

The `cornell` document class for L^AT_EX 2_ε^{*}

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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 L^AT_EX 2_ε as well as a few other improvements.

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[†]The author acknowledges inspiration from a preexisting style file for L^AT_EX 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 L^AT_EX 2.09 thesis style files to a L^AT_EX 2_ε 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 L^AT_EX 2_ε 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.

[¶]Added "draft", "semifinal" and "final" options.

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1 Introduction

This document describes the L^AT_EX 2_ε document class `cornell`, suitable¹ for the production of dissertations and theses at Cornell University. The latest version of this document class should be available at <http://tam.cornell.edu/Computer/cuthesis/>.

1.1 Usage

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

```
\documentclass{cornell}
```

at the beginning of your L^AT_EX 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 L^AT_EX 2_ε, and do not need any packages that do have not yet been updated for L^AT_EX 2_ε, you should probably use native mode. If you have significant amounts of text already in existence, you should try using native mode:

¹In 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.

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 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 The author can choose between the standard L^AT_EX 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 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.

draft Formally, all style options supported by the **report** document class are also supported by the **cornell** class, although support for some options, like **twocolumn**, may be incomplete. The **draft** option causes the text to be formatted with “single” spacing instead of the required “double” spacing. This may be of use in drafting, or for formatting private copies. For such purposes, the **twoside** option may also be of use, as well as **11pt** or **12pt** (when **draft** is used, the **10pt** is the default).

final The **final** style option (which is the default) will produce the “double” spacing 12pt document as required for the production of the archival copies of the dissertation. **10pt** and **11pt** options specify font sizes that are too small and will be overridden (and a warning will be issued to inform you of this) if used in conjunction with the **final** option. The **semifinal** is identical to **final**, except that it highlights all horizontal overflows with a black solid rule.

\ifdraft The **\ifdraft** and **\iffinal** macros (which will always be the opposites of one another) may be used to check whether the **draft** option or the [semi]**final** one is in effect.

tocprelim **tocprelim** option 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-huge L^AT_EX headings to something more reasonable. **normalsizeheadings** is used to select the conventional L^AT_EX 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**, **hyperref**. 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 L^AT_EX macro `\maketitle`, with no arguments. Prior to invoking it, you should declare the title of the document using the `\title` macro, your name (exactly as registered with the Graduate School) with the `\author` macro, and the conferral date with the `\conferraldatercode>macro. The syntax of this last macro is`

`\conferraldatercode>{\month}{\year}`

`\degreefield` For Master’s theses you will also need to specify the field of the degree (i.e. Master 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 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` You should do this with the macros `\copyrightholder` and `\copyrightyear`
`\copyrightyear` which are invoked as follows:

`\copyrightholder{\name}`

`\copyrightyear{\year}`

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

2.8 List of Abbreviations, List of Symbols, Preface

`\abbrlist` These sections are optional. Macros `\abbrlist`, `\symlist`, and `\preface` should
`\symlist` be invoked to indicate the beginning of each of these sections. These macros
`\preface` 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

BIB_TEX do the work for you² 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

`\changespacing` The dissertation is double spaced by default. If you want to modify the spacings, 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.*,

```
\renewcommand{\footnotespacing}{\doublespacing}
```

`\singlespacingplus` Two other macros are provided to set potentially useful spacings. `\singlespacingplus` 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).

²The author has not actually tried this.

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 [2002/06/14 v2.6
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;
```

4.2 Option processing

First we set up conditionals to determine whether this is a Ph.D. dissertation 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. If final is set, we override options 10pt and 11pt with a warning.

```

32 \DeclareOption{10pt}{%
33   \iffinal%
34   \OptionNotUsed%
35   \ClassWarningNoLine{cornell}{Font size 10pt not allowed; using 12pt}%
36   \else%
37   \PassOptionsToClass{10pt}{report}%
38   \fi%
39 }
40 \DeclareOption{11pt}{%
41   \iffinal%
42   \OptionNotUsed%
43   \ClassWarningNoLine{cornell}{Font size 11pt not allowed; using 12pt}%
44   \else%
45   \PassOptionsToClass{11pt}{report}%
46   \fi
47 }

```

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.

48 \newcommand{\prelim@contents}[1]{}
49 \DeclareOption{tocprelim}{%
50   \renewcommand{\prelim@contents}[1]{\addcontentsline{toc}{section}{#1}}
51 }

```

Define the `draft`, `semifinal` and `final` options that create the `\iffinal` and `\ifdraft` macros.

```

52 \DeclareOption{draft}{%
53   \let\ifdraft\iftrue%
54   \let\iffinal\iffalse%

```

```

55 \PassOptionsToClass{final}{report}%
56 }
57 \DeclareOption{final}{%
58 \let\ifdraft\iffalse%
59 \let\iffinal\iftrue%
60 \PassOptionsToClass{final}{report}%
61 }
62 \DeclareOption{semifinal}{%
63 \let\ifdraft\iffalse%
64 \let\iffinal\iftrue%
65 \PassOptionsToClass{draft}{report}%
66 }
67 %
68 % We pass all remaining options to the standard \textsf{report} class.
69 % \begin{macrocode}
70 \DeclareOption*{%
71 \PassOptionsToClass{\CurrentOption}{report}%
72 }

```

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

```

73 \ExecuteOptions{final}
74 \ProcessOptions

```

4.3 Report class

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

```

75 \iffinal\LoadClass[12pt]{report}[1994/06/01]\else\LoadClass{report}[1994/06/01]\fi

```

We now apply our modifications to the standard report class.

4.4 Chapter headings

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

```

76 \ifcornellheadings
77 \def\@makechapterhead#1{%
78 \begin{center}%
79 \MakeUppercase{\@chapapp\space \thechapter} \\
80 \MakeUppercase{\bfseries #1}
81 \end{center}%
82 }
83 \def\@makeschapterhead#1{%
84 \begin{center}%
85 \MakeUppercase{\bfseries #1}
86 \end{center}%
87 }
88 \fi

```

```

89 \ifhalfcornellheadings
90   \def\@makeschapterhead#1{%
91     \begin{center}%
92       \MakeUppercase{\bfseries #1}
93     \end{center}%
94   }
95 \ifsmallerheadings
96   \def\@makechapterhead#1{%
97     {\parindent \z@ \raggedright \normalfont
98       \ifnum \c@secnumdepth >\m@ne
99         \LARGE\bfseries \@chapapp\space \thechapter
100      \par\nobreak
101     \fi
102     \interlinepenalty\@M
103     \LARGE \bfseries #1\par\nobreak
104   }}
105 \fi
106 \fi
107
108 \ifsmallerheadings
109 \renewcommand\section{\@startsection {section}{1}{\z@}%
110                                     {-3.5ex \@plus -1ex \@minus -.2ex}%
111                                     {2.3ex \@plus .2ex}%
112                                     {\normalfont\large\bfseries}}
113 \fi
114

```

4.5 Footnotes

Footnotes should be the same size as the main text.

```
115 \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.

```

116 \renewcommand{\@makefntext}[1]{%
117   \parindent 1em%
118   \noindent
119   \footnotespacing
120   \hbox to 1.8em{\hss\@makefnmark}#1
121   \par\normalspacing
122 }

```

4.6 Subscripts

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

```

123 \renewcommand{\defaultscriptratio}{.75}
124 \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`.

```
125 \setlength\headsep{25\p@}
126 \if@twocolumn
127 \else
128   \setlength\topmargin{-0.4in}
129   \setlength\headheight{0.16667in}
130   \setlength\headsep{0.33333in}
131   \setlength\textheight{8.8in}
132   \setlength\footskip{0.5in}
133   \setlength\oddsidemargin{.6in}
134   \setlength\evensidemargin{.6in}
135   \setlength\textwidth{5.80in}
136   \setlength\marginparsep{0.1in}
137   \setlength\marginparwidth{0.8in}
138 \fi
139 \if@compatibility
140   \setlength\topmargin{0\p@}
141 \else
142 \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.

```
143 \newcommand{\ps@cornell}{%
144 \def\@oddhead{\slshape\rightmark}\hfil\thepage}%
145 \def\@oddfoot{}%
146 \def\@evenhead{\thepage\hfil\slshape\leftmark}}%
147 \def\@evenfoot{}%
148 \def\chaptermark##1{}%
149 \def\sectionmark##1{}%
150 }
```

`\ps@cornellc` 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.

```
151 \newcommand{\ps@cornellc}{%
152 \def\@oddhead{\hfil\thepage\hfil}%
153 \def\@oddfoot{}%
154 \def\@evenhead{\@oddhead}%
155 \def\@evenfoot{}%
156 \def\chaptermark##1{}%
157 \def\sectionmark##1{}%
```

158 }

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

159 `\raggedbottom`

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

4.9 Section names

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

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

L^AT_EX 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.

161 `\renewcommand{\l@figure}{\@dottedtocline{1}{1.5em}{2.6em}}`

162 `\let\l@table\l@figure`

163

164 `\renewenvironment{thebibliography}[1]`

165 `{\chapter*{\bibname`

166 `\mkboth{\uppercase{\bibname}}{\uppercase{\bibname}}}%`

167 `\list{\@biblabel{\arabic{enumiv}}}%`

168 `{\settowidth\labelwidth{\@biblabel{#1}}%`

169 `\leftmargin\labelwidth`

170 `\advance\leftmargin\labelsep`

171 `\openbib@code`

172 `\usecounter{enumiv}%`

173 `\let\p@enumiv\@empty`

174 `\renewcommand\theenumiv{\arabic{enumiv}}}%`

175 `\sloppy\clubpenalty4000\widowpenalty4000%`

176 `\sfcode'\@m\relax`

177 `\addcontentsline{toc}{chapter}{\bibname}`

178 `\singlespacing}`

179 `{\def\@noitemerr`

180 `{\@latex@warning{Empty ‘thebibliography’ environment}}%`

181 `\normalspacing`

182 `\endlist}`

Preliminary sections are handled here.

183 `% \changes{v2.1}{1998/09/20}{Fixed title bug}`

184 `\newcommand{\@titlesize}{\Large}`

185 `\newcommand{\@subtitlesize}{\large}`

186 `\newcommand{\@authorsize}{\normalsize} % No Pharaoh he.`

187 `\newcommand{\@conferralmonth}{January}`

188 `\newcommand{\@conferralyear}{1995}`

189

190 `\newcommand{\titlesize}[1]{\renewcommand{\@titlesize}{#1}}`

```

191 \newcommand{\subtitlesize}[1]{\renewcommand{\@subtitlesize}{#1}}
192 \newcommand{\authorsize}[1]{\renewcommand{\@authorsize}{#1}}
193 \newcommand{\conferraldate}[2]{%
194   \renewcommand{\@conferralmonth}{#1}
195   \renewcommand{\@conferralyear}{#2}
196 }
197 \newcommand{\@degreefield}{Master of Science}
198 \newcommand{\degreefield}[1]{\renewcommand{\@degreefield}{#1}}
199
200 \renewcommand{\maketitle}{%
201   \begin{titlepage}%
202     \begin{center}%
203       \@titlesize \expandafter\uppercase\expandafter{\@title}
204     \end{center}
205     \vfill
206     \begin{center}
207       \@subtitlesize
208       A \ifphd Dissertation \else Thesis \fi \\\
209       Presented to the Faculty of the Graduate School \\\
210       of Cornell University \\\
211       in Partial Fulfillment of the Requirements for the Degree of \\\
212       \ifphd Doctor of Philosophy \else \@degreefield \fi
213     \end{center}
214     \vfill
215     \begin{center}
216       \@authorsize
217       by \\\
218       \@author \\\
219       \@conferralmonth\ \@conferralyear
220     \end{center}
221   \end{titlepage}
222 }
223
224 \renewenvironment{titlepage}{%
225   \typeout{Title page}
226   \pagestyle{empty}
227   \doublespacing
228 }{%
229   \normalspacing\clearpage
230 }

```

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

```

231 \newenvironment{copyrightpage}{%
232   \typeout{Copyleft page}
233   \pagestyle{empty}
234   \null\vfil
235   \begin{center}
236 }{%
237   \end{center}
238   \vfil\null

```

```

239 \clearpage%
240 }
241
242 \newcommand{\makecopyright}{%
243 \begin{copyrightpage}
244 \copyright\ \@copyrightyear{} \@copyrightholder \\\
245 ALL RIGHTS RESERVED \\\[.5in]
246 \end{copyrightpage}%
247 }
248 \newcommand{\@copyrightholder}{\@author}
249 \newcommand{\@copyrightyear}{\@conferralyear}
250
251 \newcommand{\copyrightholder}[1]{\renewcommand{\@copyrightholder}{\#1}}
252 \newcommand{\copyrightyear}[1]{\renewcommand{\@copyrightyear}{\#1}}
253
254 \newcommand{\makepublicdomain}{%
255 \begin{copyrightpage}
256 This document is in the public domain.
257 \end{copyrightpage}%
258 }

Abstract page

259 \newlength{\@abhdskip}%
260 \renewenvironment{abstract}{
261 \typeout{Abstract}
262 \setlength{\@abhdskip}{.6in}
263 \addtolength{\@abhdskip}{-\topmargin}
264 \addtolength{\@abhdskip}{-\headheight}
265 \addtolength{\@abhdskip}{-\headsep}
266 \addtolength{\@abhdskip}{-\baselineskip}
267 \begin{center}%
268 \vspace*{\@abhdskip}%
269 \ifphd%
270 {\def\{\noexpand\\\} \xdef\@abstracttitle{\@abstracttitle}}
271 \expandafter\uppercase\expandafter{\@abstracttitle} \\\[0.5\baselineskip]
272 \@author,\ Ph.D. \\\
273 Cornell University\ \@conferralyear%
274 \else
275 \normalsize \bfseries\selectfont
276 ABSTRACT
277 \fi%
278 \vspace{0.5\baselineskip}%
279 \end{center}%
280 \pagestyle{empty}
281 \thispagestyle{empty}
282 }{%
283 \clearpage
284 }
285
286 \newcommand{\@abstracttitle}{\@title}

```

```

287 \newcommand{\abstracttitle}[1]{\renewcommand{\@abstracttitle}{#1}}

Biographical sketch

288 \newenvironment{biosketch}{%
289   \typeout{Vita}
290   \pagestyle{plain}
291   \pagenumbering{roman}
292   \setcounter{page}{3}
293   \prelim@contents{Biographical Sketch}
294   \chapter*{Biographical Sketch}
295 %   \chapter*{%
296 %     \begin{center}
297 %       \vspace{-2in}
298 %       \normalsize
299 %       BIOGRAPHICAL SKETCH
300 %     \end{center}
301 %   }
302 }{%
303   \clearpage
304 }

Dedication

305 \newenvironment{dedication}{%
306   \prelim@contents{Dedication}
307   \null\vfil
308   \begin{center}
309 }{
310   \end{center}
311   \vfil\null
312   \clearpage
313 }

Acknowledgements

314 \newenvironment{acknowledgements}{%
315   \prelim@contents{Acknowledgements}
316   \chapter*{Acknowledgements}
317 %   \chapter*{%
318 %     \begin{center}
319 %       \vspace{-2in}
320 %       \normalsize
321 %       ACKNOWLEDGEMENTS
322 %     \end{center}
323 %   }
324 }{%
325   \cleardoublepage
326 }
327
328 \newcommand{\contentspage}{%
329   \singlespacing
330   \label{toc}

```

```

331 \prelim@contents{\contentsname}
332 \tableofcontents
333 \normalspacing
334 \clearpage
335 }
336
337 \newcommand{\tablelistpage}{%
338 \single-spacing
339 \label{lot}
340 \prelim@contents{\listtablename}
341 \listoftables
342 \normalspacing
343 \clearpage
344 }
345
346 \newcommand{\figurelistpage}{%
347 \single-spacing
348 \label{lof}
349 \prelim@contents{\listfigurename}
350 \listoffigures
351 \normalspacing
352 \clearpage
353 }

```

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

```

354 \newcommand{\abbrlist}{%
355 \single-spacing
356 \prelim@contents{List of Abbreviations}
357 \chapter*{List of Abbreviations}
358 }
359
360 \newcommand{\symlist}{%
361 \single-spacing
362 \prelim@contents{List of Symbols}
363 \chapter*{List of Symbols}
364 }
365
366 \newcommand{\preface}{%
367 \single-spacing
368 \prelim@contents{Preface}
369 \chapter*{Preface}
370 }

```

Interline spacing.

```

371 \newcommand{\single-spacing}{%
372 \let\CS=\@currsize\renewcommand{\baselinestretch}{1.0}\tiny\CS}
373 \newcommand{\single-spacingplus}{%
374 \let\CS=\@currsize\renewcommand{\baselinestretch}{1.25}\tiny\CS}
375 \newcommand{\double-spacing}{%

```

```

376 \let\CS=\@currsize\renewcommand{\baselinestretch}{1.75}\tiny\CS}
377 \newcommand{\realdoublespacing}{%
378 \let\CS=\@currsize\renewcommand{\baselinestretch}{2}\tiny\CS}
379 \newcommand{\normalspacing}{\doublespacing}
380 \newcommand{\footnotespacing}{\singlespacing}
381 \newcommand{\changespacing}[2]{%
382 \renewcommand{#1}{%
383 \let\CS=\@currsize\renewcommand{\baselinestretch}{#2}\tiny\CS}%
384 }
385 \ifdraft\changespacing{\normalspacing}{1}\fi
386 \newcommand{\changenormalspacing}[1]{\renewcommand{\normalspacing}{#1}}
387 \normalspacing
End (for now) i/class_i

```