The **cornell** document class for $\mathrm{\LaTeX\,2_\varepsilon}$[*]

Sergio Gelato[†]   Daniel Kartch[‡]   Steve Holland[§]

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Abstract

This document class modifies the standard **report** class to conform with the requirements of the Graduate School at Cornell University for the layout of Ph.D. dissertations and Master's theses. It is a modified version of Sergio Gelato's **crnlphd** class, which was an update of the old **cuphdthesis** and **cuphdtitlepage** style files, incorporating changes for the new $\mathrm{\LaTeX\,2_\varepsilon}$ as well as a few other improvements.

Contents

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[*]This file has version number v2.5 dated 2002/04/02.

[†]The author acknowledges inspiration from a preexisting style file for $\mathrm{\LaTeX}$ 2.09, adapted from Leslie Lamport's **report** style by Rob McCurley, Alex Aiken, Donna Bergmark, and other anonymous contributors.

[‡]Most of the work of converting the old $\mathrm{\LaTeX}$2.09 thesis style files to a $\mathrm{\LaTeX\,2_\varepsilon}$ document class was done by the first author, who distributed it as **crnlphd**. I only made a few modifications to allow it to handle Master's theses and fixed a few minor bugs caused by updates in the $\mathrm{\LaTeX\,2_\varepsilon}$ source release.

[§]I made only a few bugfixes and changes to keep it up to date with the current instructions from the thesis secretary. In particular, I added the "halfcornellheadings" and "smallerheadings" options.

1   Introduction

This document describes the LaTeX 2_ε document class cornell, suitable[1] for the production of dissertations and theses at Cornell University.

1.1 Usage

This document class can be used both in LaTeX 2_ε native mode and in compatibility mode. To use it in native mode, say

```
\documentclass{cornell}
```

at the beginning of your LaTeX source file. To use it in compatibility mode, say

```
\documentstyle{cornell}
```

If you are only starting to key in the text of your dissertation, can rely on continued availability of LaTeX 2_ε, and do not need any packages that do have not yet been updated for LaTeX 2_ε, you should probably use native mode. If you have significant amounts of text already in existence, you should try using native mode: in the author's experience, the conversion is trivial if you didn't use too many undocumented tricks (or style options that rely on such).

1.2 Options and packages

phd

master

The author can specify whether the document is to be typeset as a Ph.D. dissertation or a Master's thesis with the phd and master options. The default is phd.

latexheadings

cornellheadings

halfcornellheadings

The author can choose between the standard LaTeX 2_ε chapter headings, those shown in the example in the grad school thesis guidelines (all caps centered at the top of the page), or half way in between with the latexheadings, cornellheadings, or halfcornellheadings options. The default is halfcornellheadings. Supposedly, any

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[1]In the authors' opinion, but with no guarantee that other users will agree. The authors shall not be liable for any consequence, good or bad, of other people's use of this software.

style is acceptable to the thesis secretary as long as it is consistent throughout the document. Only "cornellheadings" and "halfcornellheadings" follow the format specification as officially written as of April 2001.

Formally, all style options supported by the report document class are also supported by the cornell class. However, options 10pt and 11pt specify font sizes that are too small and are currently overridden by this file (a warning is issued to inform you of this). Support for some options, like twocolumn, may not be complete. Options draft and twoside have been tested. They should not be used for the production of the archival copies of the dissertation, but may be of use in drafting, or for formatting private copies.

tocprelim   A new option is tocprelim. This causes the preliminary sections to be listed in the table of contents. By default, preliminary sections are not listed in the table of contents.

smallerheadings   A new option (now the default) smallerheadings reduces the size of the normally-
normalsizeheadings   huge LaTeX headings to something more reasonable. normalsizeheadings is used to select the conventional LaTeX chapter and heading sizes.

In both native and compatibility mode, the options should be specified as optional arguments to the \documentclass (respectively \documentstyle) command. But note that many former options are now regarded as *packages*, and should be loaded (in native mode) by \usepackage{⟨name⟩} instead. In compatibility mode, they are still named in the optional argument to \documentstyle.

A number of packages have been tested with this format and appear to work. These are: array, dcolumn, indentfirst, longtable, epsf, drafthead, showkeys. There is no known reason why other packages like epsfig, color, graphics should not also work. As for options, some of these packages may not be appropriate when producing copies to be filed with the Graduate school. The author finds drafthead and showkeys useful in draft copies generated during the revision process.

Please be careful about using packages that change the default fonts, such as times which uses the Adobe Times Roman font. There is no guarantee that these fonts will be acceptable to the thesis secretary.

hangcaption   If you want more sensible caption wrapping (single spaced, second line indents), insert the commands

```
\usepackage{hangcaption}
\renewcommand{\caption}[1]{\singlespacing\hangcaption{#1}\normalspacing}
```

after the \documentclass line in your LaTeX file.

2   Arrangement of contents

A dissertation must contain the following parts, in the order listed. Only parts explicitly designated as optional may be omitted. The current version of this file does not support all of the optional parts.

1. Title page

2. Copyright page

3. Abstract

4. Biographical sketch

5. Dedication (*optional*)

6. Acknowledgements

7. Table of Contents

8. List of Tables

9. List of Figures (or List of Illustrations)

10. List of abbreviations (*optional*)

11. List of symbols (*optional*)

12. Preface (*optional*)

13. Text

14. Appendix (or Appendices) (apparently *not* optional, at least according to the letter of the instructions)

15. Bibliography (or References, or Works Cited)

16. Glossary (*optional*)

17. Index (*optional*)

Some macros and environments are provided to ease the formatting of these parts.

2.1 Title page

\maketitle   The title page is produced by the standard LaTeX macro \maketitle, with no arguments. Prior to invoking it, you should declare the title of the document

\title   using the \title macro, your name (exactly as registered with the Graduate

\author   School) with the \author macro, and the conferraldate with the \conferraldate

\conferraldate   macro. The syntax of this last macro is

$$\text{\textbackslash conferraldate}\{\langle month\rangle\}\{\langle year\rangle\}$$

For Master's theses you will also need to specify the field of the degree (i.e. Master

\degreefield   of Science, Master of Engineering, etc...) with the \degreefield macro. The default is Master of Science.

2.2 Copyright page

\makecopyright   The \makecopyright macro should be invoked after \maketitle to produce a

\makepublicdomain   copyright page. Alternatively, you can use \makepublicdomain to produce a page with the message "This document is in the public domain." Or you can produce a blank page simply by typing \mbox{}\clearpage, or by inserting one by hand. Note that the absence of a copyright declaration does *not* place your dissertation in the public domain. In order to place your dissertation in the public domain, you must declare it as such explicitly.

Prior to calling \makecopyright, you may specify a different name for the copyright holder (the default is the name given through the \author macro) and

for the copyright year (the default being the conferral year listed on the title page).

\copyrightholder
\copyrightyear
You should do this with the macros \copyrightholder and \copyrightyear which are invoked as follows:

$$\text{\copyrightholder}\{\langle name \rangle\}$$

$$\text{\copyrightyear}\{\langle year \rangle\}$$

2.3 Abstract page(s)

abstract
The abstract environment has been modified to comply with the requirements of the Graduate School. Should you wish to change the title used in the abstract from its default (which is the title used on the title page of the dissertation), the **\abstracttitle** macro \abstracttitle, to be used exactly as \title, is provided.

2.4 Biographical sketch

biosketch
A special environment biosketch is provided for the biographical sketch.

2.5 Dedication

dedication
The format of the dedication is essentially free, but you may want to use the dedication environment for this purpose. This environment will center the text of your dedication vertically on the page. The dedication is optional.

2.6 Acknowledgements

acknowledgements
An environment acknowledgements is provided for the acknowledgements section.

2.7 Table of Contents, List of Tables, List of Figures

\contentspage
\tablelistpage
\figurelistpage
Use the macros \contentspage, \tablelistpage, and \figurelistpage, in this order, to produce the required table of contents and lists of tables and figures.

2.8 List of Abbreviations, List of Symbols, Preface

\abbrlist
\symlist
\preface
These sections are optional. Macros \abbrlist, \symlist, and \preface should be invoked to indicate the beginning of each of these sections. These macros act much like \chapter*, which they invoke. The main difference is that if the tocprelim option is used, entries will be made into the table of contents.

2.9 Text

You should begin the text section of the thesis (normally divided into chapters) with the following commands:

```
\normalspacing
\setcounter{page}{1}
\pagenumbering{arabic}
\pagestyle{cornell}
```

The last of these commands controls the way pages are numbered throughout the text (except for the first page of each chapter, which uses \pagestyle{plain}; this happens automatically, without the need for you to take any special precautions). The default is to place page numbers in the upper right corner of each page (except that if you use the twoside option, even-numbered pages will have the number in the upper left corner). The graduate school allows, and some departments require, the numbers to be centered at the top of each page. Use \pagestyle{cornellc} if you wish page numbers to be centered.

2.10 Appendix

\appendix As in the report style, use the \appendix macro to mark the end of the last ordinary chapter and the start of the appendices. Then use a new \chapter{⟨*title*⟩} to start each appendix. Appendices will automatically be "numbered" alphabetically.

2.11 Bibliography

thebibliography Use the thebibliography environment to generate the bibliography. Or have BIBTEX do the work for you[2] The cornell document class modifies this environment slightly. You probably shouldn't use the openbib option for production of the archival copies of your dissertation.

\bibname The default name for this section is **Bibliography**. You may change it by changing the expansion of \bibname, as in

```
\renewcommand{\bibname}{References}
```

2.12 Glossary, Index

These sections are optional. The author didn't have time to think about how to generate them. If you want them, you are on your own.

3 Configurable parameters

3.1 Interline spacing

The dissertation is double spaced by default. If you want to modify the spacings,
\changespacing use the \changespacing macro. For example,

```
\changespacing{\normalspacing}{1}
```

will cause everything to be single spaced by default, while

```
\changespacing{\singlespacing}{1.75}
```

will cause everything to be double spaced, even the text within footnotes and bibliography entries which is normally single spaced.
\singlespacing The \singlespacing macro switches to single interline spacing. This can be useful within long tables that don't otherwise fit on a page.

\doublespacing The \doublespacing macro switches to "double" (really 7/4) interline spacing.

\normalspacing The \normalspacing macro restores normal interline spacing, whatever that is (\doublespacing by default).

\footnotespacing The \footnotespacing macro switches to footnote spacing. This is equivalent to \singlespacing by default, but you may want to redefine this with, *e.g.,*

```
\renewconnamd{\footnotespacing}{\doublespacing}
```

\singlespacingplus Two other macros are provided to set potentially useful spacings. \singlespacingplus
\realdoublespacing sets 5/4 spacing, while \realdoublespacing sets real 8/4 (rather than 7/4) spacing. These macros are not really necessary, and are provided for historical reasons only (which means they were there in the old style file, with no justification, and I just copied them over).

3.2 Font sizes

\titlesize The \titlesize macro lets you change the font size used for the title of your dissertation on the title page, should the default be unsuitable for any reason. For example, you could do

```
\titlesize{\LARGE}
```

\authorsize Similarly, the \authorsize macro lets you change the size of font used to print the author's name.

\subtitlesize There is also a \subtitlesize macro that controls the size of font used to typeset the words "A Dissertation ..." on the title page.

4 Internals

```
1 ⟨class⟩\NeedsTeXFormat{LaTeX2e}[1995/12/01]

2 ⟨class⟩\ProvidesClass{cornell}
3 [2002/04/02 v2.5
4 ⟨class⟩  Cornell University thesis class]
```

4.1 Driver for this document

The docstrip program will extract the following driver from this file:

```
5 ⟨*driver⟩
6 \documentclass{ltxdoc}
7 \EnableCrossrefs
8 %\DisableCrossrefs % Say \DisableCrossrefs if index is ready
9 \RecordChanges
10 %\OnlyDescription % Comment out for implementation details
11 \CodelineIndex
12 \begin{document}
13   \DocInput{cornell.dtx}
14   \PrintIndex
15   \PrintChanges
16 \end{document}
17 ⟨/driver⟩
```

¡*class¿

---

[2] The author has not actually tried this.

4.2 Option processing

First we set up conditionals to determine whether this is a Ph.D. disseration or a Master's thesis, and use Ph.D. by default.

```
18 \newif\ifphd
19 \DeclareOption{phd}{\phdtrue}
20 \DeclareOption{master}{\phdfalse}
21 \ExecuteOptions{phd}
```

Flag to tell if we need to change the default chapter headings.

```
22 \newif\ifcornellheadings
23 \newif\ifhalfcornellheadings
24 \newif\ifsmallerheadings
25 \DeclareOption{latexheadings}{\cornellheadingsfalse \halfcornellheadingsfalse}
26 \DeclareOption{cornellheadings}{\cornellheadingstrue \halfcornellheadingsfalse}
27 \DeclareOption{halfcornellheadings}{\halfcornellheadingstrue \cornellheadingsfalse}
28 \DeclareOption{normalsizeheadings}{\smallerheadingsfalse}
29 \DeclareOption{smallerheadings}{\smallerheadingstrue}
30 \ExecuteOptions{halfcornellheadings}
31 \ExecuteOptions{smallerheadings}
```

The font size is mandated to be 12pt. We override options 10pt and 11pt with a warning.

```
32 \DeclareOption{10pt}{%
33   \OptionNotUsed%
34   \ClassWarningNoLine{cornell}{Font size 10pt not allowed; using 12pt}%
35 }
36 \DeclareOption{11pt}{%
37   \OptionNotUsed%
38   \ClassWarningNoLine{cornell}{Font size 11pt not allowed; using 12pt}%
39 }
```

We add an option to include the preliminary sections into the table of contents. This is option tocprelim. By default, the preliminary sections are *not* included.

\prelim@contents Internally, macro \prelim@contents is called with the title of the section as an argument to generate the table of contents entry. By default, this macro is a do-nothing; with the tocprelim option it is changed to actually invoke \addcontentsline. Preliminary sections are treated as sections, not chapters, for the table of contents. The thesis secretary may or may not approve of this.

```
40 \newcommand{\prelim@contents}[1]{}
41 \DeclareOption{tocprelim}{%
42   \renewcommand{\prelim@contents}[1]{\addcontentsline{toc}{section}{#1}}
43 }
```

We pass all remaining options to the standard report class.

```
44 \DeclareOption*{%
45   \PassOptionsToClass{\CurrentOption}{report}%
46 }
```

All options must be processed now, so that we can load the report class right away.

```
47 \ProcessOptions
```

4.3 Report class

We now load the report class, forcing the 12pt option as noted above.

```
48 \LoadClass[12pt]{report}[1994/06/01]
```

We now apply our modifications to the standard report class.

4.4 Chapter headings

\@makechapterhead
\@makeschapterhead

If the chapter heading style shown in the grad school thesis guide is used, we modify the commands which output the chapter headings to place it in all caps at the top of the page.

```
49 \ifcornellheadings
50   \def\@makechapterhead#1{%
51     \begin{center}%
52       \MakeUppercase{\@chapapp\space \thechapter} \\
53       \MakeUppercase{\bfseries #1}
54     \end{center}%
55     }
56   \def\@makeschapterhead#1{%
57     \begin{center}%
58       \MakeUppercase{\bfseries #1}
59     \end{center}%
60     }
61 \fi
62 \ifhalfcornellheadings
63   \def\@makeschapterhead#1{%
64     \begin{center}%
65       \MakeUppercase{\bfseries #1}
66     \end{center}%
67     }
68   \ifsmallerheadings
69     \def\@makechapterhead#1{%
70       {\parindent \z@ \raggedright \normalfont
71         \ifnum \c@secnumdepth >\m@ne
72             \LARGE\bfseries \@chapapp\space \thechapter
73             \par\nobreak
74         \fi
75         \interlinepenalty\@M
76         \LARGE \bfseries #1\par\nobreak
77       }}
78   \fi
79 \fi
80
81 \ifsmallerheadings
82 \renewcommand\section{\@startsection {section}{1}{\z@}%
83                                      {-3.5ex \@plus -1ex \@minus -.2ex}%
84                                      {2.3ex \@plus.2ex}%
85                                      {\normalfont\large\bfseries}}
86 \fi
87
```

4.5 Footnotes

Footnotes should be the same size as the main text.

```
88 \renewcommand{\footnotesize}{\normalsize}
```

They can be single spaced.

\@makefntext   We redefine the standard macro \@makefntext to use \footnotespacing (defined below as \singlespacing, but modifiable by the user) and to restore \normalspacing afterwards.

```
89 \renewcommand{\@makefntext}[1]{%
90   \parindent 1em%
91   \noindent
92   \footnotespacing
93   \hbox to 1.8em{\hss\@makefnmark}#1
94   \par\normalspacing
95 }
```

4.6 Subscripts

Subscripts should be made larger than the default, just to be on the safe side.

```
96 \renewcommand{\defaultscriptratio}{.75}
97 \renewcommand{\defaultscriptscriptratio}{.6}
```

4.7 Page layout

The interior margin must be increased to 1.5 inches. Various other page layout parameters are reset here.

This part of the code may not be very robust when twocolumn is used. (No attempt has yet been made to get the margins right in that case.) But then, dissertations really shouldn't use twocolumn.

```
98 \setlength\headsep{25\p@}
99 \if@twocolumn
100 \else
101   \setlength\topmargin{-0.4in}
102   \setlength\headheight{0.16667in}
103   \setlength\headsep{0.33333in}
104   \setlength\textheight{8.8in}
105   \setlength\footskip{0.5in}
106   \setlength\oddsidemargin{.6in}
107   \setlength\evensidemargin{.6in}
108   \setlength\textwidth{5.80in}
109   \setlength\marginparsep{0.1in}
110   \setlength\marginparwidth{0.8in}
111 \fi
112 \if@compatibility
113   \setlength\topmargin{0\p@}
114 \else
115 \fi
```

4.8 Page styles

\ps@cornell   We define a cornell page style. This has page numbers in the outside upper corner of every page.

```
116 \newcommand{\ps@cornell}{%
117 \def\@oddhead{{\slshape\rightmark}\hfil\thepage}%
118 \def\@oddfoot{}%
119 \def\@evenhead{\thepage\hfil{\slshape\leftmark}}%
120 \def\@evenfoot{}%
121 \def\chaptermark##1{}%
122 \def\sectionmark##1{}%
123 }
```

\ps@cornell   For the sake of people in Engineering and of any other interested parties, we also define a cornellc page style in which the page numbers are centered at the top of each page.

```
124 \newcommand{\ps@cornellc}{%
125 \def\@oddhead{\hfil\thepage\hfil}%
126 \def\@oddfoot{}%
127 \def\@evenhead{\@oddhead}%
128 \def\@evenfoot{}%
129 \def\chaptermark##1{}%
130 \def\sectionmark##1{}%
131 }
```

We prefer predictable interline spacing over fixed page length. Thus:

```
132 \raggedbottom
```

Individual users are free to override this by using \flushbottom in the preamble.

4.9 Section names

The LaTeX default section names are acceptable, except for the table of contents which must be called "Table of Contents", not just "Contents". LaTeX 2_ε conveniently provides a macro to configure this.

```
133 \renewcommand{\contentsname}{Table of Contents}
```

LaTeX 2_ε also provides \bibname, \listtablename, \listfigurename; the default values are adequate for our purposes.

The following code modifies the appearance of entries in the List of Figures and in the List of Tables. It is being retained for historic reasons.

```
134 \renewcommand{\l@figure}{\@dottedtocline{1}{1.5em}{2.6em}}
135 \let\l@table\l@figure
136
137 \renewenvironment{thebibliography}[1]
138     {\chapter*{\bibname
139       \@mkboth{\uppercase{\bibname}}{\uppercase{\bibname}}}%
140     \list{\@biblabel{\arabic{enumiv}}}%
141         {\settowidth\labelwidth{\@biblabel{#1}}%
142         \leftmargin\labelwidth
143         \advance\leftmargin\labelsep
144         \@openbib@code
145         \usecounter{enumiv}%
146         \let\p@enumiv\@empty
```

```
147             \renewcommand\theenumiv{\arabic{enumiv}}}%
148         \sloppy\clubpenalty4000\widowpenalty4000%
149         \sfcode`\.=\@m\relax
150         \addcontentsline{toc}{chapter}{\bibname}
151         \singlespacing}
152       {\def\@noitemerr
153         {\@latex@warning{Empty `thebibliography' environment}}%
154        \normalspacing
155        \endlist}
```

Preliminary sections are handled here.

```
156 % \changes{v2.1}{1998/09/20}{Fixed title bug}
157 \newcommand{\@titlesize}{\Large}
158 \newcommand{\@subtitlesize}{\large}
159 \newcommand{\@authorsize}{\normalsize} % No Pharaoh he.
160 \newcommand{\@conferralmonth}{January}
161 \newcommand{\@conferralyear}{1995}
162
163 \newcommand{\titlesize}[1]{\renewcommand{\@titlesize}{#1}}
164 \newcommand{\subtitlesize}[1]{\renewcommand{\@subtitlesize}{#1}}
165 \newcommand{\authorsize}[1]{\renewcommand{\@authorsize}{#1}}
166 \newcommand{\conferraldate}[2]{%
167   \renewcommand{\@conferralmonth}{#1}
168   \renewcommand{\@conferralyear}{#2}
169 }
170 \newcommand{\@degreefield}{Master of Science}
171 \newcommand{\degreefield}[1]{\renewcommand{\@degreefield}{#1}}
172
173 \renewcommand{\maketitle}{%
174   \begin{titlepage}%
175     \begin{center}%
176       \@titlesize \expandafter\uppercase\expandafter{\@title}
177     \end{center}
178     \vfill
179     \begin{center}
180       \@subtitlesize
181       A \ifphd Dissertation \else Thesis \fi \\
182       Presented to the Faculty of the Graduate School \\
183       of Cornell University \\
184       in Partial Fulfillment of the Requirements for the Degree of \\
185       \ifphd Doctor of Philosophy \else \@degreefield \fi
186     \end{center}
187     \vfill
188     \begin{center}
189       \@authorsize
190       by \\
191       \@author \\
192       \@conferralmonth\ \@conferralyear
193     \end{center}
194   \end{titlepage}
195 }
196
197 \renewenvironment{titlepage}{%
198   \typeout{Title page}
```

```
199    \pagestyle{empty}
200    \doublespacing
201 }{%
202    \normalspacing\clearpage
203 }
```

Copyright page (What? Not in public domain? Shame on you...)

```
204 \newenvironment{copyrightpage}{%
205    \typeout{Copyleft page}
206    \pagestyle{empty}
207    \null\vfil
208    \begin{center}
209 }{%
210    \end{center}
211    \vfil\null
212    \clearpage%
213 }
214
215 \newcommand{\makecopyright}{%
216    \begin{copyrightpage}
217    \copyright\ \@copyrightyear{} \@copyrightholder \\
218    ALL RIGHTS RESERVED \\[.5in]
219    \end{copyrightpage}%
220 }
221 \newcommand{\@copyrightholder}{\@author}
222 \newcommand{\@copyrightyear}{\@conferralyear}
223
224 \newcommand{\copyrightholder}[1]{\renewcommand{\@copyrightholder}{#1}}
225 \newcommand{\copyrightyear}[1]{\renewcommand{\@copyrightyear}{#1}}
226
227 \newcommand{\makepublicdomain}{%
228    \begin{copyrightpage}
229    This document is in the public domain.
230    \end{copyrightpage}%
231 }
```

Abstract page

```
232 \newlength{\@abhdskip}%
233 \renewenvironment{abstract}{
234    \typeout{Abstract}
235    \setlength{\@abhdskip}{.6in}
236    \addtolength{\@abhdskip}{-\topmargin}
237    \addtolength{\@abhdskip}{-\headheight}
238    \addtolength{\@abhdskip}{-\headsep}
239    \addtolength{\@abhdskip}{-\baselineskip}
240    \begin{center}%
241      \vspace*{\@abhdskip}%
242      \ifphd%
243        {\def\\{\noexpand\\} \xdef\@abstracttitle{\@abstracttitle}}
244        \expandafter\uppercase\expandafter{\@abstracttitle} \\[0.5\baselineskip]
245        \@author,\ Ph.D. \\
246        Cornell University\ \@conferralyear%
247      \else
248        \normalsize \bfseries\selectfont
```

```
249        ABSTRACT
250      \fi%
251      \vspace{0.5\baselineskip}%
252    \end{center}%
253    \pagestyle{empty}
254    \thispagestyle{empty}
255 }{%
256    \clearpage
257 }
258
259 \newcommand{\@abstracttitle}{\@title}
260 \newcommand{\abstracttitle}[1]{\renewcommand{\@abstracttitle}{#1}}
```

Biographical sketch

```
261 \newenvironment{biosketch}{%
262    \typeout{Vita}
263    \pagestyle{plain}
264    \pagenumbering{roman}
265    \setcounter{page}{3}
266    \prelim@contents{Biographical Sketch}
267    \chapter*{Biographical Sketch}
268 %  \chapter*{%
269 %    \begin{center}
270 %      \vspace{-2in}
271 %      \normalsize
272 %      BIOGRAPHICAL SKETCH
273 %    \end{center}
274 %  }
275 }{%
276    \clearpage
277 }
```

Dedication

```
278 \newenvironment{dedication}{%
279    \prelim@contents{Dedication}
280    \null\vfil
281    \begin{center}
282 }{
283    \end{center}
284    \vfil\null
285    \clearpage
286 }
```

Acknowledgements

```
287 \newenvironment{acknowledgements}{%
288    \prelim@contents{Acknowledgements}
289    \chapter*{Acknowledgements}
290 %  \chapter*{%
291 %    \begin{center}
292 %      \vspace{-2in}
293 %      \normalsize
294 %      ACKNOWLEDGEMENTS
295 %    \end{center}
296 %  }
297 }{%
```

```
298    \cleardoublepage
299 }
300
301 \newcommand{\contentspage}{%
302    \singlespacing
303    \label{toc}
304    \prelim@contents{\contentsname}
305    \tableofcontents
306    \normalspacing
307    \clearpage
308 }
309
310 \newcommand{\tablelistpage}{%
311    \singlespacing
312    \label{lot}
313    \prelim@contents{\listtablename}
314    \listoftables
315    \normalspacing
316    \clearpage
317 }
318
319 \newcommand{\figurelistpage}{%
320    \singlespacing
321    \label{lof}
322    \prelim@contents{\listfigurename}
323    \listoffigures
324    \normalspacing
325    \clearpage
326 }
```

The following three sections are optional. We define macros to start new chapters, but that is all.

```
327 \newcommand{\abbrlist}{%
328    \singlespacing
329    \prelim@contents{List of Abbreviations}
330    \chapter*{List of Abbreviations}
331 }
332
333 \newcommand{\symlist}{%
334    \singlespacing
335    \prelim@contents{List of Symbols}
336    \chapter*{List of Symbols}
337 }
338
339 \newcommand{\preface}{%
340    \singlespacing
341    \prelim@contents{Preface}
342    \chapter*{Preface}
343 }
```

Interline spacing.

```
344 \newcommand{\singlespacing}{%
345    \let\CS=\@currsize\renewcommand{\baselinestretch}{1.0}\tiny\CS}
346 \newcommand{\singlespacingplus}{%
347    \let\CS=\@currsize\renewcommand{\baselinestretch}{1.25}\tiny\CS}
```

```
348 \newcommand{\doublespacing}{%
349   \let\CS=\@currsize\renewcommand{\baselinestretch}{1.75}\tiny\CS}
350 \newcommand{\realdoublespacing}{%
351   \let\CS=\@currsize\renewcommand{\baselinestretch}{2}\tiny\CS}
352 \newcommand{\normalspacing}{\doublespacing}
353 \newcommand{\footnotespacing}{\singlespacing}
354 \newcommand{\changespacing}[2]{%
355   \renewcommand{#1}{%
356     \let\CS=\@currsize\renewcommand{\baselinestretch}{#2}\tiny\CS}%
357 }
358 \newcommand{\changenormalspacing}[1]{\renewcommand{\normalspacing}{#1}}
359 \normalspacing
```

End (for now) ¡/class¿