general thesis class. These commands and options should be supported by all flavours, but additional commands may be defined for specific flavours. In a sense, this defines the interface to the thesis class. If you use only these commands or options, then you should be able to choose any flavour without modifying your thesis.

4.1 Options

10pt
11pt
12pt
a4paper
a5paper
appendixpage
appendixpart
appendicestoc
bibnum
b5paper
bold
centerheadline
centerheads
chapterheads
chapternotereset
committee
crosshair
defaultfonts
draft
executivepaper
final
fleqn
hangingcaptions
headcount

headline
landscape
leftheads
legalpaper
leqno
letterpaper
logo
ma
masc
meng
msc
noappendixpage
noappendixpart
noappendicestoc
nobibnum
nocenterheadline
nochapterheads
nochapternotereset
nohangingcaptions
noheadcount
noheadline
nologo
nopartheads
norunningheaders
nostarmark
notocupper
notocitalic
noupper
noupperauthor
noupperdegreetitle
noupperdepartment
noupperfaculty
noupperinstitution
nouppersubtitle
nouppertitle
onecolumn
oneside
openany
openbib
openright
openrightblank
pagenumBC
pagenumBR
pagenumTR
partheads
phd
rightheads
runningheaders
sectionbib
sfbold
slanted
starmark
tocitalic
tocupper
twocolumn
twoside
upper
upperauthor
upperdegreetitle
upperdepartment
upperfaculty
upperinstitution
uppersubtitle
uppertitle

4.2 Counters

chapter
figure
paragraph
part
section
subparagraph
subsection
subsubsection
table

4.3 Lengths

\abovecaptionskip
\belowcaptionskip
\chapterafterskip
\chapterbeforeskip
\chapterbetweenskip
\headlinespace
\paragraphafterskip
\paragraphbeforeskip
\paragraphindent
\partbetweenskip
\sectionafterskip
\sectionbeforeskip
\sectionindent
\subparagraphafterskip
\subparagraphbeforeskip
\subparagraphindent
\subsectionafterskip
\subsectionbeforeskip
\subsectionindent
\subsubsectionafterskip
\subsubsectionbeforeskip
\subsubsectionindent
\titlemarginbottom
\titlemarginleft
\titlemarginright
\titlemargintop

4.4 Commands

\Lcount
\Lopt
\abstractfont
\abstractname
\appendicesname
\appendixname
\appendix
\authorfont
\authorizationform
\backmatter
\bibname
\bibsize
\captionbodyfont
\captionheaderfont
\chapterauthorfont
\chapterfont
\chaptermark
\chaptername
\chapterstarmark
\chaptertitlefont
\chapter
\committeespacing
\contentsname
\copyrightnotice
\copyrightyear
\degreetitlefont
\degreetitle
\degreeword
\department
\descriptionlabel
\draftname
\examplefont
\facultyfont
\faculty
\figurefont
\figurename
\file
\frontmatter
\headingstextfont
\indexname
\indexsize
\indexspace
\institutionaddress
\institutionfont
\institution
\itemfont
\labelenumiii
\labelenumii
\labelenumiv
\labelenumi
\labelitemiii
\labelitemii
\labelitemiv
\labelitemi

\listfigurename
\listoffigures
\listoftables
\listtablename
\lofindent
\loflabelwidth
\logofile
\lotindent
\lotlabelwidth
\mainmatter
\maketitle
\newblock
\numberofsignatures
\pagenumberfont
\paragraphfont
\paragraphstarmark
\paragraph
\partfont
\partnamefont
\partname
\part
\previousdegree
\prog
\pstyle
\sectionfont
\sectionmark
\sectionstarmark
\section
\signatures
\subitem
\submitdate
\subparagraphfont
\subparagraphstarmark
\subparagraph
\subsectionfont
\subsectionstarmark
\subsection
\subsubitem
\subsubsectionfont
\subsubsectionstarmark
\subsubsection
\subtitlefont
\subtitle
\tablefont
\tablename
\tableofcontents
\theorembodyfont
\theoremheaderfont
\titlefont
\titlepagefont
\titlepage
\translatorfont
\ubcauthorizationform

5 Contributions

While this class attempts to conform to the requirements of UBC, I have attempted to make it very general so that it will be of use for anyone writing a thesis. In particular, I have included many options that can be changed to meet the specific requirements of a given university. Ultimately, I would like to include several "global options" that would change the format to conform with various universities. These would work in much the same way that the various Font Options (see Section 19.19): each global option would set a bunch of options and variables to make the style conform to the universities requirements.

An additional type of modification would be to add a variety of title page formats (see Section 23.2). There are also many features that could be added which I have not had the time to research and implement. One would be an easy method for including custom counters (such as provided by figures and equations). One specific request is for a "Scheme" counter which would count chemical schemes or formula. This would allow users to produce a "List of Schemes" much as a list of tables and list of figures is currently produced. See Section 6 for a list of tasks.

I would appreciate any feedback, including comments, suggestions, modifications etc. In particular, I would like to know of any features that you require that are not available with the current set of options. Also, if you have a font scheme that looks good, please let me know so that I can include it (I have not spent a whole lot of time thinking about the beast choice of layout as I have had a thesis to write too!)

Michael M^{c}Neil Forbes mforbes@physics.ubc.ca

6 To Do (including bugs)

Layout and Design Consider using the `memoir` class which provides many different styling options.

Spacing Options Options should be provided, at least for the UBC sample to make the document 1.5 spaced as this may now required by the FoGS.

Update Font Options The default font options look okay, but the others (slanted for example) look pretty bad. These should be updated.

Figure Fonts Add a command to allow for different fonts in figure environments. This would allow for different fonts to be selected for psfrag for example.

Custom Lists Currently, counters are provided for Figures and for Tables that are recorded in `.lof` and `.lot` files respectively for later inclusion in a List of Figures via the `\listoffigures` command and `\listoftables` commands respectively. I would like to provide a way for the user to define custom counters and similar tables for various other types of lists. In particular, a request has been made for a "List of Schemes" allowing chemists to list chemical formulae.

One easy way of doing this would be to provide a set of a fixed number of lists (perhaps with associated files `.lo1`, `.lo2`, ..., `.lo9`) that the user can use and provide customized titles. A better way would probably allow the number to be flexible.

Wide Text A small environment should be made which allows equations or other elements to be inserted which extend beyond the width of the text for occasional equations etc. that are long. This should justify the wide text properly and center it on the page (possibly including an option for the width of the box and options for flush left, right etc. with the box centered on the page).

Indices I have never worked with indices, so I have no comments on how to do this (nor have I designed the package with this in mind). Many people would probably like to include an index, and so I should include instructions on how to. I will when I figure it out...

Proper Placement of Commands In order to ensure that the `ubcthesis` class works well with other packages, it should be more careful about where various code elements are placed.

`hyperref` Package There are problems with the `hyperref` package and index entries when producing the documentation. There was also a problem with `hyperref` in the actual class with the table of contents, but this has been resolved. In the future note that one must be careful where one converts things to upper case: doing so where the toc was written created problems with the hyper-link information. Now the conversion happens before the hyper-links are added.

When this is fixed, include the index and instructions on how to make the index.

Section Numbering The `\@headingalignment` command affects something adversely, but I cannot remember what. This should be tested and the bug fixed.

Draft Headers The Headers in draft mode should still have the page numbers on the right hand side. There is a discrepancy between the abstract page etc. and the rest of the document.

Magic Numbers Many of these have been replaced, but there are still many magic numbers that should be replaced by modifiable constants.

Title Pages Fix titlepage error messages to be a bit nicer.

Logo Copy Remove redundancy in the `\@logocopy` text. The present code is a bit of a hack and duplicates data.

Page Numbering Make the page numbering scheme more flexible. In particular, consider suppressing the counting of certain pages (such as the authorization form) rather than hard setting the numbers.

Lettered Figures Add options for lettered figures.

Table Of Contents If there are a very large number of sections, then the numbers in the toc become large than the space allocated for them. (For an example of this, see the table of contents for this file!) Ideally, when running, the size of the maximum label should be calculated and this used to set the spacing. This could be sent to the .aux file or possibly computed ahead of time.

Page Breaks Add ability to break pages in weird locations. (See Darren Peets class).

Chapter Headlines The first page of a chapter now returns to the pagestyle `plain` which is the default behaviour for the LaTeX classes. An option should be added which allows one to customize the chapter page style to give the option of running headers as before.

Running Header "Section" Marks Right now the running headers show only the current chapter. The code is in place to changed the marks so that they

show the current section as well, but this should be made as an optional change, not the default. Proper options should be provided (in the form of a counter like tocdepth and secnumdepth) which allow the user or flavour to customize this.

Draft Mode It might be useful to have a draft mode which includes graphics (because this also includes the current date). Also, if it does not break anything, a SVN revision number should be included in the draft header as well. Draft mode might also force a header onto every page.

Change Log Ordering/Index Presently the change log is not sorted very well in that version 1.2 is really below 1.12. The former should probably be changed to 1.02 etc. Also, the styles etc. should be updated, and the calls to `makeindex` should somehow be automated if possible. Finally, the index should actually link to the pages if possible (with hyperref?) so that modern version of xdvi etc. will allow you to click and go to the relevant pages.

LyX bable issue On some systems (esp. Mac OS X) there is some problem with the bable package that causes LaTeX to emit an error:

```
%   ! TeX capacity exceeded, sorry...
%
```

- `http://bitbucket.org/mforbes/ubcthesis/issue/6/lyx-babel-issue`

Synchronize LyX Files Presently the LyX sample file `ubcsamplelyx.lyx` must be kept in sync manually with the generated `ubcsample.tex` file. It would be good if these could both be generated from the same source to keep both up to date automatically. See:

- `http://bitbucket.org/mforbes/ubcthesis/issue/7/lyx-sample-ubcsampletex`

Complete LyX Layout If someone would like to generate a proper LyX layout file that includes all of the options present in the ubcthesis class, then please submit one to:

- `http://bitbucket.org/mforbes/ubcthesis/issue/8/complete-lyx-layout-file`

If there are any other features or bugs you would like to see, please let me know (see Section 5).

7 Acknowledgements

This class was derived from `classes.dtx` Version 2001/04/21 v1.4e which is part of the LaTeX base system. The original file is available from

- `http://www.ctan.org`

For information on the LaTeX project, see

- `http://www.latex-project.org/`

Additional modifications we incorporated from the thesis.cls file by Wenzel Matiaske The incorporations were made from Version 1996/25/01 1.0g. The `thesis.cls` and `thesis.dtx` distribution is available from.

- `http://www.ctan.org`

I would like to especially thank the following people for contributions:

- Darren Peets for helping debug the class and offering many useful suggestions.
- James P. Zibin for suggesting the fix for the header overflow bug.
- Christopher Dutchyn for pointing out that the `\chaptertoc` and related commands were redundant, that the `\preface` and `\acknowledgements` commands were ugly, for suggesting various useful packages to include in the sample theses for typesetting program code, and for supplying various corrections (denoted throughout by (CD)).
- Max Read for making suggestion to bring the UBC portion into alignment with the current FoGS requirements.
- Joseph Tam for implementing most of Max Reads requests.
- Abhishek Gupta for pointing out the bibliography running header bug.
- Murray McCutcheon for pointing out the spacing bug, the topmargin bug and the pagenumTR header bug.
- Chris Michalak for suggesting the `openrightblank` option.
- Valentin Koch for pointing out the first blank page bug.
- Adrian Cortes for point out the Bibliography heading bug.
- Joseph Shea for suggesting the use of the `pdflscape` package.
- Steve Yohanan for pointing out the issue with babel resetting `\contentsname`.

8 Description of the files

From here on, this document describes the actual source files produced line by line. The following files are described:

`ubcthesis.drv` This is the documentation driver file that produces the documentation (which you are probably reading). This must come first because it includes the `\documentclass` statement for this file.

`ubcsample.tex` This is the sample UBC thesis. Use this file as a template for your UBC thesis.

`mitsample.tex` This is the sample MIT thesis. Use this file as a template for your MIT thesis.

`sample.bib` This is a sample bibliography database (in BIBTeX format) to show you how to use one.

`genthesis.cls` This is the generic thesis `genthesis` LaTeX2e class file. Look here for specific details about the class, especially if you want to modify or contribute to it.

`ubcthesis.cls` This is the UBC flavour of thesis. It requires `genthesis.cls`. Look here for specific details about UBC formatting options. If you need to make specific UBC customizations, they should be done in this file if possible.

`mitthesis.cls` This is the MIT flavour of thesis. It requires `genthesis.cls`. Look here for specific details about MIT formatting options. If you need to make specific MIT customizations, they should be done in this file if possible.

8.1 The docstrip modules

The following modules are used in the implementation to direct DOCSTRIP in generating the external files:

genthesis	produce the documentclass genthesis
ubcthesis	produce the documentclass ubcthesis
mitthesis	produce the documentclass mitthesis
ubcsampletex	produce the sample UBC LaTeX file
mitsampletex	produce the sample UBC LaTeX file
samplebib	produce the sample BIBTeX file
driver	produce a documentation driver file

Part II
Documentation Driver

This bit of code contains the documentation driver file for TEX, i.e., the file that will produce the documentation you are currently reading. Note that the file `ubcthesis.drv` need not actually be generated: DOCSTRIP will process this directly and typeset this documentation.

We also define here the document class and formatting information for typesetting the documentation. This is not essential for using or modifying the thesis classes, but must appear here because it defines the formatting required to format this document. The first uncommented `\documentclass` command is interpreted as the one that specifies how to typeset the documentation.

Here is the comment that tells DOCSTRIP to put the rest of the code into `ubcthesis.drv`. Again, this need not actually be generated and is not generated as part of the standard distribution.

```
1 ⟨*driver⟩
```

9 Identification

This section identifies the version of the file. It also indicates which version of LATEX (LATEX2e) is required and makes sure that an appropriate message is displayed when another TEX format is used.

```
2 \NeedsTeXFormat{LaTeX2e}[1995/12/01]
```

Now we announce the file or class name and its version:

```
3 \ProvidesFile{ubcthesis.drv}[2012/04/07 v1.70 ^^J
4  University of British Columbia Thesis Class Documentation Driver]
```

10 Document Class

Now we specify the documentclass to use the `ltxdoc.cls` file. This will format the documentation appropriately. This must be the first uncommented `\documentclass` command in the file which is why the driver must come first.

```
5 \documentclass{ltxdoc}
```

We also use the hyperref package to allow point and click linking within the document. There are some problems with the index however. We use the `linktocpage` option to allow long table of content entries to wrap.

```
6 \IfFileExists{hyperref.sty}{
7   \usepackage[linktocpage,
8   linkbordercolor={0.5 0.5 1},
9   citebordercolor={0.5 1 0.5},
10  linkcolor=blue]{hyperref}}{}
11 \usepackage{verbatim}
```

We do want an index, using line numbers

```
% Uncomment these lines to make an index and a change log in the
% documentation.
\AtBeginDocument{\CodelineIndex\EnableCrossrefs}
\AtBeginDocument{\RecordChanges}
%\OnlyDescription % Uncomment this to suppress description of files.
```

The following command retrieves the date and version information from the file.

```
\GetFileInfo{ubcthesis.drv}
```

Some commonly used abbreviations

```
\newcommand*{\Lopt}[1]{\textsf {#1}}
\newcommand*{\file}[1]{\texttt {#1}}
\newcommand*{\Lclass}[1]{\texttt {#1}}
\newcommand*{\Lcount}[1]{\textsl {\small#1}}
\newcommand*{\pstyle}[1]{\textsl {#1}}
\newcommand*{\prog}[1]{\textsc {#1}}
```

We also want the full details.

```
\begin{document}
\DocInput{ubcthesis.dtx}
```

11 End of Document

```
\end{document}
```

Finally, we close off the driver file so that nothing else is put into the documentation driver.

⟨/driver⟩

Part III
Sample Theses

This section presents the code for the sample thesis with comments. If you add a new flavour, please include a sample thesis here to show users how to use your flavour.

In the spirit of LaTeX, we try not to impose restrictions on the layout in the actual thesis class. Instead, restrictions posed by the university should be clearly spelled out in the sample files. Thus, these templates are an important part of a complete distribution.

12 Sample UBC Thesis

This is a thesis conforming to the University of British Columbia guidelines.

Here is the comment that tells DOCSTRIP to put the following code into `ubcsample.tex`.

```
1 ⟨*ubcsampletex⟩
```

12.1 Identification

This section identifies the version of the file. It also indicates which version of LaTeX (LaTeX 2_ε) is required and makes sure that an appropriate message is displayed when another TeX format is used.

```
2 %% This Sample thesis requires \LaTeX2e
3 \NeedsTeXFormat{LaTeX2e}[1995/12/01]
```

Now we announce the file or class name and its version:

```
4 \ProvidesFile{ubcsample.tex}[2012/04/07 v1.70 ^^J
5  University of British Columbia Sample Thesis]
```

12.2 Document Structure

This section describes the structure that your LaTeX document must have. Various sections of the sample code will be presented to illustrate this structure though the sample file `ubcsample.tex` does not contain all of the options and features.

The first section of a LaTeX document contains information about the structure of the document. This is called the document preamble.

Usually the first command is the `\documentclass` command which specifies the class to use and the options to the class

```
6 %% This is the \documentclass[]{} command.  The manditory argument
7 %% specifies the "flavour" of thesis (ubcthesis for UBC).  The
8 %% optional arguments (in []) specify options that affect how the
9 %% thesis is displayed.  Please see the ubcthesis documentation for
10 %% details about the options.
11 \documentclass[msc,oneside]{ubcthesis}

12 %%
13 %% To compile this sample thesis, issue the following commands:
14 %% latex ubcsample
15 %% bibtex ubcsample
16 %% latex ubcsample
17 %% latex ubcsample
18 %% latex ubcsample
19 %%
20 %% To view use xdvi (on unix systems):
21 %% xdvi ubcsample.dvi
22 %%
23 %% To make a postscript file, use dvips:
24 %% dvips -o ubcsample.ps ubcsample.dvi
25 %%
26 %% To view the postscript file, use ghostview or gv (on unix systems):
27 %% gv ubcsample.ps
```

```
%%
%%*************************************************
%% Optional packages.
%%
%% The use of these packages is optional, but they provide various
%% tools for more flexible formating.  The sample thesis uses these,
%% but if you remove the example code, you should be able to exclude
%% these packages.  Only standard packages have been described here;
%% they should be installed with any complete LaTeX instalation, but
%% if not, you can find them at the Comprehensive TeX Archive Network
%% (CTAN): http://www.ctan.org/
%%

%%******** afterpage ***************************
%% This package allows you to issue commands at the end of the current
%% page.  A good use for this is to use the command
%% \afterpage{\clearpage} right after a figure.  This will cause the
%% figure to be inserted on the page following the current one (or on
%% the current page if it will fit) but will not break the page in the
%% middle.
\usepackage{afterpage}

%%******** float *******************************
%% This package allows you to customize the style of
%% "floats"---floating objects such as figures and tables.  In
%% addition, it allows you to define additional floating objects which
%% may be included in a list similar to that produces by \listoftables
%% and \listoffigures.  Common uses include introducing floats for
%% programs and other code bits in Compute Science and Chemical Schema.
\usepackage{float}

%%******** tocloft *****************************
%% This package allows you to customize and define custom lists such
%% as a list of programs or Chemical Scheme.  Note: if you use the
%% subfigure package, you must specify that you do as an option here.
%% The title option uses the default formatting.  We do not use this
%% here as the default formatting is acceptable.  Use the float
%% package instead unless you need the extra formatting control
%% provided by tocloft.
%%\usepackage[subfigure, titles]{tocloft}

%%******** alltt *******************************
%% The alltt package allows you to include files and have them
%% formatted in a verbatim fashion.  This is useful for including
%% source code from an additional file.
%%\usepackage{alltt}

%%******** listings ****************************
%% The listings package may be used to include chunks of source code
%% and has facilities for pretty-printing many languages.
```

```
%%\usepackage{listings}

%%******** longtable ****************************
%% The longtable package allows you to define tables that span
%% multiple pages.
\usepackage{longtable}

%%******** graphics and graphicx *****************
%% This allows you to include encapsulated postscript files.  If you
%% don't have this, comment the \includegraphics{} line following the
%% comment "%includegraphics" later in this file.
\usepackage{graphicx}

%%******** subfigure ****************************
%% The subfigure package allows you to include multiple figures and
%% captions within a single figure environment.
%%\usepackage{subfigure}

%%******** here *********************************
%% The here package gives you more control over the placement of
%% figures and tables.  In particular, you can specify the placement
%% "H" which means "Put the figure here" rather than [h] which means
%% "I would suggest that you put the figure here if you think it looks
%% good."
%%\usepackage{here}

%%******** pdflscape ****************************
%% This allows you to include landscape layout pages by using the
%% |landscape| environment.  The use of |pdflscape| is preferred over
%% the standard |lscape| package because it automatically rotates the
%% page in the pdf file for easier reading.  (Thanks to Joseph Shea
%% for pointing this out.)
\usepackage{pdflscape}

%%******** natbib *******************************
%% This is a very nice package for bibliographies.  It includes options
%% for sorting and compressing bibliographic entries.
\usepackage[numbers,sort&compress]{natbib}

%%******** psfrag *******************************
%% This allows you to replace text in postscript pictures with formated
%% latex text.  This allows you to use math in graph labels
%% etc. Uncomment the psfrag lines following the "%psfrag" comment
%% later in this file if you don't have this package.  The replacements
%% will only be visible in the final postscript file: they will be
%% listed in the .dvi file but not performed.
\usepackage{psfrag}

%%******** hyperref *****************************
%% Please read the manual:
```

```
%% http://www.tug.org/applications/hyperref/manual.html
%%
%% This adds hyperlinks to your document: with the right viewers (later
%% versions of xdvi, acrobat with pdftex, latex2html etc.) this will
%% make your equation, figure, citation references etc. hyperlinks so
%% that you can click on them.  Also, your table of contents will be
%% able to take you to the appropriate sections.  In the viewers that
%% support this, the links often appear with an underscore.  This
%% underscore will not appear in printed versions.
%%
%% Note: if you do not use the hypertex option, then the dvips driver
%% may be loaded by default.  This will cause the entries in the list
%% of figures and list of tables to be on a single line because dvips
%% does not deal with hyperlinks on broken lines properly.
%%
%% NOTE: HYPERREF is sensitive to the ORDER in which it is LOADED.
%% For example, it must be loaded AFTER natbib but BEFORE newly
%% defined float environments.  See the README file with the hyperref
%% for some help with this.  If you have some very obscure errors, try
%% first disabling hyperref.  If that fixes the problem, try various
%% orderings.
%%
%% Note also that there is a bug with versions before 2003/11/30
%% v6.74m that cause the float package to not function correctly.
%% Please ensure you have a current version of this package.  A
%% warning will be issued if you leave the date below but do not have
%% a current version installed.
%%
%% Some notes on options: depending on how you build your files, you
%% may need to choose the appropriate option (such as [pdftex]) for the
%% backend driver (see the hyperref manual for a complete list).  Also,
%% the default here is to make links from the page numbers in the table
%% of contents and lists of figures etc.  There are other options:
%% excluding the [linktocpage] option will make the entire text a
%% hyperref, but for some backends will prevent the text from wrapping
%% which can look terrible.  There is a [breaklinks=true] option that
%% will be set if the backend supports (dvipdfm for example supports
%% it but does not work with psfrag.)
%%
%% Finally, there are many options for choosing the colours of the
%% links.  These will be included by default in future versions but
%% you should probably consider changing some now for the electronic
%% version of your thesis.
\usepackage[unicode=true,
  linktocpage,
  linkbordercolor={0.5 0.5 1},
  citebordercolor={0.5 1 0.5},
  linkcolor=blue]{hyperref}

%% If you would like to compile this sample thesis without the
```

```
%% hyperref package, then you will need to comment out the previous
%% \usepackage command and uncomment the following command which will
%% put the URL's in a typewriter font but not link them.
%%\newcommand\url[1]{\texttt{#1}}

%%******** setspace ******************************
%% The setspace package allows you to manually set the spacing of the
%% file.  UBC may require 1.5 spacing for microfilming of theses.  In
%% this case you may obtain this by including this package and issuing
%% one of the following commands:
%%\usepackage{setspace}
%%\singlespacing
%%\onehalfspacing
%%\doublespacing

%% These commands are optional.  The defaults are shown.  You only
%% need to include them if you need a different value
\institution{The University Of British Columbia}

%% If you are at the Okanagan campus, then you should specify these
%% instead.
%%\faculty{The College of Graduate Studies}
%%\institutionaddress{Okanagan}
\faculty{The Faculty of Graduate Studies}
\institutionaddress{Vancouver}

%% You can issue as many of these as you have...
\previousdegree{B.Sc., The University of British Columbia, 1999}
\previousdegree{M.Sc., The University of British Columbia, 2001}
\previousdegree{Ph.D., Massachusetts Institute of Technology, 2005}

%% You can override the option setting here.
%% \degreetitle{Jack of All Trades}

%% These commands are required.
\title{A Sample UBC Thesis}
\subtitle{With a Subtitle}
\author{Michael M$^{\rm c}$Neil Forbes}
\copyrightyear{2000}
\submitdate{\monthname\ \number\year} % The "\ " is required after
                                      % \monthname to prevent the
                                      % command from eating the space.
\program{Physics}

%% These commands are presently not required for UBC theses as the
%% advisor's name and title are not presently required anywhere.
%%\advisor{Ariel R.~Zhitnitsky}
%%\advisortitle{Professor of Physics}

```

12.2.1 Chapter and section counter formats

For any counter *CTR*, `\theCTR` is a macro that defines the printed version of counter *CTR*. It is defined in terms of the following macros:

`\arabic{`*COUNTER*`}` prints the value of *COUNTER* as an Arabic numeral.

`\roman{`*COUNTER*`}` prints the value of *COUNTER* as a lowercase Roman numeral.

`\Roman{`*COUNTER*`}` prints the value of *COUNTER* as an uppercase Roman numeral.

`\alph{`*COUNTER*`}` prints the value of *COUNTER* as a lowercase letter: 1 = a, 2 = b, etc.

`\Alph{`*COUNTER*`}` prints the value of *COUNTER* as an uppercase letter: 1 = A, 2 = B, etc.

This section of the sample class redefines these (actually, the redefinitions match the defaults so this would be pointless in the actual thesis, but is here for demonstration purposes.)

```
%
%% One might want to override the format of the section and chapter
%% numbers.  This shows you how to do it.  Note that the current
%% format is acceptable for submission to the FoGS: If you wish to modify
%% these, you should check with the FoGS explicity. prior to making
%% the modifications.
\renewcommand\thepart          {\Roman{part}}
\renewcommand\thechapter       {\arabic{chapter}}
```

The section and lower commands also display the numbers of higher sections too and a punctuation mark. These show you how to change these. (Again, the formats actually given here are the defaults.)

```
\renewcommand\thesection       {\thechapter.\arabic{section}}
\renewcommand\thesubsection    {\thesection.\arabic{subsection}}
\renewcommand\thesubsubsection{\thesubsection.\arabic{subsubsection}}
\renewcommand\theparagraph     {\thesubsubsection.\arabic{paragraph}}
\renewcommand\thesubparagraph {\theparagraph.\arabic{subparagraph}}

% Two related counters control the level of sections that are numbered
% and the level of sections included in the table of contents:
\setcounter{tocdepth}{2}
\setcounter{secnumdepth}{2}

%% Here is an example of a "Program" environment defined with the
%% "float" package.  The list of programs will be stored in the file
%% ubcsample.lop and the numbering will start with the chapter
%% number.  The style will be "ruled".
\floatstyle{ruled}
\newfloat{Program}{htbp}{lop}[chapter]

%% Here is the start of the document.
\begin{document}

```

```
%%% This starts numbering in Roman numerals as required for the thesis
%%% style and is mandatory.
\frontmatter

%%%% The order of the following components should be preserved.  The order
%%%% listed here is the order currently required by FoGS:        \\
%%%% Title (Mandatory)                                           \\
%%%% Preface (Manditory if any collaborator contributions)       \\
%%%% Abstract (Mandatory)                                        \\
%%%% List of Contents, Tables, Figures, etc. (As appropriate)    \\
%%%% Acknowledgements (Optional)                                 \\
%%%% Dedication (Optional)                                       \\

\maketitle                      %% Mandatory
\begin{abstract}                %% Mandatory -  maximum 350 words
  The \texttt{genthesis.cls} \LaTeX{} class file and accompanying
  documents, such as this sample thesis, are distributed in the hope
  that it will be useful but without any warranty (without even the
  implied warranty of fitness for a particular purpose).  For a
  description of this file's purpose, and instructions on its use, see
  below.

  These files are distributed under the GPL which should be included
  here in the future.  Please let the author know of any changes or
  improvements that should be made.

  Michael Forbes.
  mforbes@physics.ubc.ca
\end{abstract}

\chapter{Preface} % Manditory if any of the conditions are met

You must include a preface if any part of your research was partly or
wholly published in articles, was part of a collaboration, or required
the approval of UBC Research Ethics Boards.

The Preface must include the following:

\begin{itemize}
\item A statement indicating the relative contributions of all
  collaborators and co-authors of publications (if any), emphasizing
  details of your contribution, and stating the proportion of research
  and writing conducted by you.
\item A list of any publications arising from work presented in the
  dissertation, and the chapter(s) in which the work is located.
\item The name of the particular UBC Research Ethics Board, and the
  Certificate Number(s) of the Ethics Certificate(s) obtained, if
  ethics approval was required for the research.
\end{itemize}

```

```
%%%% Sections and subsections etc. in the Preface should in general
%%%% not be listed in the table of contents, so use the starred form
%%%% of \section etc.
\section*{Examples}
Chapter~\ref{cha:apple_ref} is based on work conducted in UBC's Maple
Syrup Laboratory by Dr. A.  Apple, Professor B. Boat, and Michael
McNeil Forbes. I was responsible for tapping the trees in forests X
and Z, conducted and supervised all boiling operations, and performed
frequent quality control tests on the product.

A version of chapter~\ref{cha:apple_ref} has been
published~\cite{Apple:2010}. I conducted all the testing and wrote
most of the manuscript. The section on ``Testing Implements'' was
originally drafted by Boat, B.  Check the first pages of this
chapter to see footnotes with similar information.

Note that this preface must come before the table of contents.  Note
also that this section ``Examples'' should not be listed in the table
of contents, so we have used the starred form: \verb|\section*{Example}|.

\tableofcontents                %% Mandatory
\listoftables                   %% Mandatory if thesis has tables
\listoffigures                  %% Mandatory if thesis has figures
\listof{Program}{List of Programs} %% Optional
%%% Any other lists should come here, i.e.
%%% Abbreviation schemes, definitions, lists of formulae, list of
%%% schemes, glossary, list of symbols etc.

\chapter{Acknowledgements}      %% Optional
This is the place to thank professional colleagues and people who have
given you the most help during the course of your graduate work.

\chapter{Dedication} %% Optional
The dedication is usually quite short, and is a personal rather than
an academic recognition.  The \emph{Dedication} does not have to be
titled, but it must appear in the table of contents.  If you want to
skip the chapter title but still enter it into the Table of Contents,
use this command \verb|\chapter[Dedication]{}|.

Note that this section is the last of the preliminary pages (with
lowercase Roman numeral page numbers).  It must be placed
\emph{before} the \verb|\mainmatter| command.  After that, Arabic
numbered pages will begin.

%% Any other unusual prefactory material should come here before the
%% main body.

%% Now regular page numbering begins.
\mainmatter

```

```
%% Parts are the largest structural units, but are optional.
%%\part{Thesis}

%% Chapters are the next main unit.
\chapter{This is a Chapter}

%% Sections are a sub-unit
\section{A Section}
Here is a section with some text.  Equations look like this
$y=x$.\footnote{Here is a footnote.}

This is an example of a second paragraph in a section so you can
see how much it is indented by.

%% Subsections follow
\subsection{This is a Subsection}
Here is an example of a citation: \cite{Forbes:2006ba}.  The actual
form of the citation is governed by the bibliographystyle.  These
citations are maintained in a BIBTeX file \texttt{sample.bib}.  You
could type these directly into the file.  For an example of the format
to use look at the file \texttt{ubcsample.bbl} after you compile this
file.\footnote{Here is another footnote.}

This is an example of a second paragraph in a subsection so you can
see how much it is indented by.

\subsubsection{This is a Subsubsection}
Here are some more citations \cite{LL3:1977,Peccei:1989,Turner:1999}.
If you use the \texttt{natbib} package with the \verb+sort&compress+
option, then the following citation will look the same as the first
citation in this section: \cite{Turner:1999,Peccei:1989,LL3:1977}.

This is an example of a second paragraph in a subsubsection so you can
see how much it is indented by.

\paragraph{This is a Paragraph}
Paragraphs and subparagraphs are the smallest units of text.  There is
no subsubsubsection etc.

\subparagraph{This is a Subparagraph}
This is the last level of organisation.  If you need more than this,
you should consider reorganizing your work\dots

\begin{equation}
  \mathrm{f}(x)=\int_{-\infty}^{\int_{-\infty}^x
    e^{-\frac{y^2}{2}}\mathrm{d}{y}}e^{-z^2}\mathrm{d}z
\end{equation}

In order to show you what a separate page would look like (i.e. without
a chapter heading) I must type some more text.  Thus I will babble a
```

```
bit and keep babbling for at least one more page\ldots  What you
should notice is that the chapter titles appear substantially lower
than the continuing text. Babble babble
babble babble babble babble babble babble babble babble babble babble
babble babble babble babble babble babble babble babble babble babble
babble babble babble babble babble babble babble babble babble babble
babble babble babble babble babble babble babble babble babble.

Babble babble babble babble babble babble babble babble babble babble
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babble babble babble babble babble babble babble babble babble babble
babble babble babble babble babble babble babble babble babble babble
babble babble babble babble.

\begin{table}[t]                % optional [t, b or h];
  \begin{tabular}{|r||r@{.}l|}
    \hline
    Phoenix & \$960&35\\
    \hline
    Calgary & \$250&00\\
    \hline
  \end{tabular}
  \caption[Here is the caption for this wonderful table\ldots]{
    \label{tab:Table1}
    Here is the caption for this wonderful table. It has not been
    centered and the positioning has been specified to be at the top
    of the page.  Thus it appears above the babble rather than below
    where it is defined in the source file.}
\end{table}

%% Force a new page: without this, the quote would appear on the
%% previous page.
\newpage

\section{Quote}
Here is a quote:
\begin{quote}
  % It is centered
  \begin{center}
    This is a small poem,\\
    a little poem, a Haiku,\\
    to show you how to.\\
```

```
    ---Michael M$^{\rm c}$Neil Forbes.
  \end{center}
\end{quote}

This small poem shows several features:
\begin{itemize}
\item The use of the \verb|quote| and \verb|center| environments.
\item The \verb|\newpage| command has been used to force a page
  break.  (Sections do not usually start on a new page.)
\item The pagestyle has been set to suppress the headers using the
  command \verb|\thispagestyle{plain}|.  Note that using
  \verb|\pagestyle{plain}| would have affected all of the subsequent
  pages.
\end{itemize}
\section{Programs}
Here we give an example of a new float as defined using the
\texttt{float} package.  In the preamble we have used the commands
\begin{verbatim}
\floatstyle{ruled}
\newfloat{Program}{htbp}{lop}[chapter]
\end{verbatim}
This creates a ``Program'' environment that may be used for program
fragments.  A sample \texttt{python} program is shown in
Program~\ref{prog:fib}.  (Note that Python places a fairly restrictive
limit on recursion so trying to call this with a large $n$ before
building up the cache is likely to fail unless you increase the
recursion depth.)
\begin{Program}
  \caption{\label{prog:fib} Python program that computes the $n^{\rm
      th}$ Fibonacci number using memoization.}
\begin{verbatim}
def fib(n,_cache={}):
    if n < 2:
        return 1
    if n in _cache:
        return _cache[n]
    else:
        result = fib(n-1)+fib(n-2)
        _cache[n] = result
        return result
\end{verbatim}
\end{Program}
Instead of using a \texttt{verbatim} environment for your program
chunks, you might like to \texttt{include} them within an
\texttt{alltt} envrironment by including the \verb|\usepackage{alltt}|
package (see page 187 of the \LaTeX{} book).  Another useful package
is the \verb|\usepackage{listings}| which can pretty-print many
different types of source code.

%% Force a new page
```

```
\newpage

%%% Here we provide a short optional argument to \chapter[]{}.  This
%%% optional argument will appear in the table of contents.  For long
%%% titles, one should use this to give a single-line entry to the
%%% table of contents.
\chapter[Another Chapter\ldots]{Another Chapter with a Very Long
  Chapter-name that will Probably Cause Problems}
\label{cha:apple_ref}

This chapter name is very long and does not display properly in the
running headers or in the table of contents.  To deal with this, we
provide a shorter version of the title as the optional argument to the
\verb|\chapter[]{}| command.

For example, this chapter's title and associated table of contents heading and
running header was created with\\
\verb|\chapter[Another Chapter\ldots]{Another Chapter with a Very Long|\\
\verb|Chapter-name that will Probably Cause Problems}|.

Note that, according to the thesis regulations, the heading included
in the table of contents must be a truncation of the actual heading.

This Chapter was used as a demonstration in the Preface for how to
attribute contribution from collaborators.  If there are any such
contributions, details must be included in the Preface.  If you wish,
you may additionally use a footnote such as this.\footnote{This
  chapter is based on work conducted in UBC's Maple Syrup Laboratory
  by Dr. A. Apple, Professor B. Boat, and C. Cat.}

\section{Another Section}
Another bunch of text to demonstrate what this file does.
You might want a list for example:\footnote{Here is a footnote in a
  different chapter.  Footnotes should come after punctuation.}
\begin{itemize}
\item An item in a list.
\item Another item in a list.
\end{itemize}

\section*{An Unnumbered Section That is Not Included in the Table of
  Contents}
\begin{figure}[ht]
  \begin{center}
%%% psfrag: comment the following line if not using the psfrag package
    \psfrag{pie makes me happy!}{$\pi$ makes me happy!}
%%% includegraphics: comment the following if not using the graphicx package
    \includegraphics[width=0.4\textwidth]{fig.eps}
    \caption[Happy Face: figure example.]{\label{fig:happy} This is a figure of
      a happy face with a \texttt{psfrag} replacement.  The original figure
      (drawn in xfig and exported to a .eps file) has the text ``pie makes me
```

```
      happy!''.  The \texttt{psfrag} package replaces this with ``$\pi$ makes me
      happy!''.  Note: the Makefile compiles the sample using pdf\LaTeX\ which
      cannot use \texttt{psfrag} directly.  For some options that work with
      pdf\LaTeX, please see this discussion:
      \url{http://tex.stackexchange.com/questions/11839}.  For the caption, we
      have used the optional argument for the caption command so that only a
      short version of this caption occurs in the list of figures.}
  \end{center}
\end{figure}
\afterpage{\clearpage}
Here is an example of a figure environment.
Perhaps I should say that the example of a figure can be seen in
Figure~\ref{fig:happy}.  Figure placement can be tricky with \LaTeX\
because figures and tables are treated as ``floats'': text can flow
around them, but if there is not enough space, they will appear later.
To prevent figures from going too far, the
\verb|\afterpage{\clearpage}| command can be used.  This makes sure
that the figure are typeset at the end of the page (possibly appear on
their own on the following pages) and before any subsequent text.

The \verb|\clearpage| forces a page break so that the figure can be
placed, but without the the \verb|\afterpage{}| command, the page
would be broken too early (at the \verb|\clearpage| statement).  The
\verb|\afterpage{}| command tells \LaTeX{} to issue the command after
the present page has been rendered.

\section{Tables}
We have already included one table:~\ref{tab:Table1}.  Another table
is plopped right here.
\begin{table}[ht]
  \begin{center}
    \begin{tabular}{|l||l|l||l|l|}
      \hline
      &\multicolumn{2}{l|}{Singular}&\multicolumn{2}{l|}{Plural}\\
      \cline{2-5}
       &English&\textbf{Gaeilge}&English&\textbf{Gaeilge}\\
      \hline\hline
      1st Person&at me&\textbf{agam}&at us&\textbf{againn}\\
      2nd Person&at you&\textbf{agat}&at you&\textbf{agaibh}\\
      3rd Person&at him&\textbf{aige}&at them&\textbf{acu}\\
       &at her&\textbf{aici}& & \\
      \hline
    \end{tabular}
    \caption{
      \label{tab:Table2}
      Another table.}
  \end{center}
\end{table}
Well, actually, as with Figures, tables do not
necessarily appear right ``here'' because tables are also ``floats''.
```

```
\LaTeX{} puts them where it can.  Because of this, one should refer to
floats by their labels rather than by their location.  This example is
demonstrated by Table~\ref{tab:Table2}.  This one is pretty close,
however.  (Note: you should generally not put tables or figures in the
middle of a paragraph.  This example is for demonstration purposes
only.)

Another useful package is \verb|\usepackage{longtable}| which provides
the \texttt{longtable} environment.  This is nice because it allows
tables to span multiple pages.  Table~\ref{tab:longtable} has been
formatted this way.
\begin{center}
  \begin{longtable}{|l|l|l|}
    \caption{\label{tab:longtable}Feasible triples for
      highly variable Grid}\\

    \hline \multicolumn{1}{|c|}{\textbf{Time (s)}} &
    \multicolumn{1}{c|}{\textbf{Triple chosen}} &
    \multicolumn{1}{c|}{\textbf{Other feasible triples}} \\ \hline
    \endfirsthead

    \multicolumn{3}{c}%
    {{\bfseries \tablename\ \thetable{} -- continued from previous page}} \\
    \hline \multicolumn{1}{|c|}{\textbf{Time (s)}} &
    \multicolumn{1}{c|}{\textbf{Triple chosen}} &
    \multicolumn{1}{c|}{\textbf{Other feasible triples}} \\ \hline
    \endhead

    \hline \multicolumn{3}{|r|}{{Continued on next page}} \\ \hline
    \endfoot

    \hline \hline
    \endlastfoot

    0 & (1, 11, 13725) & (1, 12, 10980), (1, 13, 8235), (2, 2, 0), (3, 1, 0) \\
    274 & (1, 12, 10980) & (1, 13, 8235), (2, 2, 0), (2, 3, 0), (3, 1, 0) \\
    5490 & (1, 12, 13725) & (2, 2, 2745), (2, 3, 0), (3, 1, 0) \\
    8235 & (1, 12, 16470) & (1, 13, 13725), (2, 2, 2745), (2, 3, 0), (3, 1, 0) \\
    10980 & (1, 12, 16470) & (1, 13, 13725), (2, 2, 2745), (2, 3, 0), (3, 1, 0) \\
    13725 & (1, 12, 16470) & (1, 13, 13725), (2, 2, 2745), (2, 3, 0), (3, 1, 0) \\
    16470 & (1, 13, 16470) & (2, 2, 2745), (2, 3, 0), (3, 1, 0) \\
    19215 & (1, 12, 16470) & (1, 13, 13725), (2, 2, 2745), (2, 3, 0), (3, 1, 0) \\
    21960 & (1, 12, 16470) & (1, 13, 13725), (2, 2, 2745), (2, 3, 0), (3, 1, 0) \\
    24705 & (1, 12, 16470) & (1, 13, 13725), (2, 2, 2745), (2, 3, 0), (3, 1, 0) \\
    27450 & (1, 12, 16470) & (1, 13, 13725), (2, 2, 2745), (2, 3, 0), (3, 1, 0) \\
    30195 & (2, 2, 2745) & (2, 3, 0), (3, 1, 0) \\
    32940 & (1, 13, 16470) & (2, 2, 2745), (2, 3, 0), (3, 1, 0) \\
    35685 & (1, 13, 13725) & (2, 2, 2745), (2, 3, 0), (3, 1, 0) \\
    38430 & (1, 13, 10980) & (2, 2, 2745), (2, 3, 0), (3, 1, 0) \\
    41175 & (1, 12, 13725) & (1, 13, 10980), (2, 2, 2745), (2, 3, 0), (3, 1, 0) \\
```

```
    43920 & (1, 13, 10980) & (2, 2, 2745), (2, 3, 0), (3, 1, 0) \\
    46665 & (2, 2, 2745) & (2, 3, 0), (3, 1, 0) \\
    49410 & (2, 2, 2745) & (2, 3, 0), (3, 1, 0) \\
    52155 & (1, 12, 16470) & (1, 13, 13725), (2, 2, 2745), (2, 3, 0), (3, 1, 0) \\
    54900 & (1, 13, 13725) & (2, 2, 2745), (2, 3, 0), (3, 1, 0) \\
    57645 & (1, 13, 13725) & (2, 2, 2745), (2, 3, 0), (3, 1, 0) \\
    60390 & (1, 12, 13725) & (2, 2, 2745), (2, 3, 0), (3, 1, 0) \\
    63135 & (1, 13, 16470) & (2, 2, 2745), (2, 3, 0), (3, 1, 0) \\
    65880 & (1, 13, 16470) & (2, 2, 2745), (2, 3, 0), (3, 1, 0) \\
    68625 & (2, 2, 2745) & (2, 3, 0), (3, 1, 0) \\
    71370 & (1, 13, 13725) & (2, 2, 2745), (2, 3, 0), (3, 1, 0) \\
    74115 & (1, 12, 13725) & (2, 2, 2745), (2, 3, 0), (3, 1, 0) \\
    76860 & (1, 13, 13725) & (2, 2, 2745), (2, 3, 0), (3, 1, 0) \\
    79605 & (1, 13, 13725) & (2, 2, 2745), (2, 3, 0), (3, 1, 0) \\
    82350 & (1, 12, 13725) & (2, 2, 2745), (2, 3, 0), (3, 1, 0) \\
    85095 & (1, 12, 13725) & (1, 13, 10980), (2, 2, 2745), (2, 3, 0), (3, 1, 0) \\
    87840 & (1, 13, 16470) & (2, 2, 2745), (2, 3, 0), (3, 1, 0) \\
    90585 & (1, 13, 16470) & (2, 2, 2745), (2, 3, 0), (3, 1, 0) \\
    93330 & (1, 13, 13725) & (2, 2, 2745), (2, 3, 0), (3, 1, 0) \\
    96075 & (1, 13, 16470) & (2, 2, 2745), (2, 3, 0), (3, 1, 0) \\
    98820 & (1, 13, 16470) & (2, 2, 2745), (2, 3, 0), (3, 1, 0) \\
    101565 & (1, 13, 13725) & (2, 2, 2745), (2, 3, 0), (3, 1, 0) \\
    104310 & (1, 13, 16470) & (2, 2, 2745), (2, 3, 0), (3, 1, 0) \\
    107055 & (1, 13, 13725) & (2, 2, 2745), (2, 3, 0), (3, 1, 0) \\
    109800 & (1, 13, 13725) & (2, 2, 2745), (2, 3, 0), (3, 1, 0) \\
    112545 & (1, 12, 16470) & (1, 13, 13725), (2, 2, 2745), (2, 3, 0), (3, 1, 0) \\
    115290 & (1, 13, 16470) & (2, 2, 2745), (2, 3, 0), (3, 1, 0) \\
    118035 & (1, 13, 13725) & (2, 2, 2745), (2, 3, 0), (3, 1, 0) \\
    120780 & (1, 13, 16470) & (2, 2, 2745), (2, 3, 0), (3, 1, 0) \\
    123525 & (1, 13, 13725) & (2, 2, 2745), (2, 3, 0), (3, 1, 0) \\
    126270 & (1, 12, 16470) & (1, 13, 13725), (2, 2, 2745), (2, 3, 0), (3, 1, 0) \\
    129015 & (2, 2, 2745) & (2, 3, 0), (3, 1, 0) \\
    131760 & (2, 2, 2745) & (2, 3, 0), (3, 1, 0) \\
    134505 & (1, 13, 16470) & (2, 2, 2745), (2, 3, 0), (3, 1, 0) \\
    137250 & (1, 13, 13725) & (2, 2, 2745), (2, 3, 0), (3, 1, 0) \\
    139995 & (2, 2, 2745) & (2, 3, 0), (3, 1, 0) \\
    142740 & (2, 2, 2745) & (2, 3, 0), (3, 1, 0) \\
    145485 & (1, 12, 16470) & (1, 13, 13725), (2, 2, 2745), (2, 3, 0), (3, 1, 0) \\
    148230 & (2, 2, 2745) & (2, 3, 0), (3, 1, 0) \\
    150975 & (1, 13, 16470) & (2, 2, 2745), (2, 3, 0), (3, 1, 0) \\
    153720 & (1, 12, 13725) & (2, 2, 2745), (2, 3, 0), (3, 1, 0) \\
    156465 & (1, 13, 13725) & (2, 2, 2745), (2, 3, 0), (3, 1, 0) \\
    159210 & (1, 13, 13725) & (2, 2, 2745), (2, 3, 0), (3, 1, 0) \\
    161955 & (1, 13, 16470) & (2, 2, 2745), (2, 3, 0), (3, 1, 0) \\
    164700 & (1, 13, 13725) & (2, 2, 2745), (2, 3, 0), (3, 1, 0) \\
\end{longtable}
\end{center}

\subsection*{An Unnumbered Subsection}
Note that if you use subsections or further divisions under an
```

```
unnumbered section, then you should make them unnumbered as well
otherwise you will end up with zeros in the section numbering.

\chapter{Landscape Mode}
The landscape mode allows you to rotate a page through 90 degrees.  It
is generally not a good idea to make the chapter heading landscape,
but it can be useful for long tables etc.

\begin{landscape}
  This text should appear rotated, allowing for formatting of very
  wide tables etc.  Note that this might only work after you convert
  the \texttt{dvi} file to a postscript (\texttt{ps}) or \texttt{pdf}
  file using \texttt{dvips} or \texttt{dvipdf} etc.  This feature is
  provided by the \verb|lscape| and the \verb|pdflscape| packages.
  The latter is preferred if it works as it also rotates the pages in
  the pdf file for easier viewing.
\end{landscape}

%%% This file is setup to use a bibtex file sample.bib and uses the
%%% plain style.  Other styles may be used depending on the conventions
%%% of your field of study.
%%%
%%%% Note: the bibliography must come before the appendices.
\bibliographystyle{plain}
\bibliography{sample}

%%% Use this to reset the appendix counter.  Note that the FoGS
%%% requires that the word ``Appendices'' appear in the table of
%%% contents either before each appendix lable or as a division
%%% denoting the start of the appendices.  We take the latter option
%%% here.  This is ensured by making the \texttt{appendicestoc} option
%%% a default option to the UBC thesis class.

%%%% If you only have one appendix, please uncomment the following line.
%% \renewcommand{\appendicesname}{Appendix}
\appendix
\chapter{First Appendix}
Here you can have your appendices.  Note that if you only have a
single appendix, you should issue
\verb|\renewcommand{\appendicesname}{Appendix}| before calling
\verb|\appendix| to display the singular ``Appendix'' rather than the
default plural ``Appendices''.

\chapter{Second Appendix}
Here is the second appendix.

%%% This changes the headings and chapter titles (no numbers for
%%% example).
\backmatter
```

```
%%% Indices come here if you have them.


\chapter*{Additional Information}
This chapter shows you how to include additional information in your
thesis, the removal of which will not affect the submission.  Such
material should be removed before the thesis is actually submitted.

First, the chapter is unnumbered and not included in the Table of
Contents.  Second, it is the last section of the thesis, so its
removal will not alter any of the page numbering etc. for the previous
sections.  Do not include any floats, however, as these will appear in
the initial lists.

The \texttt{ubcthesis} \LaTeX{} class has been designed to aid you in
producing a thesis that conforms to the requirements of The
University of British Columbia Faculty of Graduate Studies (FoGS).

Proper use of this class and sample is highly recommended---and should
produce a well formatted document that meets the FoGS requirement.
Notwithstanding, complex theses may require additional formatting that
may conflict with some of the requirements.  We therefore \emph{highly
  recommend} that you consult one of the FoGS staff for assistance and
an assessment of potential problems \emph{before} starting final
draft.

While we have attemped to address most of the thesis formatting
requirements in these files, they do not constitute an official set of
thesis requirements.  The official requirements are available at the
following section of the FoGS web site:
\begin{center}
  \begin{tabular}{|l|}
    \hline
    \url{http://www.grad.ubc.ca/current-students/dissertation-thesis-preparation}\\
    \hline
  \end{tabular}
\end{center}
We recommend that you review these instructions carefully.

```

12.3 End of Document

```
\end{document}
```

Finally, we close off the file so that nothing else is put into the sample thesis.

```
⟨/ubcsampletex⟩
```

13 Sample MIT Thesis

This was a thesis conforming to the Massachusetts Institute of Technology guidelines when I was a student. I have not kept on top of the changes, so some modifications may have to be made.

Here is the comment that tells DOCSTRIP to put the following code into `mitsample.tex`.

797 ⟨∗mitsampletex⟩

13.1 Identification

This section identifies the version of the file. It also indicates which version of LaTeX (LaTeX 2_ε) is required and makes sure that an appropriate message is displayed when another TeX format is used.

```
798 %% This Sample thesis requires \LaTeX2e
799 \NeedsTeXFormat{LaTeX2e}[1995/12/01]
```

Now we announce the file or class name and its version:

```
800 \ProvidesFile{mitsample.tex}[2012/04/07 v1.70 ^^J
801  Massachusetts Institute of Technology Sample Thesis]
```

13.2 Document Structure

This section describes the structure that your LaTeX document must have. Various sections of the sample code will be presented to illustrate this structure though the sample file `mitsample.tex` does not contain all of the options and features.

The first section of a LaTeX document contains information about the structure of the document. This is called the document preamble.

Usually the first command is the `\documentclass` command which specifies the class to use and the options to the class

```
802
803 \documentclass[msc,10pt,oneside]{mitthesis}

804 %%
805 %% To compile issue the following commands:
806 %% latex mitsample
807 %% bibtex mitsample
808 %% latex mitsample
809 %% latex mitsample
810 %% latex mitsample
811 %%
812 %% To view use xdvi (on unix systems):
813 %% xdvi mitsample.dvi
814 %%
815 %% To make a postscript file, use dvips:
816 %% dvips -o mitsample.ps mitsample.dvi
817 %%
818 %% To view the postscript file, use ghostview or gv (on unix systems):
```

```
%% gv mitsample.ps
%%
%%************************************************
%% Optional packages.
%%
%% The use of these packages is optional: they are standard now and
%% should be installed on your system, but if they are not, you might
%% have to comment out the appropriate lines to get this file to
%% compile.
%%
%%******** natbib ********************************
%% This is a very nice package for bibliographies.  It includes options
%% for sorting and compressing bibliographic entries.
\usepackage[numbers,sort&compress]{natbib}

%%******** graphics and graphicx *****************************
%% This allows you to include encapsulated postscript files.  If you
%% don't have this, comment the \includegraphics{} line following the
%% comment "%includegraphics" later in this file.
\usepackage{graphicx}

%%******** pdflscape *****************************
%% This allows you to include landscape layout pages by using the
%% |landscape| environment.  The use of |pdflscape| is preferred over
%% the standard |lscape| package because it automatically rotates the
%% page in the pdf file for easier reading.  (Thanks to Joseph Shea
%% for pointing this out.)
\usepackage{pdflscape}

%%******** psfrag ******************************
%% This allows you to replace text in postscript pictures with formated
%% latex text.  This allows you to use math in graph labels
%% etc. Uncomment the psfrag lines following the "%psfrag" comment
%% later in this file if you don't have this package.  The replacements
%% will only be visible in the final postscript file: they will be
%% listed in the .dvi file but not performed.
\usepackage{psfrag}

%%******** afterpage ***************************
%% This package allows you to issue commands at the end of the current
%% page.  A good use for this is to use the command
%% \afterpage{\clearpage} right after a figure.  This will cause the
%% figure to be inserted on the page following the current one (or on
%% the current page if it will fit) but will not break the page in the
%% middle.
\usepackage{afterpage}

%%******** hyperref ****************************
%% Please read the manual:
%% http://www.tug.org/applications/hyperref/manual.html
```

```
%%
%% This adds hyperlinks to your document: with the right viewers (later
%% versions of xdvi, acrobat with pdftex, latex2html etc.) this will
%% make your equation, figure, citation references etc. hyperlinks so
%% that you can click on them.  Also, your table of contents will be
%% able to take you to the appropriate sections.  In the viewers that
%% support this, the links often appear with an underscore.  This
%% underscore will not appear in printed versions.
%%
%% Note: if you do not use the hypertex option, then the dvips driver
%% may be loaded by default.  This will cause the entries in the list
%% of figures and list of tables to be on a single line because dvips
%% does not deal with hyperlinks on broken lines properly.
%%
%% NOTE: HYPERREF is sensitive to the ORDER in which it is LOADED.
%% For example, it must be loaded AFTER natbib but BEFORE newly
%% defined float environments.  See the README file with the hyperref
%% for some help with this.  If you have some very obscure errors, try
%% first disabling hyperref.  If that fixes the problem, try various
%% orderings.
%%
%% Note also that there is a bug with versions before 2003/11/30
%% v6.74m that cause the float package to not function correctly.
%% Please ensure you have a current version of this package.  A
%% warning will be issued if you leave the date below but do not have
%% a current version installed.
%%
%% Some notes on options: depending on how you build your files, you
%% may need to choose the appropriate option (such as [pdftex]) for the
%% backend driver (see the hyperref manual for a complete list).  Also,
%% the default here is to make links from the page numbers in the table
%% of contents and lists of figures etc.  There are other options:
%% excluding the [linktocpage] option will make the entire text a
%% hyperref, but for some backends will prevent the text from wrapping
%% which can look terrible.  There is a [breaklinks=true] option that
%% will be set if the backend supports (dvipdfm for example supports
%% it but does not work with psfrag.)
%%
%% Finally, there are many options for choosing the colours of the
%% links.  These will be included by default in future versions but
%% you should probably consider changing some now for the electronic
%% version of your thesis.
\usepackage[unicode=true,
  linktocpage,
  linkbordercolor={0.5 0.5 1},
  citebordercolor={0.5 1 0.5},
  linkcolor=blue]{hyperref}

%% If you would like to compile this sample thesis without the
%% hyperref package, then you will need to comment out the previous
```

```
%% \usepackage command and uncomment the following command which will
%% put the URL's in a typewriter font but not link them.
%%\newcommand\url[1]{\texttt{#1}}

%% These commands are optional.  The defaults are shown.
\institution{Massachusetts Institute of Technology}
\institutionaddress{Cambridge}
\program{Physics}

%% You can issue as many of these as you have...
\previousdegree{B.Sc., The University of British Columbia, 1999}
\previousdegree{M.Sc., The University of British Columbia, 2001}

%% You can override the option setting here.
%% \degreetitle{Jack of All Trades}

%% These commands are required.
\title{A Sample Thesis}
\subtitle{With a Subtitle}
\author{Michael M$^{\rm c}$Neil Forbes}
\copyrightyear{2000}
\submitdate{June 2004}

%% These commands are required by MIT.
\advisor{Frank Wilczek}
\advisortitle{Herman Feshbach Professor of Physics}
\chairman{Thomas Greytak}{Professor and Associate Department Head for
  Education}
```

13.2.1 Chapter and section counter formats

For any counter *CTR*, `\theCTR` is a macro that defines the printed version of counter *CTR*. It is defined in terms of the following macros:

`\arabic{`*COUNTER*`}` prints the value of *COUNTER* as an Arabic numeral.

`\roman{`*COUNTER*`}` prints the value of *COUNTER* as a lowercase Roman numeral.

`\Roman{`*COUNTER*`}` prints the value of *COUNTER* as an uppercase Roman numeral.

`\alph{`*COUNTER*`}` prints the value of *COUNTER* as a lowercase letter: 1 = a, 2 = b, etc.

`\Alph{`*COUNTER*`}` prints the value of *COUNTER* as an uppercase letter: 1 = A, 2 = B, etc.

This section of the sample class redefines these (actually, the redefinitions match the defaults so this would be pointless in the actual thesis, but is here for demonstration purposes.)

```
%% One might want to override the format of the section and chapter
%% numbers.  This shows you how to do it.  Note that
\renewcommand\thepart         {\Roman{part}}
```

```
\renewcommand\thechapter       {\arabic{chapter}}
```

The section and lower commands also display the numbers of higher sections too and a punctuation mark. These show you how to change these. (Again, the formats actually given here are the defaults.)

```
\renewcommand\thesection       {\thechapter.\arabic{section}}
\renewcommand\thesubsection    {\thesection.\arabic{subsection}}
\renewcommand\thesubsubsection{\thesubsection.\arabic{subsubsection}}
\renewcommand\theparagraph     {\thesubsubsection.\arabic{paragraph}}
\renewcommand\thesubparagraph {\theparagraph.\arabic{subparagraph}}

% Two related counters control the level of sections that are numbered
% and the level of sections included in the table of contents:
\setcounter{tocdepth}{2}
\setcounter{secnumdepth}{2}

%% Here is the start of the document.
\begin{document}

%% Unlike the UBC thesis, page numbering for MIT theses should start
%% at 1 and continue.  Thus, there is no \frontmatter command issued
%% here as there was for the UBC thesis.

\maketitle
\authorizationform
\begin{abstract}
  The \texttt{genthesis.cls} \LaTeX{} class file and accompanying
  documents, such as this sample thesis, are distributed in the hope
  that it will be useful but without any warranty (without even the
  implied warranty of fitness for a particular purpose).  For a
  description of this file's purpose, and instructions on its use, see
  below.

  These files are distributed under the GPL which should be included
  here in the future.  Please let the author know of any changes or
  improvements that should be made.

  Michael Forbes.
  mforbes@alum.mit.edu
\end{abstract}

\tableofcontents
\listoftables
\listoffigures
%% Any other lists should come here, i.e.
%% Abbreviation schemes, definitions, lists of formulae, list of
%% schemes, etc.

\chapter{Preface}
These papers have been published earlier\ldots.
```

```
\chapter{Acknowledgements}
Thank you mother here.

%% Force a new page.
\newpage

%% Any other unusual sections should come here between the
%% acknowledgements and the main body.

%% Suppress the running headers for this page only.
\thispagestyle{plain}
\chapter*{Disclaimer} % Unnumbered
The \texttt{mitthesis} \LaTeX{} class and the accompanying sample files
are \emph{unofficial} and are not supported by the Massachusetts
Institute of Technology.  While I have attempted to make the style
file and sample files conform to all of the requirements set forth by
the library, you should always consult one of the library staff
members for assistance with problems \emph{before} starting final
draft.  You should be able to find the thesis requirements at one of
the following sites:
\begin{table}[h]
  \begin{center}
    \begin{tabular}{|l|}
      \hline
      \url{http://libraries.mit.edu/archives/thesis-specs/}\\
      \url{http://libraries.mit.edu/archives/index.html}\\
      \hline
    \end{tabular}
  \end{center}
  \caption{\label{tab:ubcurls}
    Potential sources of information regarding thesis preparation at MIT.}
\end{table}

%% Force a new page.
\newpage

%% Suppress the running headers for this page only.
\thispagestyle{plain}

%% Here we provide a short optional argument to \chapter[]{}.  This
%% optional argument will appear in the table of contents.  For long
%% titles, one should use this to give a single-line entry to the
%% table of contents.
\chapter[Poem]{A Japanese Introduction}

%% Here is a quote:
\begin{quote}
  % It is centered
  \begin{center}
```

```
    This is a small poem,\\
    a little poem, a Haiku,\\
    to show you how to.\\
    ---Michael Forbes.
  \end{center}
\end{quote}
This small poem shows several features:
\begin{itemize}
\item The \verb|\newpage| command has been used to force a page break.
\item The pagestyle has been set to suppress the headers using the
  command \verb|\thispagestyle{plain}|.  Note that using
  \verb|\pagestyle{plain}| would have affected all of the subsequent
  pages.
\item The \verb|\chapter[Poem]{A Japanese Introduction}| command has
  been used with an optional argument to generate a title and to list
  this ``chapter'' in the table of contents as ``Poem''.  If one did
  not desire to have an entry in the table of contents, then one would
  just use the starred command \verb|\chapter*{}|.  The use of an
  optional argument is useful for long chapter and section titles that
  take up too much space in the table of contents.
\end{itemize}

%% Parts are the largest units
\part{Thesis}

%% Chapters are the next main unit.
\chapter{This is a Chapter}

%% Sections are a sub-unit
\section{A Section}
Here is a section with some text.  Equations look like this $y=x$.

This is an example of a second paragraph in a section so you can
see how much it is indented by.

%% Subsections follow
\subsection{This is a Subsection}
Here is an example of a citation: \cite{Forbes:2006ba}.  The actual
form of the citation is governed by the bibliographystyle.  These
citations are maintained in a BIBTeX file \texttt{sample.bib}.  You
could type these directly into the file.  For an example of the format
to use look at the file \texttt{mitsample.bbl} after you compile this
file.

This is an example of a second paragraph in a subsection so you can
see how much it is indented by.

\subsubsection{This is a Subsubsection}
Here are some more citations \cite{LL3:1977,Peccei:1989,Turner:1999}.
If you use the \texttt{natbib} package with the \verb+sort&compress+
```

```
option, then the following citation will look the same as the first
citation in this section: \cite{Turner:1999,Peccei:1989,LL3:1977}.

This is an example of a second paragraph in a subsubsection so you can
see how much it is indented by.

\paragraph{This is a Paragraph}
Paragraphs and subparagraphs are the smallest units of text.  There is
no subsubsubsection etc.

\subparagraph{This is a Subparagraph}
This is the last level of organisation.  If you need more than this,
you should consider reorganizing your work\dots

\begin{equation}
  \mathrm{f}(x)=\int_{-\infty}^{\int_{-\infty}^x
    e^{-\frac{y^2}{2}}\mathrm{d}{y}}e^{-z^2}\mathrm{d}z
\end{equation}

In order to show you what a separate page would look like (i.e. without
a chapter heading) I must type some more text.  Thus I will babble a
bit and keep babbling for at least one more page\ldots  What you
should notice is that the chapter titles appear substantially lower
than the continuing text. Babble babble
babble babble babble babble babble babble babble babble babble babble
babble babble babble babble babble babble babble babble babble babble
babble babble babble babble babble babble babble babble babble babble
babble babble babble babble babble babble babble babble babble.

Babble babble babble babble babble babble babble babble babble babble
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babble babble babble babble babble babble babble babble babble babble
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babble babble babble babble babble babble babble babble babble babble
babble babble babble babble babble babble babble babble babble babble
babble babble babble babble babble babble babble babble babble babble
babble babble babble babble.

\begin{table}[t]                %optional [t, b or h];
  \begin{tabular}{|r||r@{.}l|}
    \hline
    Phoenix & \$960&35\\
    \hline
    Calgary & \$250&00\\
    \hline
```

```
  \end{tabular}
  \caption{
    \label{tab:Table1}
    Here is the caption for this wonderful table.Text of Caption}
\end{table}

\chapter[Another Chapter\ldots]{Another Chapter with a Very Long
  Chapter-name that will Probably Cause Problems}
This chapter name is very long and does not display properly in the
running headers or in the table of contents.  To deal with this, we
provide a shorter version of the title as the optional argument to the
\verb|\chapter[]{}| command.

\section{Another Section}
Another bunch of text to demonstrate what this file does.
You might want a list for example:
\begin{itemize}
\item An item in a list.
\item Another item in a list.
\end{itemize}

\section*{An Unnumbered Section That is Not Included in the Table of
  Contents}
%%% We would like to place the figure here, so we start with [h].
%%% Note that we have located the figure between paragraphs (rather,
%%% before one) so that it does not split up sentences.
\begin{figure}[ht]
  \begin{center}
%%% psfrag: comment the following line if not using the psfrag package
    \psfrag{pie makes me happy!}{$\pi$ makes me happy!}
%%% includegraphics: comment the following if not using the graphicx package
    \includegraphics[width=0.4\textwidth]{fig.eps}
    \caption[Happy Face: figure example.]{\label{fig:happy} This is a
      figure of a happy face with a \texttt{psfrag} replacement.  The
      original figure (drawn in xfig and exported to a .eps file) has
      the text ``pie makes me happy!''.  The \texttt{psfrag} package
      replaces this with ``$\pi$ makes me happy!''.  Note that we have
      used the optional argument for the caption command so that only
      a short version of this caption occurs in the list of figures.}
  \end{center}
\end{figure}
\afterpage{\clearpage}
Here is an example of a figure environment.
Perhaps I should say that the example of a figure can be seen in
Figure~\ref{fig:happy}.  Figure placement can be tricky with \LaTeX\
because figures and tables are treated as ``floats'': text can flow
around them, but if there is not enough space, they will appear later.
To prevent figures from going too far, the
\verb|\afterpage{\clearpage}| command can be used.  This makes sure
that the figure are typeset at the end of the page (possibly appear on
```

```
1196 their own on the following pages) and before any subsequent text.
1197
1198 The \verb|\clearpage| forces a page break so that the figure can be
1199 placed, but without the the \verb|\afterpage{}| command, the page
1200 would be broken too early (at the \verb|\clearpage| statement).  The
1201 \verb|\afterpage{}| command tells \LaTeX{} to issue the command after
1202 the present page has been rendered.
1203
1204 Be careful when using the ``here'' placement option
1205 \verb|\begin{figure}[ht]| that you place the figure between paragraphs
1206 in your text, otherwise \LaTeX{} might actually insert it in the
1207 middle of a sentence (which does not look very good and is frowned
1208 upon by the editors!)
1209
1210 \subsection*{An Unnumbered Subsection}
1211 Note that if you use subsections or further divisions under an
1212 unnumbered section, then you should make them unnumbered as well
1213 otherwise you will end up with zeros in the section numbering.
1214
1215 \chapter{Landscape Mode}
1216 The landscape mode allows you to rotate a page through 90 degrees.  It
1217 is generally not a good idea to make the chapter heading landscape,
1218 but it can be useful for long tables etc.
1219
1220 \begin{landscape}
1221   This text should appear rotated, allowing for formatting of very
1222   wide tables etc.  Note that this might only work after you convert
1223   the \texttt{dvi} file to a postscript (\texttt{ps}) or \texttt{pdf}
1224   file using \texttt{dvips} or \texttt{dvipdf} etc.  This feature is
1225   provided by the \verb|lscape| and the \verb|pdflscape| packages.
1226   The latter is preferred if it works as it also rotates the pages in
1227   the pdf file for easier viewing.
1228 \end{landscape}
1229
1230 %% This file is setup to use a bibtex file sample.bib and uses the
1231 %% plain style.  Note, the bibliography could come after the appendices.
1232 \bibliographystyle{plain}
1233 \bibliography{sample}
1234
1235 %% If you only have one appendix, please uncomment the following line.
1236 % \renewcommand{\appendicesname}{Appendix}
1237 \appendix
1238 \chapter{First Appendix}
1239 Here you can have your appendices.  Note that if you only have a
1240 single appendix, you should issue
1241 \verb|\renewcommand{\appendicesname}{Appendix}| before calling
1242 \verb|\appendix| to display the singular ``Appendix'' rather than the
1243 default plural ``Appendices''.
1244
1245 \chapter{Second Appendix}
```

```
Here is the second appendix.

%%% This changes the headings and chapter titles (no numbers for
%%% example).
\backmatter

%% Indices come here.

```

13.3 End of Document

```
\end{document}
```

Finally, we close off the file so that nothing else is put into the sample thesis.
⟨/mitsampletex⟩

14 Sample Bibliographic Database (BIBTeX)

This section presents the code for the bibliographic database for the sample thesis with comments. It is recommended that you first obtain the sample thesis files and compile them as described in Section 2.2.3. This way you can try the various options to see how they work.

Here is the comment that tells DOCSTRIP to put the following code into `sample.bib`.

⟨*samplebib⟩

14.1 Identification

This section identifies the version of the file. Formally this should be a comment, but as it appears prior to any entry, bibtex will treat it as a comment (beware though, the character may not appear outside of an entry.)

```
\ProvidesFile{sample.bib}[2012/04/07 v1.70 ^^J
University of British Columbia Sample Thesis]
```

14.2 Document Structure

```
%% These are just some examples of articles and books.  Some of the fields
%% are not needed, for example the abstract and SLACcitation fields.  There
%% are many other types of documents.  The entry CL:2000 poses a problem
%% in the URL field.  I am not sure how to get around this right now.

@Article{Apple:2010,
  author =       {Michael McNeil Forbes and A. Apple and B. Boat},
  title =        {Frequency of Quality Testing in Syrup Creation},
  journal =      "Maple Science J.",
  volume =       {255},
  year =         {2010},
  pages =        {139--144},
```

```
}

@Article{Forbes:2006ba,
     author    = "Forbes, Michael McNeil and Zhitnitsky, Ariel R.",
     title     = "{Dark antimatter as a galactic heater: X-rays from the core
                  of our  galaxy}",
     journal   = "JCAP",
     volume    = "0801",
     year      = "2008",
     pages     = "023",
     eprint    = "astro-ph/0611506",
     SLACcitation  = "%%CITATION = ASTRO-PH/0611506;%%",
     abstract  = {Several independent observations of the Galactic
       core suggest hitherto unexplained sources of energy.  We
       suggest that dark matter in the form of dense antimatter
       nuggets could provide a natural site for electron and proton
       annihilation, providing 511 {keV} photons, gamma-rays, and
       diffuse {keV} X-ray radiation.  We show that identifying dark
       matter as antimatter nuggets is consistent with the observed
       emissions, and we make definite predictions about their
       spectrum and morphology.  If correct, our proposal not only
       identifies dark matter and explains baryogenesis, but allows
       X-ray observations to directly probe the matter
       distribution in our Galaxy.}
}

@Book{LL3:1977,
  author       = "L. D. Landau and E. M. Lifshitz",
  title        = "Quantum Mechanics: Non-relativistic theory",
  publisher    = "Pergamon Press",
  year         = "1989, c1977",
  volume       = "3",
  series       = "Course of Theoretical Physics",
  address      = "Oxford; New York",
  edition      = "Third",
}


@InCollection{Peccei:1989,
  author       = "R. D. Peccei",
  title        = "Special Topics: The Strong {CP} Problem",
  booktitle    = "CP violation",
  publisher    = "World Scientific",
  year         = "1989",
  editor       = "C. Jarlskog",
  address      = "Singapore",
  month        = jan,
}

@Article{Bulgac:2006gh,
```

```
  author =       {Aurel Bulgac and Michael McNeil Forbes and Achim
                  Schwenk},
  title =        {Induced {P-wave} Superfluidity in Asymmetric Fermi
                  Gases},
  journal =      "Phys. Rev. Lett.",
  volume =       97,
  year =         2006,
  pages =        020402,
  eprint =       {arXiv:cond-mat/0602274},
  SLACcitation = "%%CITATION = COND-MAT 0602274;%%",
  abstract =     {We show that two new intra-species P-wave superfluid
                  phases appear in two-component asymmetric Fermi
                  systems with short-range {S-wave} interactions. In
                  the {BEC} limit, phonons of the molecular {BEC}
                  induce {P-wave} superfluidity in the excess
                  fermions. In the {BCS} limit, density fluctuations
                  induce {P-wave} superfluidity in both the majority
                  and the minority species. These phases may be
                  realized in experiments with spin-polarized Fermi
                  gases.}
}

@InProceedings{CL:2000,
  author       = "S. A. {Colgate} and H. {Li}",
  title        = "The Magnetic Fields of the Universe and Their Origin",
  booktitle    = "10 pages, 1 figure (figures.png), invited talk at IAU
                  195 Preprint no. LAUR 00-180.",
  year         = "2000",
  month        = jan,
  pages        = "1418",
  URL          = "{http://adsabs.harvard.edu/cgi-bin/nph-bib_query?bibcode=\
2000astro.ph..1418C&db_key=PRE}",
  adsnote      = "Provided by the NASA Astrophysics Data System",
  eprint       = "astro-ph/0001418",
  abstract     = "Recent rotation measure observations of a dozen or so
                  galaxy clusters have revealed a surprisingly large
                  amount of magnetic fields, whose estimated energy and
                  flux are, on average, {$\sim 10^{58}$} ergs and {$\sim
                  10^{41}$ G cm$^2$}, respectively. These quantities are
                  so much larger than any coherent sums of individual
                  galaxies within the cluster that an efficient galactic
                  dynamo is required. We associate these fields with
                  single AGNs within the cluster and therefore with all
                  galaxies during their AGN phase. Only the central,
                  massive black hole (BH) has the necessary binding
                  energy, {$\sim 10^{61}$} ergs. Only the accretion disk
                  during the {BH} formation has the winding number,
                  {$\sim 10^{11}$} turns, necessary to make the gain and
                  magnetic flux. We present a model of the BH accretion
                  disk dynamo that might create these magnetic fields,
```

```
                  where the helicity of the {$\alpha - \Omega$} dynamo is
                  driven by star-disk collisions. The back reaction of
                  the saturated dynamo forms a force-free field helix
                  that carries the energy and flux of the dynamo and
                  redistributes them within the clusters.",
}

@Misc{Turner:1999,
  author       = "M. S. Turner",
  title        = "Dark Matter, Dark Energy and Fundamental Physics",
  howpublished = "astro-ph/9912211",
  year         = "1999",
  month        = dec,
  abstract     = "More than sixty years ago Zwicky made the case that
                  the great clusters of galaxies are held together by the
                  gravitational force of unseen (dark) matter. Today, the
                  case is stronger and more precise: Dark, nonbaryonic
                  matter accounts for {$30\% \pm 7\%$} of the critical mass
                  density, with baryons (most of which are dark)
                  contributing only {$4.5\% \pm 0.5\%$} of the critical
                  density. The large-scale structure that exists in the
                  Universe indicates that the bulk of the nonbaryonic
                  dark matter must be cold (slowly moving particles). The
                  SuperKamiokande detection of neutrino oscillations
                  shows that particle dark matter exists, crossing an
                  important threshold. Over the past few years a case has
                  developed for a dark-energy problem. This dark
                  component contributes about {$80\% \pm 20\%$} of the critical
                  density and is characterized by very negative pressure
                  {$(p_X < -0.6 \rho_X)$}. Consistent with this picture of
                  dark energy and dark matter are measurements of {CMB}
                  anisotropy that indicate that total contribution of
                  matter and energy is within {$10\%$} of the critical
                  density. Fundamental physics beyond the standard model
                  is implicated in both the dark matter and dark energy
                  puzzles: new fundamental particles (e.g., axion or
                  neutralino) and new forms of relativistic energy (e.g.,
                  vacuum energy or a light scalar field). A flood of
                  observations will shed light on the dark side of the
                  Universe over the next two decades; as it does it will
                  advance our understanding of the Universe and the laws
                  of physics that govern it.",
}

@Book{Vilenkin:1994,
  author =       {Alexander Vilenkin and E. P. S. Shellard},
  title =        {Cosmic Stringas and Other Topological Defects},
  publisher =    {Cambridge University Press},
  year =         1994,
  address =      {Cambridge}
```

```
}

⟨/samplebib⟩
```

Part IV
The genthesis Document Class

Here starts the description of the actual thesis class definitions. All of the source code is documented here. This is generally not intended to be of use to people writing theses unless they need to know the internals of how the thesis class works. It may be of use to people writing other classes as I have included many comments about things I learned while writing the class. We start with some notes about this.

15 Notes about Writing Classes

My philosophy in writing the thesis classes is described below:

1. The thesis class should behave as close to the standard classes as possible so that it is compatible with as many other packages as possible. To this end, the thesis class has been crafted directly from the standard LaTeX `book` class.

2. If there is a standard way to accomplish a certain task, then support that rather than reimplementing the method in a non-standard way. For example, encourage the use packages like `fancyhdr` or `geometry` rather than providing a bunch of thesis specific commands for specifying fancy headers and for changing the margins.

3. Formatting options should be easily specified in both the thesis flavours and actual theses. This goal is only partly realized, but many of the magic numbers that control formatting in the original book class have been replaced with variables that can be controlled by various options.

I based this code on the file `ltclass.dtx` and have kept most of the change notes and comments so that one has a hope of identifying potential incompatibilities and does not have to reinvent the wheel.

It is important to make sure that the interface to standard LaTeX commands does not change. For example, I wanted to provide a customized version of `\part`, `\chapter` etc. such that the starred form accepted an optional argument, adding a line to the table of contents. This turned out to break the `hyperref` package because it redefines `\@chapter` and assumes that this behaves the same way as in the standard LaTeX distribution.

A similar problem with `hyperref` compatibility was encountered when trying to add formatting options for the table of contents. I thought that it would be

easiest to simply modify the `\contentsline` command to include the formatting, but the `hyperref` package relies on modifying this command to work, so this type of change was incompatible. Hopefully future versions of LaTeX will have much less hard-coded so these types of changes are easier to make. Now, onto the code!

16 Identification

This section identifies the version of the file. It also indicates which version of LaTeX (LaTeX 2_ε) is required and makes sure that an appropriate message is displayed when another TeX format is used.

Here is the comment that tells DOCSTRIP to put the following code into `ubcsample.tex`.

```
1 ⟨*genthesis⟩
```

And the required version. Note this has not been thoroughly tested yet.

```
2 \NeedsTeXFormat{LaTeX2e}[1995/12/01]
```

Now we announce the file or class name and its version:

```
3 \ProvidesClass{genthesis}[2012/04/07 v1.70 ^^J
4  University of British Columbia Thesis Class]
```

17 Initial Code

In this part we define a few commands that are used later on. We start by undefining a few that don't make sense:

```
5 \global\let\and\@undefined
```

`\@ptsize` This control sequence is used to store the second digit of the pointsize we are typesetting in. So, normally, it's value is one of 0, 1 or 2.

```
6 \newcommand\@ptsize{}
```

`\if@restonecol` When the document has to printed in two columns, we sometimes have to temporarily switch to one column. This switch is used to remember to switch back.

```
7 \newif\if@restonecol
```

`\@chaptertocdots` This turns on chapter leaders in the table of contents.

```
8 \newif\if@chaptertocdots \@chaptertocdotstrue
```

17.1 Tools

Here we define some macros that are useful when writing classes.

`\@addto` This macro allows you to build up a collection of commands to be inserted at a later point in the document. For example, after

```
% \newcommand{\@names}{}
% \@addto{@names}{John, }
% \@addto{@names}{Paul, }
% \@addto{@names}{Tom.}
%
```

the macro `\@names` would expand to `John, Paul, Tom.` This functionality could be obtained with a savebox, but there is an important difference: `\@addto` does not expand the text in the current environment. Thus, if you were to include code such as `\textwidth`, then this would ultimately expand to the width of the text where the `\@names` command was issued rather than the value where the `\@addto` was issued. This is accomplished by using the fact that the token registers only expand once. See Excercise 20.15 in the TEXbook.

```
\newcommand{\@addto}[2]{
  \expandafter\let\expandafter\old\csname#1\endcsname
  \toks1=\expandafter{\old}
  \toks2=\expandafter{#2}
  \expandafter\xdef\csname#1\endcsname{\the\toks1 \the\toks2 }
}
```

`\SetTime` `\hours` `\minutes` `\now` These are some macros that set the time for use in the headers in draft mode.

```
\newcount\hours
\newcount\minutes
\def\SetTime{\hours=\time
        \global\divide\hours by 60
        \minutes=\hours
        \multiply\minutes by 60
        \advance\minutes by-\time
        \global\multiply\minutes by-1 }
\def\now{\number\hours:\ifnum\minutes<10 0\fi\number\minutes}
```

`\@toupper` `\@toctoupper` `\@condupper` Converts the argument to uppercase if the upper or tocupper options are specified. `\@condupper` takes as a first argument a conditional and based on that conditional, makes the text uppercase. Note that we have put the `\if` portion of the conditional inside the macro. This hides it and permits nesting conditionals.

```
\newcommand\@toupper[1]{\if@upper\MakeUppercase{#1}\else{#1}\fi}
\newcommand\@toctoupper[1]{\if@tocupper\MakeUppercase{#1}\else{#1}\fi}
\newcommand{\@condupper}[2]{%
  \csname if#1\endcsname{\MakeUppercase{#2}}\else{{#2}}\fi}
\newcommand{\tst}[1]{\if#1{True}\else{False}\fi}
```

`\@toctoitalic` Converts the argument to italic if the tocitalic option is specified.

```
\newcommand\@toctoitalic[1]{\if@tocitalic {\textit{#1}} \else {#1} \fi}
```

`\@startonecolumn` `\@endonecolumn` These ensure one-column mode and restore for things like the toc, authorization form, titlepage etc. First we must define some temporary lengths to save the old lengths.

```
\newlength{\UBCT@oldtextwidth}
\newlength{\UBCT@oldtextheight}
\newlength{\UBCT@oldoddsidemargin}
\newlength{\UBCT@oldevensidemargin}
\newlength{\UBCT@oldtopmargin}
\newlength{\UBCT@oldtopskip}
\newlength{\UBCT@old@colht}
\newlength{\UBCT@old@colroom}
\newlength{\UBCT@oldvsize}
\newlength{\UBCT@oldcolumnwidth}
\newlength{\UBCT@oldhsize}
\newlength{\UBCT@oldlinewidth}
\newlength{\UBCT@oldparindent}
\newlength{\UBCT@oldmarginparsep}
\newlength{\UBCT@oldmarginparwidth}
```

Now we define the macro body. First we backup the current parameters.

```
\providecommand*{\@startonecolumn}{
  \global\setlength{\UBCT@oldtextwidth}{\textwidth}
  \global\setlength{\UBCT@oldtextheight}{\textheight}
  \global\setlength{\UBCT@oldoddsidemargin}{\oddsidemargin}
  \global\setlength{\UBCT@oldevensidemargin}{\evensidemargin}
  \global\setlength{\UBCT@oldtopmargin}{\topmargin}
  \global\setlength{\UBCT@oldtopskip}{\topskip}
  \global\setlength{\UBCT@old@colht}{\@colht}
  \global\setlength{\UBCT@old@colroom}{\@colroom}
  \global\setlength{\UBCT@oldvsize}{\vsize}
  \global\setlength{\UBCT@oldcolumnwidth}{\columnwidth}
  \global\setlength{\UBCT@oldhsize}{\hsize}
  \global\setlength{\UBCT@oldlinewidth}{\linewidth}
  \global\setlength{\UBCT@oldparindent}{\parindent}
  \global\setlength{\UBCT@oldmarginparsep}{\marginparsep}
  \global\setlength{\UBCT@oldmarginparwidth}{\marginparwidth}
  \global\let\UBCT@oldbaselinestretch=\baselinestretch

  \if@twocolumn
    \@restonecoltrue

```

First, we calculate the maximum `\textwidth`, which we will allow on the selected paper and store it in `\@tempdima`. Then we store the length of a line with approximately 60–70 characters in `\@tempdimb`. The values given are more or less suitable when Computer Modern fonts are used.

```
    \setlength\@tempdima{\paperwidth}
    \addtolength\@tempdima{-2in}
    \ifcase\@ptsize\relax
      \setlength\@tempdimb{345\p@}
    \or
      \setlength\@tempdimb{360\p@}
    \or
```

```
    \setlength\@tempdimb{390\p@}
  \fi
```

In one column mode the text should not be wider than the minimum of the paperwidth (minus 2 inches for the margins) and the maximum length of a line as defined by the number of characters.

```
  \ifdim\@tempdima>\@tempdimb\relax
    \global\setlength\textwidth{\@tempdimb}
  \else
    \global\setlength\textwidth{\@tempdima}
  \fi
```

Here we modify the width of the text a little to be a whole number of points.

```
  \global\@settopoint\textwidth
  \global\setlength\linewidth{\textwidth}
```

The horizontal space between the main text and marginal notes is determined by `\marginparsep`, the minimum vertical separation between two marginal notes is controlled by `\marginparpush`.

```
  \global\setlength\marginparsep{7\p@}

  \ifcase\@ptsize\relax
    \global\setlength\parindent{15\p@}
  \or
    \global\setlength\parindent{17\p@}
  \or
    \global\setlength\parindent{1.5em}
  \fi
```

For one-sided printing we centre the text on the page, by calculating the difference between `\textwidth` and `\paperwidth`. Half of that difference is than used for the margin (thus `\oddsidemargin` is `1in` less).

```

  \if@twoside
    \setlength\@tempdima        {\paperwidth}
    \addtolength\@tempdima      {-\textwidth}
    \global\setlength\oddsidemargin {.4\@tempdima}
    \addtolength\oddsidemargin  {-1in}
```

The width of the margin for text is set to the remainder of the width except for a 'real margin' of white space of width 0.4in. A check should perhaps be built in to ensure that the (text) margin width does not get too small!

```
    \global\setlength\marginparwidth   {.6\@tempdima}
    \global\addtolength\marginparwidth {-\marginparsep}
    \global\addtolength\marginparwidth {-0.4in}
```

For one-sided printing we centre the text on the page, by calculating the difference between `\textwidth` and `\paperwidth`. Half of that difference is than used for the margin (thus `\oddsidemargin` is `1in` less).

```
  \else
    \setlength\@tempdima        {\paperwidth}
```

```
      \addtolength\@tempdima      {-\textwidth}
      \global\setlength\oddsidemargin    {.5\@tempdima}
      \global\addtolength\oddsidemargin  {-1in}
      \global\setlength\marginparwidth   {.5\@tempdima}
      \global\addtolength\marginparwidth {-\marginparsep}
      \global\addtolength\marginparwidth {-0.4in}
      \global\addtolength\marginparwidth {-.4in}
    \fi
```

With the above algorithm the `\marginparwidth` can come out quite large which we may not want.

```
    \ifdim \marginparwidth >2in
      \global\setlength\marginparwidth{2in}
    \fi
```

Having done these calculations we make them pt values.

```
    \global\@settopoint\oddsidemargin
    \global\@settopoint\marginparwidth
```

The `\evensidemargin` can now be computed from the values set above.

```

    \global\setlength\evensidemargin  {\paperwidth}
    \global\addtolength\evensidemargin{-2in}
    \global\addtolength\evensidemargin{-\textwidth}
    \global\addtolength\evensidemargin{-\oddsidemargin}

```

Setting `\evensidemargin` to a full point value may produce a small error. However it will lie within the error range a doublesided printer of today's technology can accurately print.

```
    \global\@settopoint\evensidemargin
```

Now we change the number of columns because this command uses the lengths to format stuff.

```
    \onecolumn
  \else
    \@restonecolfalse
  \fi
}
\providecommand*{\@endonecolumn}{
  \global\setlength{\textwidth}{\UBCT@oldtextwidth}
  \global\setlength{\textheight}{\UBCT@oldtextheight}
  \global\setlength{\oddsidemargin}{\UBCT@oldoddsidemargin}
  \global\setlength{\evensidemargin}{\UBCT@oldevensidemargin}
  \global\setlength{\topmargin}{\UBCT@oldtopmargin}
  \global\setlength{\topskip}{\UBCT@oldtopskip}
  \global\setlength{\@colht}{\UBCT@old@colht}
  \global\setlength{\@colroom}{\UBCT@old@colroom}
  \global\setlength{\vsize}{\UBCT@oldvsize}
  \global\setlength{\columnwidth}{\UBCT@oldcolumnwidth}
  \global\setlength{\hsize}{\UBCT@oldhsize}
```

```
\global\setlength{\linewidth}{\UBCT@oldlinewidth}
\global\setlength{\parindent}{\UBCT@oldparindent}
\global\setlength{\marginparsep}{\UBCT@oldmarginparsep}
\global\setlength{\marginparwidth}{\UBCT@oldmarginparwidth}
\global\let\baselinestretch=\UBCT@oldbaselinestretch
\if@restonecol
  \twocolumn
\fi}
```

`\if@openright` A switch to indicate if chapters must start on a right-hand page.

```
\newif\if@openright
```

`\if@openrightblank` A switch to indicate if chapters must start on a right-hand page and they must be preceded by blank page.

```
\newif\if@openrightblank
```

`\if@mainmatter` The switch `\if@mainmatter`, only available in the document class book, indicates whether we are processing the main material in the book.

```
\newif\if@mainmatter \@mainmattertrue
```

`\if@empty` This is checks if a given command is empty or not.

```
\def\if@empty#1#2\else#3\fi{%
  \def\UBCT@tempa{}\ifx\UBCT@tempa#1#2\else#3\fi}
```

18 Document Markup Functions

These are defined here because some of the commands are used by the options.

18.1 Title Page

`\title` `\author` `\date` These three macros are provided by `latex.dtx` to provide information about the title, author(s) and date of the document. The information is stored away in internal control sequences. It is the task of the `\maketitle` command to use the information provided. The definitions of these macros are shown here for information.

```
% \newcommand*{\title}[1]{\gdef\@title{#1}}
% \newcommand*{\author}[1]{\gdef\@author{#1}}
% \newcommand*{\date}[1]{\gdef\@date{#1}}
```

The `\date` macro gets today's date by default.

```
% \date{\today}
```

`\monthname` This macro provides the alphanumeric version of the month. It is also provided by the `datetime` package, but we don't want to depend on this as it is not widely distributed. Our version is only defined for English.

```
\providecommand*{\monthname}[1][\month]{%
```

```
  \newcount\@orgargctr
  \@orgargctr=#1\relax
  \ifcase\@orgargctr
    \PackageError{genthesis}{Invalid Month number \the\@orgargctr}
    {Month numbers should go from 1 (January) to 12 (December)}%
  \or January%
  \or February%
  \or March%
  \or April%
  \or May%
  \or June%
  \or July%
  \or August%
  \or September%
  \or October%
  \or November%
  \or December%
  \else \PackageError{genthesis}{Invalid Month number \the\@orgargctr}
        {Month numbers should go from 1 (January) to 12 (December)}%
  \fi%
} %\monthname
```

`\subtitle` This macro also has an associated boolean which tells the titlepage whether or not it should attempt to display a subtitle.

```
\newif\if@subtitle \@subtitlefalse
\newcommand*{\subtitle}[1]{\@subtitletrue \gdef\@subtitle{#1}}
```

`\institution` `\institutionaddress` `\degreetitle` `\degreedate` `\department` `\program` `\faculty` `\advisor` `\advisortitle` `\copyrighttext` `\copyrightnotice` These commands are added for theses. They are used on the title page.

```
\newcommand*{\institution}[1]{\gdef\@institution{#1}}
\providecommand*{\@institution}{%
  \ClassWarning{genthesis}{No \noexpand\institution given}}
\newcommand*{\institutionaddress}[1]{\gdef\@institutionaddress{#1}}
\providecommand*{\@institutionaddress}{%
  \ClassWarning{genthesis}{No \noexpand\institutionaddress given}}
\newcommand*{\degreetitle}[1]{\gdef\@degreetitle{#1}}
\providecommand*{\@degreetitle}{%
  \ClassWarning{genthesis}{No \noexpand\degreetitle given}}
\newcommand*{\degreedate}[1]{\gdef\@degreedate{#1}}
\providecommand*{\@degreedate}{%
  \ClassWarning{genthesis}{No \noexpand\degreedate given}}
\newcommand*{\department}[1]{\gdef\@department{#1}}
\providecommand*{\@department}{%
  \ClassWarning{genthesis}{No \noexpand\department given}}
\newcommand*{\program}[1]{\gdef\@program{#1}}
\providecommand*{\@program}{%
  \ClassWarning{genthesis}{No \noexpand\program given}}
\newcommand*{\faculty}[1]{\gdef\@faculty{#1}}
\providecommand*{\@faculty}{%
  \ClassWarning{genthesis}{No \noexpand\faculty given}}
```

```
\newcommand*{\advisor}[1]{\gdef\@advisor{#1}}
\providecommand*{\@advisor}{%
  \ClassWarning{genthesis}{No \noexpand\advisor given}}
\newcommand*{\advisortitle}[1]{\gdef\@advisortitle{#1}}
\providecommand*{\@advisortitle}{%
  \ClassWarning{genthesis}{No \noexpand\advisortitle given}}
\newcommand*{\copyrighttext}[1]{\gdef\@copyrighttext{#1}}
\providecommand*{\@copyrighttext}{%
  \ClassWarning{genthesis}{No \noexpand\copyrighttext given}}
\newcommand*{\copyrightnotice}[1]{\gdef\@copyrightnotice{#1}}
\providecommand*{\@copyrightnotice}{%
  \ClassWarning{genthesis}{No \noexpand\copyrightnotice given}}
```

Some of these get default values here:

```
\institution{The University of British Columbia}
\institutionaddress{Vancouver}
\department{Department of Physics and Astronomy}
\program{in Physics}
\faculty{The Faculty of Graduate Studies}
\copyrighttext{\copyright\ \@author\ \@copyrightyear}
\copyrightnotice{All rights reserved.  This work may not be\\
  reproduced in whole or in part, by photocopy\\
  or other means, without permission of the author.}
```

`\numberofsignatures` This is the number of signature lines to put on the cover.

```
\newcommand*{\numberofsignatures}[1]{\gdef\@numberofsignatures{#1}}
\numberofsignatures{4}
```

`\@copyrightyear` `\@submitdate` These are dates. By default, these are set to the date of compilation.

```
\newcommand*{\copyrightyear}[1]{\gdef\@copyrightyear{#1}}
\newcommand*{\submitdate}[1]{\gdef\@submitdate{#1}}
\copyrightyear{\number\year}
\submitdate{\today}
```

`\signature` The `\signature` command adds a signature line to the titlepage. It takes 3 arguments:
`\signature[<pos>]{<label>}{<text>}`

The label is placed on the same line to the left or right as indicated by the ¡pos¿ argument (`l` or `r`). The text is placed under the line on the opposite side.

```
\newcommand{\UBCT@signatures}

\newcommand{\@signature}[3]{
  \vspace*{0.75in minus 0.5in}
  \if#1l#2\else\fi\dotfill\if#1r#2\else\fi\\*
  { \if#1l\raggedleft\fi%
    \if#1r\raggedright\fi%
    \if#1c\centering\fi%
```

```
    #3\par%
  }
}
\newcommand{\signature}[3][1]{\@signature{#1}{#2}{#3}}
% \end{macro}
% \begin{macro}{\addsignature}
%
%    \begin{macrocode}
%\newcommand{\addsignature}[3][1]{%
%  \savebox{\UBCT@signatures}{%
%    \parbox{\textwidth}{
%      \usebox{\UBCT@signatures}\par%
%      \signature[#1]{#2}{#3}}\par%
%  }
%}
\newcommand{\addsignature}[3][1]{
  \@addto{UBCT@signatures}{\@signature{#1}{#2}{#3}\par}
}
```

\previousdegree
\@previousdegree

This may be issued more than once. Each degree is added to the buffer. The buffer starts empty.

```
\newcommand\@previousdegrees{}
\newcommand\previousdegree[1]{
  \@addto{@previousdegrees}{#1\par}
}
```

18.2 Fonts

These options provide access to the various fonts for chapter titles etc. First we must define the font variables. The two fonts `\titlepagefont` and `\titlefont` are used as defaults, though options may changes these.

\titlepagefont
\titlefont
\subtitlefont
\authorfont
\degreetitlefont
\facultyfont
\institutionfont

These fonts are used on the title page.

```
\newcommand\titlepagefont{\normalsize}
\newcommand\titlefont{}
\newcommand\subtitlefont{\titlefont}
\newcommand\authorfont{\titlepagefont}
\newcommand\degreetitlefont{\titlepagefont}
\newcommand\facultyfont{\titlepagefont}
\newcommand\institutionfont{\titlepagefont}

\newcommand\abstractfont{}
\newcommand\partfont{}
\newcommand\partnamefont{}
\newcommand\chapterfont{}
\newcommand\chaptertitlefont{}
\newcommand\chapterauthorfont{}
\newcommand\sectionfont{}
\newcommand\subsectionfont{}
```

```
\newcommand\subsubsectionfont{}
\newcommand\paragraphfont{}
\newcommand\subparagraphfont{}
\newcommand\translatorfont{}
\newcommand\theoremheaderfont{}
\newcommand\theorembodyfont{}
\newcommand\itemfont{}
\newcommand\examplefont{}
\newcommand\headingstextfont{}
\newcommand\pagenumberfont{}
\newcommand\captionheaderfont{}
\newcommand\captionbodyfont{}
\newcommand\figurefont{}
\newcommand\tablefont{}
\newcommand\indexsize{}
\newcommand\bibsize{}
```

18.3 Spacing

These options are the various spacings used in Section headings etc.

`\partbetweenskip` This length allows for one to adjust the space between the part heading and the part title

`\chapterbeforeskip` `\chapterbetweenskip` `\chapterafterskip` `\sectionindent` These lengths allow for one to adjust the space before the chapter headings, between the chapter heading and chapter titles and after the chapter titles.

`\sectionbeforeskip` `\sectionafterskip` `\subsectionindent` `\subsectionbeforeskip` `\subsectionafterskip` `\subsubsectionindent` `\subsubsectionbeforeskip` `\subsubsectionafterskip` `\paragraphindent` `\paragraphbeforeskip` `\paragraphafterskip` `\subparagraphindent` `\subparagraphbeforeskip` `\subparagraphafterskip`

```
\newlength{\partbetweenskip}
\newlength{\chapterbeforeskip}
\newlength{\chapterbetweenskip}
\newlength{\chapterafterskip}
\newlength{\sectionindent}
\newlength{\sectionbeforeskip}
\newlength{\sectionafterskip}
\newlength{\subsectionindent}
\newlength{\subsectionbeforeskip}
\newlength{\subsectionafterskip}
\newlength{\subsubsectionindent}
\newlength{\subsubsectionbeforeskip}
\newlength{\subsubsectionafterskip}
\newlength{\paragraphindent}
\newlength{\paragraphbeforeskip}
\newlength{\paragraphafterskip}
\newlength{\subparagraphindent}
\newlength{\subparagraphbeforeskip}
\newlength{\subparagraphafterskip}
```

\lofindent
\lotindent

These lengths specify how much to indent the list of figures and list of tables.

```
\newcommand{\lofindent}{1.5em}
\newcommand{\lotindent}{1.5em}
```

\loflabelwidth
\lotlabelwidth

These lengths specify how much space to leave for figure an table labels in the list of figures an list of tables.

```
\newcommand{\loflabelwidth}{2.3em}
\newcommand{\lotlabelwidth}{2.3em}
```

19 Declaration of Options

19.1 Setting Paper Sizes

a4paper
a5paper
b5paper
letterpaper
legalpaper
executivepaper

The variables \paperwidth and \paperheight should reflect the physical paper size after trimming. For desk printer output this is usually the real paper size since there is no post-processing. Classes for real book production will probably add other paper sizes and additionally the production of crop marks for trimming.

```
\DeclareOption{a4paper}
   {\setlength\paperheight {297mm}%
    \setlength\paperwidth  {210mm}}
\DeclareOption{a5paper}
   {\setlength\paperheight {210mm}%
    \setlength\paperwidth  {148mm}}
\DeclareOption{b5paper}
   {\setlength\paperheight {250mm}%
    \setlength\paperwidth  {176mm}}
\DeclareOption{letterpaper}
   {\setlength\paperheight {11in}%
    \setlength\paperwidth  {8.5in}}
\DeclareOption{legalpaper}
   {\setlength\paperheight {14in}%
    \setlength\paperwidth  {8.5in}}
\DeclareOption{executivepaper}
   {\setlength\paperheight {10.5in}%
    \setlength\paperwidth  {7.25in}}
```

landscape

The option landscape switches the values of \paperheight and \paperwidth, assuming the dimensions were given for portrait paper.

```
\DeclareOption{landscape}
   {\setlength\@tempdima   {\paperheight}%
    \setlength\paperheight {\paperwidth}%
    \setlength\paperwidth  {\@tempdima}}
```

19.2 Choosing the type size

10pt
11pt
12pt

The type size options are handled by defining `\@ptsize` to contain the last digit of the size in question and branching on `\ifcase` statements. This is done for historical reasons to stay compatible with other packages that use the `\@ptsize` variable to select special actions. It makes the declarations of size options less than 10pt difficult, although one can probably use `9` and `8` assuming that a class wont define both `8pt` and `18pt` options.

```
\DeclareOption{10pt}{\renewcommand\@ptsize{0}}
\DeclareOption{11pt}{\renewcommand\@ptsize{1}}
\DeclareOption{12pt}{\renewcommand\@ptsize{2}}
```

19.3 Two-side or one-side printing

oneside
twoside

For two-sided printing we use the switch `\if@twoside`. In addition we have to set the `\if@mparswitch` to get any margin paragraphs into the outside margin.

Note that the user must specify when printing that the printer print double sided: there is no information in the file which indicates this. This option only ensures that the margins will line up properly.

```
\DeclareOption{oneside}{\@twosidefalse \@mparswitchfalse}
\DeclareOption{twoside}{\@twosidetrue  \@mparswitchtrue}
```

19.4 Page number placement

pagenumBC
pagenumBR
pagenumTR

These options allow the user to specify where the page numbers will appear. This affects the definition of the pagestyles in Section 22.4.3. The options refer to "Bottom", "Top", "Center", and "Right". For two-sided printing, "Right" means on the outside edge. This is implemented with a number `\@pagenumstyle` that is 0 for BC, 1 for BR and greater than 1 (default) for TR. This is a bit unclear, but allows us to use the `\ifcase` construct to fall through to the default.

```
\newcommand{\@pagesnumberstyle}{2}
\DeclareOption{pagenumBC}{\renewcommand{\@pagesnumberstyle}{0}}
\DeclareOption{pagenumBR}{\renewcommand{\@pagesnumberstyle}{1}}
\DeclareOption{pagenumTR}{\renewcommand{\@pagesnumberstyle}{2}}
```

19.5 Draft and committee options

final
draft

If the user requests draft we show any overfull boxes. We could probably add some more interesting stuff to this option.

```
\newif\if@final \@finaltrue
\DeclareOption{draft}{\setlength\overfullrule{5pt}\@finalfalse \SetTime}
\DeclareOption{final}{\setlength\overfullrule{0pt}\@finaltrue}
```

committee

Use this option when producing the version to send to your thesis committee if they want the document with 1.5 spacing so there is some room for comments between

the lines. You may change the spacing by redefining the `\committeespacing` command.

```
\newif\if@committee \@committeefalse
\DeclareOption{committee}{\@committeetrue}
```

19.6 openright option

`openright` `openrightblank` `openany`

This option determines whether or not a chapter must start on a right-hand page. openrightblank in addition forces a blank page before the chapter heading. Only has effect if the twoside option is also used.

```
\DeclareOption{openright}{\@openrighttrue\@openrightblankfalse}
\DeclareOption{openrightblank}{\@openrighttrue\@openrightblanktrue}
\DeclareOption{openany}{\@openrightfalse\@openrightblankfalse}
```

19.7 Two-column printing

`onecolumn` `twocolumn`

Two-column and one-column printing is again realized via a switch. Remember that you must also tell the printer to print on both sides though!

```
\DeclareOption{onecolumn}{\@twocolumnfalse}
\DeclareOption{twocolumn}{\@twocolumntrue}
```

19.8 Running headers

`runningheaders` `norunningheaders`

These display or suppress running headers that contain the current chapter name and number. If they are suppressed, only the pagenumber will be displayed.

```
\newif\if@runningheaders \@runningheaderstrue
\DeclareOption{runningheaders}{\@runningheaderstrue}
\DeclareOption{norunningheaders}{\@runningheadersfalse}
```

`centerheadline` `nocenterheadline`

These control the centering of the running headers. If this option is chosen, only one of the marks will be displayed and it will be centered.

```
\newif\if@centerheadline \@centerheadlinetrue
\DeclareOption{centerheadline}{\@centerheadlinetrue}
\DeclareOption{nocenterheadline}{\@centerheadlinefalse}
```

`headline` `noheadline`

These control the display of a horizontal line below the running headers at the top of the page.

```
\newif\if@headline \@headlinetrue
\DeclareOption{headline}{\@headlinetrue}
\DeclareOption{noheadline}{\@headlinefalse}
```

`starmark` `nostarmark`

This option provides for a departure from the standard class marking mechanism that causes the starred version of `\chapter*`, `\section*` etc. commands to call `\chapterstarmark`, `\sectionstarmark` etc. This allows these to reset the markings without the user explicitly having to include this.

```
\newif\if@starmark \@starmarktrue
\DeclareOption{starmark}{\@starmarktrue}
\DeclareOption{nostarmark}{\@starmarkfalse}
```

19.9 Equation numbering on the left

The option leqno can be used to get the equation numbers on the left side of the equation. It loads code which is generated automatically from the kernel files when the format is built. If the equation number does get a special formatting then instead of using the kernel file the class would need to provide the code explicitly.

leqno

```
\DeclareOption{leqno}{\input{leqno.clo}}
```

19.10 Flush left displays

The option fleqn redefines the displayed math environments in such a way that they come out flush left, with an indentation of `\mathindent` from the prevailing left margin. It loads code which is generated automatically from the kernel files when the format is built.

fleqn

```
\DeclareOption{fleqn}{\input{fleqn.clo}}
```

19.11 Title page

These options affect the display of the titlepage.

uppertitle/nouppertitle
uppersubtitle/nouppersubtitle
upperauthor/noupperauthor
rdegreetitle/noupperdegreetitle
uppertitletext/nouppertitletext
upperfaculty/noupperfaculty
perdepartment/noupperdepartment
upperprogram/noupperprogram
rinstitution/noupperinstitution

```
\newif\if@uppertitle \@uppertitlefalse
\DeclareOption{uppertitle}{\@uppertitletrue\@uppersubtitletrue}
\DeclareOption{nouppertitle}{\@uppertitlefalse\@uppersubtitlefalse}
\newif\if@uppersubtitle \@uppersubtitlefalse
\DeclareOption{uppersubtitle}{\@uppersubtitletrue}
\DeclareOption{nouppersubtitle}{\@uppersubtitlefalse}
\newif\if@upperauthor \@upperauthorfalse
\DeclareOption{upperauthor}{\@upperauthortrue}
\DeclareOption{noupperauthor}{\@upperauthorfalse}
\newif\if@upperdegreetitle \@upperdegreetitletrue
\DeclareOption{upperdegreetitle}{\@upperdegreetitletrue}
\DeclareOption{noupperdegreetitle}{\@upperdegreetitlefalse}
\newif\if@uppertitletext \@uppertitletexttrue
\DeclareOption{uppertitletext}{\@uppertitletexttrue}
\DeclareOption{nouppertitletext}{\@uppertitletextfalse}
\newif\if@upperfaculty \@upperfacultyfalse
\DeclareOption{upperfaculty}{\@upperfacultytrue}
\DeclareOption{noupperfaculty}{\@upperfacultyfalse}
\newif\if@upperdepartment \@upperdepartmentfalse
\DeclareOption{upperdepartment}{\@upperdepartmenttrue}
```

```
\DeclareOption{noupperdepartment}{\@upperdepartmentfalse}
\newif\if@upperprogram \@upperprogramfalse
\DeclareOption{upperprogram}{\@upperprogramtrue}
\DeclareOption{noupperprogram}{\@upperprogramfalse}
\newif\if@upperinstitution \@upperinstitutiontrue
\DeclareOption{upperinstitution}{\@upperinstitutiontrue}
\DeclareOption{noupperinstitution}{\@upperinstitutionfalse}
```

phd
msc
masc
ma
meng

These options changes the title of the degree according to the type of degree. The `\degreetitle` command can be used to override this.

```
\DeclareOption{phd}{
  \degreetitle{Doctor of Philosophy}
  \numberofsignatures{4}
}
\DeclareOption{msc}{
  \degreetitle{Master of Science}
  \numberofsignatures{2}
}
\DeclareOption{masc}{
  \degreetitle{Master of Applied Science}
  \numberofsignatures{2}
}
\DeclareOption{ma}{
  \degreetitle{Master of Arts}
  \numberofsignatures{2}
}
\DeclareOption{meng}{
  \degreetitle{Master of Engineering}%
  \numberofsignatures{2}
  }
```

logo
nologo

These options control the display of an institution logo on the titlepage. You must define the graphic to be used by using the `\insitutionlogo` command. NOTE: UBC Faculty of Grad Studies, as of late 2004, no longer permits this on the title page!

```
\newif\iflogo\logofalse
\DeclareOption{logo}{\logotrue}
\DeclareOption{nologo}{\logofalse}
```

19.12 Headings

chapterheads
nochapterheads

These determine if the section headings are uppercase and if chapter headings should be displayed before the chapter title.

```
\newif\if@chapterheads \@chapterheadstrue
\DeclareOption{chapterheads}{\@chapterheadstrue}
\DeclareOption{nochapterheads}{\@chapterheadsfalse}
\newif\if@headcount \@headcounttrue
```

partheads
nopartheads

These determine if the section headings are uppercase and if part headings should be displayed before the part title.

```
\newif\if@partheads \@partheadstrue
\DeclareOption{partheads}{\@partheadstrue}
\DeclareOption{nopartheads}{\@partheadsfalse}
\newif\if@headcount \@headcounttrue
```

headcount
noheadcount

These options determine if the numbers should be displayed in the chapter and part headings.

```
\DeclareOption{headcount}{\@headcounttrue}
\DeclareOption{noheadcount}{\@headcountfalse}
```

upper
noupper

These options determine if the headings (part, chapter, sections etc.) should be converted to uppercase. This option is good if the font size of the headings is not much larger than the body text.

```
\newif\if@upper \@upperfalse
\DeclareOption{upper}{\@uppertrue}
\DeclareOption{noupper}{\@upperfalse}
```

tocitalic
notocitalic

These options determine if the table of contents should be converted to italics for chapters not in main matter.

```
\newif\if@tocitalic \@tocitalicfalse
\DeclareOption{tocitalic}{\@tocitalictrue}
\DeclareOption{notocitalic}{\@tocitalicfalse}
```

tocupper
notocupper

These options determine if the table of contents should be converted to uppercase.

```
\newif\if@tocupper \@tocupperfalse
\DeclareOption{tocupper}{\@tocuppertrue}
\DeclareOption{notocupper}{\@tocupperfalse}
```

leftheads
centerheads
rightheads
\@headingalignment

These options affect the display of several things including the part pages and headers. This uses the variable `\@headingalignment`.

```
\newcommand\@headingalignment{\raggedright}
\DeclareOption{leftheads}{\renewcommand\@headingalignment{\raggedleft}}
\DeclareOption{centerheads}{\renewcommand\@headingalignment{\centering}}
\DeclareOption{rightheads}{\renewcommand\@headingalignment{\raggedright}}
```

19.13 Figures and Tables

hangingcaptions
nohangingcaptions

These options determine whether or not figure and table captions should "hang". Hanging captions are justified so that all the caption text comes after the caption label.

```
\newif\if@hangingcaptions \@hangingcaptionsfalse
\DeclareOption{hangingcaptions}{\@hangingcaptionstrue}
\DeclareOption{nohangingcaptions}{\@hangingcaptionsfalse}
```

19.14 Footnotes

chapternotereset
nochapternotereset

This enables or disables the resetting of footnote numbering within each chapter.

```
\newif\if@chapternotereset \@chapternoteresettrue
\DeclareOption{chapternotereset}{\@chapternoteresettrue}
\DeclareOption{nochapternotereset}{\@chapternoteresetfalse}
```

19.15 Bibliography

bibnum
nobibnum

This turns on or off the chapter numbering of the bibliography. It does not force a number if the bibliography is after the `\backmatter` command.

```
\newif\if@bibnum \@bibnumtrue
\DeclareOption{bibnum}{\@bibnumtrue}
\DeclareOption{nobibnum}{\@bibnumfalse}
```

sectionbib

This makes the bibliography a section rather than a chapter. Its main use is with the similar option in the chapterbib and natbib packages for use with manuscript theses

```
\newif\if@sectionbib \@sectionbibfalse
\DeclareOption{sectionbib}{\@sectionbibtrue}
```

19.16 Appendix

appendixpart
noappendixpart

These options affect whether or not the Appendices are a separate "part" or just additional chapters. If it is true, then the `\appendix` command inserts a new part with the name `\appendicesname`.

If you just want a divider in the table of contents, use the appendicestoc option.

```
\newif\if@appendixpart \@appendixpartfalse
\DeclareOption{appendixpart}{\@appendixparttrue}
\DeclareOption{noappendixpart}{\@appendixpartfalse}
```

appendixpage
noappendixpage

These decide if the appendices should have a separate page if they are actually chapters. If appendixpart is chosen then this has no effect since parts are already put on a separate page.

```
\newif\if@appendixpage \@appendixpagetrue
\DeclareOption{appendixpage}{\@appendixpagetrue}
\DeclareOption{noappendixpage}{\@appendixpagefalse}
```

appendicestoc
noappendicestoc

These options affect whether or not the a divider with the name `\appendicesname` appears in the table of contents before the appendices. This is not needed if the appendixpart option is used because then a part is inserted with the name `\appendicesname`.

```
\newif\if@appendicestoc \@appendicestoctrue
\DeclareOption{appendicestoc}{\@appendicestoctrue}
\DeclareOption{noappendicestoc}{\@appendicestocfalse}
```

19.17 Open bibliography

openbib The option openbib produces the "open" bibliography style, in which each block starts on a new line, and succeeding lines in a block are indented by \bibindent.

```
\DeclareOption{openbib}{%
```

First some hook into the bibliography environment is filled.

```
  \AtEndOfPackage{%
   \renewcommand\@openbib@code{%
      \advance\leftmargin\bibindent
      \itemindent -\bibindent
      \listparindent \itemindent
      \parsep \z@
      }%
```

In addition the definition of \newblock is overwritten.

```
   \renewcommand\newblock{\par}}%
}
```

19.18 Crosshairs on empty pages.

crosshair nocrosshair These toggle between crosshair and nocrosshair modes. The crosshair mode puts a large X on empty pages. (Pages with pagestyle *empty*).

```
\newif\if@crosshair \@crosshairfalse
\DeclareOption{nocrosshair}{\@crosshairfalse}
\DeclareOption{crosshair}{\@crosshairtrue}
```

19.19 Font Options

These are different options for document fonts and spacings in the section headings etc.

defaultfonts

```
\DeclareOption{defaultfonts}{
    \renewcommand\titlepagefont{\normalsize}
    \renewcommand\titlefont{\Large \bfseries}
    \renewcommand\subtitlefont{\large \bfseries}
    \renewcommand\institutionfont{\slshape}
    \renewcommand\abstractfont{\large\slshape}
    \renewcommand\partfont{\huge \bfseries}
    \renewcommand\partnamefont{\Huge \bfseries}
    \renewcommand\chapterfont{\huge\bfseries}
    \renewcommand\chaptertitlefont{\Huge\bfseries}
    \renewcommand\chapterauthorfont{\large}
    \renewcommand\sectionfont{\Large\bfseries}
    \renewcommand\subsectionfont{\large\bfseries}
    \renewcommand\subsubsectionfont{\normalsize\bfseries}
    \renewcommand\paragraphfont{\normalsize\bfseries}
```

```
    \renewcommand\subparagraphfont{\normalsize\bfseries}
    \renewcommand\translatorfont{}
    \renewcommand\theoremheaderfont{\upshape}
    \renewcommand\theorembodyfont{}
    \renewcommand\itemfont{\slshape}
    \renewcommand\examplefont{}
    \renewcommand\headingstextfont{\slshape}
    \renewcommand\pagenumberfont{}
    \renewcommand\captionheaderfont{}
    \renewcommand\captionbodyfont{}
    \renewcommand\figurefont{}
    \renewcommand\tablefont{}
    \setlength{\partbetweenskip}{20pt}
    \setlength{\chapterbeforeskip}{30pt}
    \setlength{\chapterbetweenskip}{20pt}
    \setlength{\chapterafterskip}{30pt}
    \renewcommand\sectionindent{\z@}
    \renewcommand\sectionbeforeskip{-3.5ex \@plus -1ex \@minus -.2ex}
    \renewcommand\sectionafterskip{2.3ex \@plus.2ex}
    \renewcommand\subsectionindent{\z@}
    \renewcommand\subsectionbeforeskip{-3.25ex \@plus -1ex \@minus -.2ex}
    \renewcommand\subsectionafterskip{1.5ex \@plus.2ex}
    \renewcommand\subsubsectionindent{\z@}
    \renewcommand\subsubsectionbeforeskip{-3.25ex\@plus -1ex \@minus -.2ex}
    \renewcommand\subsubsectionafterskip{1.5ex \@plus .2ex}
    \renewcommand\paragraphindent{\z@}
    \renewcommand\paragraphbeforeskip{3.25ex \@plus1ex \@minus.2ex}
    \renewcommand\paragraphafterskip{-1em}
    \renewcommand\subparagraphindent{\parindent}
    \renewcommand\subparagraphbeforeskip{3.25ex \@plus1ex \@minus .2ex}
    \renewcommand\subparagraphafterskip{-1em}
}
```

slanted

```
\DeclareOption{slanted}{
    \renewcommand\titlefont{\LARGE}
    \renewcommand\abstractfont{\large\slshape}
    \renewcommand\subtitlefont{\large}
    \renewcommand\authorfont{}
    \renewcommand\degreetitlefont{\large}
    \renewcommand\partfont{\Large}
    \renewcommand\chapterfont{\large}
    \renewcommand\chaptertitlefont{\large}
    \renewcommand\chapterauthorfont{\large}
    \renewcommand\sectionfont{\large\slshape}
    \renewcommand\subsectionfont{\slshape}
    \renewcommand\subsubsectionfont{\slshape}
    \renewcommand\paragraphfont{\slshape}
    \renewcommand\subparagraphfont{\slshape}
    \renewcommand\institutionfont{\slshape}
```

```
    \renewcommand\translatorfont{}
    \renewcommand\theoremheaderfont{\upshape}
    \renewcommand\theorembodyfont{}
    \renewcommand\itemfont{\slshape}
    \renewcommand\examplefont{}
    \renewcommand\headingstextfont{\small\slshape}
    \renewcommand\pagenumberfont{\small}
    \renewcommand\captionheaderfont{\slshape\small}
    \renewcommand\captionbodyfont{\small}
    \renewcommand\figurefont{}
    \renewcommand\tablefont{}
    \setlength{\partbetweenskip}{20pt}
    \setlength{\chapterbeforeskip}{30pt}
    \setlength{\chapterbetweenskip}{20pt}
    \setlength{\chapterafterskip}{30pt}
    \renewcommand\sectionindent{\z@}
    \renewcommand\sectionbeforeskip{-3.5ex \@plus -1ex \@minus -.2ex}
    \renewcommand\sectionafterskip{2.3ex \@plus.2ex}
    \renewcommand\subsectionindent{\z@}
    \renewcommand\subsectionbeforeskip{-3.25ex \@plus -1ex \@minus -.2ex}
    \renewcommand\subsectionafterskip{1.5ex \@plus.2ex}
    \renewcommand\subsubsectionindent{\z@}
    \renewcommand\subsubsectionbeforeskip{-3.25ex\@plus -1ex \@minus -.2ex}
    \renewcommand\subsubsectionafterskip{1.5ex \@plus .2ex}
    \renewcommand\paragraphindent{\z@}
    \renewcommand\paragraphbeforeskip{3.25ex \@plus1ex \@minus.2ex}
    \renewcommand\paragraphafterskip{-1em}
    \renewcommand\subparagraphindent{\parindent}
    \renewcommand\subparagraphbeforeskip{3.25ex \@plus1ex \@minus .2ex}
    \renewcommand\subparagraphafterskip{-1em}
}
```

bold

```
\DeclareOption{bold}{%
    \renewcommand\titlefont{\LARGE\bfseries}
    \renewcommand\subtitlefont{\large\bfseries}
    \renewcommand\abstractfont{\Large\bfseries}
    \renewcommand\authorfont{}
    \renewcommand\degreetitlefont{\large\bfseries}
    \renewcommand\partfont{\LARGE\bfseries}
    \renewcommand\chapterfont{\LARGE\bfseries}
    \renewcommand\chaptertitlefont{\LARGE\bfseries}
    \renewcommand\chapterauthorfont{\large}
    \renewcommand\sectionfont{\Large\bfseries}
    \renewcommand\subsectionfont{\large\bfseries}
    \renewcommand\subsubsectionfont{\bfseries}
    \renewcommand\paragraphfont{\bfseries}
    \renewcommand\subparagraphfont{\bfseries}
    \renewcommand\translatorfont{}
    \renewcommand\institutionfont{\slshape}
```

```
    \renewcommand\theoremheaderfont{\bfseries}
    \renewcommand\theorembodyfont{\itshape}
    \renewcommand\itemfont{\bfseries}
    \renewcommand\examplefont{}
    \renewcommand\headingstextfont{\small\bfseries}
    \renewcommand\pagenumberfont{\small}
    \renewcommand\captionheaderfont{\bfseries}
    \renewcommand\captionbodyfont{}
    \renewcommand\figurefont{}
    \renewcommand\tablefont{}
    \setlength{\partbetweenskip}{20pt}
    \setlength{\chapterbeforeskip}{30pt}
    \setlength{\chapterbetweenskip}{20pt}
    \setlength{\chapterafterskip}{30pt}
    \renewcommand\sectionindent{\z@}
    \renewcommand\sectionbeforeskip{-3.5ex \@plus -1ex \@minus -.2ex}
    \renewcommand\sectionafterskip{2.3ex \@plus.2ex}
    \renewcommand\subsectionindent{\z@}
    \renewcommand\subsectionbeforeskip{-3.25ex \@plus -1ex \@minus -.2ex}
    \renewcommand\subsectionafterskip{1.5ex \@plus.2ex}
    \renewcommand\subsubsectionindent{\z@}
    \renewcommand\subsubsectionbeforeskip{-3.25ex\@plus -1ex \@minus -.2ex}
    \renewcommand\subsubsectionafterskip{1.5ex \@plus .2ex}
    \renewcommand\paragraphindent{\z@}
    \renewcommand\paragraphbeforeskip{3.25ex \@plus1ex \@minus.2ex}
    \renewcommand\paragraphafterskip{-1em}
    \renewcommand\subparagraphindent{\parindent}
    \renewcommand\subparagraphbeforeskip{3.25ex \@plus1ex \@minus .2ex}
    \renewcommand\subparagraphafterskip{-1em}
}
```

sfbold

```
\DeclareOption{sfbold}{%
    \renewcommand\titlefont{\LARGE\sffamily\bfseries}
    \renewcommand\abstractfont{\large\sffamily\bfseries}
    \renewcommand\subtitlefont{\large\sffamily}
    \renewcommand\authorfont{\Large\sffamily\slshape}
    \renewcommand\degreetitlefont{\large\sffamily}
    \renewcommand\partfont{\LARGE\sffamily\bfseries}
    \renewcommand\chapterfont{\LARGE\sffamily\bfseries}
    \renewcommand\chaptertitlefont{\LARGE\sffamily\bfseries}
    \renewcommand\chapterauthorfont{\Large\sffamily\bfseries}
    \renewcommand\sectionfont{\large\sffamily\bfseries}
    \renewcommand\subsectionfont{\large\sffamily\bfseries}
    \renewcommand\subsubsectionfont{\sffamily\bfseries}
    \renewcommand\paragraphfont{\sffamily\bfseries}
    \renewcommand\subparagraphfont{\sffamily}
    \renewcommand\translatorfont{}
    \renewcommand\institutionfont{\sffamily}
    \renewcommand\theoremheaderfont{\sffamily}
```

```
    \renewcommand\theorembodyfont{}
    \renewcommand\itemfont{\sffamily}
    \renewcommand\examplefont{}
    \renewcommand\headingstextfont{\small\sffamily}
    \renewcommand\pagenumberfont{\small\rmfamily}
    \renewcommand\captionheaderfont{\sffamily}
    \renewcommand\captionbodyfont{}
    \renewcommand\figurefont{}
    \renewcommand\tablefont{}
    \setlength{\partbetweenskip}{20pt}
    \setlength{\chapterbeforeskip}{30pt}
    \setlength{\chapterbetweenskip}{20pt}
    \setlength{\chapterafterskip}{30pt}
    \renewcommand\sectionindent{\z@}
    \renewcommand\sectionbeforeskip{-3.5ex \@plus -1ex \@minus -.2ex}
    \renewcommand\sectionafterskip{2.3ex \@plus.2ex}
    \renewcommand\subsectionindent{\z@}
    \renewcommand\subsectionbeforeskip{-3.25ex \@plus -1ex \@minus -.2ex}
    \renewcommand\subsectionafterskip{1.5ex \@plus.2ex}
    \renewcommand\subsubsectionindent{\z@}
    \renewcommand\subsubsectionbeforeskip{-3.25ex\@plus -1ex \@minus -.2ex}
    \renewcommand\subsubsectionafterskip{1.5ex \@plus .2ex}
    \renewcommand\paragraphindent{\z@}
    \renewcommand\paragraphbeforeskip{3.25ex \@plus1ex \@minus.2ex}
    \renewcommand\paragraphafterskip{-1em}
    \renewcommand\subparagraphindent{\parindent}
    \renewcommand\subparagraphbeforeskip{3.25ex \@plus1ex \@minus .2ex}
    \renewcommand\subparagraphafterskip{-1em}
}
```

20 Executing Options

Here we execute the default options to initialize certain variables. Note that we need the percent signs to break the lines.

```
\ExecuteOptions{%
  letterpaper,%
  10pt,%
  twoside,%
  onecolumn,%
  final,%
  openright,%
  noupper,%
  defaultfonts,%
  pagenumTR,%
  chapternotereset,%
  nobibnum,%
  nologo}
```

The `\ProcessOptions` command causes the execution of the code for every option FOO which is declared and for which the user typed the FOO option in his `\documentclass` command. For every option BAR he typed, which is not declared, the option is assumed to be a global option. All options will be passed as document options to any `\usepackage` command in the document preamble.

Here we use the starred form so that options are loaded in the order they are specified rather than the order in which they are defined. This allows the flavours to implement different default options by simply calling `\ExecuteOptions` before the options are processed.

```
674 \ProcessOptions*\relax
```

Now that all the options have been executed we can load the chosen class option file that contains all size dependent code. This information is the same as that specified for the book class in the files `bk10.clo`, `bk11.clo` and `bk12.clo`.

```
675 \input{bk1\@ptsize.clo}
```

21 Loading Packages

If a logo is to be displayed on the titlepage, then the `graphics` package must be loaded

```
676 \iflogo\RequirePackage{graphics}\fi
```

22 Document Layout

In this section we are finally dealing with the nasty typographical details.

22.1 Pagination

Theses are usually pretty rigid in their pagination requirements. One potential gotcha in the class is resetting the page numbers. This should always be done after a call to `\cleardoublepage` or `\blankdoublepage` to make sure that the numbers start from an odd number on a true odd page.

22.2 Paragraphing

`\lineskip` `\normallineskip` These parameters control TEX's behaviour when two lines tend to come too close together.

```
677 \setlength\lineskip{1\p@}
678 \setlength\normallineskip{1\p@}
```

`\baselinestretch` This is used as a multiplier for `\baselineskip`. The default is to *not* stretch the baselines. Note that if this command doesn't resolve to "empty" any `plus` or `minus` part in the specification of `\baselineskip` is ignored.

```
679 \renewcommand\baselinestretch{}
```

\parskip
\parindent

\parskip gives extra vertical space between paragraphs and \parindent is the width of the paragraph indentation. The value of \parindent depends on whether we are in two column mode.

```
\setlength\parskip{0\p@ \@plus \p@}
```

\@lowpenalty
\@medpenalty
\@highpenalty

The commands \nopagebreak and \nolinebreak put in penalties to discourage these breaks at the point they are put in. They use \@lowpenalty, \@medpenalty or \@highpenalty, dependent on their argument.

```
\@lowpenalty   51
\@medpenalty  151
\@highpenalty 301
```

\clubpenalty
\widowpenalty

These penalties are use to discourage club and widow lines. Because we use their default values we only show them here, commented out.

```
% \clubpenalty  150
% \widowpenalty 150
```

\displaywidowpenalty
\predisplaypenalty
\postdisplaypenalty

Discourage (but not so much) widows in front of a math display and forbid breaking directly in front of a display. Allow break after a display without a penalty. Again the default values are used, therefore we only show them here.

```
% \displaywidowpenalty 50
% \predisplaypenalty   10000
% \postdisplaypenalty  0
```

\interlinepenalty

Allow the breaking of a page in the middle of a paragraph.

```
% \interlinepenalty 0
```

\brokenpenalty

We allow the breaking of a page after a hyphenated line.

```
% \brokenpenalty 100
```

22.3 Page Layout

All margin dimensions are measured from a point one inch from the top and lefthand side of the page.

22.3.1 Float placement parameters

All float parameters are given default values in the LaTeX 2_ε kernel. For this reason parameters that are not counters need to be set with \renewcommand.

Limits for the placement of floating objects

\c@topnumber

The *topnumber* counter holds the maximum number of floats that can appear on the top of a text page.

```
\setcounter{topnumber}{2}
```

`\topfraction` This indicates the maximum part of a text page that can be occupied by floats at the top.

```
\renewcommand\topfraction{.7}
```

`\c@bottomnumber` The *bottomnumber* counter holds the maximum number of floats that can appear on the bottom of a text page.

```
\setcounter{bottomnumber}{1}
```

`\bottomfraction` This indicates the maximum part of a text page that can be occupied by floats at the bottom.

```
\renewcommand\bottomfraction{.3}
```

`\c@totalnumber` This indicates the maximum number of floats that can appear on any text page.

```
\setcounter{totalnumber}{3}
```

`\textfraction` This indicates the minimum part of a text page that has to be occupied by text.

```
\renewcommand\textfraction{.2}
```

`\floatpagefraction` This indicates the minimum part of a page that has to be occupied by floating objects before a 'float page' is produced.

```
\renewcommand\floatpagefraction{.5}
```

`\c@dbltopnumber` The *dbltopnumber* counter holds the maximum number of two column floats that can appear on the top of a two column text page.

```
\setcounter{dbltopnumber}{2}
```

`\dbltopfraction` This indicates the maximum part of a two column text page that can be occupied by two column floats at the top.

```
\renewcommand\dbltopfraction{.7}
```

`\dblfloatpagefraction` This indicates the minimum part of a page that has to be occupied by two column wide floating objects before a 'float page' is produced.

```
\renewcommand\dblfloatpagefraction{.5}
```

22.4 Page Styles

The page style *foo* is defined by defining the command `\ps@foo`. These commands are used by the `\pagestyle` and `\thispagestyle` macros defined in the LaTeX source `ltpage.dtx`. This command should make only local definitions. There should be no stray spaces in the definition, since they could lead to mysterious extra spaces in the output (well, that's something that should be always avoided).

The genthesis class provides some options that affect how the pagestyles are displayed. In particular, allowing consistent control of page number location with both *headings* and *plain*.

`\@evenhead` `\@oddhead` `\@evenfoot` `\@oddfoot` The `\ps@...` command defines the macros `\@oddhead`, `\@oddfoot`, `\@evenhead`, and `\@evenfoot` to define the running heads and feet—e.g., `\@oddhead` is the macro to produce the contents of the heading box for odd-numbered pages. It is called inside an `\hbox` of width `\textwidth`.

22.4.1 Marking conventions

This section is mostly taken from `ltpage.dtx`. It describes the LaTeX way of doing things. We may change this later, but for now we try to comply.

One thing we do differently is provide a way to change the headers for unnumbered chapters and sections. In the standard LaTeX classes, if you follow a numbered chapter by an unnumbered chapter, the headings will not be altered. (The bibliography was special and provided an explicit call to `\@mkboth` in order to reset the headings.) The user would have to explicitly call `\markboth` as follows:

```
%  \chapter*{Preface\markboth{Preface}{}}
%
```

We instead provide an option starmark/nostarmark that will allow for the following additional marking commands to be used.

To make headings determined by the sectioning commands, the page style defines the commands `\chaptermark`, `\sectionmark`, ..., where `\chaptermark{`⟨*TEXT*⟩`}` is called by `\chapter` to set a mark, and so on.

The `\...mark` commands and the `\...head` macros are defined with the help of the following macros. (All the `\...mark` commands should be initialized to no-ops.) LaTeX extends TeX's `\mark` facility by producing two kinds of marks, a 'left' and a 'right' mark, using the following commands:

`\markboth{`⟨*LEFT*⟩`}{`⟨*RIGHT*⟩`}`: Adds both marks.
`\markright{`⟨*RIGHT*⟩`}`: Adds a 'right' mark.
`\leftmark`: Used in the `\@oddhead`, `\@oddfoot`, `\@evenhead` or `\@evenfoot` macros, it gets the current 'left' mark. `\leftmark` works like TeX's `\botmark` command.
`\rightmark`: Used in the `\@oddhead`, `\@oddfoot`, `\@evenhead` or `\@evenfoot` macros, it gets the current 'right' mark. `\rightmark` works like TeX's `\firstmark` command.

The marking commands work reasonably well for right marks 'numbered within' left marks—e.g., the left mark is changed by a `\chapter` command and the right mark is changed by a `\section` command. However, it does produce somewhat anomalous results if two `\markboth`'s occur on the same page.

Commands like `\tableofcontents` that should set the marks in some page styles use a `\@mkboth` command, which is `\let` by the pagestyle command (`\ps@...`) to `\markboth` for setting the heading or to `\@gobbletwo` to do nothing.

(Translation: This is all very confusing, but well explained in the documentation to the fancyhdr class found in `fancyhdr.dtx`. LaTeX has some annoying "features" as described there, but our philosophy here is to stick to normal LaTeX, so we use the default book style format with the pagenumber placement option.)

22.4.2 Pagestyle Options

The following options affect the location of page numbers: pagenumBC, pagenumBR, pagenumTR. The options are "B"/"T" for Bottom/Top and "C"/"R" for Center/Right. These are selected from the cases defined in Section 19.4.

22.4.3 Defining the page styles

The default pagestyles *empty* and *plain* are defined in `ltpage.dtx` while the default pagestyle *headings* is defined in the `classes.dtx`.

We modify those definitions here to provide a consistent method for modifying the format and location of the page numbers. The standard classes have page numbers at the bottom for *plain* but at the top corner for *headings*.

`\headlinespace` This is the separation between the running header text and the line under it if the headline option is used.

```
\newlength{\headlinespace}
\setlength{\headlinespace}{5pt}
```

`\v@strut` This is a vertical strut that extends the height of the letter "y"—i.e. it extends below the baseline—in the correct heading font. This is used so that the headline (if used) is placed consistently: otherwise, it might juggle up and down depending on the depth of the current heading. We need the extra parens to prevent the font from leaking out.

```
\newcommand{\v@strut}{{\headingstextfont \vphantom{y}}}
```

`\ps@empty` The definition of the page style *empty* is given in `ltpage.dtx` and does not put anything. If the university requires page numbering on every page, then the specific flavour may wish to redefine this to *plain*.

`\ps@plain` The definition of the page style *plain* has to be different for two sided printing than it is for one sided printing. All it displays is the page number: no headline and no marks.

We start with the two-sided pagestyle definitions

```
\if@twoside
  \def\ps@plain{%
```

Both header and feet are empty except for the page number. No lines are drawn for the *plain* pagestyle.

```
    \ifcase\@pagesnumberstyle\relax % Page number Bottom Center
      \def\@oddfoot{\hfil{\pagenumberfont\thepage}\hfil}%
      \let\@evenfoot\@oddfoot%
      \let\@oddhead\@empty%
      \let\@evenhead\@empty%
    \or                             % Page number Bottom Outside
      \def\@oddfoot{\hfil{\pagenumberfont\thepage}}%
      \def\@evenfoot{{\pagenumberfont\thepage}\hfil}%
      \let\@oddhead\@empty%
      \let\@evenhead\@empty%
    \else                           % Page number Top Outside
      \let\@oddfoot\@empty%
      \let\@evenfoot\@empty%
      \def\@oddhead{\hfil{\pagenumberfont\thepage}}%
      \def\@evenhead{{\pagenumberfont\thepage}\hfil}%
    \fi
  }%
```

The definition of \ps@plain for one sided printing can be much simpler, because we treat even and odd pages the same. Therefore we don't need to define \@even...

```
\else
  \def\ps@plain{%
    \ifcase\@pagesnumberstyle\relax % Page number Bottom Center
      \def\@oddfoot{\hfil{\pagenumberfont\thepage}\hfil}%
      \let\@oddhead\@empty%
    \or                             % Page number Bottom Outside
      \def\@oddfoot{\hfil{\pagenumberfont\thepage}}%
      \let\@oddhead\@empty%
    \else                           % Page number Top Outside
      \let\@oddfoot\@empty%
      \def\@oddhead{\hfil{\pagenumberfont\thepage}}%
    \fi
  }%
\fi
```

\ps@headings The definition of the page style *headings* has to be different for two sided printing than it is for one sided printing. It is also much more complicated because all of the marking conventions must be defined.

```
\if@twoside
  \def\ps@headings{%
```

Here, the feet may contain the page number (nothing else) while the head may contain the page number as well as one of the marks. We enclose the head in a box and put a line underneath if the headline option is selected. If the centerheadline option is selected, the mark is centered.

To prevent code duplication, we first define the headers without page numbers, then redefine them if the page number is up top.

```
    \def\@evenhead{%
      \parbox{\textwidth}{%
        \makebox[\textwidth]{%
          \hfill{\headingstextfont\leftmark}%
          \if@centerheadline\hfill\fi%
          \v@strut%
        }%
        \if@headline\vspace{\headlinespace}\hrule\fi%
      }%
    }%
    \def\@oddhead{%
      \parbox{\textwidth}{%
        \makebox[\textwidth]{%
          \if@centerheadline\hfill\fi%
          {\headingstextfont\rightmark}\hfill\v@strut%
        }%
        \if@headline\vspace{\headlinespace}\hrule\fi%
      }%
    }%
```

```
\ifcase\@pagesnumberstyle\relax % Page number Bottom Center
  \def\@oddfoot{\hfil{\pagenumberfont\thepage}\hfil}%
  \let\@evenfoot\@oddfoot%
\or                             % Page number Bottom Outside
  \def\@oddfoot{\hfil{\pagenumberfont\thepage}}%
  \def\@evenfoot{{\pagenumberfont\thepage}\hfil}%
\else                           % Page number Top Outside
  \let\@oddfoot\@empty%
  \let\@evenfoot\@empty%
  \def\@evenhead{%
    \parbox{\textwidth}{%
      \makebox[\textwidth]{%
        {\pagenumberfont\thepage}\hfill{\headingstextfont\leftmark}%
        \if@centerheadline\hfill\fi%
        \v@strut%
      }%
      \if@headline\vspace{\headlinespace}\hrule\fi%
    }%
  }%
  \def\@oddhead{%
    \parbox{\textwidth}{%
      \makebox[\textwidth]{%
        \if@centerheadline\hfill\fi%
        {\headingstextfont\rightmark}\hfill%
        {\pagenumberfont\thepage}\v@strut%
      }%
      \if@headline\vspace{\headlinespace}\hrule\fi%
    }%
  }%
\fi
```

When using this page style, the contents of the running head is determined by the chapter and section titles. So we `\let \@mkboth` to `\markboth`.

```
  \let\@mkboth\markboth
```

We use the `\chaptermark` (and possibly `\sectionmark` in the future) macros to fill the running heads.

Note the use of `##1` for the parameter of the `\chaptermark` command, which will be defined when `\ps@headings` is executed.

```
 \renewcommand*\chaptermark[1]{%
   \markboth{%
     \ifnum \c@secnumdepth >\m@ne
       \if@mainmatter       % Only include Chapter # in mainmatter
         \@toupper{\@chapapp}\
         \if@headcount
           \thechapter. \ %
         \fi
       \fi
     \fi
     \@toupper{##1}}{}}%
```

```
    \renewcommand*\sectionmark[1]{%
      \markright{%
        \ifnum \c@secnumdepth >\z@
          \if@headcount
            \thesection. \ %
          \fi
        \fi
        \@toupper{##1}}}
    \renewcommand*\chapterstarmark[1]{\markboth{\@toupper{##1}}{}}
    \renewcommand*\sectionstarmark[1]{\markright{\@toupper{##1}}}
  }%
```

The definition of `\ps@headings` for one sided printing can be much simpler, because we treat even and odd pages the same. Therefore we don't need to define `\@even...`. Only the left mark is included in the header now.

```
\else % oneside
  \def\ps@headings{%
    \def\@oddhead{%
      \parbox{\textwidth}{%
        \makebox[\textwidth]{%
          \if@centerheadline\hfill\fi%
          {\headingstextfont\rightmark}\hfill\v@strut%
        }%
        \if@headline\vspace{\headlinespace}\hrule\fi%
      }%
    }%
    \ifcase\@pagesnumberstyle\relax % Page number Bottom Center
      \def\@oddfoot{\hfil{\pagenumberfont\thepage}\hfil}%
    \or                             % Page number Bottom Right
      \def\@oddfoot{\hfil{\pagenumberfont\thepage}}%
    \else                           % Page number Top Right
      \let\@oddfoot\@empty%
      \def\@oddhead{%
        \parbox{\textwidth}{%
          \makebox[\textwidth]{%
            \if@centerheadline\hfill\fi%
            {\headingstextfont\rightmark}\hfill%
            {\pagenumberfont\thepage}\v@strut%
          }%
          \if@headline\vspace{\headlinespace}\hrule\fi%
        }%
      }%
    \fi
    \let\@mkboth\markboth
```

We use `\markright` now instead of `\markboth` as we did for two sided printing.

```
    \renewcommand*\chaptermark[1]{%
      \markright{
        \ifnum \c@secnumdepth >\m@ne
          \if@mainmatter
```

```
            \@toupper{\@chapapp}\
            \if@headcount
              \thechapter. \ %
            \fi
          \fi
        \fi
        \@toupper{##1}}}%
    \renewcommand*\sectionmark[1]{%
      \markright{%
        \ifnum \c@secnumdepth >\z@
          \if@headcount
            \thesection. \ %
          \fi
        \fi
        \@toupper{##1}}}%
    \renewcommand*\chapterstarmark[1]{\markright{\@toupper{##1}}}
    \renewcommand*\sectionstarmark[1]{\markright{\@toupper{##1}}}
  }%
\fi
```

`\ps@draft` This is the pagestyle used for a draft version. The headers are modified so that they display the current date and time of the draft.

```
\if@twoside
  \def\ps@draft{%
    \def\@evenhead{%
      \parbox{\textwidth}{%
        \makebox[\textwidth]{%
          \hfill%
          {\headingstextfont\draftname: ``\jobname''}%
          {\pagenumberfont --- \today\ \now}%
          \if@centerheadline\hfill\fi%
          \v@strut%
        }%
        \if@headline\vspace{\headlinespace}\hrule\fi%
      }%
    }%
    \def\@oddhead{%
      \parbox{\textwidth}{%
        \makebox[\textwidth]{%
          \if@centerheadline\hfill\fi%
          {\pagenumberfont\today\ \now\ ---}%
          {\headingstextfont\draftname: ``\jobname''}%
          \hfill\v@strut%
        }%
        \if@headline\vspace{\headlinespace}\hrule\fi%
      }%
    }%
    \ifcase\@pagesnumberstyle\relax % Page number Bottom Center
      \def\@oddfoot{\hfil{\pagenumberfont\thepage}\hfil}%
      \let\@evenfoot\@oddfoot%
```

```
    \or                             % Page number Bottom Outside
      \def\@oddfoot{\hfil{\pagenumberfont\thepage}}%
      \def\@evenfoot{{\pagenumberfont\thepage}\hfil}%
    \else                           % Page number Top Outside
      \let\@oddfoot\@empty%
      \let\@evenfoot\@empty%
      \def\@evenhead{%
        \parbox{\textwidth}{%
          \makebox[\textwidth]{%
            {\pagenumberfont\thepage}\hfill%
            {\headingstextfont\draftname: ``\jobname''}%
            {\pagenumberfont --- \today\ \now}%
            \if@centerheadline\hfill\fi%
            \v@strut%
          }%
          \if@headline\vspace{\headlinespace}\hrule\fi%
        }%
      }%
      \def\@oddhead{%
        \parbox{\textwidth}{%
          \makebox[\textwidth]{%
            \if@centerheadline\hfill\fi%
            {\pagenumberfont\today\ \now\ ---}%
            {\headingstextfont\draftname: ``\jobname''}%
            \hfill%
            {\pagenumberfont\thepage}\v@strut%
          }%
          \if@headline\vspace{\headlinespace}\hrule\fi%
        }%
      }%
    \fi
    \let\@mkboth\@gobbletwo
    \let\chaptermark\@gobble
    \let\sectionmark\@gobble
    \let\chapterstarmark\@gobble
    \let\sectionstarmark\@gobble
  }%
\else % oneside
  \def\ps@draft{%
    \def\@oddhead{%
      \parbox{\textwidth}{%
        \makebox[\textwidth]{%
          \if@centerheadline\hfill\fi%
          {\pagenumberfont\today\ \now\ ---}%
          {\headingstextfont\draftname: ``\jobname''}%
          \hfill\v@strut%
        }%
        \if@headline\vspace{\headlinespace}\hrule\fi%
      }%
    }%
```

```
    \ifcase\@pagesnumberstyle\relax % Page number Bottom Center
      \def\@oddfoot{\hfil{\pagenumberfont\thepage}\hfil}%
    \or                             % Page number Bottom Outside
      \def\@oddfoot{\hfil{\pagenumberfont\thepage}}%
    \else                           % Page number Top Outside
      \let\@oddfoot\@empty%
      \def\@oddhead{%
        \parbox{\textwidth}{%
          \makebox[\textwidth]{%
            \if@centerheadline\hfill\fi%
            {\pagenumberfont\today\ \now\ ---}%
            {\headingstextfont\draftname: ``\jobname''}%
            \hfill%
            {\pagenumberfont\thepage}\v@strut%
          }%
          \if@headline\vspace{\headlinespace}\hrule\fi%
        }%
      }%
    \fi
    \let\@mkboth\@gobbletwo
    \let\chaptermark\@gobble
    \let\sectionmark\@gobble
    \let\chapterstarmark\@gobble
    \let\sectionstarmark\@gobble
  }%
\fi
```

`crosshair` The crosshair option puts a large X on any page with pagestyle *clear*. This option is taken from the thesis class.

```
\if@crosshair
  \def\clap#1{\hbox to 0pt{\hss#1\hss}}
  \newdimen\@crosshairrule
  \@crosshairrule=.24pt
  \def\@crosshairs{\vbox to
     0pt{\hsize=0pt\baselineskip=0pt\lineskip=0pt \vss \clap{\vrule
        height .125in width \@crosshairrule depth 0pt} \clap{\vrule
        width .25in height \@crosshairrule depth 0pt} \clap{\vrule
        height .125in width \@crosshairrule depth 0pt} \vss}}
  \def\ps@clear{%
    \let\@oddfoot\@empty\let\@evenfoot\@empty
    \def\@oddhead{\hfil\raise\headheight\@crosshairs}
    \let\@evenhead\@oddhead}
\fi
```

`\ps@myheadings` The definition of the page style *myheadings* is fairly simple because the user determines the contents of the running head himself by using the `\markboth` and `\markright` commands.

```
\def\ps@myheadings{%
  \let\@oddfoot\@empty\let\@evenfoot\@empty
```

```
\def\@evenhead{%
  \parbox{\textwidth}{%
    \makebox[\textwidth]{%
      {\pagenumberfont\thepage}\hfil{\headingstextfont\leftmark}%
      \v@strut%
      \if@centerheadline\hfil\fi
    }%
  \if@headline
    \vspace{\headlinespace}%
    \hrule%
  \fi}%
}%
\def\@oddhead{%
  \parbox{\textwidth}{%
    \makebox[\textwidth]{%
      \if@centerheadline\hfil\fi%
      {\headingstextfont\rightmark}\v@strut\hfil{\pagenumberfont\thepage}%
    }%
    \if@headline
      \vspace{\headlinespace}%
      \hrule%
    \fi}%
  }%
```

We have to make sure that the marking commands that are used by the chapter and section headings are disabled. We do this `\let`ting them to a macro that gobbles its argument(s).

```
\let\@mkboth\@gobbletwo
\let\chaptermark\@gobble
\let\sectionmark\@gobble
\let\chapterstarmark\@gobble
\let\sectionstarmark\@gobble
}
```

22.5 Blank Page

Here we add some macros to facilitate inserting blank pages. Blank pages are required before chapter headings if the openrightblank option is specified. This presents a bit of a challenge with the pagination requirements of the `\frontmatter` command as this must set the first page of the chapter to "1", but the chapter may insert new blank pages. To deal with this, we have the `\frontmatter` command insert the blank pages and we set a flag `\if@suppressblankpage` that the chapters etc. should check to prevent inserting extra pages.

`\if@suppressblankpage` If this is true, then a blank page has been inserted and new ones should not be inserted. This is used by `\frontmatter` for example to insert a blank page and then change the pagination.

```
\newif\if@suppressblankpage \@suppressblankpagefalse
```

`\blankpage` Insert a truly blank page. This also sets `\@suppressblankpagetrue` so that future calls do not insert an additional blank page. This is reset by `\clearp@ge` which is called at the start of each chapter

```
\newcommand{\blankpage}{%
  \clearpage\thispagestyle{empty}\hbox{}\newpage
  \@suppressblankpagetrue
}
```

`\blankdoublepage` Insert a truly blank page or two to ensure that the next page will open on the right hand side with a blank facing page.

```
\newcommand{\blankdoublepage}{
  \blankpage\thispagestyle{empty}\cleardoublepage
}
```

`\clearp@ge` This macro is used internally before parts and chapters to insert a blank page, if the openrightblank option is used etc. It check the `\if@suppressblankpage` flag and resets it when done.

```
\newcommand{\clearp@ge}{%
  \if@twoside
    \if@openright
      \if@openrightblank
        \if@suppressblankpage
          \cleardoublepage       % Just in case
        \else
          \blankdoublepage
        \fi%
      \else
        \cleardoublepage
      \fi%
    \else
      \clearpage
    \fi%
  \else
    \clearpage
  \fi%
  \@suppressblankpagefalse
}
```

23 Document Markup

23.1 Hooks

To allow the other classes to alter the behaviour of the thesis class, we provide a bunch of hooks which are very similar to `\AtBeginDocument` etc.

`\@starttitlepagehook`

```
\newcommand{\@starttitlepagehook}{}
```

```
\@AtStartOfTitlepage
\newcommand{\@AtStartOfTitlepage}{\g@addto@macro\@starttitlepagehook}

\@aftertitlepagehook
\newcommand{\@aftertitlepagehook}{}

\@AfterTitlepage
\newcommand{\@AfterTitlepage}{\g@addto@macro\@aftertitlepagehook}

\@startabstracthook
\newcommand{\@startabstracthook}{}

\@AtStartOfAbstract
\newcommand{\@AtStartOfAbstract}{\g@addto@macro\@startabstracthook}
```

23.2 Title Page

The principle formatting for the titlepage should be done by redefining the command `\titlepage`. Note that this command will be called at least twice to determine how much space the titlepage takes up, thus, one should not define new commands within the `\titlepage` command. The two sample classes provide two different titlepages. Modifications are fairly simple using these as templates.

23.2.1 Margins

`\titlemarginleft` `\titlemarginright` `\titlemargintop` `\titlemarginbottom`

These specify the margins for the titlepage. Using rubber space in the titlepage will push things out to these margins.

```
\newlength{\titlemarginleft}
\newlength{\titlemarginright}
\newlength{\titlemargintop}
\newlength{\titlemarginbottom}

\setlength{\titlemarginleft}{1.5in}
\setlength{\titlemarginright}{1.5in}
\setlength{\titlemargintop}{1.5in}
\setlength{\titlemarginbottom}{1.5in}
```

`\signatures`

This command prints out as many signature lines as dictated by the argument. This is used on the titlepage.

```
\newcommand*{\signatures}[1]{
  \count0=0
  \loop\ifnum\count0<#1 \advance\count0 by 1
  { \begin{minipage}{4in}
      \par
      \vspace{.25in}
      \hbox to 4in{\dotfill}
    \end{minipage}}
```

```
\endgraf\repeat
}
```

`\logofile` The macro `\logofile` is used to specify the name of a graphic file to use on the titlepage.

```
\def\@logofile{\@latex@warning@no@line{No \noexpand\logofile\ given}}
\newcommand*{\logofile}[1]{\gdef\@logofile{#1}}
```

`\maketitle` This macro is used in the document to produce the titlepage. The titlepage produced here has been approved by the UBC FoGS.

```
\newcommand\maketitle{
```

The titlepage should be on its own page opening left:

```
 {\pagestyle{empty}\cleardoublepage}
```

It should also display no headers or page numbers, and be a single column: the `\@startonecolumn` also stores the old margins etc.

```
 \thispagestyle{empty}
 \@startonecolumn
```

Now we remove indenting.

```
 \setlength{\parindent}{0pt}
```

We would really like to keep the titlepage together on one page. To do this, we could put it in a minipage and we center the contents vertically. This way, if the titlepage is slightly too large, it will just reduce the margins on the top and bottom slightly. (An overfull warning will still be triggered however.) Unfortunately, this does not work and I do not know why, so I use a `\vbox` instead.

Note: we do not set `\topskip` to zero: this should be done to make a truly full-sized title page.

The left-right margins must be respected however.

```
 \setlength{\textwidth}{\paperwidth}
 \addtolength{\textwidth}{-\titlemarginleft}
 \addtolength{\textwidth}{-\titlemarginright}
 \setlength{\oddsidemargin}{\titlemarginleft}
 \addtolength{\oddsidemargin}{-1.0in}
 \setlength{\evensidemargin}{\oddsidemargin}
```

Shift the page slightly if the `\twoside` option is provided.

```
 \if@twoside
   \setlength\@tempdima        {\paperwidth}
   \addtolength\@tempdima      {-\textwidth}
   \addtolength\oddsidemargin  {-.1\@tempdima}
   \addtolength\evensidemargin  {.1\@tempdima}
 \fi

 \setlength{\textheight}{\paperheight}
 \addtolength{\textheight}{-\titlemargintop}
 \addtolength{\textheight}{-\titlemarginbottom}

```

```
\setlength{\topmargin}{\titlemargintop}
\addtolength{\topmargin}{-1.0in}
\addtolength{\topmargin}{-\headheight}
\addtolength{\topmargin}{-\headsep}
```

Here we need to reset the basic TeX parameters to actually ensure that the margin changing etc. has an effect.

```
\setlength{\@colht}{\textheight}%
\setlength{\@colroom}{\textheight}%
\setlength{\vsize}{\textheight}%
\setlength{\columnwidth}{\textwidth}%
\setlength{\hsize}{\columnwidth}%
\setlength{\linewidth}{\hsize}%
```

For the titlepage, we start with single spacing. This will be restored by `\@restorepageparams`.

Note: in order for `\baselinestretch` to take effect, the font must be reselected. Here this is done with `\titlepagefont` but at the end we must explicitly call `\selectfont` to force the calculation.

```
\renewcommand{\baselinestretch}{1}
\titlepagefont
```

Now we call the titlepage hook to do things like set the page counter.

```
\@starttitlepagehook
```

We put the whole titlepage into a `\vbox` that is given the same height `\textheight`. For some reason it does not work to put the page into a minipage: the minipage just lets the text extend way to far. (I am not sure why...)

One problem with the vbox approach is that if the box is overfull, then it is not centered vertically. The minipage is still centered vertically, even if it is overfull.

Presently the error calculations are useless because the vbox is set to the `\textheight`. There is probably a way to catch this, but I am not sure how.

This also prevents overflow onto a new page. If the titlepage is too big, then we print an overfull message to the user. If the titlepage is large than the physical page we issue an error.

Note that `\copy0` is used to copy the contents of `\box0` because using `\box0` destroys the contents.

```
{% Local scope for error calculations.
  \setbox0=\vbox to\textheight{\vspace{0pt plus 1filll}\par%
    \titlepage\par%
    \vspace{0pt plus 1filll}}
  \settoheight{\dimen0}{\copy0}
  \settodepth{\dimen1}{\box0}
  \addtolength{\dimen0}{\dimen1}
  \setlength{\dimen1}{\dimen0}
  \addtolength{\dimen0}{-\textheight}
  \addtolength{\dimen1}{-\paperheight}
  \ifdim0pt<\dimen0
    \ClassWarning{genthesis}
    {Overfull titlepage by \the\dimen0 }
```

```
    \fi
    \ifdim0pt<\dimen1
      \ClassError{genthesis}
      {Titlepage larger than paper by \the\dimen1 !!}
    \fi
  }
  \vbox to \textheight{%
    \vspace{0pt plus 1fil minus \titlemargintop}\par%
    \titlepage\par%
    \vspace{0pt plus 1fil minus \titlemarginbottom}%
  }
```

Reset column mode. We must do this after the new page has been specified with `\clearpage`. This also restores the margins etc.

```
  \clearpage
  \@endonecolumn
  \@aftertitlepagehook
```

Here we reset the line spacing and other page parameters: Note: in order for `\baselinestretch` to take effect, the font must be reselected. Here this is done with an explicit call to `\selectfont` to force the calculation.

```
  \normalfont
  \normalsize
```

We reset the *footnote* counter, disable `\thanks` and `\maketitle` and save some storage space by emptying the internal information macros.

```
  \setcounter{footnote}{0}%
  \global\let\thanks\relax
  \global\let\maketitle\relax
  \global\let\@thanks\@empty
```

After the title is set the declaration commands `\title`, etc. can vanish.

```
\global\let\title\relax \global\let\author\relax
\global\let\date\relax
}

\@AtStartOfTitlepage{\setcounter{page}\@ne}
```

`\titlepage` Here is a default definition for `\titlepage`. This should be redefined to suit each institution.

We center the entire title vertically. `\vfil` is a vertical space (or glue) of infinite stretchability: It will expand and push the page down. An accompanying `\vfil` at the bottom will push up and the page will be centered. Note that `\vfill` works the same way, but that `\vfill` is "more infinite" than `\vfil` so a `\vfill` will always collapse a `\vfil`. The `\null` must be used because, at the top of a new page, rubber space is normally eaten.

```
\providecommand{\titlepage}{
  \null\vfil
```

Then we set the title in the `\titlefont`; leave a little space, the, if a subtitle has been defined, we put is in `\subtitlefont`, then after a little space we put

"by", then leave some space and and set the author(s) in `\authorfont`. We do this inside a tabular environment to get them in a single column. Then we list the previous degrees. We do this in a tabular environment so that the extra newline does not give a problem. Before the date we leave a little whitespace again.

The titlepage is always centered, regardless of the center option.

```
  \begin{center}%
    {\titlefont \@condupper{@uppertitle}{\@title}\par}%
    \vspace{1em}%
    \if@subtitle
      {\subtitlefont \@condupper{@uppersubtitle}{\@subtitle}\par}%
      \vspace{1em}%
    \fi
    by \par%
    \vspace{1em}%
    {\authorfont%
      \@condupper{@upperauthor}{\@author}\par%
    }%
```

Conditionals cannot contain paragraph breaks, so we must include several lines for this `\if@empty`.

```
    \if@empty\@previousdegrees\else\vfil\fi%
    \if@empty\@previousdegrees\else\@previousdegrees\fi%
    \vfil
    A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF\par%
    THE REQUIREMENTS FOR THE DEGREE OF\par%
    \vspace{1em}
    {\degreetitlefont\@condupper{@upperdegreetitle}{\@degreetitle}\par}%
    \vspace{1em}
    in \par%
    \vspace{1em}
    {\facultyfont \@condupper{@upperfaculty}{\@faculty}\par}%
    \vspace{1em}
    (\@program)\par%
    \vspace{1em plus 1fil minus 0.5em}%
    \@condupper{@upperinstitution}{\@institution}\par%
    \vspace{1em minus 0.5em}%
    (\@institutionaddress)\par%
    \vspace{1em minus 0.5em}%
    \@submitdate\par%
    \vspace{1em minus 0.5em}%
    \@copyrighttext\par%
    \vspace{1em minus 0.5em}%
    \if@empty\@copyrightnotice\else\vfil\@copyrightnotice\fi
    \vspace{1em plus 1fil}%
    \UBCT@signatures\par%
  \end{center}
  \vfil\null
}
```

23.3 Authorization Form

This is very university specific. You should add one of your own if you make a class for outside of UBC.

\ubcauthorizationform
\authorizationform

The \ubcauthorizationform is specific to UBC but it is the only one defined so it is also assigned to \authorizationform.

```
\newcommand{\ubcauthorizationform}{
```

We clear the page (making sure it opens properly if twoside is selected) and set the pagestyle to empty. Page numbers should not be displayed.

```
{\pagestyle{empty}\cleardoublepage}
\@startonecolumn
```

We use single spacing, restoring the spacing afterwards. Note: in order for \baselinestretch to take effect, the font must be reselected. Here this is done with \selectfont.

```
\edef\@tempbaselinestretch{\baselinestretch}
\renewcommand{\baselinestretch}{1}
\selectfont
In presenting this thesis in partial fulfillment of the requirements
for an advanced degree at the University of British Columbia, I
agree that the Library shall make it freely available for reference
and study. I further agree that permission for extensive copying of
this thesis for scholarly purposes may be granted by the head of my
department or by his or her representatives. It is understood that
copying or publication of this thesis for financial gain shall not
be allowed without my written permission.

\vfil
\begin{flushright}
  (Signature) \rule{2in}{0.5pt}
\end{flushright}
\vfil

\noindent
\@department

\vspace{2em}
\noindent
\@institution\par
\@institutionaddress

\vspace{2em}
\noindent
Date \rule{2in}{0.5pt}

% The authorization form should not count as a page, but this will
% be taken care of in the abstract.

```

```
% \addtocounter{page}{-1}
```

Here we force a new page and reset the columns. Note that the columns must be reset after the newpage has been forced.

```
\clearpage
\@endonecolumn
```

Here we reset the line spacing: Note: in order for `\baselinestretch` to take effect, the font must be reselected. Here this is done with an explicit call to `\selectfont` to force the calculation.

```
  \edef\baselinestretch{\@tempbaselinestretch}
  \global\let\thanks\relax
  \selectfont
}
```

Here is a command to use the `\ubcauthorization` form. Eventually, there may be several different types for different institutions.

```
\newcommand{\authorizationform}{\ubcauthorizationform}
```

23.4 Parts, Chapters, Sections, Paragraphs etc.

We modify the behaviour of the standard sectioning commands somewhat in this section to be consistent and a bit more flexible. In particular, all sectioning comannds have a starred form and both starred and unstarred forms take and use an optional argument.

The starred form will not generate a number or increment the counter. The optional argument will appear in the table of contents.

23.4.1 Building blocks

The definitions in this part of the class file make use of two internal macros, `\@startsection` and `\secdef`. To understand what is going on here, we describe their syntax.

The macro `\@startsection` has 6 required arguments, optionally followed by a $*$, an optional argument and a required argument:

`\@startsection`⟨*name*⟩⟨*level*⟩⟨*indent*⟩⟨*beforeskip*⟩⟨*afterskip*⟩⟨*style*⟩ optional * `[`⟨*altheading*⟩`]`⟨*heading*⟩

It is a generic command to start a section, the arguments have the following meaning:

⟨***name***⟩ The name of the user level command, e.g., 'section'.

⟨***level***⟩ A number, denoting the depth of the section – e.g., chapter=1, section = 2, etc. A section number will be printed if and only if ⟨*level*⟩ = the value of the *secnumdepth* counter.

⟨***indent***⟩ The indentation of the heading from the left margin

⟨***beforeskip***⟩ The absolute value of this argument gives the skip to leave above the heading. If it is negative, then the paragraph indent of the text following the heading is suppressed.

⟨***afterskip***⟩ If positive, this gives the skip to leave below the heading, else it gives the skip to leave to the right of a run-in heading.

⟨***style***⟩ Commands to set the style of the heading.

∗ When this is missing the heading is numbered and the corresponding counter is incremented.

⟨***altheading***⟩ Gives an alternative heading to use in the table of contents and in the running heads. This should not be present when the ∗ form is used.

⟨***heading***⟩ The heading of the new section.

A sectioning command is normally defined to `\@startsection` and its first six arguments.

The macro `\secdef` can be used when a sectioning command is defined without using `\@startsection`. It has two arguments:

`\secdef`⟨*unstarcmds*⟩⟨*starcmds*⟩

⟨***unstarcmds***⟩ Used for the normal form of the sectioning command.

⟨***starcmds***⟩ Used for the ∗-form of the sectioning command.

You can use `\secdef` as follows:

```
%       \newcommand*\chapter{ ... \secdef \@chapter \@schapter }
%       \newcommand\@chapter  [1]{ ... }   % Command to define
%                                          % \chapter[...]{...}
%       \newcommand\@schapter [2][]{ ... } % Command to define
%                                          % \chapter*[...]{...}
%
```

23.4.2 Mark commands

`\chaptermark`
`\sectionmark`
`\subsectionmark`
`\subsubsectionmark`
`\paragraphmark`
`\subparagraphmark`
`\chapterstarmark`
`\sectionstarmark`
`\subsectionstarmark`
`\subsubsectionstarmark`
`\paragraphstarmark`
`\subparagraphstarmark`

In this class, we define starred and unstarred versions of the `\@...mark` commands for internal use. The use of the starred versions prevents the user from having to write code like:

```
%    \chapter*{Preface\markboth{Preface}{}}
%
```

The default behaviour can be resumed by using the nostarmark option.

Default initializations of `\...mark` commands. These commands are used in the definition of the page styles (see section 22.4.3) Most of them are already defined by `latex.dtx`, so they are only shown here.

```
\newcommand*\chaptermark[1]{}
% \newcommand*\sectionmark[1]{}
% \newcommand*\subsectionmark[1]{}
% \newcommand*\subsubsectionmark[1]{}
% \newcommand*\paragraphmark[1]{}
% \newcommand*\subparagraphmark[1]{}
\newcommand*\chapterstarmark[1]{}
\newcommand*\sectionstarmark[1]{}
\newcommand*\subsectionstarmark[1]{}
\newcommand*\subsubsectionstarmark[1]{}
\newcommand*\paragraphstarmark[1]{}
\newcommand*\subparagraphstarmark[1]{}
```

23.4.3 Define Counters

`\c@secnumdepth` `\c@@oldsecnumdepth`

The value of the counter *secnumdepth* gives the depth of the highest-level sectioning command that is to produce section numbers. The counter *@oldsecnumdepth* is used internally by the `\frontmatter` and `\mainmatter` commands. `\frontmatter` stores the current value of *secnumdepth* in *@oldsecnumdepth* and sets *secnumdepth* to -3. `\mainmatter` resets *secnumdepth*.

This allows `\frontmatter` to properly suppress chapter numbers etc. This is needed so that packages like `fancyhdr` work because these define their own markup. The markup does not include numbers if *secnumdepth* is less than -1.

```
\setcounter{secnumdepth}{2}
\newcounter{@oldsecnumdepth}
\setcounter{@oldsecnumdepth}{\value{secnumdepth}}
```

`\c@part` `\c@chapter` `\c@section` `\c@subsection` `\c@subsubsection` `\c@paragraph` `\c@subparagraph`

These counters are used for the section numbers. The macro `\newcounter{`⟨*newctr*⟩`}[`⟨*oldctr*⟩`]` defines⟨*newctr*⟩ to be a counter, which is reset to zero when counter ⟨*oldctr*⟩ is stepped. Counter ⟨*oldctr*⟩ must already be defined.

```
\newcounter {part}
\newcounter {chapter}
\newcounter {section}[chapter]
\newcounter {subsection}[section]
\newcounter {subsubsection}[subsection]
\newcounter {paragraph}[subsubsection]
\newcounter {subparagraph}[paragraph]
```

`\thepart` `\thechapter` `\thesection` `\thesubsection` `\thesubsubsection` `\theparagraph` `\thesubparagraph`

For any counter *CTR*, `\theCTR` is a macro that defines the printed version of counter *CTR*. It is defined in terms of the following macros:

`\arabic{`*COUNTER*`}` prints the value of *COUNTER* as an arabic numeral.

`\roman{`*COUNTER*`}` prints the value of *COUNTER* as a lowercase roman numeral.

`\Roman{`*COUNTER*`}` prints the value of *COUNTER* as an uppercase roman numeral.

`\alph{`*COUNTER*`}` prints the value of *COUNTER* as a lowercase letter: 1 = a, 2 = b, etc.

`\Alph{`*COUNTER*`}` prints the value of *COUNTER* as an uppercase letter: 1 = A, 2 = B, etc.

Actually to save space the internal counter representations and the commands operating on those are used.

```
\renewcommand{\thepart}{\@Roman\c@part}
\renewcommand\thechapter {\@arabic\c@chapter}
\renewcommand\thesection {\thechapter.\@arabic\c@section}
\renewcommand\thesubsection   {\thesection.\@arabic\c@subsection}
\renewcommand\thesubsubsection{\thesubsection.\@arabic\c@subsubsection}
\renewcommand\theparagraph    {\thesubsubsection.\@arabic\c@paragraph}
\renewcommand\thesubparagraph {\theparagraph.\@arabic\c@subparagraph}
```

23.5 Formatting

23.5.1 Fonts and Styles

In order to allow styles to be changed easily, we define some formatting command that are used throughout to specify how to typeset chapter headings, table of contents entries etc. For example, the tocupper and tocitalic options are implemented through the `\formattocentry` macro.

`\@fmttocentry` `\@fmttocpart` `\@fmttocpartpage` `\@fmttocchapter` `\@fmttocchapterpage` `\@fmttocsection` `\@fmttocsectionpage` `\@fmttocsubsection` `\@fmttocsubsectionpage` `\@fmttocsubsubsection` `\@fmttocsubsubsectionpage` `\@fmttocparagraph` `\@fmttocparagraphppage` `\@fmttocsubparagraph` `\@fmttocsubparagraphpage`

The `@fmttocentry` formats the textual labels sent to the table of contents. This should be used to convert lower case to upper case for example. The entire line is subsequently formatted using the corresponding `@fmttoc...` command. The `@fmttoc...` commands should not do any case conversions because this could change the labelling.

```
\newcommand\@fmttocentry[1]{\@toctoupper{#1}}
\newcommand\@fmttocpart[1]{\@toctoitalic{\large \bfseries #1}}
\newcommand\@fmttocpartpage[1]{\normalfont \normalcolor #1}
\newcommand\@fmttocchapter[1]{\@toctoitalic{\bfseries #1}}
\newcommand\@fmttocchapterpage[1]{\normalfont \normalcolor #1}
\newcommand\@fmttocsection[1]{\@toctoitalic{#1}}
\newcommand\@fmttocsectionpage[1]{\normalfont \normalcolor #1}
\newcommand\@fmttocsubsection[1]{\@toctoitalic{#1}}
\newcommand\@fmttocsubsectionpage[1]{\normalfont \normalcolor #1}
\newcommand\@fmttocsubsubsection[1]{\@toctoitalic{#1}}
\newcommand\@fmttocsubsubsectionpage[1]{\normalfont \normalcolor #1}
\newcommand\@fmttocparagraph[1]{\@toctoitalic{#1}}
\newcommand\@fmttocparagraphpage[1]{\normalfont \normalcolor #1}
\newcommand\@fmttocsubparagraph[1]{\@toctoitalic{#1}}
\newcommand\@fmttocsubparagraphpage[1]{\normalfont \normalcolor #1}
```

23.5.2 Messages

`\@chapapp` `\@chapapp` is initially defined to be '`\chaptername`'. The `\appendix` command redefines it to be '`\appendixname`'.

```
\newcommand\@chapapp{\chaptername}
```

23.5.3 Front Matter, Main Matter, and Back Matter

A book contains these three (logical) sections. The switch `\@mainmatter` is true iff we are processing Main Matter. When this switch is false, the `\chapter` command does not print chapter numbers.

Here we define the commands that start these sections.

`\frontmatter` This command starts Roman page numbering and turns off chapter numbering. This resets the page numbering preserving the even-odd pagination for two-sided printing.

```
\newcommand\frontmatter{%
  \@mainmatterfalse
  \setcounter{@oldsecnumdepth}{\value{secnumdepth}}
  \setcounter{secnumdepth}{-3}
  \pagenumbering{roman}}
```

`\mainmatter` This command clears the page, starts arabic page numbering and turns on chapter numbering. Since this restarts the page numbering from 1, it should also ensure that a recto page is used.

```
\newcommand\mainmatter{%
  \@mainmattertrue
  \setcounter{secnumdepth}{\value{@oldsecnumdepth}}
  \if@twoside
    \blankdoublepage
  \else
    \cleardoublepage
  \fi%
  \pagenumbering{arabic}}
```

`\backmatter` This clears the page, turns off chapter numbering and leaves page numbering unchanged.

```
\newcommand\backmatter{\@mainmatterfalse}
```

23.5.4 Parts

`\part` The command to start a new part of our document.

We start a new (righthand) page and make the pagestyle *plain*.

```
\newcommand\part{%
  \clearp@ge
  \thispagestyle{plain}%
```

When we are making a two column document, this will be a one column page. We use `@tempswa` to remember to switch back to two columns.

```
  \if@twocolumn
    \onecolumn
    \@tempswatrue
  \else
    \@tempswafalse
  \fi
```

We need an empty box to prevent the fil glue from disappearing.

```
\null\vfil
```

Here we use `\secdef` to indicate which commands to use to make the actual heading.

```
\secdef\@part\@spart}
```

`\@part` This macro does the actual formatting of the title of a numbered part.

When *secnumdepth* is larger than -2 we have a numbered part, otherwise it is unnumbered.

```
\def\@part[#1]#2{%
  \ifnum \c@secnumdepth >-2\relax
    \refstepcounter{part}%
    \addcontentsline{toc}{part}%
                    {\thepart\hspace{1em}\@fmttocentry{#1}}%
  \else
    \addcontentsline{toc}{part}{\@fmttocentry{#1}}%
  \fi
```

We empty the mark registers and center the title on the page if the centering option is true. Also we prevent breaking between lines and reset the font.

```
  \markboth{}{}%
  {\centering
    \interlinepenalty \@M
    \normalfont
```

When this is a numbered part we have to print the number.

```
    \if@partheads
      \ifnum \c@secnumdepth >-2\relax
        {\partnamefont\@toupper{\partname}\nobreakspace\thepart\par}
```

We leave some space before we print the title and leave the finishing up to `\@endpart`.

```
        \vspace{\partbetweenskip}
      \fi
    \fi
    {\partnamefont #2\par}%
  }%
  \@endpart
}
```

`\@spart` This macro does the actual formatting of the title of the part when the star form of the user command was used. In this case we *never* print a number. Otherwise the formatting is the same.

```
\def\@spart#1{%
  {\centering
    \interlinepenalty \@M
    \normalfont
    {\partnamefont #1\par}%
  }%
  \@endpart}
```

`\@endpart` This macro finishes the part page, for both `\@part` and `\@spart`.

First we fill the current page.

```
\def\@endpart{\vfil\newpage
```

Then, when we are in twosided mode and chapters are supposed to be on right hand sides, we produce a completely blank page.

```
  \if@twoside
    \if@openright
      \null
      \thispagestyle{empty}%
      \newpage
    \fi
  \fi
```

When this was a two column document we have to switch back to two column mode.

```
  \if@tempswa
    \twocolumn
  \fi}
```

23.5.5 Chapters

`\chapter` A chapter should always start on a new page therefore we start by calling `\clearpage`. The first page of each chapter is set to use the `plain` pagestyle. This is the default LaTeX class behaviour and expected by some packages such as `fancyhdr`.[1] At a future date, an option may be provided to alter this behaviour.
.

```
\newcommand\chapter{%
  \clearp@ge
  \thispagestyle{plain}%
```

Then we prevent floats from appearing at the top of this page because it looks weird to see a floating object above a chapter title.

```
l
  \global\@topnum\z@
```

Then we suppress the indentation of the first paragraph by setting the switch `\@afterindent` to `false`. We use `\secdef` to specify the macros to use for actually setting the chapter title.

```
  \@afterindentfalse
  \secdef\@chapter\@schapter}
```

`\@chapter` This macro is called when we have a numbered chapter. When *secnumdepth* is larger than -1 and when `\@mainmatter` is true, we display the chapter number. We also inform the user that a new chapter is about to be typeset by writing a message to the terminal.

[1] Actually, the package works fine without this behaviour but the documentation tells the user that they must change the `plain` pagestyle in order to affect these pages. Now following these instructions should work as expected.

```
\def\@chapter[#1]#2{
  \ifnum \c@secnumdepth >\m@ne
    \if@mainmatter
      \refstepcounter{chapter}%
      \typeout{\@chapapp\space\thechapter.}%
      \addcontentsline{toc}{chapter}%
                        {\protect\numberline{\thechapter}%
                          \@fmttocentry{#1}}%
    \else
      \addcontentsline{toc}{chapter}{\@fmttocentry{#1}}
    \fi
  \else
    \addcontentsline{toc}{chapter}{\@fmttocentry{#1}}
  \fi
```

After having written an entry to the table of contents we store the (alternative) title of this chapter with `\chaptermark`. We also add some white space to the lists of figures and tables.

```
  \chaptermark{#1}%
  \addtocontents{lof}{\protect\addvspace{10\p@}}%
  \addtocontents{lot}{\protect\addvspace{10\p@}}%
```

If the `float` package is loaded, then we want to add space to all of the other float kinds defined. In reality, the entire float support should be gutted and the float package required; but that's outside my current timeframe.

```
  \@ifundefined{float@addtolists}%
               {\relax}%
               {\float@addtolists{\protect\addvspace{10\p@}}}%
```

Then we call upon `\@makechapterhead` to format the actual chapter title. We have to do this in a special way when we are in twocolumn mode in order to have the chapter title use the entire `\textwidth`. In one column mode we call `\@afterheading` which takes care of suppressing the indentation.

```
  \if@twocolumn
    \@topnewpage[\vspace*{\chapterbeforeskip}%
                 \@makechapterhead{#2}]%
  \else
    \@makechapterhead{#2}%
    \@afterheading
  \fi}

\AtBeginDocument{
```

If `\float@listhead` is defined (i.e. the `float` package is loaded), then we need to renew it to use `\chapter` so that the lists appear in the Table of Contents. Note that if you want initial-capital names, you must use that as the float name ... i.e. `\newfloat{`⟨*Program*⟩`}`...; this avoids name collision with `\program{}` also.

`\float@listhead` This macro is called by the `float` package to create new lists of floats.

```
  \@ifundefined{float@listhead}%
```

```
                {\relax}%
                {\renewcommand{\float@listhead}[1]{%
                    \chapter[#1]{#1}}}
} %\AtBeginDocument
```

`\@makechapterhead` The macro above uses `\@makechapterhead`⟨*text*⟩ to format the heading of the chapter.

We begin by leaving some white space. The we open a group in which we have a paragraph indent of 0pt, and in which we have the text set ragged right. We also reset the font.

```
\def\@makechapterhead#1{%
```

Here we would like to move the chapter label up if the label is displayed so that the actual chapter titles all appear on the same level. We test the flag `\@chapterheads` to see if we should display the chapter heading. This can be toggled with the chapterheads and nochapterheads options.

```
  \setlength{\@tempdima}{\chapterbeforeskip}
  \if@chapterheads
    \if@mainmatter
      \addtolength{\@tempdima}{-\chapterbetweenskip}
```

Unfortunately, the chapter heading's height will be stretched by `\committeespacing` (if `\@committee`), so we need to move up by the chapter heading height (`\@tempdimb`) times `\committeespacing`-1. There's a little more, about 3.3 pt.

```
      \settoheight{\@tempdimb}{\chapterfont \@toupper{\@chapapp}
                                \if@headcount\space\thechapter\fi } % b := H
      \if@committee %
         \addtolength{\@tempdimb}{\committeespacing\@tempdimb}  % b := H(C+1)
         \setlength{\@tempdimb}{0.5\@tempdimb}
         \settodepth{\@tempdimc}{\chapterfont \@toupper{\@chapapp}
                                  \if@headcount\space\thechapter\fi }  % c := FUDGE FACTOR
         \addtolength{\@tempdimc}{-\committeespacing\@tempdimc} % c := F(1-C)
         \setlength{\@tempdimc}{-\@tempdimc} % c := F(C-1)
         \addtolength{\@tempdimb}{\@tempdimc} % b := H(C+1)/2 + F(C-1)
      \fi
      \addtolength{\@tempdima}{-\@tempdimb}
    \fi
  \fi
  \vspace*{\@tempdima}%
```

At this point, we are either `\chapterbeforeskip` down the page, or at the point where printing `\chapterfont`, `\thechapter` and `\chapterbetweenskip` gets us to `\chapterbeforeskip`.

```
  {\parindent \z@
    \@headingalignment \normalfont
    \interlinepenalty\@M
```

Then we check whether the number of the chapter has to be printed. If so we leave some whitespace between the chapter number and its title. The option headcount is used to toggle the display of the number.

```
    \ifnum \c@secnumdepth >\m@ne
      \if@chapterheads
        \if@mainmatter
          {\chapterfont%
            \@toupper{\@chapapp}%
            \if@headcount\space\thechapter\fi
          }%
          \par\nobreak
          \vspace{\chapterbetweenskip}
        \fi
      \fi
    \fi
```

We are now `\chapterbeforeskip` down the page, always.

Now we set the title in `\chaptertitlefont`. We prevent a page break from occuring in the middle of or after the title. Finally we leave `\chapterafterskip` whitespace before the text begins. If we are not displaying the chapter headings, then we add the number to the chapter titles.

```
  \interlinepenalty\@M
    {\chaptertitlefont %
      \if@mainmatter
        \if@chapterheads\else
          \if@headcount
            \thechapter.\space%
          \fi
        \fi
      \fi
      \@toupper{#1}%
    \par\nobreak}
    \vspace*{\chapterafterskip}%
  }
}
```

`\@schapter` This macro is called when we have an unnumbered chapter. It is much simpler than `\@chapter` because it only needs to typeset the chapter title.

```
\def\@schapter#1{%
  \if@starmark\chapterstarmark{#1}\fi
  \if@twocolumn
    \@topnewpage[\@makeschapterhead{#1}]%
  \else
    \@makeschapterhead{#1}%
    \@afterheading
  \fi}
```

`\@makeschapterhead` The macro above uses `\@makeschapterhead`⟨*text*⟩to format the heading of the chapter. It is similar to `\@makechapterhead` except that it never has to print a chapter number.

```
\def\@makeschapterhead#1{%
  \vspace*{\chapterbeforeskip}%
```

```
  {\parindent \z@
    \@headingalignment
    \normalfont
    \interlinepenalty\@M
    {\chaptertitlefont \@toupper{#1}%
    \par\nobreak}
    \vspace*{\chapterafterskip}%
  }
}
```

23.5.6 Lower level headings

These commands all make use of `\@startsection`.

`\section` This gives a normal heading with white space above and below the heading, the title set in `\sectionfont`, and no indentation on the first paragraph. Note that we check for optional arguments and perform all uppercase conversion here. This used to cause problems with the `hyperref` package when we put the uppercase in when writing the table of contents. Now the uppercase is put into the table of contents file.

The starred version of these commands is provided by using the `\@ifstar` macro to convert the name of the section command to one of `\@section` or `\@ssection`. These are the commands that actually do all the work.

Note that the starred from of the `\@sectionstart` command does not accept the [altheading] optional argument, and does not put this in the table of contents. Thus, we must add the optional argument to the toc manually.

```
\newcommand*{\section}{\@suppressblankpagefalse%
  \secdef\@section\@ssection}%
\newcommand*{\@section}[2][]{%
  \@startsection {section}{1}{\sectionindent}%
                 {\sectionbeforeskip}%
                 {\sectionafterskip}%
                 {\@headingalignment\normalfont\sectionfont}%
                 [\@fmttocentry{#1}]%
                 {#2}}

\newcommand*{\@ssection}[1]{%
  \@startsection{section}{1}{\sectionindent}%
                {\sectionbeforeskip}%
                {\sectionafterskip}%
                {\@headingalignment\normalfont\sectionfont}*%
                {#1}%
  \if@starmark\sectionstarmark{#1}\fi}
```

`\subsection` This gives a normal heading with white space above and below the heading, the title set in `\large\bfseries`, and no indentation on the first paragraph.

```
\newcommand*{\subsection}{\@suppressblankpagefalse%
  \secdef\@subsection\@ssubsection}%
```

```
\newcommand*{\@subsection}[2][]{%
  \@startsection {subsection}{2}{\subsectionindent}%
                 {\subsectionbeforeskip}%
                 {\subsectionafterskip}%
                 {\@headingalignment\normalfont\subsectionfont}%
                 [\@fmttocentry{#1}]%
                 {#2}}
\newcommand*{\@ssubsection}[1]{%
  \@startsection{subsection}{2}{\subsectionindent}%
                {\subsectionbeforeskip}%
                {\subsectionafterskip}%
                {\@headingalignment\normalfont\subsectionfont}*%
                {#1}%
  \if@starmark\subsectionstarmark{#1}\fi}
```

\subsubsection This gives a normal heading with white space above and below the heading, the title set in \normalsize\bfseries, and no indentation on the first paragraph.

```
\newcommand*{\subsubsection}{\@suppressblankpagefalse%
  \secdef\@subsubsection\@ssubsubsection}%
\newcommand*{\@subsubsection}[2][]{%
  \@startsection {subsubsection}{3}{\subsubsectionindent}%
                 {\subsubsectionbeforeskip}%
                 {\subsubsectionafterskip}%
                 {\@headingalignment\normalfont\subsubsectionfont}%
                 [\@fmttocentry{#1}]%
                 {#2}}
\newcommand*{\@ssubsubsection}[1]{%
  \@startsection{subsubsection}{3}{\subsubsectionindent}%
                {\subsubsectionbeforeskip}%
                {\subsubsectionafterskip}%
                {\@headingalignment\normalfont\subsubsectionfont}*%
                {#1}%
  \if@starmark\subsectionstarmark{#1}\fi}
```

\paragraph This gives a run-in heading with white space above and to the right of the heading, the title set in \normalsize\bfseries.

```
\newcommand*{\paragraph}{\@suppressblankpagefalse%
  \secdef\@paragraph\@sparagraph}%
\newcommand*{\@paragraph}[2][]{%
  \@startsection {paragraph}{4}{\paragraphindent}%
                 {\paragraphbeforeskip}%
                 {\paragraphafterskip}%
                 {\@headingalignment\normalfont\paragraphfont}%
                 [\@fmttocentry{#1}]%
                 {#2}}
\newcommand*{\@sparagraph}[1]{%
  \@startsection{paragraph}{4}{\paragraphindent}%
                {\paragraphbeforeskip}%
                {\paragraphafterskip}%
```

```
                {\@headingalignment\normalfont\paragraphfont}*%
                {#1}%
  \if@starmark\paragraphstarmark{#1}\fi}
```

\subparagraph This gives an indented run-in heading with white space above and to the right of the heading, the title set in \normalsize\bfseries.

```
\newcommand*{\subparagraph}{\@suppressblankpagefalse%
  \secdef\@subparagraph\@ssubparagraph}%
\newcommand*{\@subparagraph}[2][]{%
  \@startsection {subparagraph}{5}{\subparagraphindent}%
                 {\subparagraphbeforeskip}%
                 {\subparagraphafterskip}%
                 {\@headingalignment\normalfont\subparagraphfont}%
                 [\@fmttocentry{#1}]%
                 {#2}}
\newcommand*{\@ssubparagraph}[1]{%
  \@startsection{subparagraph}{5}{\subparagraphindent}%
                {\subparagraphbeforeskip}%
                {\subparagraphafterskip}%
                {\@headingalignment\normalfont\subparagraphfont}*%
                {#1}%
  \if@starmark\subparagraphstarmark{#1}\fi}
```

23.6 Lists

23.6.1 General List Parameters

The following commands are used to set the default values for the list environment's parameters. See the LaTeX manual for an explanation of the meanings of the parameters. Defaults for the list environment are set as follows. First, \rightmargin, \listparindent and \itemindent are set to 0pt. Then, for a Kth level list, the command \@listK is called, where 'K' denotes 'i', ''i', ... , 'vi'. (I.e., \@listiii is called for a third-level list.) By convention, \@listK should set \leftmargin to \leftmarginK.

\leftmargin When we are in two column mode some of the margins are set somewhat smaller.
\leftmargini
\leftmarginii
\leftmarginiii
\leftmarginiv
\leftmarginv
\leftmarginvi

```
\if@twocolumn
  \setlength\leftmargini  {2em}
\else
  \setlength\leftmargini  {2.5em}
\fi
```

Until the whole of the parameter setting in these files is rationalized, we need to set the value of \leftmargin at this outer level.

```
\leftmargin  \leftmargini
```

The following three are calculated so that they are larger than the sum of \labelsep and the width of the default labels (which are '(m)', 'vii.' and 'M.').

```
\setlength\leftmarginii  {2.2em}
\setlength\leftmarginiii {1.87em}
\setlength\leftmarginiv  {1.7em}
\if@twocolumn
  \setlength\leftmarginv  {.5em}
  \setlength\leftmarginvi {.5em}
\else
  \setlength\leftmarginv  {1em}
  \setlength\leftmarginvi {1em}
\fi
```

`\labelsep` `\labelwidth` `\labelsep` is the distance between the label and the text of an item; `\labelwidth` is the width of the label.

```
\setlength  \labelsep  {.5em}
\setlength  \labelwidth{\leftmargini}
\addtolength\labelwidth{-\labelsep}
```

`\@beginparpenalty` `\@endparpenalty` These penalties are inserted before and after a list or paragraph environment. They are set to a bonus value to encourage page breaking at these points.

`\@itempenalty` This penalty is inserted between list items.

```
\@beginparpenalty -\@lowpenalty
\@endparpenalty   -\@lowpenalty
\@itempenalty     -\@lowpenalty
```

23.6.2 Enumerate

The enumerate environment uses four counters: *enumi*, *enumii*, *enumiii* and *enumiv*, where *enumN* controls the numbering of the Nth level enumeration.

`\theenumi` `\theenumii` `\theenumiii` `\theenumiv` The counters are already defined in `latex.dtx`, but their representation is changed here.

```
\renewcommand\theenumi{\@arabic\c@enumi}
\renewcommand\theenumii{\@alph\c@enumii}
\renewcommand\theenumiii{\@roman\c@enumiii}
\renewcommand\theenumiv{\@Alph\c@enumiv}
```

`\labelenumi` `\labelenumii` `\labelenumiii` `\labelenumiv` The label for each item is generated by the commands `\labelenumi` ... `\labelenumiv`.

```
\newcommand\labelenumi{\theenumi.}
\newcommand\labelenumii{(\theenumii)}
\newcommand\labelenumiii{\theenumiii.}
\newcommand\labelenumiv{\theenumiv.}
```

`\p@enumii` `\p@enumiii` `\p@enumiv` The expansion of `\p@enumN\theenumN` defines the output of a `\ref` command when referencing an item of the Nth level of an enumerated list.

```
\renewcommand\p@enumii{\theenumi}
\renewcommand\p@enumiii{\theenumi(\theenumii)}
\renewcommand\p@enumiv{\p@enumiii\theenumiii}
```

23.6.3 Itemize

\labelitemi
\labelitemii
\labelitemiii
\labelitemiv

Itemization is controlled by four commands: \labelitemi, \labelitemii, \labelitemiii, and \labelitemiv, which define the labels of the various itemization levels: the symbols used are bullet, bold en-dash, centered asterisk and centred dot.

```
\newcommand\labelitemi{\textbullet}
\newcommand\labelitemii{\normalfont\bfseries \textendash}
\newcommand\labelitemiii{\textasteriskcentered}
\newcommand\labelitemiv{\textperiodcentered}
```

23.6.4 Description

description

The description environment is defined here – while the itemize and enumerate environments are defined in latex.dtx.

```
\newenvironment{description}
{\list{}{\labelwidth\z@ \itemindent-\leftmargin
    \let\makelabel\descriptionlabel}}
{\endlist}
```

\descriptionlabel

To change the formatting of the label, you must redefine \descriptionlabel.

```
\newcommand*\descriptionlabel[1]{\hspace\labelsep
  \normalfont\bfseries #1}
```

23.7 Defining new environments

23.7.1 Abstract

abstract

With onecolumn the abstract is treated as a chapter. With the twocolumn option, the abstract is still displayed in one column but we must format it and make sure it appears in the table of contents.

```
\newenvironment{abstract}{%
```

Here we set the page to one column and reset the margins if needed.

```
  \@startonecolumn
  \@startabstracthook
```

Now we format the abstract as a chapter.

```
    \chapter{\abstractname}
}
```

Here is the end of the environment. We clear the page and reset the column spacing.

```
{\clearpage\@endonecolumn}
```

23.7.2 Verse

`verse` The verse environment is defined by making clever use of the list environment's parameters. The user types `\\` to end a line. This is implemented by `\let`'ing `\\` equal `\@centercr`.

```
\newenvironment{verse}
               {\let\\\@centercr
                \list{}{\itemsep      \z@
                        \itemindent   -1.5em%
                        \listparindent\itemindent
                        \rightmargin  \leftmargin
                        \advance\leftmargin 1.5em}%
                \item\relax}
               {\endlist}
```

23.7.3 Quotation

`quotation` The quotation environment is also defined by making clever use of the list environment's parameters. The lines in the environment are set smaller than `\textwidth`. The first line of a paragraph inside this environment is indented.

```
\newenvironment{quotation}
               {\list{}{\listparindent 1.5em%
                        \itemindent    \listparindent
                        \rightmargin   \leftmargin
                        \parsep        \z@ \@plus\p@}%
                \item\relax}
               {\endlist}
```

23.7.4 Quote

`quote` The quote environment is like the quotation environment except that paragraphs are not indented.

```
\newenvironment{quote}
               {\list{}{\rightmargin\leftmargin}%
                \item\relax}
               {\endlist}
```

23.7.5 Theorem

This document class does not define it's own theorem environments, the defaults, supplied by `latex.dtx` are available.

23.7.6 Appendix

`\appendix` The `\appendix` command is not really an environment, it is a macro that makes some changes in the way things are done.

In the report and book document classes the `\appendix` command must do the following:

- reset the chapter and section counters to zero,
- set `\@chapapp` to `\appendixname` (for messages),
- redefine the chapter counter to produce appendix numbers,
- possibly redefine the `\chapter` command if appendix titles and headings are to look different from chapter titles and headings. This redefinition is done globally to ensure that it survives even if `\appendix` is issued within an environment such as `multicols`.
- possibly add a division line with `\appendicesname` to the table of contents

```
\newcommand{\appendix}{\par
  \setcounter{chapter}{0}%
  \setcounter{section}{0}%
  \if@appendixpart{%
    \part{\appendicesname}%
  }\else{%
    \if@appendicestoc{%
      \addtocontents{toc}{\protect\contentsline%
        {part}{\@fmttocentry{\appendicesname}}{}{}}%
    }\fi
    \if@appendixpage{
      \pagestyle{empty}\cleardoublepage
    }\fi
  }\fi
  \gdef\@chapapp{\appendixname}%
  \gdef\thechapter{\@Alph\c@chapter}}
```

23.8 Setting parameters for existing environments

23.8.1 Array and tabular

`\arraycolsep` The columns in an array environment are separated by 2`\arraycolsep`.

```
\setlength\arraycolsep{5\p@}
```

`\tabcolsep` The columns in an tabular environment are separated by 2`\tabcolsep`.

```
\setlength\tabcolsep{6\p@}
```

`\arrayrulewidth` The width of rules in the array and tabular environments is given by `\arrayrulewidth`.

```
\setlength\arrayrulewidth{.4\p@}
```

`\doublerulesep` The space between adjacent rules in the array and tabular environments is given by `\doublerulesep`.

```
\setlength\doublerulesep{2\p@}
```

23.8.2 Tabbing

\tabbingsep This controls the space that the \' command puts in. (See LaTeX manual for an explanation.)

```
\setlength\tabbingsep{\labelsep}
```

23.8.3 Minipage

\@minipagerestore The macro \@minipagerestore is called upon entry to a minipage environment to set up things that are to be handled differently inside a minipage environment. In the current styles, it does nothing.

\@mpfootins Minipages have their own footnotes; \skip\@mpfootins plays same rôle for footnotes in a minipage as \skip\footins does for ordinary footnotes.

```
\skip\@mpfootins = \skip\footins
```

23.8.4 Framed boxes

\fboxsep The space left by \fbox and \framebox between the box and the text in it.

\fboxrule The width of the rules in the box made by \fbox and \framebox.

```
\setlength\fboxsep{3\p@}
\setlength\fboxrule{.4\p@}
```

23.8.5 Equation and eqnarray

\theequation When within chapters, the equation counter will be reset at the beginning of a new chapter and the equation number will be prefixed by the chapter number.

This code must follow the \chapter definition or, more exactly, the definition of the chapter counter.

```
\@addtoreset {equation}{chapter}
\renewcommand\theequation
  {\ifnum \c@chapter>\z@ \thechapter.\fi \@arabic\c@equation}
```

\jot \jot is the extra space added between lines of an eqnarray environment. The default value is used.

```
% \setlength\jot{3pt}
```

\@eqnnum The macro \@eqnnum defines how equation numbers are to appear in equations. Again the default is used.

```
% \def\@eqnnum{(\theequation)}
```

23.9 Floating objects

The file `latex.dtx` only defines a number of tools with which floating objects can be defined. This is done in the document class. It needs to define the following macros for each floating object of type `TYPE` (e.g., `TYPE` = figure).

`\fps@TYPE` The default placement specifier for floats of type `TYPE`.

`\ftype@TYPE` The type number for floats of type `TYPE`. Each `TYPE` has associated a unique positive `TYPE` number, which is a power of two. E.g., figures might have type number 1, tables type number 2, programs type number 4, etc.

`\ext@TYPE` The file extension indicating the file on which the contents list for float type `TYPE` is stored. For example, `\ext@figure` = 'lof'.

`\fnum@TYPE` A macro to generate the figure number for a caption. For example, `\fnum@TYPE` == 'Figure `\thefigure`'.

`\@makecaption`⟨***num***⟩⟨***text***⟩ A macro to make a caption, with ⟨*num*⟩ the value produced by `\fnum@...` and ⟨*text*⟩ the text of the caption. It can assume it's in a `\parbox` of the appropriate width. This will be used for *all* floating objects.

The actual environment that implements a floating object such as a figure is defined using the macros `\@float` and `\end@float`, which are defined in `latex.dtx`.

An environment that implements a single column floating object is started with `\@float{TYPE}[`⟨*placement*⟩`]` of type `TYPE` with ⟨*placement*⟩ as the placement specifier. The default value of ⟨*PLACEMENT*⟩ is defined by `\fps@TYPE`.

The environment is ended by `\end@float`. E.g., `\figure` == `\@float`figure, `\endfigure` == `\end@float`.

23.9.1 Figure

Here is the implementation of the figure environment.

`\c@figure` First we have to allocate a counter to number the figures.

In the report and book document classes figures within chapters are numbered per chapter.

```
\newcounter{figure}[chapter]
\renewcommand \thefigure
     {\ifnum \c@chapter>\z@ \thechapter.\fi \@arabic\c@figure}
```

`\fps@figure` Here are the parameters for the floating objects of type 'figure'.

`\ftype@figure`
`\ext@figure`
`\num@figure`

```
\def\fps@figure{tbp}
\def\ftype@figure{1}
\def\ext@figure{lof}
\def\fnum@figure{{\figurefont\figurename\nobreakspace\thefigure}}
```

figure
figure*

And the definition of the actual environment. The form with the * is used for double column figures.

```
\newenvironment{figure}
               {\@float{figure}}
               {\end@float}
\newenvironment{figure*}
               {\@dblfloat{figure}}
               {\end@dblfloat}
```

23.9.2 Table

Here is the implementation of the table environment. It is very much the same as the figure environment.

\c@table

First we have to allocate a counter to number the tables.

In the report and book document classes tables within chapters are numbered per chapter.

```
\newcounter{table}[chapter]
\renewcommand \thetable
     {\ifnum \c@chapter>\z@ \thechapter.\fi \@arabic\c@table}
```

\fps@table
\ftype@table
\ext@table
\num@table

Here are the parameters for the floating objects of type 'table'.

```
\def\fps@table{tbp}
\def\ftype@table{2}
\def\ext@table{lot}
\def\fnum@table{{\tablefont\tablename\nobreakspace\thetable}}
```

table
table*

And the definition of the actual environment. The form with the * is used for double column tables.

```
\newenvironment{table}
               {\@float{table}}
               {\end@float}
\newenvironment{table*}
               {\@dblfloat{table}}
               {\end@dblfloat}
```

23.9.3 Captions

\@makecaption

The \caption command calls \@makecaption to format the caption of floating objects. It gets two arguments, ⟨*number*⟩, the number of the floating object and ⟨*text*⟩, the text of the caption. Usually ⟨*number*⟩ contains a string such as 'Figure 3.2'. The macro can assume it is called inside a \parbox of right width, with \normalsize.

\abovecaptionskip
\belowcaptionskip

These lengths contain the amount of white space to leave above and below the caption.

```
\newlength\abovecaptionskip
\newlength\belowcaptionskip
```

```
\setlength\abovecaptionskip{10\p@}
\setlength\belowcaptionskip{0\p@}
```

The definition of this macro is `\long` in order to allow more then one paragraph in a caption.

```
\long\def\@makecaption#1#2{%
  \vskip\abovecaptionskip
```

We want to see if the caption fits on one line on the page, therefore we first typeset it in a temporary box.

```
  \sbox\@tempboxa{{\captionheaderfont #1:} {\captionbodyfont #2}}%
```

We can the measure its width. If it it is larger than the current `\hsize` we typeset the caption as an ordinary paragraph. In this case, we check the option hangingcaptions to see if we should hang the caption after the label or not.

```
  \ifdim \wd\@tempboxa >\hsize
    \if@hangingcaptions
      \@hangfrom{\captionheaderfont #1: }{\captionbodyfont #2\par}%
    \else
      {\captionheaderfont #1: }{\captionbodyfont #2\par}%
    \fi
```

If the caption fits, we center it. Because this uses an `\hbox` directly in vertical mode, it does not execute the `\everypar` tokens; the only thing that could be needed here is resetting the 'minipage flag' so we do this explicitly.

```
  \else
    \global \@minipagefalse
    \hb@xt@\hsize{\hfil\box\@tempboxa\hfil}%
  \fi
  \vskip\belowcaptionskip}
```

23.10 Font changing

Here we supply the declarative font changing commands that were common in LaTeX version 2.09 and earlier. These commands work in text mode *and* in math mode. They are provided for compatibility, but one should start using the `\text...` and `\math...` commands instead. These commands are defined using `\DeclareTextFontCommand`, a command with three arguments: the user command to be defined; LaTeX commands to execute in text mode and LaTeX commands to execute in math mode.

`\rm` `\tt` `\sf` The commands to change the family. When in compatibility mode we select the 'default' font first, to get LaTeX2.09 behaviour.

```
\DeclareOldFontCommand{\rm}{\normalfont\rmfamily}{\mathrm}
\DeclareOldFontCommand{\sf}{\normalfont\sffamily}{\mathsf}
\DeclareOldFontCommand{\tt}{\normalfont\ttfamily}{\mathtt}
```

`\bf` The command to change to the bold series. One should use `\mdseries` to explicitly switch back to medium series.

```
\DeclareOldFontCommand{\bf}{\normalfont\bfseries}{\mathbf}
```

\sl \it \sc And the commands to change the shape of the font. The slanted and small caps shapes are not available by default as math alphabets, so those changes do nothing in math mode. However, we do warn the user that the selection will not have any effect.One should use `\upshape` to explicitly change back to the upright shape.

```
\DeclareOldFontCommand{\it}{\normalfont\itshape}{\mathit}
\DeclareOldFontCommand{\sl}{\normalfont\slshape}{\@nomath\sl}
\DeclareOldFontCommand{\sc}{\normalfont\scshape}{\@nomath\sc}
```

\cal \mit The commands `\cal` and `\mit` should only be used in math mode, outside math mode they have no effect. Currently the New Font Selection Scheme defines these commands to generate warning messages. Therefore we have to define them 'by hand'.

```
\DeclareRobustCommand*\cal{\@fontswitch\relax\mathcal}
\DeclareRobustCommand*\mit{\@fontswitch\relax\mathnormal}
```

24 Cross Referencing

24.1 Table of Contents, etc.

In order to add text to the table of contents, the command `\addcontentsline` should be used. This is a standard LaTeXcommand and is redefined by the `hyperref` package to implement cross-links. A non-standard feature of the thesis class is that it should allow consistent reformatting of the table of contents entries. To this end, one should format the entries with the appropriate call to a formatting function such as `\formatfortoc` which implements the options like tocupper and tocitalic.

It might be tempting to modify the `\addtocontents` function, but this is already modified by `hyperref` and possibly other packages, so to maintain compatibility we must do this.

A `\section` command writes a `\contentsline{section}{`⟨*title*⟩`}{`⟨*page*⟩`}` command on the `.toc` file, where ⟨*title*⟩ contains the contents of the entry and ⟨*page*⟩ is the page number. If sections are being numbered, then ⟨*title*⟩ will be of the form `\numberline{`⟨*num*⟩`}{`⟨*heading*⟩`}` where ⟨*num*⟩ is the number produced by `\thesection`. Other sectioning commands work similarly.

A `\caption` command in a 'figure' environment writes `\contentsline{figure}{\numberline{`⟨*num*⟩`}{ `⟨*caption*⟩`}}{`⟨*page*⟩`}` on the `.lof` file, where ⟨*num*⟩ is the number produced by `\thefigure` and ⟨*caption*⟩ is the figure caption. It works similarly for a 'table' environment.

The command `\contentsline{`⟨*name*⟩`}` expands to `\l@`⟨*name*⟩. So, to specify the table of contents, we must define `\l@chapter`, `\l@section`, `\l@subsection`, ... ; to specify the list of figures, we must define `\l@figure`; and so on. Most of these can be defined with the `\@dottedtocline` command, which works as follows.

`\@dottedtocline{`⟨*level*⟩`}{`⟨*indent*⟩`}{`⟨*numwidth*⟩`}{`⟨*title*⟩`}{`⟨*page*⟩`}`

⟨***level***⟩ An entry is produced only if⟨ *level*⟩ <= value of the *tocdepth* counter. Note, `\chapter` is level 0, `\section` is level 1, etc.

⟨***indent***⟩ The indentation from the outer left margin of the start of the contents line.

⟨***numwidth***⟩ The width of a box in which the section number is to go, if ⟨*title*⟩ includes a `\numberline` command.

`\@pnumwidth` `\@tocrmarg` `\@dotsep`

This command uses the following three parameters, which are set with a `\newcommand` (so em's can be used to make them depend upon the font).

`\@pnumwidth` The width of a box in which the page number is put.

`\@tocrmarg` The right margin for multiple line entries. One wants `\@tocrmarg` ≥ `\@pnumwidth`

`\@dotsep` Separation between dots, in mu units. Should be defined as a number like 2 or 1.7

```
\newcommand\@pnumwidth{1.55em}
\newcommand\@tocrmarg{2.55em}
\newcommand\@dotsep{4.5}
\setcounter{tocdepth}{2}
```

24.1.1 Table of Contents

`\tableofcontents` This macro is used to request that LaTeX produces a table of contents. In the report and book document classes the tables of contents, figures etc. are always set in single-column style.

```
\newcommand{\tableofcontents}{%
    \if@twocolumn
      \@restonecoltrue\onecolumn
    \else
      \@restonecolfalse
    \fi
```

The title is set using the `\chapter` command, making sure that the running head –if one is required– contains the right information. Note that this includes the table of contents in the table of contents.

```
    \chapter{\contentsname}
```

The the actual table of contents is made by calling `\@starttoc{toc}`. After that we restore twocolumn mode if necessary.

```
    \@starttoc{toc}%
    \if@restonecol\twocolumn\fi
    }
```

`\l@part` Each sectioning command needs an additional macro to format its entry in the table of contents, as described above. The macro for the entry for parts is defined in a special way.

First we make sure that if a page break should occur, it occurs *before* this entry. Also a little whitespace is added and a group begun to keep changes local.

```
\newcommand*\l@part[2]{%
  \ifnum \c@tocdepth >-2\relax
    \addpenalty{-\@highpenalty}%
    \addvspace{2.25em \@plus\p@}%
```

The macro `\numberline` requires that the width of the box that holds the part number is stored in LaTeX's scratch register `\@tempdima`. Therefore we initialize it there even though we do not use `\numberline` internally—the value used is quite large so that something like `\numberline{VIII}` would still work.

```
    \setlength\@tempdima{3em}%
    \begingroup
```

We set `\parindent` to 0pt and use `\rightskip` to leave enough room for the page numbers.[2] To prevent overfull box messages the `\parfillskip` is set to a negative value.

```
      \parindent \z@ \rightskip \@pnumwidth
      \parfillskip -\@pnumwidth
```

Now we can set the entry, in a large bold font. We make sure to leave vertical mode, set the part title and add the pagenumber, set flush right.

```
      {\leavevmode
       \@fmttocpart{#1}\hfil \hb@xt@\@pnumwidth{%
         \hss \@fmttocpartpage{#2}}}\par
```

Prevent a page break immediately after this entry, but use `\everypar` to reset the `\if@nobreak` switch. Finally we close the group.

```
       \nobreak
         \global\@nobreaktrue
         \everypar{\global\@nobreakfalse\everypar{}}%
    \endgroup
  \fi}
```

`\l@chapter` This macro formats the entries in the table of contents for chapters. It is very similar to `\l@part`

First we make sure that if a page break should occur, it occurs *before* this entry. Also a little whitespace is added and a group begun to keep changes local.

```
\newcommand*\l@chapter[2]{%
  \ifnum \c@tocdepth >\m@ne
    \addpenalty{-\@highpenalty}%
    \vskip 1.0em \@plus\p@
```

The macro `\numberline` requires that the width of the box that holds the part number is stored in LaTeX's scratch register `\@tempdima`. Therefore we initialize it there even though we do not use `\numberline` internally (the position as well as the values seems questionable but can't be changed without producing compatibility

[2] We should really set `\rightskip` to `\@tocrmarg` instead of `\@pnumwidth` (no version of LaTeX ever did this), otherwise the `\rightskip` is too small. Unfortunately this can't be changed in LaTeX 2_ε as we don't want to create different versions of LaTeX 2_ε which produce different typeset output unless this is absolutely necessary; instead we suspend it for LaTeX3.

problems). We begin a group, and change some of the paragraph parameters (see also the remark at `\l@part` regarding `\rightskip`).

```
    \setlength\@tempdima{1.5em}%
    \begingroup
      \parindent \z@ \rightskip \@pnumwidth
      \parfillskip -\@pnumwidth
```

Then we leave vertical mode.

```
      \leavevmode
```

Because we do not use `\numberline` here, we have do some fine tuning 'by hand', before we can set the entry. We discourage but not disallow a page break immediately after a chapter entry.

```
      \advance\leftskip\@tempdima
      \hskip -\leftskip
      {\@fmttocchapter{#1}}\nobreak%
```

Dotted leaders can be controlled by setting the boolean `\if@chaptertocdotstrue`.

```
       \if@chaptertocdots
         \leaders\hbox{$\m@th%
```

If a document uses fonts other than computer modern, the use of a dot from math can be very disturbing despite the fact that this might be the only place in a document that then uses computer modern. Therefore we surround the dot with an `\hbox` to escape to the surrounding text font.

```
           \mkern \@dotsep mu\hbox{.}\mkern \@dotsep%
           mu$}\hfil
       \else
         \hfil
       \fi
%      \nobreak\hb@xt@\@pnumwidth{\hss #2}\par
      \hb@xt@\@pnumwidth{\hfil \@fmttocchapterpage{#2}}\par%
      \penalty\@highpenalty
    \endgroup
  \fi}
```

`\l@section` The definition for `\l@section` is much simpler.

```
\newcommand*\l@section[2]{%
  \@dottedtocline{1}{1.5em}{2.3em}%
                 {\@fmttocsection{#1}}%
                 {\@fmttocsectionpage{#2}}%
}
```

`\l@subsection` `\l@subsubsection` `\l@paragraph` `\l@subparagraph` All lower level entries are defined using the macro `\@dottedtocline` (see above).

```
\newcommand*\l@subsection[2]{%
  \@dottedtocline{2}{3.8em}{3.2em}{\@fmttocsubsection{#1}}%
                                  {\@fmttocsubsectionpage{#2}}}
\newcommand*\l@subsubsection[2]{%
  \@dottedtocline{3}{7.0em}{4.1em}{\@fmttocsubsubsection{#1}}%
                                  {\@fmttocsubsubsectionpage{#2}}}
```

```
\newcommand*\l@paragraph[2]{%
  \@dottedtocline{4}{10em}{5em}{\@fmttocparagraph{#1}}%
                               {\@fmttocparagraphpage{#2}}}
\newcommand*\l@subparagraph[2]{%
  \@dottedtocline{5}{12em}{6em}{\@fmttocsubparagraph{#1}}%
                               {\@fmttocsubparagraphpage{#2}}}
```

24.1.2 List of figures

`\listoffigures` This macro is used to request that LaTeX produces a list of figures. It is very similar to `\tableofcontents`.

```
\newcommand\listoffigures{%
    \if@twocolumn
      \@restonecoltrue\onecolumn
    \else
      \@restonecolfalse
    \fi
    \chapter{\listfigurename}%
    \@starttoc{lof}%
    \if@restonecol\twocolumn\fi
    }
```

`\l@figure` This macro produces an entry in the list of figures.

```
\newcommand*\l@figure{\@dottedtocline{1}{\lofindent}{\loflabelwidth}}
```

24.1.3 List of tables

`\listoftables` This macro is used to request that LaTeX produces a list of tables. It is very similar to `\tableofcontents`.

```
\newcommand\listoftables{%
    \if@twocolumn
      \@restonecoltrue\onecolumn
    \else
      \@restonecolfalse
    \fi
    \chapter{\listtablename}%
    \@starttoc{lot}%
    \if@restonecol\twocolumn\fi
    }
```

`\l@table` This macro produces an entry in the list of tables.

```
%\let\l@table\l@figure
\newcommand*\l@table{\@dottedtocline{1}{\lotindent}{\lotlabelwidth}}
```

24.2 Bibliography

`\bibindent` The "open" bibliography format uses an indentation of `\bibindent`.

```
\newdimen\bibindent
\setlength\bibindent{1.5em}
```

`thebibliography` The 'thebibliography' environment executes the following commands:

`\renewcommand{\newblock}{\hskip.11em \@plus.33em \@minus.07em}` — Defines the "closed" format, where the blocks (major units of information) of an entry run together.

`\sloppy` — Used because it's rather hard to do line breaks in bibliographies,

`\sfcode‘\.=1000\relax` — Causes a '.' (period) not to produce an end-of-sentence space.

The implementation of this environment is based on the generic list environment. It uses the *enumiv* counter internally to generate the labels of the list.

When an empty 'thebibliography' environment is found, a warning is issued.

One modification is that, even if the bibliography is not numbered, it is still entered into the table of contents and into the headers.

```
\providecommand\bibsection{}
\newenvironment{thebibliography}[1]{
  \bibsection
  \list{\@biblabel{\@arabic\c@enumiv}}%
  {\settowidth\labelwidth{\@biblabel{#1}}%
    \leftmargin\labelwidth
    \advance\leftmargin\labelsep
    \@openbib@code
    \usecounter{enumiv}%
    \let\p@enumiv\@empty
    \renewcommand\theenumiv{\@arabic\c@enumiv}}%
  \sloppy
```

This is setting the normal (non-infinite) value of `\clubpenalty` for the whole of this environment, so we must reset its stored value also. (Why is there a `%` after the second 4000 below?)

```
  \clubpenalty4000
  \@clubpenalty \clubpenalty
  \widowpenalty4000%
  \sfcode‘\.\@m}
{\def\@noitemerr
  {\@latex@warning{Empty ‘thebibliography’ environment}}%
  \endlist}
```

Now we define the `\bibsection` hook which formats the section/chapter header. This should be done at the beginning of the document so it overrides the natbib default.

```
\AtBeginDocument{
  \renewcommand\bibsection{
    \if@sectionbib
      \if@bibnum
```

```
        \section{\bibname}%
      \else
        \section*{\bibname}%
        \sectionstarmark{\bibname}%
        \addcontentsline{toc}{section}{\@fmttocentry{\bibname}}%
      \fi%
    \else
      \if@bibnum
        \chapter{\bibname}%
      \else
        \chapter*{\bibname}%
        \chapterstarmark{\bibname}%
        \addcontentsline{toc}{chapter}{\@fmttocentry{\bibname}}%
      \fi%
    \fi%
  }
} % AtBeginDocument
```

`\newblock` The default definition for `\newblock` is to produce a small space.

```
\newcommand\newblock{\hskip .11em\@plus.33em\@minus.07em}
```

`\@openbib@code` The default definition for `\@openbib@code` is to do nothing. It will be changed by the openbib option.

```
\let\@openbib@code\@empty
```

`\@biblabel` The label for a `\bibitem[...]` command is produced by this macro. The default from `latex.dtx` is used.

```
% \renewcommand*{\@biblabel}[1]{[#1]\hfil}
```

`\@cite` The output of the `\cite` command is produced by this macro. The default from `latex.dtx` is used.

```
% \renewcommand*{\@cite}[1]{[#1]}
```

24.3 The index

`theindex` The environment 'theindex' can be used for indices. It makes an index with two columns, with each entry a separate paragraph. At the user level the commands `\item`, `\subitem` and `\subsubitem` are used to produce index entries of various levels. When a new letter of the alphabet is encountered an amount of `\indexspace` white space can be added.

```
\newenvironment{theindex}
               {\if@twocolumn
                  \@restonecolfalse
                \else
                  \@restonecoltrue
                \fi
                \columnseprule \z@
                \columnsep 35\p@
```

```
% \end{macrocode}
% \changes{v1.57}{2009/1/30}{Use custom \cs{clearp@ge} command to
%   optionally insert a blank facing page when clearing the page.}
% \changes{v1.32}{2006/02/15}{Ensure that two-sided printing starts the
%   index properly (CD)}
%  \begin{macrocode}
                \clearp@ge
```

Now carry on with inserting the necessary space and the heading and heads.

```
                \settoheight{\@tempdimb}{\chapterfont \@toupper{\indexname}} % b = H
                \if@committee %
                  \setlength{\@tempdimc}{\@tempdimb} % c := H
                  \addtolength{\@tempdimc}{\committeespacing\@tempdimc}  % c := H(C+1)
                  \setlength{\@tempdimc}{0.5\@tempdimc} % c := H(C+1)/2
                  \addtolength{\@tempdimb}{-\committeespacing\@tempdimb} % b := H(1-C)
                  \setlength{\@tempdimb}{-\@tempdimb} % b := H(C-1)
                  \addtolength{\@tempdimb}{\@tempdimc} % b := H(C+1)/2 + H(C-1)
                \fi
                \addtolength{\@tempdimb}{0.5\@tempdimb}
                \phantomsection
                \twocolumn[\vspace*{\@tempdimb}%
                           \@makeschapterhead{\@toupper{\indexname}}]%
                \@mkboth{\@toupper{\indexname}}{\@toupper{\indexname}}%
                \addcontentsline{toc}{chapter}{\@fmttocentry{\indexname}}%
% \end{macrocode}
% \changes{v1.32}{2006/02/15}{Note: the hyperref link will be to the
%   incorrect page! (CD)}
%  \begin{macrocode}
                \thispagestyle{plain}\parindent\z@
                \parskip\z@ \@plus .3\p@\relax
                \let\item\@idxitem}
```

When the document continues after the index and it was a one column document we have to switch back to one column after the index.

```
               {\if@restonecol\onecolumn\else\clearpage\fi}
```

`\@idxitem` `\subitem` `\subsubitem` These macros are used to format the entries in the index.

```
\newcommand\@idxitem{\par\hangindent 40\p@}
\newcommand\subitem{\@idxitem \hspace*{20\p@}}
\newcommand\subsubitem{\@idxitem \hspace*{30\p@}}
```

`\indexspace` The amount of white space that is inserted between 'letter blocks' in the index.

```
\newcommand\indexspace{\par \vskip 10\p@ \@plus5\p@ \@minus3\p@\relax}
```

24.4 Footnotes

`\footnoterule` Usually, footnotes are separated from the main body of the text by a small rule. This rule is drawn by the macro `\footnoterule`. We have to make sure that the

rule takes no vertical space (see `plain.tex`) so we compensate for the natural height of the rule of 0.4pt by adding the right amount of vertical skip.

To prevent the rule from colliding with the footnote we first add a little negative vertical skip, then we put the rule and make sure we end up at the same point where we begun this operation.

```
\renewcommand\footnoterule{%
  \kern-3\p@
  \hrule\@width.4\columnwidth
  \kern2.6\p@}
```

`\c@footnote` Footnotes are numbered within chapters unless the nochapternotereset option is selected.

```
\if@chapternotereset%
  \@addtoreset{footnote}{chapter}%
\fi%
```

`\@makefntext` The footnote mechanism of LaTeX calls the macro `\@makefntext` to produce the actual footnote. The macro gets the text of the footnote as its argument and should use `\@thefnmark` as the mark of the footnote. The macro `\@makefntext`is called when effectively inside a `\parbox` of width `\columnwidth` (i.e., with `\hsize` = `\columnwidth`).

An example of what can be achieved is given by the following piece of TeX code.

```
%           \newcommand\@makefntext[1]{%
%              \@setpar{\@@par
%                       \@tempdima = \hsize
%                       \advance\@tempdima-10pt
%                       \parshape \@ne 10pt \@tempdima}%
%              \par
%              \parindent 1em\noindent
%              \hbox to \z@{\hss\@makefnmark}#1}
%
```

The effect of this definition is that all lines of the footnote are indented by 10pt, while the first line of a new paragraph is indented by 1em. To change these dimensions, just substitute the desired value for '10pt' (in both places) or '1em'. The mark is flushright against the footnote.

In these document classes we use a simpler macro, in which the footnote text is set like an ordinary text paragraph, with no indentation except on the first line of a paragraph, and the first line of the footnote. Thus, all the macro must do is set `\parindent` to the appropriate value for succeeding paragraphs and put the proper indentation before the mark.

```
\newcommand\@makefntext[1]{%
    \parindent 1em%
    \noindent
    \hb@xt@1.8em{\hss\@makefnmark}#1}
```

\@makefnmark The footnote markers that are printed in the text to point to the footnotes should be produced by the macro \@makefnmark. We use the default definition for it.

```
%\renewcommand\@makefnmark{\hbox{\@textsuperscript
%                                {\normalfont\@thefnmark}}}
```

25 Initialization

25.1 Words

This document class is for documents prepared in the English language. To prepare a version for another language, various English words must be replaced. All the English words that require replacement are defined below in command names. These commands may be redefined in any class or package that is customising LaTeX for use with non-English languages. These are not meant to be used by the user unless they really need access to change these, thus I have kept them in the same syntax as for the book class.

One thing to be aware of is that the babel package will redefine these at \begin{document} so if the package is loaded, we must add the redefinitions to \captionsenglish.

\contentsname
\listfigurename
\listtablename

```
\newcommand*\contentsname{Table of Contents}
\newcommand*\listfigurename{List of Figures}
\newcommand*\listtablename{List of Tables}
\AtBeginDocument{
  \@ifpackageloaded{babel}{
    \addto\captionsenglish{%
      \renewcommand*\contentsname{Table of Contents}
      \renewcommand*\listfigurename{List of Figures}
      \renewcommand*\listtablename{List of Tables}
    }
  }{}
}
```

\bibname
\indexname

```
\newcommand\bibname{Bibliography}
\newcommand\indexname{Index}
```

\figurename
\tablename

```
\newcommand\figurename{Figure}
\newcommand\tablename{Table}
```

\partname
\chaptername
\appendixname
\appendicesname
\abstractname

```
\newcommand\partname{Part}
\newcommand\chaptername{Chapter}
\newcommand\appendixname{Appendix}
\newcommand\appendicesname{Appendices}
\newcommand\abstractname{Abstract}
```

\draftname

```
\newcommand\draftname{Preliminary Draft}
```

25.2 Date

\today This macro uses the TEX primitives \month, \day and \year to provide the date of the LATEX-run.

At \begin{document} this definition will be optimized so that the names of all the 'wrong' months are not stored. This optimisation is not done here as that would 'freeze' \today in any special purpose format made by loading the class file into the format file.

```
\def\today{\ifcase\month\or
  January\or February\or March\or April\or May\or June\or
  July\or August\or September\or October\or November\or December\fi
  \space\number\day, \number\year}
```

25.3 Two column mode

\columnsep This gives the distance between two columns in two column mode.

```
\setlength\columnsep{10\p@}
```

\columnseprule This gives the width of the rule between two columns in two column mode. We have no visible rule.

```
\setlength\columnseprule{0\p@}
```

25.4 The page style

We use the page style *headings* by default. We use Arabic page numbers.

```
\if@final
  \if@runningheaders
    \pagestyle{headings}
  \else
    \pagestyle{plain}
  \fi
\else % draft
  \pagestyle{draft}
  \let\ps@plain\ps@draft
\fi
\pagenumbering{arabic}
```

25.5 Single or double sided printing

When the twoside option wasn't specified, we don't try to make each page as long as all the others.

```
\if@twoside
\else
  \raggedbottom
```

```
\fi
```

When the twocolumn option was specified we call `\twocolumn` to activate this mode. We try to make each column as long as the others, but call `sloppy` to make our life easier.

```
\if@twocolumn
  \twocolumn
  \sloppy
  \flushbottom
```

Normally we call `\onecolumn` to initiate typesetting in one column.

```
\else
  \onecolumn
\fi
```

25.6 Single or double spacing

`\committeespacing` The spacing of the document is single spaced by default unless the committee option is selected. In this case it is set by `\commiteespacing` which is by default 1.5 spaced so that the thesis committee has room for comments.

```
\newcommand{\committeespacing}{1.5}
\AtBeginDocument{
  \if@committee%
    \renewcommand\baselinestretch{\committeespacing}%
  \fi%
}%
```

Finally, we close off the file so that nothing else is put into the thesis class.

```
⟨/genthesis⟩
```

Part V
Flavours

26 UBC: `ubcthesis.cls`

This section defines the `ubcthesis.cls` file.

```
⟨*ubcthesis⟩
```

26.1 Identification

This section identifies the version of the file. It also indicates which version of LaTeX (LaTeX 2_ε) is required and makes sure that an appropriate message is displayed when another TeX format is used.

```
\NeedsTeXFormat{LaTeX2e}[1995/12/01]
```

Now we announce the file or class name and its version:

```
\ProvidesClass{ubcthesis}[2012/04/07 v1.70 ^^J
 University of British Columbia Thesis Class]
```

26.2 Options

Here are the options modified by the `ubcthesis.cls` class. See Section 3.3 for all of the options provided by `genthesis.cls`: These are also availible for use with `ubcthesis.cls` in addition to those listed here (some defaults are changed here as well.)

10pt/11pt/12pt For `ubcthesis.cls`, 11pt is default.

pagenumTR/pagenumBC/pagenumBR For `ubcthesis.cls`, default page numbering is bottom right corner.

chapternotereset/nochapternotereset For `ubcthesis.cls`, nochapternotereset is default.

bibnum/nobibnum For `ubcthesis.cls`, nobibnum is default.

The default options are set by passing them to `genthesis.cls`. The `genthesis` class calls `\ProcessOptions*` which preserves the order, so user specified options will override these.

```
\PassOptionsToClass{11pt}{genthesis}%
\PassOptionsToClass{pagenumBR}{genthesis}%
\PassOptionsToClass{nochapternotereset}{genthesis}%
\PassOptionsToClass{nobibnum}{genthesis}%
\PassOptionsToClass{appendicestoc}{genthesis}%
\PassOptionsToClass{appendixpage}{genthesis}%
```

Here is the code that passes any undeclared options to the `genthesis.cls`.

```
\DeclareOption*{%
  \PassOptionsToClass{\CurrentOption}{genthesis}%
}
```

Here we process the options.

```
\ProcessOptions*\relax
```

26.3 Loading classes and packages

Here we load the main thesis class:

```
\LoadClass{genthesis}
```

26.4 Title Page

The UBC thesis class uses a modification of the standard titlepage.

```
\copyrightnotice{}
\renewcommand{\titlefont}{\huge \bfseries}
\renewcommand{\subtitlefont}{\Large \bfseries}
```

The following code allows one to include a logo on the titlepage. This code is thanks to Darren.

```
\newlength{\@logocopywidth}
\newlength{\@logocopyheight}
\newlength{\@logowidth}
```

Here we include the logo in a box, or nothing if the logo option is not used and record its width. Note that we include the logo copy twice, once without any formatting to determine the width and height, and again spaced to this width. This is a bit redundant right now, but works. In future this should be cleaned up so that there is no duplication.

```
\newcommand\@logo{\hbox{
    \iflogo
    \includegraphics*[height=\@logocopyheight]{\@logofile}
    \fi}}
\newcommand\@logocopybare{\vbox{%
    \@condupper{@upperinstitution}{\@institution}\par%
    (\@institutionaddress)\par%
    \@submitdate\par%
    \@copyrighttext}}
\newcommand\@logocopy{\vbox{
    \hbox to\@logocopywidth{%
      \hfil\@condupper{@upperinstitution}{\@institution}\hfil}
    \vspace{1.5ex}
    \hbox to\@logocopywidth{\hfil(\@institutionaddress)\hfil}
    \vspace{1.5ex}
    \hbox to\@logocopywidth{\hfil\@submitdate\hfil}
    \vspace{1.5ex}
    \hbox to\@logocopywidth{%
      \hfil\@copyrighttext\hfil}}}
```

We center the entire title vertically. `\vfil` is a vertical space (or glue) of infinite stretchability: It will expand and push the page down. An accompanying `\vfil` at the bottom will push up and the page will be centered. Note that `\vfill` works the same way, but that `\vfill` is "more infinite" than `\vfil` so a `\vfill` will always collapse a `\vfil`. The `\null` must be used because, at the top of a new page, rubber space is normally eaten.

```
\renewcommand{\titlepage}{
  \null\vfil
```

Then we set the title in the `\titlefont`; leave a little space, the, if a subtitle has been defined, we put is in `\subtitlefont`, then after a little space we put "by", then leave some space and and set the author(s) in `\authorfont`. We do

this inside a tabular environment to get them in a single column. Then we list the previous degrees. We do this in a tabular environment so that the extra newline does not give a problem. Before the date we leave a little whitespace again.

The titlepage is always centered, regardless of the center option.

```
\begin{center}%
  {\titlefont \@condupper{@uppertitle}{\@title}\par}%
  \vspace{1em}%
  \if@subtitle
    {\subtitlefont \@condupper{@uppersubtitle}{\@subtitle}\par}%
    \vspace{1em}%
  \fi
  by \par%
  \vspace{1em}%
  {\authorfont%
    \@condupper{@upperauthor}{\@author}\par%
  }%
  \if@empty\@previousdegrees\else\vfil\fi%
  \if@empty\@previousdegrees\else\@previousdegrees\fi%
  \vfil
  A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF\par%
  THE REQUIREMENTS FOR THE DEGREE OF\par%
  \vspace{1em}
  {\degreetitlefont\@condupper{@upperdegreetitle}{\@degreetitle}\par}%
  \vspace{1em}
  in \par%
  \vspace{1em}
  {\facultyfont \@condupper{@upperfaculty}{\@faculty}\par}%
  \vspace{1em}
  (\@program)\par%
  \vspace{1em plus 1fil minus 0.5em}%
```

These lines commented out 2005-01-03 due to new requirements.

```
%    We accept this thesis as conforming \par%
%    to the required standard \par%
%    \vspace{5ex}
%    \signatures{\@numberofsignatures}
%    \vspace{5ex}
```

Here we place the university name and copyright. The logo option can be used to include a small graphic logo here to the left of this information. To process this we need to compute the width of the text. Here we define a box with the text and defined the width and height of that box. We are using TeX primitives here:

```
  \setbox0=\@logocopybare
  \setlength{\@logocopywidth}{\wd0}
```

Now we construct the box of text centering the text within the box by using `\hfil`:

```
  \settoheight{\@logocopyheight}{\@logocopy}
  \settowidth{\@logowidth}{\@logo}
```

Now we actually typeset the logo and text centered:

```
    \centerline{\hbox{%
        \hfill\@logo\@logocopy\hspace{\@logowidth}}}
```

Here we see if `\@copyrightnotice` is empty. If so, we do not add an extra `\vfil`.

```
    \if@empty\@copyrightnotice\else\vfil\@copyrightnotice\fi
  \end{center}
  \vfil\null
}
```

The page numbering should start on the abstract as page ii but the abstract should open on an odd page. Thus, if the `\twoside` option is chosen (which is not allowed by the library) then we will forgo this rule and leave the counter as it is. We should turn pagenumbering and headings on now, but the user will be responsible for this. If he/she follows the instructions in the sample file, this will happen automatically because the page numbers have been suppressed on the other pages.

```
\@AtStartOfAbstract{%
  \if@twoside\else
    \setcounter{page}{2}
  \fi
}
```

UBC also stipulates that "Every page except the title page must have a number on it. There must be no blank pages in the thesis.", thus we redefine the empty pagestyle to be plain after the titlepage.

```
  \@AfterTitlepage{\global\let\ps@empty\ps@plain}
```

Finally, we close off the file so that nothing else is put into the thesis class.

⟨/ubcthesis⟩

27 MIT: `mitthesis.cls`

This section defines the `mitthesis.cls` file.

⟨∗mitthesis⟩

27.1 Identification

This section identifies the version of the file. It also indicates which version of LaTeX (LaTeX 2_ε) is required and makes sure that an appropriate message is displayed when another TeX format is used.

```
\NeedsTeXFormat{LaTeX2e}[1995/12/01]
```

Now we announce the file or class name and its version:

```
\ProvidesClass{mitthesis}[2012/04/07 v1.70 ^^J
 Massachusetts Institute of Technology Thesis Class]
```

27.2 Initial Code

Here we load the main thesis class:

```
\LoadClassWithOptions{genthesis}
```

27.3 Declaration of Options

```
\ProcessOptions
```

27.4 Backwards Compatibility

These commands were defined in the previous MIT thesis class and are defined here for backwards compatibility. Note that `\and` is defined here. This contradicts the usual definition of `\and` for use with the `\@author` command, but that definition does not really work well with theses, so it has been removed.

```
\providecommand*{\MIT}{MASSACHUSETTS INSTITUTE OF TECHNOLOGY}
\providecommand*{\Mit}{Massachusetts Institute of Technology}
\providecommand*{\prevdegrees}[1]{\previousdegrees{#1}}
\providecommand*{\thesisdate}[1]{\date{#1}}
\providecommand*{\chairman}[2]{\departmentchair{#1}\departmentchairtitle{#2}}
\newcommand{\@abstractsupervisor}{}
\providecommand*{\supervisor}[2]{%
  \addsignature{Certified by}{#1 \\ #2 \\ Thesis Supervisor}
  \@addto{@abstractsupervisor}{Thesis Supervisor: #1\par%
    Title: #2\par}
}
\newcommand*{\and}{\degreeword{degrees} \par and \par}
```

27.5 Title Page

The MIT thesis class uses a different titlepage than Canadian schools. First we define the following new commands.

```
\newcommand*{\departmentchair}[1]{\gdef\@departmentchair{#1}}
\providecommand*{\@departmentchair}{%
  \ClassWarning{mitthesis}{No \noexpand\departmentchair given}}
\newcommand*{\departmentchairtitle}[1]{\gdef\@departmentchairtitle{#1}}
\providecommand*{\@departmentchairtitle}{%
  \ClassWarning{mitthesis}{No \noexpand\departmentchairtitle given}}
\newcommand*{\degreeword}[1]{\gdef\@degreeword{#1}}
\providecommand*{\@degreeword}{%
  \ClassWarning{mitthesis}{No \noexpand\degreeword given}}
```

define the MIT parameters:

```
\AtBeginDocument{
  \degreeword{degree}
  \institution{Massachusetts Institute of Technology}
```

```
  \institutionaddress{Cambridge, Massachusetts, USA}
  \copyrighttext{\copyright\ \@author, \@copyrightyear. All rights reserved.}
  \copyrightnotice{%
    The author hereby grants to MIT permission to reproduce\\*
    and to distribute publicly paper and electronic\\*
    copies of this thesis document in whole or in part.}
  \addsignature[1]{Signature of Author}{\@department\\*
    \@submitdate}
  \supervisor{\@advisor}{\@advisortitle}
  \addsignature[1]{Accepted by}{\@departmentchair\\*
    \@departmentchairtitle}
}
\renewcommand{\titlepage}{
  \begin{center}
    {\titlefont\@condupper{@uppertitle}{\@title}\par}%
    \vspace{1em minus 1em}
  \if@subtitle%
    {\subtitlefont\@condupper{@uppersubtitle}{\@subtitle}\par}%
    \vspace{1em plus 1fil minus 1em}%
  \fi
  by\par%
  \vspace{1em plus 1fil minus 0.5em}%
  {\authorfont
    \@condupper{@upperauthor}{\@author}\par%
  }%
  \vspace{1em plus 1fil minus 0.5em}%
  \if@empty\@previousdegrees\else\vfil\fi%
  \if@empty\@previousdegrees\else\@previousdegrees\fi%
  \if@empty\@previousdegrees\else\vspace{1em plus 1fil minus 0.5em}\fi%
  \@condupper{@uppertitletext}{Submitted to the \@department}\par%
  \@condupper{@uppertitletext}{in partial fulfillment of the
    requirements for the \@degreeword\ of}\par%
  \vspace{1em plus 1fil minus 0.5em}%
  \@condupper{@upperdegreetitle}{\@degreetitle}\par%
  \vspace{1em plus 1fil minus 0.5em}%
  \@condupper{@uppertitletext}{at the}\par%
  \vspace{1em plus 1fil minus 0.5em}%
  \@condupper{@upperinstitution}{\@institution}\par%
  \vspace{1em plus 1fil minus 0.5em}%
  \@degreedate\par%
  \vspace{1em plus 1fil}%
  \@copyrighttext\par%
  \vspace{1em plus 1fil}%
  \@copyrightnotice\par%
  \vspace{1em plus 1fil}%
  \UBCT@signatures\par%
  \end{center}
}
```

27.6 Abstract

MIT has a very strange abstract page requirement, so we design it here from scratch.

abstract

```
\renewenvironment{abstract}{
```

The abstract should start opening left:

```
  \clearp@ge
```

Here we set the page to one column and reset the margins if needed.

```
  \@startonecolumn
  \begin{center}
    \thispagestyle{empty}
    {\titlefont
      \@condupper{@uppertitle}{\@title}%
      \par}%
    \vspace{1em minus 1em}
    \if@subtitle%
    {\subtitlefont%
      \@condupper{@uppersubtitle}{\@subtitle}%
      \par%
    }%
    \vspace{1em plus 0.5fil minus 1em}%
    \fi
    by\par%
    \vspace{1em plus 0.5fil minus 0.5em}%
    {\authorfont
      \@condupper{@upperauthor}{\@author}\par%
    }%
    \vspace{1em plus 0.5fil minus 0.5em}%
    Submitted to the \@department\par%
    on \@date, in partial fulfillment of the\par%
    requirements for the \@degreeword\ of\par%
    \@degreetitle\par
    \vspace{1em plus 0.5fil minus 0.5em}%
  \end{center}
```

We format the abstract as a section, but list it as a chapter in the table of contents

```
  {
    \def\@tempname{\@toupper{\abstractname}}
    \section*{\@tempname}
    \@mkboth{\@tempname}{\@tempname}
    \addcontentsline{toc}{chapter}{\@fmttocentry{\abstractname}}
  }
}
```

Here is the end of the environment. We clear the page and reset the column spacing.

```
{
  \par%
  \vspace{1em}
  \vfil
  \setlength{\parindent}{0pt}
  \@abstractsupervisor
  \vspace{0pt plus 2fil}
  \clearpage
  \@endonecolumn
}
```

Finally, we close off the file so that nothing else is put into the thesis class.

⟨/mitthesis⟩

Part VI
Change Log

Here is the explicit listing of all changes for this file. Please visit the project development page to see the complete list in detail:

- `http://bitbucket.org/mforbes/ubcthesis/changesets`

```
changeset:   154:f4c450ff6a3f
tag:         tip
user:        Michael McNeil Forbes <mforbes@physics.ubc.ca>
date:        Sat Apr 07 00:59:07 2012 -0700
files:       .hgtags
description:
Added tag v1.70 for changeset 20244be11cf3


changeset:   153:20244be11cf3
tag:         v1.70
user:        Michael McNeil Forbes <mforbes@physics.ubc.ca>
date:        Sat Apr 07 00:56:52 2012 -0700
files:       README ubcthesis.dtx
description:
Fixes issue 12.  Move \backmatter to after appendices in sample theses.


changeset:   152:c93cd1c7ebc8
user:        Michael McNeil Forbes <mforbes@physics.ubc.ca>
date:        Thu Feb 02 01:01:40 2012 -0800
files:       latexmkrc
description:
Fixed bug with index generation command.


changeset:   151:1c81d599c7a4
user:        Michael McNeil Forbes <mforbes@physics.ubc.ca>
date:        Thu Feb 02 00:58:37 2012 -0800
files:       latexmkrc
description:
Fixed index generation error.


changeset:   150:0f3f5ee18086
user:        Michael McNeil Forbes <mforbes@physics.ubc.ca>
date:        Thu Feb 02 00:48:00 2012 -0800
files:       ubcthesis.dtx
description:
Added a note about pdflatex not working with psfrag.


changeset:   149:9f9781bb3bd9
user:        Michael McNeil Forbes <mforbes@physics.ubc.ca>
date:        Thu Feb 02 00:37:37 2012 -0800
files:       Makefile latexmkrc
description:
```

```
Simplified Makefile using latexmk.
Removed .ps dependency... pdf is ubiquitous now.


changeset:   148:23843de6b931
user:        Michael McNeil Forbes <mforbes@physics.ubc.ca>
date:        Wed Nov 30 17:42:58 2011 -0800
files:       Makefile
description:
Added .cls files to tgz file.


changeset:   147:f821fc47980a
user:        Michael McNeil Forbes <mforbes@physics.ubc.ca>
date:        Wed Nov 30 17:40:14 2011 -0800
files:       .hgignore README
description:
Updated README to include a note about new class and latex ubcthesis.ins.


changeset:   146:07dcc7a83ac7
user:        Michael McNeil Forbes <mforbes@physics.ubc.ca>
date:        Tue Nov 29 21:28:04 2011 -0800
files:       .hgtags
description:
Added tag v1.69 for changeset f86b2de1f2c2


changeset:   145:f86b2de1f2c2
tag:         v1.69
user:        Michael McNeil Forbes <mforbes@physics.ubc.ca>
date:        Tue Nov 29 21:27:57 2011 -0800
files:       ubcthesis.dtx
description:
Added documentation about fix and updated to version 1.69


changeset:   144:e5ba7d0b9bef
parent:      123:430040441ad9
parent:      143:7e4bfe79b321
user:        Michael McNeil Forbes <mforbes@physics.ubc.ca>
date:        Tue Nov 29 21:20:21 2011 -0800
description:
Merged lyx and default branches... there is only one branch.


changeset:   143:7e4bfe79b321
branch:      lyx
user:        Michael McNeil Forbes <mforbes@physics.ubc.ca>
date:        Tue Nov 29 21:16:00 2011 -0800
files:       ubcthesis.dtx
description:
Fixed #11.  Add hooks to change \contentsname etc. if babel loaded.


changeset:   142:ecabdee5038b
branch:      lyx
user:        Michael McNeil Forbes <mforbes@physics.ubc.ca>
date:        Wed Jul 27 16:49:02 2011 -0700
files:       ubcthesis.dtx
description:
Updated checksum.


changeset:   141:6889ec7c22fb
branch:      lyx
user:        Michael McNeil Forbes <mforbes@physics.ubc.ca>
date:        Wed Jul 27 16:39:40 2011 -0700
files:       README ubcthesis.dtx
description:
Updated README and removed an erroneous comment from the MIT sample.


changeset:   140:0d91c1fdb85f
branch:      lyx
user:        Michael McNeil Forbes <mforbes@physics.ubc.ca>
date:        Thu Dec 09 12:32:00 2010 -0800
files:       ubcthesis.dtx
description:
Fixes issue 10 with babel and "TeX capacity exceeded".


changeset:   139:3b5e187f216b
branch:      lyx
user:        Michael McNeil Forbes <mforbes@physics.ubc.ca>
date:        Mon Aug 30 12:31:49 2010 -0700
files:       ubcthesis.dtx
description:
Updated checksum.
```

```
changeset:   138:a3f13eed3ce0
branch:      lyx
user:        Michael McNeil Forbes <mforbes@physics.ubc.ca>
date:        Mon Aug 30 12:24:45 2010 -0700
files:       ubcthesis.dtx
description:
Fixed errors with ubcsample as pointed out by Max Read.


changeset:   137:05473c0477ac
branch:      lyx
user:        Michael McNeil Forbes <mforbes@physics.ubc.ca>
date:        Sat Aug 28 20:39:48 2010 -0700
files:       ubcthesis.dtx
description:
Added backmatter to sample thesis.


changeset:   136:88d47686c54a
branch:      lyx
user:        Michael McNeil Forbes <mforbes@physics.ubc.ca>
date:        Sat Aug 28 11:10:27 2010 -0700
files:       .hgtags
description:
Added tag v1.67 for changeset 688fa1bf572f


changeset:   135:688fa1bf572f
branch:      lyx
tag:         v1.67
user:        Michael McNeil Forbes <mforbes@physics.ubc.ca>
date:        Sat Aug 28 11:10:19 2010 -0700
files:       ubcthesis.dtx
description:
Version v1.67: Updated ubcsample.tex to conform to Sept. 2010 requirements.
- Moved Statement of Co-authorship to Prefix.
- Added new demo reverence to sample.bib.


changeset:   134:5701c6f0ebc2
branch:      lyx
user:        Michael McNeil Forbes <mforbes@physics.ubc.ca>
date:        Sat Jul 17 20:45:29 2010 -0700
files:       lyx/makeUBCthesisLyXfromTeX.py lyx/ubcthesis.layout
description:
Fixed \maketitle


changeset:   133:a54c68194d83
branch:      lyx
user:        Michael McNeil Forbes <mforbes@physics.ubc.ca>
date:        Sat Jul 17 05:59:16 2010 -0700
files:       Makefile ubcthesis.dtx
description:
Updated checksum and Makefile


changeset:   132:ec643d747b53
branch:      lyx
user:        Michael McNeil Forbes <mforbes@physics.ubc.ca>
date:        Sat Jul 17 05:53:13 2010 -0700
files:       lyx/makeUBCthesisLyXfromTeX.py lyx/tex2lyx2texSample.tex lyx/ubcsamplelyx.lyx ubcthesis.dtx
description:
Updated python script:
- Allows the use of %%% comments to become Notes
- %% comments become Comments (collapsed by default)
- % comments etc. still ERT (now collapsed).
- All output goes in a separate directory.


changeset:   131:ae1204c7848e
branch:      lyx
parent:      130:ae2b6871f579
parent:      128:1f4d14cb81a7
user:        Michael McNeil Forbes <mforbes@physics.ubc.ca>
date:        Fri Jul 16 17:01:20 2010 -0700
files:       lyx/handmade-ubcsamplelyx.pdf lyx/makeUBCthesisLyXfromTeX.py lyx/tex2lyx2texSample.pdf lyx/ubcsamplelyx.pdf
description:
Merged with Chris' changes.  Removed .pdf files.


changeset:   130:ae2b6871f579
branch:      lyx
user:        Michael McNeil Forbes <mforbes@physics.ubc.ca>
date:        Fri Jul 16 16:51:57 2010 -0700
files:       lyx/makeUBCthesisLyXfromTeX.py
description:
Build in new directory to avoid comtamination.


changeset:   129:fa7ea841577c
```

```
branch:      lyx
parent:      126:1f341b81f61c
user:        Michael McNeil Forbes <mforbes@physics.ubc.ca>
date:        Fri Jul 16 16:43:23 2010 -0700
files:       lyx/makeUBCthesisLyXfromTeX.py
description:
Use environmental vars TEX2LY, LYX and DIFF if they exist to specify
program names (these are different on Mac OS X).


changeset:   128:1f4d14cb81a7
branch:      lyx
user:        CPBL <cpbl@wellbeing.econ.ubc.ca>
date:        Fri Jul 16 16:22:20 2010 -0700
files:       lyx/handmade-ubcsamplelyx.pdf lyx/tex2lyx2texSample.pdf lyx/ubcsamplelyx.pdf
description:
Tried adding some more stuff in teh "syntax file" for tex2lyx in python code, in order to treat lost spaces. No effect!


changeset:   127:b4528772a8d4
branch:      lyx
user:        CPBL <cpbl@wellbeing.econ.ubc.ca>
date:        Fri Jul 16 16:11:21 2010 -0700
files:       lyx/handmade-ubcsamplelyx.lyx lyx/handmade-ubcsamplelyx.pdf lyx/makeUBCthesisLyXfromTeX.py lyx/tex2lyx2texSample.pdf lyx/tex2lyx2texSample.tex lyx/ubcsamplelyx.
description:
Updated python to make pdf outputs from tex and lyx. Included (added) pdf outputs to hg


changeset:   126:1f341b81f61c
branch:      lyx
user:        CPBL <cpbl@wellbeing.econ.ubc.ca>
date:        Fri Jul 16 15:45:29 2010 -0700
files:       lyx/ubcsamplelyx.lyx lyx/ubcthesis.layout
description:
Update ubcsamplelyx.lyx to the output of the Python code, for the first time.


changeset:   125:1c4597e80d3a
branch:      lyx
user:        CPBL <cpbl@wellbeing.econ.ubc.ca>
date:        Fri Jul 16 15:33:50 2010 -0700
files:       lyx/makeUBCthesisLyXfromTeX.py
description:
First? version of makeUBCthesisLyXfromTeX.py.  It's missing its Abstract! in order to get LyX to compile. Needs .layout file in ~/.lyx/layouts/


changeset:   124:0e63d6a6a097
branch:      lyx
parent:      122:d4b47bb62214
user:        Michael McNeil Forbes <mforbes@physics.ubc.ca>
date:        Tue Jul 13 18:42:01 2010 -0700
files:       lyx/ubcsamplelyx.lyx lyx/ubcthesis.layout ubcsamplelyx.lyx ubcthesis.dtx ubcthesis.layout
description:
Completed LyX support and added documentation:
- Added documentation about babel bug: see issue 6.
- Conditionally include hg files: fixes issue 5.
- Changed hyperref colours: fixes issue 4 (but still uses boxes).
- Changed href -> url to simplify.


changeset:   123:430040441ad9
parent:      121:d2185807a136
user:        Michael McNeil Forbes <mforbes@physics.ubc.ca>
date:        Fri Jun 25 00:33:36 2010 -0400
description:
Marked ubcthesis branch as default.


changeset:   122:d4b47bb62214
branch:      lyx
user:        Michael McNeil Forbes <mforbes@physics.ubc.ca>
date:        Fri Jun 25 00:32:24 2010 -0400
files:       ubcsamplelyx.lyx ubcthesis.layout
description:
Initial LyX version.


changeset:   121:d2185807a136
branch:      ubcthesis
user:        Michael McNeil Forbes <mforbes@physics.ubc.ca>
date:        Wed May 05 15:41:39 2010 -0700
files:       .hgtags
description:
Added tag v1.65 for changeset bb408ef167bf


changeset:   120:bb408ef167bf
branch:      ubcthesis
tag:         v1.65
user:        Michael McNeil Forbes <mforbes@physics.ubc.ca>
date:        Wed May 05 15:39:12 2010 -0700
```

```
files:       Makefile
description:
Don't remove hginfo.tex as this is needed to build documentation.
(This is removed by realclean.)


changeset:   119:e767d264e26b
branch:      ubcthesis
user:        Michael McNeil Forbes <mforbes@physics.ubc.ca>
date:        Wed May 05 15:29:17 2010 -0700
files:       ubcthesis.dtx
description:
Added some notes about \appendicesname and hyperref to sample files.
Make linktocpage a default hyperref option in the sample file.


changeset:   118:2567c699ee23
branch:      ubcthesis
user:        Michael McNeil Forbes <mforbes@physics.ubc.ca>
date:        Wed Apr 14 12:55:41 2010 -0700
files:       .hgtags
description:
Added tag v1.64 for changeset d011f85637f8


changeset:   117:d011f85637f8
branch:      ubcthesis
tag:         v1.64
user:        Michael McNeil Forbes <mforbes@physics.ubc.ca>
date:        Wed Apr 14 12:55:02 2010 -0700
files:       .hgtags
description:
Removed tag 1.64


changeset:   116:b4270c1a1239
branch:      ubcthesis
user:        Michael McNeil Forbes <mforbes@physics.ubc.ca>
date:        Wed Apr 14 12:49:49 2010 -0700
files:       .hgtags
description:
Added tag 1.64 for changeset b719adda55fe


changeset:   115:b719adda55fe
branch:      ubcthesis
user:        Michael McNeil Forbes <mforbes@physics.ubc.ca>
date:        Wed Apr 14 12:49:18 2010 -0700
files:       .hgtags
description:
Added tag 1.64 for changeset 03709eebee47


changeset:   114:03709eebee47
branch:      ubcthesis
user:        Michael McNeil Forbes <mforbes@physics.ubc.ca>
date:        Wed Apr 14 12:44:06 2010 -0700
files:       ubcthesis.dtx
description:
Added not about tocloft, but sticking with float.


changeset:   113:f0c29d19d878
branch:      ubcthesis
user:        Michael McNeil Forbes <mforbes@physics.ubc.ca>
date:        Wed Apr 14 12:43:51 2010 -0700
files:       .hgtags
description:
Added tag 1.64 for changeset 4cfb190f5196


changeset:   112:4cfb190f5196
branch:      ubcthesis
user:        Michael McNeil Forbes <mforbes@physics.ubc.ca>
date:        Wed Apr 14 12:28:34 2010 -0700
files:       ubcthesis.dtx
description:
Updated version to 1.64


changeset:   111:fadc3f9cf243
branch:      ubcthesis
user:        Michael McNeil Forbes <mforbes@physics.ubc.ca>
date:        Wed Apr 14 12:28:16 2010 -0700
files:       .hgtags
description:
Added tag 1.64 for changeset ffba4ff323a6


changeset:   110:ffba4ff323a6
branch:      ubcthesis
```

```
user:        Michael McNeil Forbes <mforbes@physics.ubc.ca>
date:        Wed Apr 14 12:25:13 2010 -0700
files:       ubcthesis.dtx
description:
Updated checksum.


changeset:   109:65d5d28fea7d
branch:      ubcthesis
user:        Michael McNeil Forbes <mforbes@physics.ubc.ca>
date:        Wed Apr 14 11:31:28 2010 -0700
files:       ubcthesis.dtx
description:
Use pdflscape to rotate landscape pages in pdf file.


changeset:   108:694ee8798dae
branch:      ubcthesis
user:        Michael McNeil Forbes <mforbes@physics.ubc.ca>
date:        Sat Mar 13 05:24:51 2010 -0800
files:       Makefile
description:
Remove README too.


changeset:   107:9e25feb99e9b
branch:      ubcthesis
user:        Michael McNeil Forbes <mforbes@physics.ubc.ca>
date:        Sat Mar 13 05:23:29 2010 -0800
files:       .hgtags
description:
Added tag v1.63 for changeset 0f54cd34e403


changeset:   106:0f54cd34e403
branch:      ubcthesis
tag:         v1.63
user:        Michael McNeil Forbes <mforbes@physics.ubc.ca>
date:        Sat Mar 13 05:23:01 2010 -0800
files:       Makefile
description:
Fixed Makefile {tag} -> {tags}


changeset:   105:3465a7dafc32
branch:      ubcthesis
user:        Michael McNeil Forbes <mforbes@physics.ubc.ca>
date:        Sat Mar 13 05:14:41 2010 -0800
files:       .hgtags
description:
Added tag v1.63 for changeset 7c7d0b8e48ab


changeset:   104:7c7d0b8e48ab
branch:      ubcthesis
user:        Michael McNeil Forbes <mforbes@physics.ubc.ca>
date:        Sat Mar 13 05:14:25 2010 -0800
files:       Makefile ubcthesis.dtx
description:
Fixed bug with quoting in Makefile that was not cross platform...


changeset:   103:22afb6f8aa6c
branch:      ubcthesis
user:        Michael McNeil Forbes <mforbes@physics.ubc.ca>
date:        Sat Mar 13 04:38:17 2010 -0800
files:       .hgtags
description:
Added tag v1.63 for changeset ae7afd1eaf0d


changeset:   102:ae7afd1eaf0d
branch:      ubcthesis
user:        Michael McNeil Forbes <mforbes@physics.ubc.ca>
date:        Sat Mar 13 04:38:03 2010 -0800
files:       Makefile tests/genthesis.cls tests/mitthesis.cls tests/ubcsample1.tex tests/ubcthesis.cls ubcthesis.dtx
description:
This fixes issue #1.
Added *starmark commands and an optiona starmark/nostarmark pair
  to provide a backwards compatible way of allowing starred chapters
  and sections to reset the headers.
Removed SVN references etc. and add HG references as well as a generated
  version number and log file in Makefile.


changeset:   101:f6e81c73f9c3
branch:      ubcthesis
user:        Michael McNeil Forbes <mforbes@physics.ubc.ca>
date:        Sat Mar 13 04:05:15 2010 -0800
files:       .hgtags
description:
```

```
Added tag v1.62 for changeset 0f709d76d131


changeset:   100:39c4d816ab20
branch:      ubcthesis
user:        Michael McNeil Forbes <mforbes@physics.ubc.ca>
date:        Sat Mar 13 04:05:01 2010 -0800
files:       .hgtags
description:
Removed tag v1.62


changeset:   99:b7ea33af71e6
branch:      ubcthesis
user:        Michael McNeil Forbes <mforbes@physics.ubc.ca>
date:        Sat Mar 13 01:38:12 2010 -0800
files:       .hgtags
description:
Added tags as LaTeX versions.


changeset:   98:3b277d5021ac
branch:      ubcthesis
user:        Michael McNeil Forbes <mforbes@physics.ubc.ca>
date:        Sat Mar 13 01:04:21 2010 -0800
files:       .hgignore Makefile tests/ubcsample1.tex ubcthesis.dtx
description:
Possibly fixed bibliography header bug.
Added hgid tagging in Makefile
Added make realclean which gets rid of all non-tracked files and make distclean
  which make the distribution suitable for publishing.  (An hg revert will be
  needed to restore these files.)
Cleaned out some stuff like keyword expansion and change logs.
Still need to update version info before release.


changeset:   97:0f709d76d131
branch:      ubcthesis
tag:         v1.62
user:        mforbes
date:        Thu Mar 11 20:29:05 2010 -0800
files:       tests/ubcsample1.tex ubcthesis.dtx
description:
[svn r2583] Fixed the bibliography header bug (actually a bug with unnumbered
chapters in the mainmatter).


changeset:   96:349988f63d41
branch:      ubcthesis
tag:         v1.61
user:        mforbes
date:        Tue Jan 05 11:32:48 2010 -0800
files:       ubcthesis.dtx
description:
[svn r2548] ubcthesis.dtx
Updated some documentation.


changeset:   95:2894dac34f12
branch:      ubcthesis
user:        mforbes
date:        Thu Nov 19 11:28:47 2009 -0800
files:       ubcthesis.dtx
description:
[svn r2464] Fixed a pagination bug (missing clearpage before setting arabic numerals).


changeset:   94:faf0111faf43
branch:      ubcthesis
tag:         v1.60
user:        mforbes
date:        Wed Nov 18 16:08:22 2009 -0800
files:       Makefile ubcthesis.dtx
description:
[svn r2463] Small fix in mainmatter: only inserts a blank page when twoside.


changeset:   93:b6d5c7b49482
branch:      ubcthesis
tag:         v1.59
user:        mforbes
date:        Wed Nov 18 15:51:42 2009 -0800
files:       ubcthesis.dtx
description:
[svn r2462] Fixed bug with frontmatter that inserted a blank page before title.
Thansk to Valentin Koch for poing this this out.


changeset:   92:8440ed0a25bf
branch:      ubcthesis
tag:         v1.58
```

```
user:        mforbes
date:        Mon Sep 21 21:39:41 2009 -0700
files:       tests/data tests/genthesis.cls tests/mitthesis.cls tests/ubcsample1.tex tests/ubcthesis.cls
description:
[svn r2366] Cleanup before conversion to hg.  May be in an inconsistent state.


changeset:   91:51874b5b1d39
branch:      ubcthesis
user:        mforbes
date:        Sun Sep 13 18:14:01 2009 -0700
files:       ubcthesis.dtx
description:
[svn r2359] Fixed bug in documentation.


changeset:   90:39cf1e8ff34d
branch:      ubcthesis
user:        mforbes
date:        Sun Sep 13 18:06:49 2009 -0700
files:       README
description:
[svn r2358] Added note about 1.58 fix.


changeset:   89:6d2b80e1cebd
branch:      ubcthesis
user:        mforbes
date:        Sun Sep 13 18:01:07 2009 -0700
files:       ubcthesis.dtx
description:
[svn r2357] Fixed bug with pagination after \frontmatter by adding
\if@skipblankpage checks.


changeset:   88:5f1bc7b59261
branch:      ubcthesis
tag:         v1.57
user:        mforbes
date:        Fri Jan 30 16:46:05 2009 -0800
files:       ubcthesis.dtx
description:
[svn r2116] Reverted default for ubcsample to openright.


changeset:   87:a1354833839c
branch:      ubcthesis
user:        mforbes
date:        Fri Jan 30 15:04:20 2009 -0800
files:       Makefile
description:
[svn r2115] Added several passes with pdflatex.


changeset:   86:e7c85616e84d
branch:      ubcthesis
user:        mforbes
date:        Fri Jan 30 15:00:30 2009 -0800
files:       ubcthesis.dtx
description:
[svn r2114] Added thanks.


changeset:   85:835b8dd304f8
branch:      ubcthesis
user:        mforbes
date:        Fri Jan 30 14:51:49 2009 -0800
files:       Makefile ubcthesis.dtx
description:
[svn r2113] Added openrightblank option in conformance with UBC FoGS.
Cleaned up pagination and cleardoublepage structure and usage.
Use pdflatex to make documentation so hyperref works nicely.


changeset:   84:7c1288e1ecc9
branch:      ubcthesis
tag:         v1.56
user:        mforbes
date:        Thu Jan 15 00:03:31 2009 -0800
files:       ubcthesis.dtx
description:
[svn r2108] CVS -> SVN


changeset:   83:b96608566410
branch:      ubcthesis
user:        mforbes
date:        Wed Jan 14 23:54:29 2009 -0800
files:       Makefile
description:
[svn r2107] Remove data link too with realclean.
```

```
changeset:   82:ced686b1ff30
branch:      ubcthesis
user:        mforbes
date:        Wed Jan 14 23:53:09 2009 -0800
files:       ubcthesis.dtx
description:
[svn r2106] Okay, really Final version 1.56 passing checksum!


changeset:   81:6b0c867ff8e4
branch:      ubcthesis
user:        mforbes
date:        Wed Jan 14 23:52:14 2009 -0800
files:       ubcthesis.dtx
description:
[svn r2105] Final version 1.56: Provided \monthname command to remove dependency
on the datetime package.


changeset:   80:9723d6baa34d
branch:      ubcthesis
user:        mforbes
date:        Wed Jan 14 23:29:57 2009 -0800
files:       ubcthesis.dtx
description:
[svn r2104] Updated version to 1.56 and fixed some bugs on titlepage suggested by
Darren including centering vertically, even-odd margins and updated
date format.


changeset:   79:86c3d0b871f9
branch:      ubcthesis
tag:         v1.55
user:        mforbes
date:        Wed Dec 03 20:28:59 2008 -0800
files:       data
description:
[svn r2069] Added link to data.


changeset:   78:c2cffaa4a9c5
branch:      ubcthesis
user:        mforbes
date:        Wed Dec 03 20:28:39 2008 -0800
files:       ubcthesis.dtx
description:
[svn r2068] Added a missing brace!


changeset:   77:29b1cc756451
branch:      ubcthesis
user:        mforbes
date:        Sat Aug 09 17:54:10 2008 -0700
files:       ubcthesis.dtx
description:
[svn r1994] Removed note about natbib bug.


changeset:   76:42c59752b999
branch:      ubcthesis
user:        mforbes
date:        Sat Aug 09 17:51:32 2008 -0700
files:       ubcthesis.dtx
description:
[svn r1993] - Simplified marking instructions (removed \chaptermark* etc.) to keep
  with standard LaTeX.
- Added better support for natbib package, including fixing bug with
  numbering not being reset between sections of a manuscript based thesis.


changeset:   75:f75b4ff42a2a
branch:      ubcthesis
tag:         v1.53
user:        mforbes
date:        Mon May 19 17:58:46 2008 -0700
files:       ubcthesis.dtx
description:
[svn r1908] Unified chaptermark commands: only @chaptermark(No)Star should be
modified.  This fixes a runningheader bug that caused an extra
\bibname to be displayed.


changeset:   74:c66b6537ff26
branch:      ubcthesis
tag:         v1.52
user:        mforbes
date:        Mon Mar 24 08:41:51 2008 -0700
files:       ubcthesis.dtx
description:
```

```
[svn r1857] - Added a comment for \advisor* commands in ubcsample because they have
no effect.
- Changed Okanagan and Vancouver text to drop the Canada.


changeset:   73:fb398615dde1
branch:      ubcthesis
tag:         v1.51
user:        mforbes
date:        Thu Feb 21 17:24:48 2008 -0800
files:       Makefile
description:
[svn r1811] Added instructions to make pdf files.


changeset:   72:44cea114d613
branch:      ubcthesis
user:        mforbes
date:        Thu Feb 21 17:16:40 2008 -0800
files:       ubcthesis.dtx
description:
[svn r1810] - Included \@institutionaddress on titlepage as per new UBC Guidelines.
  Also mention this in sample files.
- Updated references to remove warning.


changeset:   71:f9689109a4d7
branch:      ubcthesis
tag:         v1.50
user:        mforbes
date:        Mon Feb 26 00:49:32 2007 -0800
files:       ubcthesis.dtx
description:
[svn r1502] Fixed pagenumTR header bug.


changeset:   70:a4611e2111c0
branch:      ubcthesis
tag:         v1.49
user:        mforbes
date:        Mon Feb 26 00:37:56 2007 -0800
files:       ubcthesis.dtx
description:
[svn r1501] Fixed \@startonecolumn that was in a conditional and hence unmatched
by the \@endonecolumn in the abstract.  This showed itself when the
\maketitlecommand was omited.


changeset:   69:6a9f9d91239c
branch:      ubcthesis
tag:         v1.48
user:        mforbes
date:        Mon Feb 26 00:30:42 2007 -0800
files:       ubcthesis.dtx
description:
[svn r1500] Fixed topmargin bug that was preventing this from being modified.


changeset:   68:709c2e17c211
branch:      ubcthesis
tag:         v1.47
user:        mforbes
date:        Tue Feb 20 16:03:35 2007 -0800
files:       ubcthesis.dtx
description:
[svn r1498] Added thanks.


changeset:   67:3c034697a7e6
branch:      ubcthesis
user:        mforbes
date:        Tue Feb 20 15:59:13 2007 -0800
files:       ubcthesis.dtx
description:
[svn r1497] Fixed spacing bug: The committee option reset the spacing to
singlespacing at the \begin{document} command.  Now it only modified
the spacing if the committee option is selected.

Added the setspace package to the UBC sample comments to show how to
change the spacing.


changeset:   66:8d330739f78a
branch:      ubcthesis
tag:         v1.46
user:        mforbes
date:        Mon Jan 22 15:48:03 2007 -0800
files:       ubcthesis.dtx
description:
[svn r1456] Added sectionbib option to facilitate bibliographies in chapters for
manuscript based theses.
```

```
changeset:   65:877db6893b81
branch:      ubcthesis
tag:         v1.45
user:        mforbes
date:        Tue Jan 16 22:02:42 2007 -0800
files:       ubcthesis.dtx
description:
[svn r1453] Added counter \c@oldsecnumdepth to allow \frontmatter and \mainmatter
to manipulate and reset this to suppress numberings in the
frontmatter.  This is needed so that packages like fancyhdr.sty work
properly.


changeset:   64:010298cb5e26
branch:      ubcthesis
tag:         v1.44
user:        mforbes
date:        Wed Jan 10 17:45:05 2007 -0800
files:       ubcthesis.dtx
description:
[svn r1443] Ignore files.


changeset:   63:96b9065d204a
branch:      ubcthesis
user:        mforbes
date:        Sun Oct 22 01:41:46 2006 -0700
files:       ubcthesis.dtx
description:
[svn r1331] Fixed typo.


changeset:   62:beff47128770
branch:      ubcthesis
tag:         v1.43
user:        mforbes
date:        Sun Oct 22 01:29:58 2006 -0700
files:       ubcthesis.dtx
description:
[svn r1330] -Added more documentation and reorganized some of it.
-Added (no)appendicestoc options.
-Reverted \chapter etc. commands to default behaviour for
 compatibility with other packages.
-Added fmttoc... macros to factor out formatting.
-Modified \appendix command to provide toc lable and properly
 implement options.
-Changed default options for ubcthesis to include appendicestoc and
 appendixpage to satisfy FoGS changes.


changeset:   61:62df1a122dd2
branch:      ubcthesis
tag:         v1.42
user:        mforbes
date:        Sat Sep 02 23:42:40 2006 -0700
files:       Makefile
description:
[svn r1269] Remove .txt notes from final distribution (realclean)


changeset:   60:619f7ee03271
branch:      ubcthesis
user:        mforbes
date:        Sat Sep 02 23:37:55 2006 -0700
files:       ubcthesis.dtx
description:
[svn r1268] -Fixed documentation error (first line).
-Added starred version \chaptermark* to add unnumbered chapters to
 running headers (like the bibliography).
-Cleaned up \chaptermark definitions in headings pagestyle.
-Removed sectionmark command from headings page style.
-Fixed some indentation errors and one changelog \cs error.
-Added \chaptermark* to thebibliography to fix bug in running
 headers.  (Prior to this, and unnumbered bibliography would not
 produce a running header).


changeset:   59:05edada964f2
branch:      ubcthesis
tag:         v1.40
user:        mforbes
date:        Sun Jun 18 13:20:43 2006 -0700
files:       FoGS.txt ubcthesis.FoGSNotes.txt
description:
[svn r1211] Initial commit


changeset:   58:7fe910e9220c
branch:      ubcthesis
```

```
user:        mforbes
date:        Tue Apr 11 10:45:29 2006 -0700
files:       README ubcthesis.dtx
description:
[svn r1173] Changed some inline documentation.


changeset:   57:ae4d991d0f1e
branch:      ubcthesis
user:        mforbes
date:        Wed Feb 22 19:03:25 2006 -0800
files:       ubcthesis.dtx
description:
[svn r1158] Added (no)chapternotereset option and made the ubcthesis default no.


changeset:   56:fc21d0e967c3
branch:      ubcthesis
tag:         v1.39
user:        mforbes
date:        Wed Feb 22 18:25:40 2006 -0800
files:       ubcthesis.dtx
description:
[svn r1157] Minor changes to ubc sample thesis.


changeset:   55:a0fd0c95fe3c
branch:      ubcthesis
tag:         v1.38
user:        mforbes
date:        Wed Feb 22 16:11:30 2006 -0800
files:       ubcthesis.dtx
description:
[svn r1156] Sync'd version numbers


changeset:   54:ce78819b2fb7
branch:      ubcthesis
tag:         v1.36
user:        mforbes
date:        Wed Feb 22 16:10:18 2006 -0800
files:       ubcthesis.dtx
description:
[svn r1155] Added longtable example to ubcsample.tex


changeset:   53:5e89b467e488
branch:      ubcthesis
user:        mforbes
date:        Mon Feb 20 21:55:28 2006 -0800
files:       Makefile ubcthesis.dtx
description:
[svn r1154] Modified sample ubcthesis to include more package examples.
Makefile now has target realclean which gets rid of CVS stuff and a
  simple clean which just gets rid of junk.


changeset:   52:cdade1d0cea6
branch:      ubcthesis
tag:         v1.35
user:        mforbes
date:        Mon Feb 20 15:41:51 2006 -0800
files:       ubcthesis.dtx
description:
[svn r1152] Modified comment error.  (Don't use __ in comments!)


changeset:   51:8035ecf55b6d
branch:      ubcthesis
tag:         v1.34
user:        mforbes
date:        Mon Feb 20 15:38:44 2006 -0800
files:       ubcthesis.dtx
description:
[svn r1151] Added "Parts" organization for documentation (removed "File" tag for
  this")
Switched to \LaTeX{} so trailing space may be flexible.
Revamped class option sections.  Namely, change ProcessOptions ->
  ProcessOptions* so that defaults can be specified (the latter executes
  options in the order called rather than the order defined.)
Added pagenum__ options for optional page number placement.  This
  involved mostly modification of the page style (ps@__) commands.

Added (no)bibnum option for optional numbering of the bibliography.
Altered ubcsample.tex in response to FoGS requests.


changeset:   50:3b99cf26af2a
branch:      ubcthesis
tag:         v1.33
user:        mforbes
```

```
date:        Thu Feb 16 00:51:22 2006 -0800
files:       ubcthesis.dtx
description:
[svn r1149] Substantial modifications of the ubcsample.tex file to bring it in
line with the FoGS requirements (thanks to Max Read and Joseph Tam for
these suggestions and changes).

Fixed typo \chapterbeforespace -> \chapterbeforeskip


changeset:   49:39efb6018e11
branch:      ubcthesis
tag:         v1.32
user:        mforbes
date:        Wed Feb 15 21:56:15 2006 -0800
files:       ubcthesis.dtx
description:
[svn r1148] Added Chris Dutchyn's changes:
  Added tocitalic and notocitalic options.
  Added some float package compatibility.
  Added some header fixes.
  Adjusted various spacing issues in headers.
  Added various chapter headings explicitly to toc.
  Fixed index placement with two-sided option.

Made ubc sample file default to 11pt (as per FoGS request)


changeset:   48:2bed6f68db2a
branch:      ubcthesis
tag:         v1.31
user:        mforbes
date:        Wed Nov 16 18:20:04 2005 -0800
files:       ubcthesis.dtx
description:
[svn r1122] Fixed bug in sample files.


changeset:   47:5365f352fe3f
branch:      ubcthesis
tag:         v1.30
user:        mforbes
date:        Wed Nov 16 18:15:29 2005 -0800
files:       ubcthesis.dtx
description:
[svn r1121] Fixed web references in the sample files.
Removed number from \thebibliography (Thanks to Christopher Dutchy)


changeset:   46:33fe03471df3
branch:      ubcthesis
tag:         v1.29
user:        mforbes
date:        Tue Nov 15 23:31:31 2005 -0800
files:       Makefile
description:
[svn r1117] Added mitsample as default target


changeset:   45:d6f857eebab5
branch:      ubcthesis
user:        mforbes
date:        Tue Nov 15 23:24:18 2005 -0800
files:       README
description:
[svn r1116] Updated email anc website info to alum.mit.edu


changeset:   44:154b80ea1afa
branch:      ubcthesis
user:        mforbes
date:        Tue Nov 15 23:19:34 2005 -0800
files:       README ubcthesis.dtx ubcthesis.ins
description:
[svn r1115] Updated email anc website info to alum.mit.edu


changeset:   43:4bbd72d79007
branch:      ubcthesis
tag:         v1.28
user:        mforbes
date:        Tue Nov 15 23:12:52 2005 -0800
files:       ubcthesis.dtx
description:
[svn r1114] Removed \chaptertoc and other redundant commands which should be
replaced by \chapter[] with an optional argument.

Removed \preface, \acknowledgements and \foreword commands: these
should simply be chapters.

Updated sample files to reflect these changes.
```

```
changeset:   42:067a8d59eef8
branch:      ubcthesis
tag:         v1.26
user:        mforbes
date:        Wed May 25 13:58:43 2005 -0700
files:       ubcthesis.dtx
description:
[svn r1052] Partial commit.


changeset:   41:d9551af830b7
branch:      ubcthesis
user:        mforbes
date:        Fri Apr 15 17:50:26 2005 -0700
files:       README
description:
[svn r1035] Added comments about ubcthesis needing genthesis


changeset:   40:6a5dc49306ce
branch:      ubcthesis
user:        mforbes
date:        Fri Apr 15 17:19:43 2005 -0700
files:       ubcthesis.dtx
description:
[svn r1034] Fixed minor typesetting bug on first page.


changeset:   39:21d89be75c4d
branch:      ubcthesis
tag:         v1.21
user:        mforbes
date:        Sun Mar 27 11:47:03 2005 -0800
files:       README
description:
[svn r1021] Modified to mention MIT


changeset:   38:8785204c9d63
branch:      ubcthesis
user:        mforbes
date:        Sun Mar 27 11:33:58 2005 -0800
files:       ubcthesis.dtx ubcthesis.ins
description:
[svn r1020] Added [hypertex] option as default for hyperref.
MIT thesis page numbering okay now.
Default hangingcaptions option fixed (none).
Some major titlepage cleanup.


changeset:   37:79db7dcc752e
branch:      ubcthesis
user:        mforbes
date:        Tue Mar 08 14:18:36 2005 -0800
files:       ubcthesis.dtx
description:
[svn r1008] Changes on the way to allowing for modular theses.


changeset:   36:63f0bbc73a50
branch:      ubcthesis
user:        mforbes
date:        Wed Feb 09 18:56:11 2005 -0800
files:       ubcthesis.dtx
description:
[svn r1003] Fixed minor restructuring change.


changeset:   35:b88516793c60
branch:      ubcthesis
user:        mforbes
date:        Wed Feb 09 18:52:32 2005 -0800
files:       Makefile ubcthesis.dtx
description:
[svn r1002] Minor fixes.  Updated Checksum.


changeset:   34:a065bedf0480
branch:      ubcthesis
user:        mforbes
date:        Wed Feb 09 18:46:29 2005 -0800
files:       README
description:
[svn r1001] Added new files to comments.


changeset:   33:d8c09c27d0ef
branch:      ubcthesis
user:        mforbes
```

```
date:        Wed Feb 09 18:41:34 2005 -0800
files:       ubcthesis.dtx ubcthesis.ins
description:
[svn r1000] The new UBC Faculty of Graduate Studies rules forbid signatures from the
cover and change some of its content, most notably that the department
is now your program.  Title page now reflects this, although macros are
retained.  Thanks to Darren Peets for these changes.

This also respesents the start of a restructuring to move the
university dependant information into smaller .cls files.  The general
class will be called genthesis.cls and the university specific ones
ubcthesis.cls, mitthesis.cls etc.


changeset:   32:43db3d100f27
branch:      ubcthesis
tag:         v1.20
user:        mforbes
date:        Thu Jun 24 12:42:59 2004 -0700
files:       ubcthesis.dtx
description:
[svn r833] Documentation and web references updated.


changeset:   31:425c2dcf0acb
branch:      ubcthesis
tag:         v1.19
user:        mforbes
date:        Wed Feb 04 15:40:17 2004 -0800
files:       Makefile
description:
[svn r733] Added sample.ps as a target (and sample.dvi)


changeset:   30:b6e54b14696a
branch:      ubcthesis
user:        mforbes
date:        Wed Feb 04 15:32:45 2004 -0800
files:       Makefile
description:
[svn r732] Added commands for making index.


changeset:   29:89b0cf2ea110
branch:      ubcthesis
user:        mforbes
date:        Wed Feb 04 15:20:09 2004 -0800
files:       ubcthesis.dtx
description:
[svn r731] Added fix for header overflow bug as suggested by James P. Zibin.
Messed a bit with change log and index.  Now indices are generated,
but this should be cleaned up.


changeset:   28:9088b5cbe375
branch:      ubcthesis
tag:         v1.18
user:        mforbes
date:        Sat Dec 14 22:41:02 2002 -0800
files:       TODO ubcthesis.dtx
description:
[svn r379] Modified To Do list...


changeset:   27:4b787a13db9e
branch:      ubcthesis
tag:         v1.17
user:        mforbes
date:        Sat Dec 14 21:44:11 2002 -0800
files:       ubcthesis.dtx
description:
[svn r377] Resets the pagestyle to plain for the first page of a chapter.  This
is the default behaviour of the LaTeX classes and should be preserved
for consistency: an option to change the behaviour should probably be
provided...


changeset:   26:c4855b5ec90a
branch:      ubcthesis
user:        mforbes
date:        Tue Aug 27 11:43:17 2002 -0700
files:       ubcthesis.dtx
description:
[svn r270] Added normalsize command at end of maketitle.
changed includegraphics command to be compatible with
graphics and graphicx


changeset:   25:a68cbf47370b
branch:      ubcthesis
tag:         v1.15
```

```
user:        mforbes
date:        Thu Jul 18 11:17:29 2002 -0700
files:       TODO
description:
[svn r265] *** empty log message ***


changeset:   24:34029bee5606
branch:      ubcthesis
user:        mforbes
date:        Thu Jul 04 22:05:55 2002 -0700
files:       ubcthesis.dtx
description:
[svn r255] Some font fixes suggested by Darren concerning the titlepage.


changeset:   23:71e78b1cf399
branch:      ubcthesis
tag:         v1.14
user:        mforbes
date:        Sun Apr 21 16:24:02 2002 -0700
files:       ubcthesis.dtx
description:
[svn r229] Added linebreaks for version labels (so they look nicer in the LaTeX
logs when viewed at standard width.)

Corrected various spelling mistakes.

Added ma,masc,meng options.  Also modified the number of signatures
used by these options.

Fixed references in Acknowledgements page.  (Links were correct,
labels were not.)

TITLEPAGE:
Some large modification on title page: including adding \faculty
command and various font options.  Some fonts now depend on others:
i.e. \faculty font is initially set to \titlepagefont.

Many uppercase options added: uppersubtitle, upperdegreetitle etc.

Titlepage supports a graphic logo (supplied by user).  This
contribution was from Darren Peets.

Fixed bug with use of \MakeUppercase: The argument must be given
within the \if, otherwise it does not work.  A TeX guru could probably
tell me how to make this work properly!


changeset:   22:10afcbd7b4e3
branch:      ubcthesis
tag:         v1.13
user:        mforbes
date:        Wed Mar 27 18:30:39 2002 -0800
files:       ubcthesis.dtx
description:
[svn r222] Fixed bug with section heading interline spacing.  Added some documentation.


changeset:   21:a363cd761695
branch:      ubcthesis
tag:         v1.12
user:        mforbes
date:        Mon Feb 18 21:45:52 2002 -0800
files:       ubcthesis.dtx
description:
[svn r206] Replaced magic numbers associated with list of tables and list of
figures with commands \to?indent and \to?labelwidth.


changeset:   20:d73dc59463ad
branch:      ubcthesis
tag:         v1.11
user:        mforbes
date:        Tue Feb 12 17:38:22 2002 -0800
files:       ubcthesis.dtx
description:
[svn r202] Fixed a bug with starred sectioning commands.  Also removed some magic
numbers.


changeset:   19:e8160aa93ece
branch:      ubcthesis
tag:         v1.10
user:        mforbes
date:        Fri Jan 18 11:55:40 2002 -0800
files:       ubcthesis.dtx
description:
[svn r179] Fixed a bug with some options (nagative were not properly declared).

Changed Forword -> Foreword
```

```
changeset:   18:a99617016b17
branch:      ubcthesis
user:        mforbes
date:        Thu Jan 17 16:13:42 2002 -0800
files:       ubcthesis.dtx
description:
[svn r178] Some bug fixes.  Committee spacing fixed, header overfulls warnings
removed (but not well) and a few numbering bugs fixed (section
numbering as well as the copyright year).


changeset:   17:83bd9622e8f1
branch:      ubcthesis
user:        mforbes
date:        Tue Jan 15 12:19:02 2002 -0800
files:       BUGS Makefile
description:
[svn r176] README -> READMe bug.


changeset:   16:bd9a67487c9e
branch:      ubcthesis
user:        mforbes
date:        Tue Jan 15 12:09:11 2002 -0800
files:       Makefile
description:
[svn r175] Refined clean process.


changeset:   15:eb2635cd96fb
branch:      ubcthesis
user:        mforbes
date:        Tue Jan 15 12:07:04 2002 -0800
files:       BUGS README
description:
[svn r174] Update including bug list.


changeset:   14:a70c00834e5a
branch:      ubcthesis
user:        mforbes
date:        Tue Jan 15 11:56:18 2002 -0800
files:       Makefile README
description:
[svn r173] Updated.  Now Makefile is not distributed: make clean removes it and
the CVS directory.


changeset:   13:7471ec933b83
branch:      ubcthesis
user:        mforbes
date:        Tue Jan 15 11:52:07 2002 -0800
files:       Makefile
description:
[svn r172] Included -f flag to suppress rm errors.


changeset:   12:870491dcb15a
branch:      ubcthesis
user:        mforbes
date:        Tue Jan 15 11:50:22 2002 -0800
files:       Makefile
description:
[svn r171] Included target clean:


changeset:   11:310c10c41d77
branch:      ubcthesis
user:        mforbes
date:        Tue Jan 15 11:43:09 2002 -0800
files:       Makefile README
description:
[svn r170] Initial commit of supporting files.


changeset:   10:e0fadf947d7d
branch:      ubcthesis
user:        mforbes
date:        Tue Jan 15 11:42:31 2002 -0800
files:       ubcthesis.ins
description:
[svn r169] Removed generation of documentation driver as this is never needed.
(Simply processing the dtx file with latex has the same effect).


changeset:   9:28cc21eb4197
branch:      ubcthesis
user:        mforbes
date:        Mon Jan 14 19:31:18 2002 -0800
```

```
files:       ubcthesis.dtx
description:
[svn r168] Fixed bug with hyperref package by converting to uppercase BEFORE
adding headings to the toc file.

Added documentation and reorganized things.

Just about ready for release.


changeset:   8:1b85833a16ad
branch:      ubcthesis
user:        mforbes
date:        Sun Jan 13 18:38:35 2002 -0800
files:       ubcthesis.ins
description:
[svn r165] Added CVS Id and Log.


changeset:   7:9641442af9c5
branch:      ubcthesis
user:        mforbes
date:        Sun Jan 13 18:38:10 2002 -0800
files:       ubcthesis.dtx
description:
[svn r164] Corrected minor typo.


changeset:   6:023fef390555
branch:      ubcthesis
user:        mforbes
date:        Sun Jan 13 18:33:04 2002 -0800
files:       ubcthesis.dtx
description:
[svn r163] Modified the CVS version id into file and added a log to the end.


changeset:   5:95f106b113c2
branch:      ubcthesis
user:        mforbes
date:        Sun Jan 13 17:52:03 2002 -0800
files:       ubcthesis.dtx
description:
[svn r162] Added CVS version id into file.


changeset:   4:8679b85abd57
branch:      ubcthesis
user:        mforbes
date:        Sun Jan 13 17:30:53 2002 -0800
files:       TODO ubcthesis.dtx ubcthesis.ins
description:
[svn r161] Revised version.  Many comments added and introduction etc. greatly
expanded.

Conflict with natbib fixed (though probably not optimally).

Problems with @ characters in .bib file fixed.


changeset:   3:4c6e52ec8f89
branch:      ubcthesis
user:        mforbes
date:        Tue Oct 09 08:33:07 2001 -0700
files:       ubcthesis.dtx
description:
[svn r118] There is a problem with the hyperref package. Taken out for now.

Except for above, \@toupper appears to work now.

\partnamefont added to specify the font for the actual part name.

partheads option added to match chapterheads option.

Some modifications here and there: headers fixed so they align
properly.  Part heading modified to use specified fonts.  Uppercase
conversions done.  \chaptertoc used for toc, lof, lot and bib for consistency.


changeset:   2:18b53a902e8b
branch:      ubcthesis
user:        mforbes
date:        Tue Oct 02 15:32:49 2001 -0700
files:       ubcthesis.dtx ubcthesis.ins
description:
[svn r109] Major revision.  Now the document is based on the book class with
modifications to make it look like a thesis.  This should be
considered the first real version as it is a drastic improvement over
the other versions.
```

```
changeset:   1:43dbbaf7333c
branch:      ubcthesis
user:        mforbes
date:        Thu Sep 27 17:20:51 2001 -0700
files:       ubcthesis.dtx ubcthesis.ins
description:
[svn r108] Converted ubcthesis package to a .ins and a .dtx distribution.  Now,
running LaTeX on the .ins file will generate everything from the .dtx file.


changeset:   0:c02300bce276
branch:      ubcthesis
user:        mforbes
date:        Wed Sep 19 16:49:57 2001 -0700
files:       TODO fig.eps fig.fig
description:
[svn r107] Initial commit of UBC thesis class.
```

Change History

v1.00d

General: Added use of `\NeedsTeXFormat` 57

Made eqaution and eqnarray environments in the fleqn option up to date with latex.dtx 57

remove `\@in`, made option makeindex a synonym for option makeidx 57

removed `\@minus`, `\@plus`, `\@settopoint`, `\@setfontsize`; they are now in the kernel . . . 57

Replaced `\bf` with `\bfseries`; `\rm` with `\rmfamily` 57

v1.00f

General: Made all lines shorter than 72 characters 57

Use class ltxdoc document class 23

`\bf`: Macro added 118

`\it`: Macro added 119

`\rm`: Macro added 118

`\sc`: Macro added 119

`\sf`: Macro added 118

`\sl`: Macro added 119

`\tt`: Macro added 118

v1.00g

General: Distinguished between compatibility and 'normal' mode for the font changing commands. 118

Made change in eqnarray for the fleqn option, as suggested by Rainer. 57

`\cal`: Macro added 119

`\listoffigures`: Moved the setting of `\@restonecolfalse` 123

`\listoftables`: Moved the setting of `\@restonecolfalse` 123

`\mit`: Macro added 119

`\tableofcontents`: Moved the setting of `\@restonecolfalse` . 120

`executivepaper`: Removed typo, A4 is not 279 mm high 67

v1.00h

General: Corrected some typos. ASAJ. 70

Made the definitions of the font- and size-changing commands use `\renew` rather than `\new`. Defined the float parameters with `\renewcommand` rather than `\newcommand`. Corrected some typos in the fleqn option. Replaced two occurrences of -`\@secpenalty` by `\@secpenalty`. ASAJ. 57

These are now defined in the kernel, so use `\@renewfontswitch`. Compatibility mode defines `\@renewfontswitch` to do nothing, so we don't need to check for compatibility mode any more. 118

`\bottomfraction`: Replaced `\newcommand` with `\renewcommand`. ASAJ. 81

`\dblfloatpagefraction`: Replaced `\newcommand` with

\renewcommand. ASAJ. 81
\dbltopfraction: Replaced \newcommand with \renewcommand. ASAJ. 81
\floatpagefraction: Replaced \newcommand with \renewcommand. ASAJ. 81
\l@part: Replaced -\@secpenalty by \@secpenalty. ASAJ. . . 120
\textfraction: Replaced \newcommand with \renewcommand. ASAJ. 81
\topfraction: Replaced \newcommand with \renewcommand. ASAJ. . 81
v1.00i
thebibliography: Corrected definition of thebibliography for article 124
v1.00j
General: Added \normalfont back in the definitions of \rm etc. as this should be the default behaviour 118
Added \ProvidesFile to size files 57
Use \cmd in change entries . . . 57
v1.00k
General: Removed some typos/bugs 57
\l@chapter: Added \hbox around dots. 122
v1.00l
General: add the extension to the names of the files 57
Changed version numbering; moved leqno and fleqn options to an external file. 57
\l@chapter: Don't reset to \rmfamily 122
v1.00m
\labelwidth: Use em instead of pt to remain compatible with old styles 111
\leftmarginvi: Use em instead of pt to remain compatible with old styles 110
\parindent: \parindent should be different, depending on the pointsize 80
v1.00n
General: Removed code for makeidx option and made it a separate package; removed use of \setlength from list parameters. 57
v1.00o
General: Small documentation changes 57
v1.00q
General: Small documentation changes 57
v1.00r
General: Moved driver code in order not to need a separate driver . 23
v1.01a
\@endonecolumn: New algorithm for \marginparwidth 60
New algorithm for \oddsidemargin 60
\@makefntext: Use \@makefnmark to generate footnote marker . 127
General: Removed \typeout messages 57
\brokenpenalty: Show correct default which is 100 80
v1.01f
General: Inserted forgotten line break 57
v1.02a
General: Added openright option. (LL) 57
v1.02b
General: Added the . . . matter commands. (LL) 57
v1.02d
General: Checked the file for long lines and wrapped them when necessary; made a slight implementation modification to the openright and openany options. 57
v1.02e
General: \@renewfontswitch has become \DeclareOldFontCommand 118
v1.02g
\sc: Added warning if used in math mode 119
\sl: Added warning if used in math mode 119

v1.02i
General: Use LaTeX instead of LaTeX2e in messages 57
\l@chapter: Don't print a toc line when the tocdepth counter is less than 0 121
\l@part: Don't print a toc line when the tocdepth counter is less then -1 120
v1.02j
General: Removed the use of \fileversion c.s. 57
v1.02k
\descriptionlabel: Inserted \normalfont 112
\labelitemii: Inserted \normalfont 112
v1.02l
General: changed some \changes entries 57
v1.02m
General: Forgot a few entries . . . 57
v1.02o
General: Changed file information 57
v1.02p
General: Moved identification and driver to the front of the file . 57
v1.02q
\@makecaption: Use \sbox\@tempboxa instead of \setbox\@tempboxa\hbox to make this colour safe 118
v1.02t
General: Refrased a few sentences to prevent overfull hboxes . . . 57
v1.02v
\@dotsep: Changed documentation from > or = to ≥ 120
\@makechapterhead: Added \interlinepenalty\@M to prevent a page break in the middle of a title 107
Added a \nobreak to prevent a page break between the chapter number and the chapter title 106
\@makeschapterhead: Added \interlinepenalty\@M to prevent a page break in the middle of a title 107
General: Made the oneside option work for the book class 57
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v1.02w
General: Use \newcommand* 24
Use \newcommand* for commands with arguments 57
\mit: Now define \cal and \mit using \DeclareRobustCommand* 119
v1.02x
\@makecaption: Due to a change in the way floats are handled we need to set the \if@minipage switch to false 118
v1.02y
\descriptionlabel: made command short 112
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\@endonecolumn: Also take \marginparsep into account here 60
General: Always use \cs in \changes entries 57
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thebibliography: Added missing braces in definition of thebibliography environment. 124
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\l@part: Added missing braces around argument to \addpenalty. 120
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\@makechapterhead: replace \reset@font with \normalfont 106
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General: Split up to save save stack /1742 128
v1.03i
General: Moved code for generic class options leqno and fleqn to kernel file 130
v1.03j
\@endpart: move docstrip guard to avoid defining \@endpart in article 104
\@makechapterhead: replace braces by \space 106
\@part: add missing percent 103
verse: stop \item scanning for [with \relax 113
thebibliography: remove surplus spaces 124
\l@part: Add missing percent . . 121
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\mit: Remove surplus braces . . . 119
\part: Replace \hbox by \null . 103
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quote: stop \item scanning for [with \relax 113
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v1.03r
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\labelitemii: Replaced -- with \textendash 112
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thebibliography: Added setting value of \@clubpenalty 124
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\c@table: Added test for non-zero chapter number 117
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v1.03w
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v1.03x
\l@part: Removed setting of \@tempdima as this macro does not use \numberline to set the toc line. 120
v1.03y
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\mainmatter: Two years on: Make this command not react to the option openany as this makes the verso/recto numbering wrong: see pr/2754 for discussion 102
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\l@chapter: we should use \@tocrmarg; see PR/2881. . . 121
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General: Changed \textwidth to 0.99\textwidth to prevent overflows. Not a good fix. . . . 82
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\authorizationform: Fixed spacing problem with committee option. 97, 98
\maketitle: Fixed spacing problem with committee option. 95
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\subparagraph: Added \@headingalignment. 110
\subsection: Fixed numbering bug by increasing level 108
\titlepage: Fixed spacing problem with committee option. 95
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theindex: Moved the setting of \@restonecoltrue 125
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\@chapter: Renamed \beforechaptervspace etc. to \chapterbeforeskip etc. 106
Used \@toctoupper rather than \@toupper 104
\@part: Renamed \beforechaptervspace etc. to \chapterbeforeskip etc. 103
Used \@toctoupper rather than \@toupper 103
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Provided a starred form of the commands 108
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Replaced magic numbers 108
Used \@toctoupper rather than \@toupper 108
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Added \loflabelwidth and \lotlabelwidth 67

Added \lotindent and \lotlabelwidth to replace magic numbers. 123
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\@makeschapterhead: Moved brace so that \par\nobreak are included in the same font grouping: this removes a bug where the chapter heading was not spaced properly between lines. 107
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\@startonecolumn: Added \faculty command. 63
General: Added \@faculty and similar options. 132
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Darren added ma, masc, meng options and change number of signatures. 71
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Fixed \MakeUppercase problem: make sure that you give the arguments. The construction \if···\MakeUppercase\fi{text} does not work. 95
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General: Darren changed \normalfont to \titlepagefont 132
\titlepage: Darren changed \normalfont to \titlepagefont 95
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\chapter: We now set the pagestyle for this page to *plain* as was the default for the original classes. This was the default behaviour and is referenced for example in the *fancyhdr* package. Ultimately there should be an option for setting this style. . . 104
v1.19
General: Added % to \def\@evenhead{ and \def\@oddhead{ commands on their own line so that an extra space is not inserted causing the previous overflow. Now the 0.99 factor can be removed. Thanks to James P. Zibin for this fix. 82
v1.21
\@startonecolumn: Department is now your program. –Darren Peets 63
General: Added university flavour packages: mforbes 130
Darren added upperprogram, which will appear on title page. 70
Darren moved much of title page into comments, to meet new UBC FoGS guidelines. 132
\titlepage: Darren moved much of title page into comments, to meet new UBC FoGS guidelines. 95
v1.24
\@endonecolumn: This generically stores page parameters now so that one can redefine textwidths etc. by starting a single column and then restore the settings at the end. 58
\maketitle: No indenting for titlepage 93
v1.28
General: Removed \preface, \acknowledgements and related commands. 16, 98, 128

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thebibliography: Changed \chaptertoc to \chapter[]. 124
\listoffigures: Changed \chaptertoc to \chapter[]. 123
\listoftables: Changed \chaptertoc to \chapter[]. 123
\tableofcontents: Changed \chaptertoc to \chapter[]. 120
v1.32
\@chapter: Added float package compatibility (CD) 105
I have my doubts whether this heading appear at the right place in a 2 column thesis (Christopher Dutchyn). Two-column thesis support is sketchy: one needs a provision for wide-equations etc. with column wrapping like REVTeX4 to do this (but footnote placement is messed up there) (MMF). 105
Renewed float@listhead after preamble (CD) 105
\@makechapterhead: Ensure chapter and chapter* titles line up when \committeespacing and \@committee set (CD) 106
General: \chapterfont should be \chapterheadfont (CD) 16
Added tocitalic option (CD) 12, 72
Added toctoitalic (CD) 58
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thebibliography: Added TOC parameter for later munging. (CD) 124
theindex: Add extra space to line up Index name – close enough (CD) 126
Ensure that index appears in TOC (CD) 126
\listoffigures: Added TOC parameter for later munging. (CD) 123
\listoftables: Added TOC parameter for later munging. (CD) 123
\tableofcontents: Added TOC parameter for later munging. (CD) 120
v1.33
General: Implemented several requests made by Max Read of the UBC FoGS. Many of these were actually implemented by Joseph Tam 24
v1.34
General: Added (no)bibnum option (MMF) 73
Added default argument definitions here (MMF) 131
Added pagenum... and (no)bibnum options (MMF) . . 12
Added pagenum... options (MMF) 68
Added support for pagenum... options (MMF) and cleaned up code. 82
Changed to \ProcessOptions* (MMF) 79
thebibliography: Added optional bibnum flag support (MMF) 124
v1.40
General: Added (no)chapternotereset option (MMF) 72
Added default nochapternotereset 131
Added optional chapternotereset flag support (MMF) 127
v1.42
General: Added \appendicesname. 128
thebibliography: Removed \addcontentsline from within argument of \chapter* because this was causing an error. Added \chaptermark to change headings (thanks to Abhishek Gupta for pointing this out (MMF) 124
\ps@headings: Added starred versions \chaptermark* and \sectionmark* and cleaned up a bit. 85
v1.43
\@chapter: Added \@fmttocentry (MMF) 104

\@part: Added \@fmttocentry (MMF) 103
General: Added appendicestoc option. 73
Added paranthesis for \textit argument (MMF) 58
\appendix: Added \appendicesname to toc and completed code for appendixpart option. Added \@fmttocentry (MMF) 114
abstract: Added \@fmttocentry (MMF) 137
Changed \chapter[] to \chapter. Changing the symantics of \chapter may break compatibility with packages like hyperref so we revert to the default behaviour which includes the argument in the toc (MMF). 112
thebibliography: Added \@fmttocentry (MMF) 124
theindex: Added \@fmttocentry (MMF) 126
\l@chapter: Added \@fmttocchapterpage and (MMF) 122
Added \@fmttocchapter and (MMF) 122
\l@part: Added \@fmttocpart and \@fmttocpartpage (MMF) . 121
\l@section: Added \@fmttoc... and \@fmttoc...page (MMF) 122
\l@subparagraph: Added \@fmttoc... and \@fmttoc...page (MMF) 122
\listoffigures: Changed \chapter[] to \chapter. Changing the symantics of \chapter may break compatibility with packages like hyperref so we revert to the default behaviour which includes the argument in the toc (MMF). 123
\listoftables: Changed \chapter[] to \chapter. Changing the symantics of \chapter may break compatibility with packages like hyperref so we revert to the default behaviour which includes the argument in the toc (MMF). 123
\paragraph: Added \@fmttocentry (MMF) 109
\section: Added optional argument support to allow inclusion of a toc entry even with no number (MMF). 108
\subparagraph: Added \@fmttocentry (MMF) 110
\subsection: Added \@fmttocentry (MMF) 108
\subsubsection: Added \@fmttocentry (MMF) 109
\tableofcontents: Changed \chapter[] to \chapter. Changing the symantics of \chapter may break compatibility with packages like hyperref so we revert to the default behaviour which includes the argument in the toc (MMF). 120
v1.46
General: Added sectionbib option 73
thebibliography: Added sectionbib option and code to make bibliography a section. 124
v1.47
General: Fixed spacing problem. Now only renew the \baselinestretch command if the committee option is selected. This way preamble changes to the spacing will not be reset at the start of the document. Thanks to Murray McCutcheon for pointing this out. 130
v1.48
\@endonecolumn: Fixed typo with topmargin. 61
v1.49
abstract: Don't put \@startonecolumn in a conditionally because it always has to match \@endonecolumn. (MMF) . . 112
v1.50
\ps@headings: Fixed mismatched \hfil and \hfill causing cen-

tering problems with onepage and pagenumTR options. (MMF) 86
v1.51
General: Added instructions for Okanagan campus. 24
Cleaned up code a bit to group all text. The duplication should be removed in the future. . . 132, 133
\titlepage: \@institutionaddress to allow for Okanagan campus. 95
v1.53
\ps@draft: Moved definition of \chaptermark earlier. The code should only modify \@chaptermarkStar and \@chaptermakNoStar commands to prevent errors. There was a runningheader bug here because \chaptermark was modified directly. 87
\ps@headings: Moved definition of \chaptermark earlier. The code should only modify \@chaptermarkStar and \@chaptermakNoStar commands to prevent errors. . 85, 86
\ps@myheadings: Moved definition of \chaptermark earlier. The code should only modify \@chaptermarkStar and \@chaptermakNoStar commands to prevent errors. There was a runningheader bug here because \chaptermark was modified directly. 90
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