The drexel-thesis class*

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1 Introduction

This package defines a LaTeX thesis class for Drexel University conforming to the Drexel University Thesis Manual version 2009/06/01.

2 Usage

To write a thesis, you load the Drexel thesis definitions by loading the drexel-thesis class at the beginning of your LaTeX document with the `\documentclass` command. For example,

```
\documentclass{drexel-thesis}
```

For LyX users, we include a LyX template (`drexel-thesis.layout`, originally by John K. Parejko) so that the previews generated in LyX are similar to those generated by the actual drexel-thesis class.

2.1 Options

options

`final`

`draft`

The default option (selected if not options are passed) is final mode, which has all the proper formatting and spacing for your final product. The other main option is draft mode, which reduces all the spacing in the document, so might be helpful when printing out drafts (saves paper).

final mode corresponds to (with Thesis Manual chapter and verse)

*This document corresponds to drexel-thesis 0.14, dated 2010/09/21.

oneside	1.5 Library Submission Information, Print Version: "All copies must be: ... Typed/printed on only one side of the page (not double-sided)."
finalspace	Assorted single, double, and triple spacing directives.
pagebreak	Conform to thesis pagebreak rules.
dottedtoc	From the example on p17.
nodraftwatermark	Clear any earlier watermark options.

draft mode corresponds to

twoside	Save space.
draftspace	Save space.
nopagebreak	Save space.
dottedtoc	Might as well be consistent with final.
xdraftwatermark	It's good to have a timestamp.

option `subfig`

subfig makes it easy to include and caption multi-part figures. However, getting subfig to cooperate with floatrow and tocloft can be tricky. If you want to use subfig, just pass the subfig option to drexel-thesis, and all the pesky details will be taken care of. See §4.1 for an example.

option `finalspace`

Loosen spacing.

Tighten spacing.

option `draftspace`

Break pages between chapters and chapter-like blocks.

Don't break pages between chapters and chapter-like blocks (saves paper).

option `pagebreak`

option `nopagebreak`

options `dottedtoc` `boldtoc` `dottedpart` `boldpart` `dottedchapter` `boldchapter`

These options change how the relevant table of contents lines are printed. LaTeX defaults to bold but not dots. The *toc options set all of the types. For example, boldtoc is equivalent to boldchapter,boldpart.

The example table of contents in the Manual p17 does not indent section entries, etc., so neither does drexel-thesis. If you *do* want pretty, indented TOCs, like the LaTeX defaults pass indenttoc to drexel-thesis.

option `indenttoc`

option `blackref`

blackref colors all hyperref links black, so they won't stand out in your printed document.

option `draftwatermark`

draftwatermark adds "DRAFT ⟨*date*⟩" watermarks to each page. A useful way to remember that the version you're looking at is not final. Also helps reviewers tell you what version they're correcting. Requires the draftmark package, which allows you to override the default watermark style if it is not to your liking (§ 3.2.4).

option `xdraftwatermark`

xdraftwatermark is also similar to draftwatermark but depends on the possibly more common xcolor, eso-pic, and graphicx.

option `nodraftwatermark`

nodraftwatermark clears any earlier watermark options. For example

```
\documentclass[draft,nodraftwatermark]{drexel-thesis}
```

will format your thesis in draft mode but without a watermark. On the other hand,

```
\documentclass[draftmark,final]{drexel-thesis}
```

will also format your thesis without a watermark, because final sets nodraftwatermark internally.

option `indentfirst`

indentfirst indents the first paragraph after sections etc.

option `approvalform`

approvalform includes a copy of the T-1 approval form as the first page of your

thesis/dissertation. This form is bound to the front of every thesis/dissertation by the library. The version that is generated by this option is typeset in LaTeX with the same margins, fonts, etc. as the rest of your document. The title of your dissertation and your name are automatically entered.

option `daring`

daring breaks the official thesis rules in pursuit of a nicer layout.

2.1.1 Interesting book options

option `oneside`

Setup output for one-sided printing.

option `twoside`

Setup output for two-sided printing.

option `leqno`

leqno places the numbering of formulae on the left hand side instead of the right.

option `fleqn`

fleqn typesets displayed formulae left-aligned instead of centered.

2.2 Macros

To help deal with name collisions, all drexel-thesis macros have "secret" aliases. For example, `\author` can also be used as `\DUTauthor`. This is useful if one of your packages clobbers a drexel-thesis macro, but you still want to use the original.

```
\documentclass{drexel-thesis}
\renewcommand{\author}[1]{I'm forgetting about your author! Muahahaha!}
\DUTauthor{Your Name Here}
...
```

`\author{`⟨*name*⟩`}`

`\author` `\DUTauthor`

Use this macro to set your full name to ⟨*name*⟩, including your middle initial or name. For example

```
\name{Richard P. Feynman}
```

See the Manual §3.1 p8.

`\title{`⟨*title*⟩`}`

`\title` `\DUTtitle`

Use this macro to set your thesis title to ⟨*name*⟩. For example

```
\title{A New Approach to Quantum Theory}
```

See the Manual p16.

`\advisor{`⟨*name*⟩`}`

`\advisor` `\DUTadvisor`

Use this macro to set your advisor's name to ⟨*name*⟩. For example

```
\advisor{John A. Wheeler, Ph.D.}
```

You can set multiple advisors, if appropriate, by calling `\advisor` multiple times.

```
\advisor{John A. Wheeler, Ph.D.}
\advisor{Advisor 2}
```

See the Manual §3.1 p8.

```
\DUTmonth{⟨month⟩}
\DUTyear{⟨year⟩}
```

\DUTmonth
\DUTyear

Use these macros to set the month with ⟨*month*⟩ (spelled out) and year with ⟨*year*⟩ (four digits) of your thesis defense. For example

```
\DUTmonth{June}
\DUTyear{1942}
```

See the Manual §3.1 p8. There are no non-DUT versions of these commands to avoid collisions with the plain TEX `\month` and `\year` (see the month and year entries in the HTML version of David Bausum's *TeX Reference Manual*).

```
\degree{⟨degree⟩}
```

\degree
\DUTdegree

Set your target degree with ⟨*degree*⟩. From the Manual §3.1 p8.

> Write out the name of the degree for which you are a candidate. All Ph.D. candidates must use `Doctor of Philosophy`. All Master's degree candidates should use the precise degree name (e.g., `Master of Science in Mechanical Engineering`).

So, for a Ph.D candidate,

```
\degree{Doctor of Philosophy}
```

```
\copyrighttext{⟨text⟩}
```

\copyrighttext
\DUTcopyrighttext

Use this macro to set the copyright text to ⟨*text*⟩. The default value is "All Rights Reserved.".

```
\copyrighttext{Released to the Public Domain.}
```

See the Manual §3.2 p9.

```
\copyrighttextCCBYSA
```

\copyrighttextCCBYSA
\DUTcopyrighttextCCBYSA

There are a number of predefined copyright messages for ease of use

`\copyrighttextCCBYSA` Creative Commons Attribution-ShareAlike License Version 3.0.

```
\tableofcontents
```

\tableofcontents
\DUTtableofcontents

Write the table of contents (Manual §3.5 p9). You can control the verbosity by setting `\tocdepth` according to the following table (source).

Depth in document	Section Command	Depth for `\secnumdepth` Command
-1	`\part`	1
0	`\chapter`	2
1	`\section`	3
2	`\subsection`	4
3	`\subsubsection`	5
4	`\paragraph`	6
5	`\subparagraph`	7

For example, to expose everything down to and including the `\subsection` level, you would add

```
\setcounter{tocdepth}{2}
```

to your preamble (the section before `\begin{document}`, not the `preamble` environment discussed below).

Note that the Manual §3.5 p9 requires "List chapter titles and at least the first and second order subdivisions.", which corresponds to a `\tocdepth` of at least 2.

`\listoftables`
`\DUTlistoftables`

```
\listoftables
```

Write the List of Tables page (Manual §3.6 p10). Skip if you have no tables in your thesis.

`\listoffigures`
`\DUTlistoffigures`

```
\listoffigures
```

Write the List of Figures page (Manual §3.7 p10). Skip if you have no figures in your thesis.

`\blanklines`
`\DUTblanklines`

```
\blanklines{⟨num⟩}
```

Insert ⟨*num*⟩ blank lines. For example

```
\blanklines{2}
```

The skipped lines are always *single spaced* lines, regardless of the current line spacing in the environment calling this macro.

`\iffinal`
`\DUTiffinal`

```
\iffinal{⟨final-mode-action⟩}{⟨draft-mode-action⟩}
```

Include final- or draft-specific code.

```
We're in \iffinal{final}{draft} mode!
```

`\ifdraftwatermark`
`\DUTifdraftwatermark`

```
\ifdraftwatermark{⟨draftwatermark-mode-action⟩}{⟨other-action⟩}
```

Include draftwatermark-specific code (e.g. `\draftmarksetup`, § 3.2.4)..

```
We \ifdraftwatermark{are}{aren't} in draftwatermark mode!
```

`\ifdaring`
`\DUTifdaring`

```
\ifdaring{⟨daring-action⟩}{⟨wimpy-action⟩}
```

Include daring-specific code, with wimpy fallbacks.

```
\ifdaring{\singlespacing Muahahahaha!}{mumble mumble}.
```

`\drexellogobw`

```
\drexellogobw
```

Draws a black-and-white official vector Drexel logo. The image is exactly 1 inch wide and 1.016 inches tall. This is accomplished using the tikz package (§ 3.2.15). You can enclose this command in a `\scalebox` to alter its size.

2.3 Environments

To help deal with name collisions, all drexel-thesis environments have "secret" aliases. For example, `preamble` can also be used as `DUTpreamble`. This is useful if one of your packages clobbers a drexel-thesis environment, but you still want to use the original.

```
\documentclass{drexel-thesis}
\renewenvironment{preamble}{%
  What preamble?\begingroup\color{white}}{\endgroup}
\begin{document}
\begin{DUTpreamble}
Thwarted again, evil one!
...
```

`preamble` `DUTpreamble` Generalize the `\frontmatter` for the thesis, setting up page numbering, including the title page, copyright page etc. The `preamble` environment should contain the following elements (in order, see the Manual p8)

- `dedication` environment (optional)
- `acknowledgments` environment (optional)
- `\tableofcontents`
- `\listoftables`
- `\listoffigures`
- `abstract` environment

This will take care of everything from the title page (Manual §3.1), up through the blank page before the text (Manual §3.9).

`dedications` `DUTdedications` Set the dedications text. Highlights from the Manual §3.3 p9:

> The `Dedications` page is optional.

`acknowledgments` `DUTacknowledgments` Set the acknowledgments text. Highlights from the Manual §3.4 p9:

> The `Acknowledgments` page is optional, but most theses do include a brief statement of thanks or recognition of any special assistance.

`abstract` `DUTabstract` Set the thesis abstract text. In the Thesis Manual, see §3.8 Abstract (p10) for details, p20 for an example.

Highlights from the Manual:

> The abstract is a summary that allows readers to determine the value of reading the full thesis. It should include a statement of the problem, an outline of procedures or methods, and a summary of results and conclusions.

- Word limits: 600 for a Master's thesis, 350 for a Ph.D. thesis.

`thesis` Set the thesis text. In the Thesis Manual, see §3.10 Thesis (p11) for details.
`DUTthesis` Highlights from the Manual:

> Divide the text into its major parts/chapters/subsections. No fixed arrangement is necessary. The major parts may contain such subjects as introduction, general argument, description of experimental procedures, research methods, discussion, summary, conclusions, recommendations, and other pertinent topics that are necessary for a complete understanding on the part of a sophisticated or professional reader.

`vita` Set the thesis vita text (Ph.D. only). See the Manual §3.15 p12, "Vita", for
`DUTvita` details.

Highlights from the Manual:

> The Vita is a biography of the student written in the third person in either essay or outline form. It should include the full name, place and date of birth (optional), country of citizenship (optional), institutions attended, degrees and honors received, titles of publications, teaching and professional experience, and other pertinent data. The Vita must be one page or less.

2.4 Hints

2.4.1 Package installation

All the packages this class depends on must be installed somewhere in your texmf tree (they probably already are). If not, you will recieve warning messages on compilation such as

```
! LaTeX Error: File `missing-package.sty' not found.
```

You should then install the missing package(s) using your operating systems package manager, or grab the missing package from CTAN, and install them following TODO.

2.4.2 Tables and Figures

drexel-thesis loads graphicx to define the `\includegraphics` macro, caption for pretty caption formatting, floatrow for placing captions, and hypcap for placing caption anchors.

Simple float definitions will look like

```
\begin{table}
   \caption{Some caption text}
   \begin{tabular}{...}
     ...
   \end{tabular}
\end{table}
```

or

```
\begin{float}
  \includegraphics{...}
  \caption{Some caption text}
\end{float}
```

For more useful float information, see the examples in §4.1.2 and the LaTeX wikibook page.

2.4.3 Citations

I highly recommend using BibTeX and natbib. See §4.1 for a simple example.

Suggested options:

`super`	selects citations in superscript mode.
`sort&compress`	automatically sorts and compresses compound citations (`\pcite{a,b,...}`).

2.4.4 References

Easier cross referencing with cleveref. Is a wonderful tool for easy, consistent crosslinking via `\cref`, `\Cref`, etc.. The manual is also very good. Note that if you use `\part`s in your document, you need to tell cleveref how to deal with them:

```
\usepackage{cleveref}
\crefname{part}{part}{parts}
```

2.4.5 Hyperlinks

drexel-thesis loads hyperref. with the options:

`colorlinks`	color the link letters instead of drawing colored boxes.

The default hyperref colors can be a bit jarring. Feel free to use blackref or override them yourself:

```
\usepackage{xcolor}
\definecolor{dark-gray}{gray}{0.3}
\hypersetup{citecolor=dark-gray}
```

See the hyperref manual (§3.4 Extension options) for a list of `*color` options.

If running with a pdftex-based driver, `\author`, `\title`, and `\degree` automatically set `pdfauthor`, `pdftitle`, and `pdfsubject` respectively. You can use the `\hypersetup` macro to set options overriding these defaults.

2.4.6 Developing large LaTeX documents

A thesis may take a while to compile, especially if it contains lots of images, etc.. One way to save time, is to use `\includeonly` when including chapter `*.tex` files (see the TeX Wikibook). Usage would be something like

```
\documentclass{drexel-thesis}
...
\includeonly{chapter2.tex,chapter3.tex}
```

```
\begin{document}
...
\begin{thesis}
\include{chapter1.tex}
\include{chapter2.tex}
\include{chapter3.tex}
\include{chapter4.tex}
\end{thesis}
...
\end{document}
```

which would only compile chapters two and three. Don't confuse the similar commands `\include` and `\input`. The more fundamental `\input` just inserts the file contents at that point, while `\include`

- may only be used after `\begin{document}`
- acts like `\clearpage \input{} \clearpage`
- will not crash on nonexistent files

2.4.7 Passing options to packages used by drexel-thesis

drexel-thesis uses a number of LaTeX packages internally to format your thesis. Sometimes you also want to use these packages directly, but drexel-thesis is not passing them the option(s) you need. The way to deal with these issues is `\PassOptionsToPackage`.

`\PassOptionsToPackage{`⟨*option,...*⟩`}{`⟨*package*⟩`}`

For example, if you need to pass table to xcolor, use:

```
\PassOptionToPackage{table}{xcolor}
\documentclass{drexel-thesis}
```

Note that you need to call `\PassOptionsToPackage` before the target package is imported via `\documentclass`.

3 Implementation

1 ⟨*class⟩

For simplicity, we'll derive everything from the standard book class.

3.1 Option Processing

Include xkeyval for easier option parsing. If the package is not installed on your system, see §2.4.1 for installation instructions.

```
2 \RequirePackage{xkeyval}
```

Define some booleans to store option states

```
3 \newif\if@mainmatter \@mainmattertrue
4 \newif\if@DUT@subfigopt
```

```
\newif\if@DUT@pagebreak
\newif\if@dottedchapter
\newif\if@boldchapter
\newif\if@boldpart
\newif\if@dottedpart
\newif\if@indenttoc
\newif\if@blackref
\newif\if@draftwatermark
\newif\if@xdraftwatermark
\newif\if@indentfirst
\newif\if@final
\newif\if@daring
\newif\if@approvalform
```

`\iffinal` `\DUTiffinal` Setup a user-friendly means for including final- or draft-specific code.

```
\newcommand\iffinal[2]{\if@final #1\else #2\fi}
\let\DUTiffinal\iffinal
```

`\ifdraftwatermark` `\DUTifdraftwatermark` Setup a user-friendly means for including draftwatermark-specific code (e.g. `\draftmarksetup`, § 3.2.4).

```
\newcommand\ifdraftwatermark[2]{\if@draftwatermark #1\else #2\fi}
\let\DUTifdraftwatermark\ifdraftwatermark
```

`\ifdaring` `\DUTifdaring` Setup a user-friendly means for including daring-specific code.

```
\newcommand\ifdaring[2]{\if@daring #1\else #2\fi}
\let\DUTifdaring\ifdaring
```

`\DUT@makeapprovalform` Typesets the T-1 thesis/dissertation approval form.

```
\newcommand\DUT@makeapprovalform{
  \thispagestyle{empty}
  \begingroup
  \newlength{\tempskipa}
  \newlength{\tempskipb}
```

Don't indent paragraphs on this page.

```
  \parindent \z@
```

Setup tempskipa = logo width+4pt and tempskipb = textwidth−tempskipa−4pt. The first `pt` ensures the logo will fit in the left column; the second provides some buffer space between the minipages.

```
  \settowidth{\tempskipa}{\drexellogobw}
  \addtolength{\tempskipa}{1em}
  \setlength{\tempskipb}{\textwidth}
  \addtolength{\tempskipb}{-\tempskipa}
  \addtolength{\tempskipb}{-1em}
```

Add the logo and form title in columns. Each column is in a minipage.

```
  \begin{minipage}[c]{\tempskipa}
```

`\raisebox` drops the logo so that the image is centered on the baseline.

```
    \raisebox{-0.5\height}{\drexellogobw}
  \end{minipage}
  \hfill
  \begin{minipage}[c]{\tempskipb}
```

Unlike `\newline` or `\\`, `\linebreak` justifies the current line before requesting a newline.

```
    \textbf{\Huge Office of Graduate Studies} \linebreak
    \vskip 0.1\baselineskip
```

The original form lacks the spaces around the slash (/), but LaTeX's font and kerning make the second line more compact in our version. Allowing stretchy spaces around the slash helps the second line look more balanced.

```
    \textbf{\LARGE Dissertation / Thesis Approval Form} \linebreak
  \end{minipage}

  \vskip 2\baselineskip

  This form is for use by all doctoral and master's students with a
  dissertation/thesis requirement.  Please print clearly as the
  library will bind a copy of this form with each copy of the
  dissertation/thesis.  All doctoral dissertations must conform to
  university format requirements, which is the responsibility of the
  student and supervising professor.  Students should obtain a copy of
  the Thesis Manual located on the library website.

  \vspace*{\fill}
```

Setup tempskipb = left column width and tempskipa = textwidth − tempskipb − 4em. The `4em` provides some buffer space between the columns.

```
  \settowidth{\tempskipb}{Dissertation/Thesis Title:}
  \setlength{\tempskipa}{\textwidth}
  \addtolength{\tempskipa}{-\tempskipb}
  \addtolength{\tempskipa}{-4em}
```

Double space the student-contolled section to allow plenty of space for handwritten entries.

```
  \begin{spacing}{2}
    \begin{tabular*}{\textwidth}{@{\extracolsep{\fill}} l p{\tempskipa}}
      \textbf{Dissertation/Thesis Title:} & \@DUT@title \\
      \textbf{Author:} & \@DUT@author
    \end{tabular*}

    \vspace*{\fill}

    \begin{center}
      \textbf{This dissertation/thesis is hereby accepted and approved.}
    \end{center}

    \vspace*{\fill}
```

```
    \textbf{Signatures:} \\
    Examining Committee \\
```

The left most column is left blank and the stretchy space between columns indents the middle column. I think this looks bad, but that's how Drexel's version of the T-1 form looks.

```
    \begin{tabular*}{\textwidth}{@{\extracolsep{\fill}} p{0pt} l p{\tempskipa}}
      & Chair            & \hrulefill \\
      & Members          & \hrulefill \\
      &                  & \hrulefill \\
      &                  & \hrulefill \\
      &                  & \hrulefill \\
      &                  & \hrulefill \\
      & Academic Advisor & \hrulefill \\
      & Department Head  & \hrulefill
    \end{tabular*}

    \vspace*{\fill}
  \end{spacing}

  \begin{center}\scriptsize
    Office of Graduate Studies
    $\bullet$ 3141 Chestnut St.
    $\bullet$ Randell Hall 240
    $\bullet$ Philadelphia, PA 19104 \\
    \textbf{Tel.}: 215-895-0366
    $\bullet$ \textbf{Fax}: 215-895-0495
    $\bullet$ \textbf{Email}:
      \href{mailto:graduate@drexel.edu}{graduate@drexel.edu}
    $\bullet$ \textbf{Web}:
      \href{http://www.drexel.edu/provost/graduatestudies/}{%
                  www.drexel.edu/provost/graduatestudies}
  \end{center}
  \endgroup
  \pagebreak
}
```

`\drexellogobw` Draws a vector art official black-and-white Drexel logo. The image is exactly 1 inch wide and 1.016 inches tall.

```
\newcommand\drexellogobw{
  \begin{tikzpicture}[y=0.8pt, x=0.8pt,yscale=-1, inner sep=0pt, outer sep=0pt]
  \begin{scope}[cm={{1.25,0.0,0.0,-1.25,(-332.5,550.73629)}},]
    \path[fill=black,nonzero rule] (266.0000,367.4100) -- (338.0000,367.4100) --
      (338.0000,440.5890) -- (266.0000,440.5890) -- (266.0000,367.4100) -- cycle;
    \path[fill=white,nonzero rule] (269.3171,377.0107) -- (334.8469,377.0107) --
      (334.8469,438.7106) -- (269.3171,438.7106) -- (269.3171,377.0107) -- cycle;
    \path[fill=black,nonzero rule] (330.2168,398.2540) .. controls
      (328.9195,397.9603) and (327.1082,397.5687) .. (326.0555,397.4220) --
      (326.0555,396.7855) .. controls (327.6468,396.6388) and (327.6956,396.6388) ..
```

```
    (327.6956,395.1942) -- (327.6956,383.2000) .. controls (327.6956,381.8537) and
    (327.5489,381.7070) .. (326.0313,381.5600) -- (326.0313,380.8747) --
    (331.9060,380.8747) -- (331.9060,381.5600) .. controls (330.3147,381.7070) and
    (330.2168,381.8537) .. (330.2168,383.2000) -- (330.2168,398.2540) --
    cycle(319.4750,387.8511) .. controls (319.6711,389.6870) and
    (320.6989,390.8372) .. (321.7273,390.8372) .. controls (322.8042,390.8372) and
    (323.5629,389.5642) .. (323.5629,388.5852) .. controls (323.5629,388.0466) and
    (323.4650,387.8999) .. (323.1225,387.8999) -- (319.4750,387.8511) --
    cycle(325.6436,383.5183) .. controls (324.6889,382.7839) and
    (323.9057,382.4902) .. (323.0734,382.4902) .. controls (321.2375,382.4902) and
    (319.3037,383.7632) .. (319.3528,386.8472) .. controls (322.0207,386.9454) and
    (325.1787,387.1900) .. (325.5215,387.2391) .. controls (325.9865,387.3367) and
    (326.0352,387.3858) .. (326.0352,388.2915) .. controls (326.0352,390.0540) and
    (324.4443,391.7920) .. (322.3881,391.7920) .. controls (319.1570,391.7920) and
    (316.8805,388.7813) .. (316.9296,385.7212) .. controls (316.9784,382.8575) and
    (318.8630,380.5809) .. (322.0698,380.5809) .. controls (322.7551,380.5809) and
    (324.5910,381.0704) .. (325.9865,383.1021) -- (325.6436,383.5183) --
    cycle(312.6069,391.4983) -- (312.6069,390.8130) -- (313.2434,390.7393) ..
    controls (313.7084,390.6659) and (313.5859,390.3968) .. (313.2188,389.7848) ..
    controls (312.8518,389.1729) and (312.4111,388.5118) .. (311.9216,387.8265) --
    (310.5019,389.9561) .. controls (310.1836,390.4210) and (310.2327,390.6659) ..
    (310.6485,390.7147) -- (311.2851,390.8129) -- (311.2851,391.4982) --
    (305.8754,391.4982) -- (305.8754,390.8129) .. controls (307.1972,390.6659) and
    (307.3684,390.5680) .. (308.1762,389.3195) -- (310.4527,385.7948) .. controls
    (309.6938,384.7667) and (308.9839,383.8365) .. (308.4211,383.1021) .. controls
    (307.3930,381.7803) and (307.0259,381.7557) .. (305.6304,381.5599) --
    (305.6304,380.8746) -- (310.2327,380.8746) -- (310.2327,381.5599) --
    (309.5225,381.6824) .. controls (309.1309,381.7557) and (309.0576,381.9027) ..
    (309.4492,382.5635) .. controls (309.9142,383.3470) and (310.4528,384.1547) ..
    (310.9914,384.9379) -- (312.5824,382.5147) .. controls (312.9006,382.0252) and
    (312.8761,381.7069) .. (312.4353,381.6581) -- (311.7258,381.5599) --
    (311.7258,380.8746) -- (317.5271,380.8746) -- (317.5271,381.5599) .. controls
    (316.2053,381.7069) and (315.8867,381.8048) .. (314.9323,383.2491) --
    (312.4599,386.9942) .. controls (313.3168,388.1693) and (314.0021,389.0259) ..
    (314.2715,389.3683) .. controls (315.2997,390.6168) and (315.5934,390.6659) ..
    (317.1355,390.8129) -- (317.1355,391.4982) -- (312.6069,391.4982) --
    cycle(299.3927,387.8511) .. controls (299.5885,389.6870) and
    (300.6166,390.8372) .. (301.6447,390.8372) .. controls (302.7220,390.8372) and
    (303.4806,389.5642) .. (303.4806,388.5852) .. controls (303.4806,388.0466) and
    (303.3827,387.8999) .. (303.0402,387.8999) -- (299.3927,387.8511) --
    cycle(305.5614,383.5183) .. controls (304.6066,382.7839) and
    (303.8234,382.4902) .. (302.9911,382.4902) .. controls (301.1552,382.4902) and
    (299.2215,383.7632) .. (299.2706,386.8472) .. controls (301.9384,386.9454) and
    (305.0961,387.1900) .. (305.4389,387.2391) .. controls (305.9039,387.3367) and
    (305.9530,387.3858) .. (305.9530,388.2915) .. controls (305.9530,390.0540) and
    (304.3617,391.7920) .. (302.3058,391.7920) .. controls (299.0745,391.7920) and
    (296.7982,388.7813) .. (296.8470,385.7212) .. controls (296.8961,382.8575) and
    (298.7808,380.5809) .. (301.9876,380.5809) .. controls (302.6729,380.5809) and
    (304.5087,381.0704) .. (305.9039,383.1021) -- (305.5614,383.5183) --
    cycle(292.7087,391.8408) .. controls (291.4360,391.4492) and
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    (289.8205,391.1067) .. (288.6211,390.9109) -- (288.6211,390.3477) .. controls
    (290.1387,390.2007) and (290.1875,390.1519) .. (290.1875,388.6585) --
    (290.1875,383.2000) .. controls (290.1875,381.8537) and (290.0408,381.7070) ..
    (288.5965,381.5600) -- (288.5965,380.8747) -- (294.6428,380.8747) --
    (294.6428,381.5600) .. controls (292.8557,381.7070) and (292.7087,381.8537) ..
    (292.7087,383.2000) -- (292.7087,388.1448) .. controls (293.2476,389.2217) and
    (293.8105,389.5154) .. (294.2266,389.5154) .. controls (294.6182,389.5154) and
    (295.0098,389.3196) .. (295.3526,388.9771) .. controls (295.4993,388.8301) and
    (295.7930,388.7813) .. (296.0625,388.8789) .. controls (296.6253,389.0993) and
    (297.0660,389.8091) .. (297.0660,390.4211) .. controls (297.0660,391.1067) and
    (296.4298,391.8408) .. (295.5484,391.8408) .. controls (294.3487,391.8408) and
    (293.3697,390.2986) .. (292.7823,389.3684) -- (292.7086,389.3684) --
    (292.7086,391.8408) -- cycle(276.3892,394.4356) .. controls
    (276.3892,395.0721) and (276.3892,395.5125) .. (276.5362,395.6350) .. controls
    (276.6829,395.7574) and (277.3194,395.8553) .. (278.1272,395.8553) .. controls
    (282.0438,395.8553) and (284.6874,394.0440) .. (284.6874,388.8055) .. controls
    (284.6874,384.7422) and (282.5821,381.8782) .. (278.5188,381.8782) .. controls
    (276.6341,381.8782) and (276.3892,382.3435) .. (276.3892,384.5952) --
    (276.3892,394.4356) -- cycle(271.6405,396.7855) -- (271.6405,396.0999) ..
    controls (273.4518,395.9532) and (273.6476,395.7574) .. (273.6476,393.1138) --
    (273.6476,384.5464) .. controls (273.6476,381.9028) and (273.4518,381.7070) ..
    (271.4447,381.5599) -- (271.4447,380.8746) -- (277.4419,380.8746) .. controls
    (283.1695,380.8746) and (287.8206,383.5183) .. (287.8206,389.5399) .. controls
    (287.8206,391.6941) and (286.8903,393.5054) .. (285.7643,394.6314) .. controls
    (284.1488,396.1981) and (281.6522,396.7855) .. (278.9104,396.7855) --
    (271.6405,396.7855);
  \path[fill=white,nonzero rule] (277.1649,373.9784) -- (277.1649,371.3099) ..
    controls (277.1649,370.4792) and (277.1239,369.7235) .. (276.0893,369.7235) ..
    controls (275.0546,369.7235) and (275.0137,370.4792) .. (275.0137,371.3099) --
    (275.0137,373.9784) -- (273.9584,373.9784) -- (273.9584,370.9013) .. controls
    (273.9584,369.5942) and (274.8978,368.9613) .. (276.0893,368.9613) .. controls
    (277.2808,368.9613) and (278.2201,369.5942) .. (278.2201,370.9013) --
    (278.2201,373.9784) -- (277.1649,373.9784);
  \path[fill=white,nonzero rule] (285.3943,369.0631) -- (285.3943,373.9784) --
    (284.4072,373.9784) -- (284.4072,370.1253) -- (284.3933,370.1119) --
    (282.5215,373.9785) -- (280.9557,373.9785) -- (280.9557,369.0632) --
    (281.9429,369.0632) -- (281.9429,373.1344) -- (281.9563,373.1482) --
    (283.8966,369.0632) -- (285.3943,369.0632);
  \path[fill=white,nonzero rule] (287.9938,369.0631) -- (289.0489,369.0631) --
    (289.0489,373.9783) -- (287.9938,373.9783) -- (287.9938,369.0631) -- cycle;
  \path[fill=white,nonzero rule] (293.1186,369.0631) -- (294.2692,369.0631) --
    (296.0802,373.9784) -- (295.0383,373.9784) -- (293.7518,370.1047) --
    (293.7380,370.1047) -- (292.4581,373.9784) -- (291.3076,373.9784) --
    (293.1186,369.0631);
  \path[fill=white,nonzero rule] (298.3125,369.0631) -- (301.6824,369.0631) --
    (301.6824,369.8804) -- (299.3678,369.8804) -- (299.3678,371.1940) --
    (301.4647,371.1940) -- (301.4647,372.0109) -- (299.3678,372.0109) --
    (299.3678,373.1615) -- (301.6078,373.1615) -- (301.6078,373.9784) --
    (298.3125,373.9784) -- (298.3125,369.0631);
  \path[fill=white,nonzero rule] (305.3086,373.1615) -- (306.1936,373.1615) ..
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    controls (306.6566,373.1545) and (306.9291,372.9710) .. (306.9291,372.5352) ..
    controls (306.9291,372.0997) and (306.6566,371.8682) .. (306.1936,371.8613) --
    (305.3086,371.8613) -- (305.3086,373.1615) -- cycle(305.3086,371.0444) --
    (306.4251,371.0444) .. controls (306.7722,371.0306) and (306.8403,370.6564) ..
    (306.8675,370.3840) .. controls (306.9153,369.9413) and (306.9631,369.4989) ..
    (307.0515,369.0631) -- (308.2158,369.0631) .. controls (308.0181,369.3356) and
    (307.9771,369.9141) .. (307.9297,370.2275) .. controls (307.8413,370.9082) and
    (307.8413,371.4052) .. (307.0309,371.4936) -- (307.0309,371.5074) .. controls
    (307.6369,371.6368) and (308.0521,372.0588) .. (308.0521,372.6986) .. controls
    (308.0521,373.6995) and (307.1877,373.9719) .. (306.3436,373.9785) --
    (304.2533,373.9785) -- (304.2533,369.0632) -- (305.3086,369.0632) --
    (305.3086,371.0444);
  \path[fill=white,nonzero rule] (314.2601,372.5761) .. controls
    (314.2601,373.5633) and (313.5181,374.0806) .. (312.5650,374.0806) .. controls
    (311.5572,374.0806) and (310.5225,373.5836) .. (310.5225,372.4605) .. controls
    (310.5225,371.5889) and (311.4619,371.2759) .. (312.1495,371.1056) .. controls
    (312.5719,370.9969) and (313.2729,370.9560) .. (313.2729,370.3771) .. controls
    (313.2729,369.8529) and (312.7146,369.7235) .. (312.2926,369.7235) .. controls
    (311.7412,369.7235) and (311.4282,370.0912) .. (311.4691,370.6358) --
    (310.3932,370.6358) .. controls (310.3592,369.3968) and (311.1558,368.9613) ..
    (312.2792,368.9613) .. controls (313.3341,368.9613) and (314.3963,369.3834) ..
    (314.3963,370.6017) .. controls (314.3963,371.5889) and (313.2935,371.8001) ..
    (312.5447,371.9906) .. controls (312.1227,372.0928) and (311.6459,372.1540) ..
    (311.6459,372.6851) .. controls (311.6459,373.1140) and (312.0408,373.3184) ..
    (312.4288,373.3184) .. controls (312.9393,373.3184) and (313.2048,373.0731) ..
    (313.2457,372.5761) -- (314.2601,372.5761);
  \path[fill=white,nonzero rule] (316.8870,369.0631) -- (317.9422,369.0631) --
    (317.9422,373.9783) -- (316.8870,373.9783) -- (316.8870,369.0631) -- cycle;
  \path[fill=white,nonzero rule] (320.2146,373.1615) -- (321.6782,373.1615) --
    (321.6782,369.0631) -- (322.7335,369.0631) -- (322.7335,373.1615) --
    (324.1971,373.1615) -- (324.1971,373.9784) -- (320.2146,373.9784) --
    (320.2146,373.1615);
  \path[fill=white,nonzero rule] (327.7961,369.0631) -- (328.8511,369.0631) --
    (328.8511,370.6701) -- (330.5056,373.9784) -- (329.4231,373.9784) --
    (328.3881,371.7251) -- (327.3741,373.9784) -- (326.1417,373.9784) --
    (327.7961,370.6701) -- (327.7961,369.0631);
  \path[fill=black,nonzero rule] (317.2675,431.5469) .. controls
    (316.1860,431.3992) and (315.2214,430.7506) .. (314.6366,429.7477) .. controls
    (314.1108,428.7739) and (313.9058,427.3581) .. (314.6661,426.4142) .. controls
    (315.0459,425.9718) and (315.5138,425.6179) .. (316.0986,425.5884) .. controls
    (317.6768,425.7655) and (318.7000,427.4174) .. (320.2199,427.8005) .. controls
    (321.2140,428.1250) and (322.0325,427.5647) .. (322.7342,427.0042) .. controls
    (323.2604,426.6797) and (323.9912,426.7681) .. (324.4882,427.0926) .. controls
    (322.8511,425.7652) and (321.7401,423.7889) .. (321.5650,421.6357) .. controls
    (321.3308,422.6386) and (320.7169,423.7299) .. (319.7232,424.0839) .. controls
    (318.6126,424.4971) and (317.6480,423.8183) .. (316.8877,423.0810) .. controls
    (316.1864,422.3436) and (315.8940,421.3997) .. (315.5138,420.5146) .. controls
    (316.0400,420.9868) and (316.6834,421.6063) .. (317.4725,421.7536) .. controls
    (318.4665,422.0486) and (319.4020,421.7241) .. (320.1911,421.1344) .. controls
    (320.4540,420.8689) and (320.7759,420.6328) .. (320.8927,420.2199) .. controls
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(319.8990,419.5415) and (319.5772,418.3909) .. (319.6358,417.1814) .. controls
(319.3142,418.1254) and (318.9636,419.2760) .. (317.8818,419.6889) .. controls
(317.1801,419.9839) and (316.3032,419.8955) .. (315.7479,419.3054) .. controls
(315.2800,418.8038) and (315.2509,418.0075) .. (315.3678,417.3291) .. controls
(315.8062,415.4120) and (317.5602,414.2909) .. (319.2265,413.7304) .. controls
(320.9514,413.1109) and (322.5299,411.5180) .. (322.7345,409.6304) .. controls
(322.9978,409.6893) and (323.4362,409.8956) .. (323.6700,409.6006) .. controls
(323.9329,410.4856) and (324.3422,411.6362) .. (325.3945,411.9309) .. controls
(326.1545,412.2262) and (326.9439,411.9309) .. (327.5287,411.4001) .. controls
(328.1426,410.7217) and (328.4350,409.8366) .. (328.2595,408.8927) .. controls
(328.1717,408.5093) and (327.9962,408.1553) .. (327.7625,407.8308) .. controls
(327.8502,408.2732) and (327.9088,408.9814) .. (327.6164,409.3943) .. controls
(327.3823,409.7188) and (327.0316,409.9548) .. (326.6515,409.9548) .. controls
(326.3594,409.9843) and (326.1548,409.8075) .. (326.0084,409.5714) .. controls
(325.6869,408.1258) and (327.4995,407.7424) .. (327.5578,406.3856) .. controls
(327.5873,405.6482) and (327.2949,404.9695) .. (326.6518,404.6453) .. controls
(325.9505,404.3503) and (325.1902,404.6155) .. (324.6932,405.1466) .. controls
(324.4303,405.3824) and (324.2256,405.6777) .. (324.1087,405.9724) .. controls
(324.6346,405.7072) and (325.5995,405.4416) .. (326.1548,405.9433) .. controls
(326.4180,406.1790) and (326.5346,406.4740) .. (326.5346,406.8280) .. controls
(326.5932,407.3591) and (326.1839,407.8014) .. (325.8333,408.0964) .. controls
(325.5114,408.3325) and (325.1607,408.4798) .. (324.7515,408.5388) .. controls
(324.9856,408.0669) and (324.9564,407.4180) .. (324.6346,407.0051) .. controls
(324.1087,406.2677) and (323.1733,406.3264) .. (322.3547,406.4151) .. controls
(321.4779,404.2030) and (319.0516,403.0230) .. (316.8884,402.4330) --
(315.3098,402.3151) .. controls (316.3039,401.6956) and (317.3562,401.2234) ..
(318.4086,400.7222) .. controls (318.9639,401.7251) and (319.7530,402.8458) ..
(320.9517,403.0819) .. controls (321.8285,403.1998) and (322.6471,402.9048) ..
(323.1441,402.1969) .. controls (323.5534,401.4595) and (323.8163,400.4566) ..
(323.4657,399.6011) -- (323.0855,398.8932) .. controls (323.2610,399.5421) and
(323.0563,400.3682) .. (322.5011,400.8695) .. controls (322.2087,401.1056) and
(321.8285,401.2234) .. (321.4484,401.1645) .. controls (321.0977,401.1056) and
(320.7471,400.8695) .. (320.6302,400.5156) .. controls (320.2500,398.7753) and
(322.8226,398.7458) .. (322.5302,396.9761) .. controls (322.4719,396.5039) and
(322.2673,396.1205) .. (321.8580,395.7961) .. controls (321.2444,395.2948) and
(320.1331,395.2358) .. (319.4026,395.6192) .. controls (318.9348,395.7961) and
(318.5255,396.1795) .. (318.1457,396.5039) .. controls (317.5609,396.1795) and
(316.6546,396.1503) .. (316.1284,396.6221) .. controls (315.3393,397.2711) and
(315.1930,398.2147) .. (314.9592,399.1292) .. controls (311.7435,400.3977) and
(308.7325,402.2561) .. (306.2186,404.9698) .. controls (304.4354,406.8872) and
(303.6460,409.5125) .. (304.0553,412.1968) .. controls (304.4646,414.6744) and
(304.2305,417.5357) .. (302.0966,419.0108) .. controls (301.1026,419.5415) and
(299.8161,419.8071) .. (298.7055,419.3647) .. controls (297.5945,418.8929) and
(296.8346,417.6539) .. (296.8054,416.4150) .. controls (296.8640,414.2026) and
(298.0919,412.3444) .. (299.0860,410.4565) .. controls (300.0214,408.2146) and
(299.6121,405.4122) .. (297.8581,403.7607) .. controls (296.4842,402.0793) and
(294.5259,401.5780) .. (293.0057,400.1914) .. controls (292.8010,399.9848) and
(292.7136,399.6606) .. (292.8305,399.3951) .. controls (293.3275,398.7462) and
(294.2921,398.7462) .. (295.1107,398.8051) .. controls (296.8644,399.1296) and
(298.1796,400.4570) .. (299.8459,400.9288) .. controls (300.8986,401.0764) and
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(301.9215,400.7225) .. (302.4771,399.8080) .. controls (302.6817,399.4246) and
(302.8569,398.9230) .. (302.7109,398.4511) .. controls (302.5648,397.9790) and
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(300.8108,399.6607) .. (300.3724,399.6607) .. controls (300.6353,399.3359) and
(300.8691,398.8935) .. (300.8108,398.3919) .. controls (300.6939,397.6251) and
(300.1678,396.8877) .. (299.4075,396.6811) .. controls (299.0277,396.5633) and
(298.6475,396.7106) .. (298.3260,396.9172) .. controls (298.0339,397.1533) and
(297.9167,397.4188) .. (297.7707,397.7138) .. controls (297.9753,397.5072) and
(298.2383,397.3599) .. (298.5306,397.3893) .. controls (298.9399,397.4482) and
(299.2323,397.6840) .. (299.3783,398.0678) .. controls (299.4661,398.3330) and
(299.4661,398.6873) .. (299.3197,398.9230) .. controls (299.1446,399.1885) and
(298.8522,399.3657) .. (298.5015,399.2769) .. controls (297.3906,398.9230) and
(297.1568,397.3599) .. (296.0167,397.0056) .. controls (294.5551,396.8877) and
(293.0057,397.0649) .. (291.4858,396.9761) -- (286.8671,396.8582) .. controls
(286.6042,396.9466) and (286.2824,397.0056) .. (286.1655,397.3009) .. controls
(285.6393,398.1856) and (286.9549,399.1885) .. (285.8439,399.8673) .. controls
(283.0376,401.7843) and (279.9097,403.7017) .. (278.0679,406.8283) .. controls
(276.4017,409.6307) and (274.9692,413.8490) .. (277.0735,416.9166) .. controls
(278.1845,418.5095) and (280.0263,419.4535) .. (282.0432,419.0995) .. controls
(283.6508,418.8929) and (284.9956,417.5656) .. (285.4049,416.0316) --
(285.4927,415.5005) .. controls (284.8787,416.5921) and (283.8850,417.6834) ..
(282.6277,418.0963) .. controls (282.7449,417.7718) and (282.6863,417.3000) ..
(282.6280,416.9461) .. controls (282.3942,417.4771) and (281.7509,417.9490) ..
(281.1664,418.1556) .. controls (281.4293,417.6834) and (281.7220,417.1229) ..
(281.6340,416.5037) .. controls (281.2247,416.9755) and (280.6111,417.4474) ..
(279.9386,417.2705) .. controls (280.4647,416.8282) and (280.9326,416.3560) ..
(281.1373,415.6776) .. controls (280.6697,415.9726) and (279.9680,416.2676) ..
(279.3246,416.0021) .. controls (279.8803,415.6482) and (280.8743,415.3531) ..
(280.8743,414.4386) .. controls (280.5819,414.6453) and (280.1727,414.7337) ..
(279.8217,414.6453) -- (279.3832,414.4386) .. controls (279.8217,414.2618) and
(280.4356,414.1145) .. (280.7571,413.6424) -- (281.0204,413.1705) .. controls
(280.4064,413.2294) and (279.7634,413.1407) .. (279.3246,412.6689) .. controls
(279.9972,412.5510) and (280.6988,412.4626) .. (281.1373,411.8432) .. controls
(280.5525,411.6955) and (279.9386,411.3710) .. (279.7339,410.7221) .. controls
(280.2896,411.0171) and (281.1373,411.0171) .. (281.6634,410.5747) .. controls
(281.0204,410.2208) and (280.3478,409.5423) .. (280.5233,408.6868) .. controls
(281.0790,409.1291) and (281.8681,409.5129) .. (282.6283,409.1586) .. controls
(281.8098,408.8047) and (281.2836,407.9789) .. (281.2541,407.1528) --
(281.2836,406.9171) .. controls (281.8681,407.5955) and (282.6284,408.0378) ..
(283.5344,407.8610) .. controls (282.7453,407.4773) and (282.3943,406.6810) ..
(282.4820,405.7959) .. controls (282.6284,405.8846) and (282.7453,406.0910) ..
(282.9208,406.2092) .. controls (283.4761,406.5631) and (284.0314,406.9171) ..
(284.6745,406.9465) .. controls (284.2360,406.3565) and (283.6221,405.5893) ..
(283.8854,404.7341) .. controls (284.2946,405.5013) and (285.0546,406.3270) ..
(285.9314,406.4154) .. controls (285.4930,405.8254) and (285.3470,405.0881) ..
(285.3470,404.3212) .. controls (285.9609,405.1765) and (286.8669,406.1794) ..
(287.8901,406.5631) .. controls (287.5391,405.9141) and (287.2176,404.8225) ..
```

```
366       (287.5977,404.0262) .. controls (287.8901,404.9997) and (288.5040,406.0026) ..
367       (289.2348,406.6512) .. controls (289.0885,405.8254) and (289.3517,405.0586) ..
368       (289.9948,404.4980) -- (290.0534,404.5569) .. controls (290.0239,405.6191) and
369       (290.4332,406.5333) .. (290.9594,407.3299) .. controls (290.8425,406.6220) and
370       (291.2517,405.9730) .. (291.8657,405.6188) -- (292.1289,405.5009) .. controls
371       (291.8365,406.2386) and (291.6319,407.0938) .. (291.7779,408.0083) .. controls
372       (292.3041,407.4478) and (293.0644,406.7693) .. (293.9117,406.8872) .. controls
373       (292.6551,408.0083) and (291.3978,409.2473) .. (290.8716,410.8104) .. controls
374       (291.3686,410.2797) and (292.1577,409.9254) .. (293.0054,409.9847) .. controls
375       (291.4272,411.1054) and (289.9948,413.0523) .. (289.8484,415.0876) .. controls
376       (290.1994,414.2618) and (290.9885,413.6125) .. (291.8071,413.3178) .. controls
377       (290.6961,414.9697) and (289.5269,416.8868) .. (290.1405,419.1286) .. controls
378       (290.2868,418.0668) and (290.9008,416.8868) .. (292.0117,416.5626) .. controls
379       (291.3978,417.7129) and (290.5792,418.8929) .. (290.7544,420.3676) .. controls
380       (290.8127,421.2821) and (291.1051,422.1671) .. (291.6312,422.9045) .. controls
381       (291.2514,422.0784) and (291.1928,420.7808) .. (291.9528,420.0137) --
382       (292.0114,419.9548) .. controls (291.7776,422.2556) and (292.6544,424.5269) ..
383       (294.6422,425.5888) -- (295.4022,426.0016) .. controls (294.7883,425.2050) and
384       (294.3793,424.3498) .. (294.3793,423.3171) .. controls (295.2558,425.2050) and
385       (297.0976,427.0635) .. (299.4364,426.9456) .. controls (299.7870,426.9751) and
386       (300.1086,426.9158) .. (300.4301,426.8569) .. controls (299.4655,426.4146) and
387       (298.2668,425.6769) .. (298.1499,424.4677) .. controls (299.7284,425.9129) and
388       (301.9503,426.7096) .. (304.1133,425.9129) .. controls (304.6103,425.7063) and
389       (305.1656,425.4411) .. (305.4872,425.0279) .. controls (304.7272,425.4411) and
390       (303.8504,425.1166) .. (303.2070,424.7034) .. controls (302.9149,424.4972) and
391       (302.5056,424.2021) .. (302.3888,423.8482) .. controls (303.8795,424.4088) and
392       (306.1597,424.7922) .. (307.3289,423.2877) -- (308.0598,422.1374) .. controls
393       (307.2707,422.6685) and (306.3352,423.1108) .. (305.3120,422.9046) .. controls
394       (305.1365,422.8453) and (304.9610,422.7569) .. (304.7858,422.6092) .. controls
395       (306.4226,422.5503) and (308.0306,421.7537) .. (308.7028,420.2200) --
396       (308.9075,419.3055) .. controls (308.4982,420.1021) and (307.6505,420.8984) ..
397       (306.6859,420.9279) .. controls (307.2412,420.3382) and (308.0892,419.7482) ..
398       (308.3521,418.9221) .. controls (308.9078,417.6831) and (309.0538,416.1789) ..
399       (310.3985,415.4121) .. controls (310.9247,415.1466) and (311.4800,414.9694) ..
400       (312.0648,414.8810) .. controls (310.0479,415.7068) and (309.3171,418.1258) ..
401       (309.1707,420.2495) .. controls (309.6677,419.6303) and (310.3108,419.0694) ..
402       (311.0125,418.7748) .. controls (310.6615,419.2171) and (310.3108,419.5121) ..
403       (309.9307,419.9839) .. controls (308.7614,421.4001) and (308.0598,423.2582) ..
404       (308.4982,425.1461) .. controls (308.8197,426.3553) and (309.6383,427.3582) ..
405       (310.4274,428.3611) .. controls (309.7846,427.1224) and (309.6674,425.3233) ..
406       (310.4569,424.1137) .. controls (310.8367,423.5237) and (311.3632,423.0221) ..
407       (311.8893,422.6387) .. controls (310.8661,423.9955) and (310.3982,426.0013) ..
408       (311.0122,427.7419) .. controls (311.8890,430.1312) and (314.3444,431.3993) ..
409       (316.7123,431.5764) -- (317.2676,431.5469);
410     \path[fill=white,nonzero rule] (314.4906,424.9100) .. controls
411       (314.8707,424.6150) and (315.4260,424.4378) .. (315.9231,424.6444) .. controls
412       (316.0109,424.6739) and (316.0986,424.7328) .. (316.2155,424.7623) .. controls
413       (315.7770,424.2905) and (315.3091,423.3171) .. (314.4906,423.5237) .. controls
414       (313.7892,424.0544) and (314.0522,425.1461) .. (313.9936,425.9424) .. controls
415       (314.0231,425.5295) and (314.1982,425.2050) .. (314.4906,424.9100);
```

```
    \path[fill=white,nonzero rule] (312.1524,410.9578) .. controls
      (312.7372,411.0167) and (313.2634,411.4001) .. (313.5849,411.8723) .. controls
      (313.9356,410.8101) and (314.4621,409.1880) .. (313.5849,408.1851) .. controls
      (313.3220,407.9196) and (313.0005,407.8014) .. (312.6203,407.8014) .. controls
      (311.1587,407.8901) and (310.5157,409.4238) .. (310.1060,410.6627) .. controls
      (309.8140,411.5183) and (309.8140,412.4623) .. (309.6968,413.4062) .. controls
      (310.1355,412.3735) and (310.8663,410.9283) .. (312.1524,410.9578);
    \path[fill=white,nonzero rule] (320.8934,398.4803) .. controls
      (321.1563,398.2147) and (321.3023,397.9200) .. (321.2440,397.5363) .. controls
      (321.2440,397.2122) and (320.9517,396.8874) .. (320.6887,396.7695) .. controls
      (320.0748,396.5039) and (319.3440,396.7106) .. (318.8178,397.0056) .. controls
      (319.3145,397.5068) and (319.6072,398.0969) .. (319.6947,398.7458) .. controls
      (320.1331,398.8047) and (320.5424,398.7163) .. (320.8934,398.4803);
    \path[fill=white,nonzero rule] (322.0034,426.5913) .. controls
      (322.0616,426.2668) and (321.8865,426.0013) .. (321.6232,425.8834) .. controls
      (321.1848,425.7652) and (320.6000,425.7652) .. (320.2785,426.1195) .. controls
      (320.1324,426.3258) and (320.0447,426.6208) .. (320.2199,426.8274) .. controls
      (320.6586,427.3581) and (321.6818,427.2403) .. (322.0034,426.5913);
    \path[fill=white,nonzero rule] (317.0930,398.3624) .. controls
      (317.0639,398.0968) and (316.8592,397.8611) .. (316.5963,397.8018) .. controls
      (316.2453,397.7723) and (316.1575,398.0968) .. (316.0701,398.3624) --
      (316.0406,398.7753) -- (317.0929,398.3624);
    \path[fill=white,nonzero rule] (323.3484,407.8309) .. controls
      (323.3193,407.3590) and (322.9977,407.1524) .. (322.5885,407.0051) .. controls
      (322.7345,407.4474) and (322.7640,407.9785) .. (322.7057,408.4504) .. controls
      (322.9686,408.3325) and (323.2315,408.1259) .. (323.3484,407.8309);
  \end{scope}
  \end{tikzpicture}
}
```

`subfig` Set subfig flag

```
\DeclareOptionX{subfig}{\@DUT@subfigopttrue}
```

`finalspace`

```
\DeclareOptionX{finalspace}{
  \setlength\overfullrule{0pt}
  \def\@DUT@toc@sep{1} % content page separation (# blanklines between entries)
  \def\@ssp{1} % single space
  \def\@dsp{2} % double space
  \def\@tsp{3} % triple space
}
```

`draftspace`

```
\DeclareOptionX{draftspace}{
  \setlength\overfullrule{5pt}
  \def\DUT@toc@sep{0} % content page separation (# blanklines between entries)
  \def\@ssp{1} % single space
  \def\@dsp{1} % double space
  \def\@tsp{2} % triple space
}
```

pagebreak

```
\DeclareOptionX{pagebreak}{
  \@DUT@pagebreaktrue
```

Force chapters onto right-hand pages.

```
  \PassOptionsToClass{openright}{book}
}
```

nopagebreak

```
\DeclareOptionX{nopagebreak}{
  \@DUT@pagebreakfalse
```

Don't force chapters onto right-hand pages.

```
  \PassOptionsToClass{openany}{book}
}
```

dottedpart

```
\DeclareOptionX{dottedpart}{\@dottedparttrue}
```

dottedchapter

```
\DeclareOptionX{dottedchapter}{\@dottedchaptertrue}
```

1

boldpart

```
\DeclareOptionX{boldpart}{\@boldparttrue}
```

boldchapter

```
\DeclareOptionX{boldchapter}{\@boldchaptertrue}
```

dottedtoc

```
\DeclareOptionX{dottedtoc}{
  \setkeys{drexel-thesis.cls}{dottedpart}
  \setkeys{drexel-thesis.cls}{dottedchapter}
}
```

boldtoc

```
\DeclareOptionX{boldtoc}{
  \setkeys{drexel-thesis.cls}{boldpart}
  \setkeys{drexel-thesis.cls}{boldchapter}
}
```

indenttoc Set indenttoc flag

```
\DeclareOptionX{indenttoc}{\@indenttoctrue}
```

blackref Set blackref flag

```
\DeclareOptionX{blackref}{\@blackreftrue}
```

`draftwatermark` Set draftwatermark flag

```
\DeclareOptionX{draftwatermark}{%
  \@draftwatermarktrue
  \@xdraftwatermarkfalse}
```

`xdraftwatermark` Set xdraftwatermark flag

```
\DeclareOptionX{xdraftwatermark}{%
  \@draftwatermarkfalse
  \@xdraftwatermarktrue}
```

`nodraftwatermark` Clear draftwatermark and xdraftwatermark flags

```
\DeclareOptionX{nodraftwatermark}{%
  \@draftwatermarkfalse
  \@xdraftwatermarkfalse}
```

`indentfirst` Set indentfirst flag

```
\DeclareOptionX{indentfirst}{\@indentfirsttrue}
```

Define the book options that final and draft need to access.

`oneside`

```
\DeclareOptionX{oneside}{\PassOptionsToClass{oneside}{book}}
```

`twoside`

```
\DeclareOptionX{twoside}{\PassOptionsToClass{twoside}{book}}
```

`final`

```
\DeclareOptionX{final}{
  \@finaltrue
  \setkeys{drexel-thesis.cls}{oneside}
  \setkeys{drexel-thesis.cls}{finalspace}
  \setkeys{drexel-thesis.cls}{pagebreak}
  \setkeys{drexel-thesis.cls}{dottedtoc}
}
```

`draft`

```
\DeclareOptionX{draft}{
  \@finalfalse
  \setkeys{drexel-thesis.cls}{twoside}
  \setkeys{drexel-thesis.cls}{draftspace}
  \setkeys{drexel-thesis.cls}{nopagebreak}
  \setkeys{drexel-thesis.cls}{dottedtoc}
  \setkeys{drexel-thesis.cls}{xdraftwatermark}
}
```

`daring`

```
\DeclareOptionX{daring}{
  \@daringtrue
}
```

approvalform

```
\DeclareOptionX{approvalform}{
  \@approvalformtrue
}
```

Use the default book implementation for any remaining options including oneside, twoside, leqno, fleqn, ...

```
\DeclareOptionX*{\PassOptionsToClass{\CurrentOption}{book}}
```

Execute the default options

```
\ExecuteOptionsX{final}
```

Process options and load the book class

```
\ProcessOptionsX\relax
\LoadClass{book}
```

3.2 Internal package includes

Include some other packages we'll need. If the package is not installed on your system, see §2.4.1 for installation instructions.

For many packages, we want the same functionality for both final and draft modes. We pass final to most of those packages to override a possible draft option passed to drexel-thesis.

3.2.1 setspace

setspace for double spacing.

```
\RequirePackage{setspace}
```

3.2.2 calc

calc for `\set@lines@length` macro (page 29).

```
\RequirePackage{calc}
```

3.2.3 graphicx

graphicx for `\includegraphics`. Not strictly necessary, but I can't imagine a thesis without figures.

```
\RequirePackage[final]{graphicx}
```

We include the graphicx package now so we can pass final, because some later packages include it with no options, and a final include after that produces errors like

```
l.104 \RequirePackage
                    [final]{ifpdf}
The package graphicx has already been loaded with options:
  []
There has now been an attempt to load it with options
  [final]
```

3.2.4 draftmark

The Comp. Sci. class used draftcopy to add their watermarks, but as of the current 2002/02/25 v2.16, it uses postscript specials, and so doesn't work with pdfLaTeX. Instead we use the recent (catalogued 2009/11/03) draftmark which unfortunately has a number of apparently non-standard dependencies (etextools, etoolbox, lastpage, ltxnew, pagerange, xifthen, if only I had the space to install `texlive-latexextra :p`). The output is, however, very flexible, and it *does* work with both LaTeX and pdfLaTeX. If you don't like the default watermark, you can also adjust the particulars with `\draftmarksetup`.

```
\if@draftwatermark
  \RequirePackage[draft,allpages,mark={DRAFT \today},
                  fontsize=2cm,grayness=0.9]{draftmark}
\fi
```

Travis Hoppe went for a more discrete watermark in the lower right corner with something along the lines of:

```
\ifdraftwatermark{
  \draftmarksetup{angle=0,fontsize=24pt,color=red!45!blue!25,
                  xcoord=80,ycoord=-129,mark={DRAFT\\[12pt] \today}}
}{}
```

Here is Evan's alternative implementation. This will not look right as a DVI, but it'll look fine once rendered to either a PS or PDF.

```
\if@xdraftwatermark
```

Use eso-pic for `\AddToShipoutPicture`.

```
  \RequirePackage{eso-pic}
```

Use xcolor for `\definecolor`.

```
  \RequirePackage{xcolor}
  \definecolor{watermark}{rgb}{0.9,0.9,0.9}
```

Set the font explicitly to avoid being effected by the last text on the page having some strange font. `\sffamily` sets a sans serif font.

```
  \newcommand{\watermarkfont}{%
    \color{watermark}}%\fontfamily{phv}\selectfont\sffamily}
  \newcommand{\watermark}{%
    \rule{4.25in}{0pt}\raisebox{5.5in}{%
      \makebox[0pt]{%
```

`\rotatebox` and `\resizebox` from graphicx.

```
\rotatebox[origin=c]{45}{%
          \resizebox{!}{1.5in}{%
            {\watermarkfont DRAFT}%
    }}}}
    \raisebox{4.2in}{%
      \makebox[0pt]{%
\rotatebox[origin=c]{45}{%
          \resizebox{!}{.6in}{%
            {\watermarkfont \qquad\today}%
```

```
    }}}}}
  \AddToShipoutPicture{\watermark{}}
\fi
```

3.2.5 indentfirst

Indent the first paragraph after sections etc. with indentfirst.

```
\if@indentfirst
  \RequirePackage{indentfirst}
\fi
```

3.2.6 geometry

Setup page margins with geometry. From the Manual p5:

- The left margin must be at least 1 1/2" (1.5 inches) throughout the document.
- All other margins (top, bottom, and right) must be at least 1".

And from the Manual §1.5 p4, Print Version:

> The paper size must be 8 1/2" x 11".

```
\RequirePackage[letterpaper,margin=1in,bindingoffset=0.5in]{geometry}
```

Note that we include the geometry package after loading book to override the margin manipulation that takes place in book.

3.2.7 tocloft

Typeset the table of contents, etc., with tocloft.

```
\if@DUT@subfigopt
  \RequirePackage[subfigure]{tocloft}
\else
  \RequirePackage{tocloft}
\fi
```

The subfigure option sets up tocloft for subfig/subfigure compatibility. See the tocloft manual §2.1 for details.

The configuration of tocloft takes place in §3.5.12, §3.5.13, and §3.5.14.

3.2.8 caption

Get nice caption formatting with caption. From the Manual p5:

- The left margin must be at least 1 1/2" (1.5 inches) throughout the document.
- All other margins (top, bottom, and right) must be at least 1".

```
\RequirePackage[margin=10pt,labelfont=bf,labelsep=colon]{caption}
```

You can change these settings if you like using `\captionsetup`.

3.2.9 floatrow

Enforce caption placement with floatrow. From the Manual §2.3 p6, "Tables and Figures",

- Place figure captions below figures.
- Place table captions above tables.

```
\RequirePackage{floatrow}
\floatsetup[table]{style=plaintop}
\floatsetup{captionskip=10pt}
\floatsetup[table]{captionskip=10pt}
```

Use fr-subfig for floatrow/subfig compatibility. See the floatrow documentation (Sec. 7.1, "The subfig package") and subfig documentation (Sec. 4.3, "FloatRow Package") for details.

```
\if@DUT@subfigopt
  \RequirePackage{fr-subfig}
\fi
```

We set up the three-line surrounding spaces in §3.5.1.

You can change these settings using `\floatsetup`, but you probably won't need to.

3.2.10 subfig

Allow multi-part figures with subfig.

```
\if@DUT@subfigopt
  \RequirePackage{subfig}
\fi
```

3.2.11 fancyhdr

fancyhdr for correct page numbering and fancy headers. From the Manual §2.3 p5, "Pagination"

> Place page numbers in the upper right-hand corner of the page, 3/4" from the top.

```
\RequirePackage{fancyhdr}
```

Setup the standard `fancy` format.

```
\pagestyle{fancy}
\fancyhf{}
```

Turn off the header rule by setting its width to 0.

```
\renewcommand{\headrulewidth}{0pt}
```

0.4 pt is fancyhdr's default `\headrulewidth`, so we'll recycle the value.

```
\renewcommand{\footrulewidth}{0.4pt}
```

`\leftmark` is the higher level mark, see `\chaptermark` below. `\rightmark` is the lower level mark, see `\sectionmark` below. We put the lower level mark to the outside because it changes more often. Page numbers also go on the outside.

```
\fancyfoot[RE,LO]{\scshape\leftmark}
\fancyfoot[LE,RO]{\scshape\rightmark}
\fancyhead[LE,RO]{\thepage}
```

Override the `plain` format (for part pages, etc.).

```
\fancypagestyle{plain}{
  \fancyhf{}
  \renewcommand{\footrulewidth}{0pt}
  \fancyhead[LE,RO]{\thepage}
}
```

Keep the `empty` format at its default.

```
\fancypagestyle{empty}{
  \fancyhf{}
  \renewcommand{\footrulewidth}{0pt}
}
```

Note that the chapter/section footer is not required. You can remove the footer text and rule entirely with.

```
\renewcommand{\footrulewidth}{0pt}
\fancyfoot[RE,LO]{}
\fancyfoot[LE,RO]{}
```

3.2.12 ifpdf

ifpdf for detecting PDF drivers. We use it to configure hyperref below.

```
\RequirePackage{ifpdf}
```

3.2.13 hyperref

hyperref for hyperlinks. Not strictly necessary, but I can't imagine a thesis without it. We actually include this later (§3.4), because hyperref sticks its fingers into *everything* and we want it to use our versions of some macros (e.g., `\@sect`) but not others (e.g., `thebibliography`).

3.2.14 hypcap

hypcap for placing caption hyperlink anchors. Must be included after hypercap, so the actual inclusion is in §3.4.1).

3.2.15 tikz

tikz for vector drawing natively in TEX. This package is currently only required for the approvalform option (it is used in drawing the Drexel logo on the approval form).

```
\if@approvalform\RequirePackage{tikz}\fi
```

3.3 LaTeX overrides and extensions

Here we change the behavior of a bunch of macros and environments from `latex.ltx` (generated by `format.ins` in base). We'll copy in their original notes along with their code, following the relevant documentation an order given in `format.ins` and the associated `*.dtx` files.

3.3.1 `ltsect.dtx`

`\title` `\DUTtitle` `\@DUT@title`

`\title` for use in `\maketitle`. If not given `\maketitle` will produce a warning message (`ltsect.dtx`, L117).

We extend `\title` to set hyperref's `pdftitle`. (`ltsect.dtx`, L117).

```
\renewcommand{\title}[1]{
  \gdef\@DUT@title{#1}
  \ifpdf \hypersetup{pdftitle={\@DUT@title}} \fi
}
\let\DUTtitle\title
\def\@DUT@title{\@latex@error{No \noexpand\title given}\@ehc}
```

`\author` `\DUTauthor` `\@DUT@author`

`\author` for use in `\maketitle`. If not given `\maketitle` will produce a warning message (`ltsect.dtx`, L129).

We extend `\author` to set hyperref's `pdfauthor` if we're writing a PDF to avoid using `\AtBeginDocument` or some such. (`ltsect.dtx`, L129).

```
\renewcommand{\author}[1]{
  \gdef\@DUT@author{#1}
  \ifpdf \hypersetup{pdfauthor={\protect\@DUT@author}} \fi
}
\let\DUTauthor\author
\def\@DUT@author{\@latex@error{No \noexpand\author given}\@ehc}
```

In a similar vein, we some additional meta-info macros.

`\DUTmonth` `\@DUT@month`

`\DUTmonth` (defense month) for use in `\maketitle`. If not given `\maketitle` will produce an error message.

```
\def\DUTmonth#1{\gdef\@DUT@month{#1}}
\def\@DUT@month{\@latex@error{No \noexpand\DUTmonth given}\@ehc}
```

`\DUTyear` `\@DUT@year`

`\DUTyear` (defense year) for use in `\maketitle`. If not given `\maketitle` will produce an error message.

```
\def\DUTyear#1{\gdef\@DUT@year{#1}}
\def\@DUT@year{\@latex@error{No \noexpand\DUTyear given}\@ehc}
```

`\degree` `\DUTdegree` `\@DUT@degree`

`\degree` for use in `\maketitle`. If not given `\maketitle` will produce an error message.

```
\def\degree#1{\gdef\@DUT@degree{#1}
  \ifpdf \hypersetup{pdfsubject={\@DUT@degree}} \fi}
\let\DUTdegree\degree
\def\@DUT@degree{\@latex@error{No \noexpand\degree given}\@ehc}
```

\copyrighttext
\DUTcopyrighttext
\@copyrighttext

`\copyrighttext` for use in `\@DUT@makecopyright`. There are a number of blurbs predefined in §3.5.3.

```
\def\copyrighttext#1{\gdef\@DUT@copyrighttext{#1}}
\let\DUTcopyrighttext\copyrighttext
\def\@DUT@copyrighttext{All Rights Reserved.}
```

\advisor
\DUTadvisor
\@DUT@advisor

`\advisor` stores advisor names, and `\@DUT@advisor` prints them out nicely for the `abstract` environment. If no advisors are given `\@DUT@advisor` will produce an error message. We get a bit fancier here to support multiple advisors.

```
\newcounter{@DUT@advisors}
\setcounter{@DUT@advisors}{0}
```

Store a new advisor name.

```
\newcommand\advisor[1]{%
  \ifx
```

If `#1` is `\empty`, this call is a no-op.

```
    \empty{#1}
  \else
```

Save the advisors to `\@DUT@advisor@a`, `\@DUT@advisor@b`, ... `\alph{`*COUNTER*`}` (`ltcounts.dtx`, L319) prints the value of *COUNTER* as a lowercase letter: 1 = a, 2 = b, etc.

```
    \stepcounter{@DUT@advisors}
    \expandafter\gdef\csname @DUT@advisor@\alph{@DUT@advisors}\endcsname{#1}
  \fi}
```

Format and print a list of advisor names.

```
\newcommand\@DUT@advisor{%
  \ifnum\c@@DUT@advisors=0%
    \@latex@error{No \noexpand\advisor given}\@ehc%
  \else%
```

Start a group so the scratch counter *count@* is restored afterwards[1].

```
    \begingroup%
```

Because *count@* is a TEX counter register not wrapped by LATEX's counter sugar, we don't use LATEX's `\setcounter` to set *count@* to one.

```
      \count@\@ne
```

Print the first advisor, using TEX's `\@alph` macro instead of LATEX's `\alph`.

```
%     \begin{macrocode}
      \csname @DUT@advisor@\@alph\count@\endcsname\relax%
```

For any remaining advisors...

```
      \loop\ifnum\count@<\c@@DUT@advisors%
```

Advance *count@* using TEX's `\advance` macro instead of LATEX's `\stepcounter`.

```
        \advance\count@\@ne
```

[1] See the discussion in localloc for some points on counter allocation.

Print the connecting text.

```
        \ifnum\count@=\c@@DUT@advisors%
          \ifnum\c@@DUT@advisors=2%
```

The next advisor if the last of two.

```
            {\ and\ }%
          \else%
```

The next advisor if the last of many.

```
            {, and\ }%
          \fi%
        \else%
```

The next advisor is not the last.

```
          {,\ }%
        \fi%
```

Print the advisor's name.

```
        \csname @DUT@advisor@\@alph\count@\endcsname\relax%
      \repeat%
    \endgroup%
  \fi}
```

baselineskip

`\@DUT@baselineskip` Since we'll be messing with the spacing, save the single-spaced baseline.

```
\newlength\@DUT@baselineskip
\setlength\@DUT@baselineskip\baselineskip
```

`\set@lines@length{`⟨*length*⟩`}{`⟨N⟩`}`

`\set@lines@length` Many specifications in the Manual refer to "⟨N⟩ blank lines". `\set@lines@length` allows you to set a length to a given number of lines, protecting against external `spacing` environments. It requires `calc` for the multiplication.

```
\newcommand{\set@lines@length}[2]{%
  \setlength{#1}{\@DUT@baselineskip * {#2}}}
```

Fix `\@ssect` and `\@sect` from `latex.ltx` to give single spaced headings.

`\@sect` Pseudocode for the `\@sect` command

```
\@sect{NAME}{LEVEL}{INDENT}{BEFORESKIP}{AFTERSKIP}{STYLE}[ARG1]{ARG2}
        ==
 BEGIN
  IF LEVEL > \c@secnumdepth
    THEN \@svsec :=L null
    ELSE \refstepcounter{NAME}
         \@svsec :=L BEGIN \@seccntformat{#1}\relax END
  FI
  IF AFTERSKIP > 0
    THEN \begingroup
```

```
            STYLE
            \@hangfrom{\hskip INDENT\@svsec}
            {\interlinepenalty 10000 ARG2\par}
          \endgroup
          \NAMEmark{ARG1}
          \addcontentsline{toc}{NAME}
            { IF  LEVEL > \c@secnumdepth
                ELSE \protect\numberline{\theNAME} FI
              ARG1 }
     ELSE \@svsechd == BEGIN STYLE
                           \hskip INDENT\@svsec
                           ARG2
                           \NAMEmark{ARG1}
                           \addcontentsline{toc}{NAME}
                             { IF  LEVEL > \c@secnumdepth
                                 ELSE
                                   \protect\numberline{\theNAME}
                                 FI
                               ARG1 }
                     END
   FI
   \@xsect{AFTERSKIP}
END
```

(`ltsect.dtx`, L295).

```
\def\@sect#1#2#3#4#5#6[#7]#8{%
  \ifnum #2>\c@secnumdepth
    \let\@svsec\@empty
  \else
    \refstepcounter{#1}%
    \protected@edef\@svsec{\@seccntformat{#1}\relax}%
  \fi
  \@tempskipa #5\relax
  \ifdim \@tempskipa>\z@
    \begingroup
```

Here we deviate from `ltsect.dtx` to ensure single spacing for the section title.

```
      \setstretch{\@ssp}%
      #6{%
        \@hangfrom{\hskip #3\relax\@svsec}%
          \interlinepenalty \@M #8\@@par}%
    \endgroup
    \csname #1mark\endcsname{#7}%
    \addcontentsline{toc}{#1}{%
      \ifnum #2>\c@secnumdepth \else
        \protect\numberline{\csname the#1\endcsname}%
      \fi
      #7}%
  \else
    \def\@svsechd{%
      #6{\hskip #3\relax
      \@svsec #8}%
      \csname #1mark\endcsname{#7}%
```

```
      \addcontentsline{toc}{#1}{%
        \ifnum #2>\c@secnumdepth \else
          \protect\numberline{\csname the#1\endcsname}%
        \fi
        #7}}%
  \fi
  \@xsect{#5}}
```

\@ssect Pseudocode for the \@ssect command

```
\@ssect{INDENT}{BEFORESKIP}{AFTERSKIP}{STYLE}{ARG} ==
  BEGIN
   IF AFTERSKIP > 0
     THEN \begingroup
            STYLE
            \@hangfrom{\hskip INDENT}{\interlinepenalty 10000 ARG\par}
          \endgroup
     ELSE \@svsechd == BEGIN STYLE
                         \hskip INDENT
                         ARG
                    END
   FI
   \@xsect{AFTERSKIP}
  END
```

(ltsect.dtx, L521).

```
\def\@ssect#1#2#3#4#5{%
  \@tempskipa #3\relax
  \ifdim \@tempskipa>\z@
    \begingroup
```

Here we deviate from ltsect.dtx to ensure single spacing for the section title.

```
      \setstretch{\@ssp}%
      #4{%
        \@hangfrom{\hskip #1}%
          \interlinepenalty \@M #5\@@par}%
    \endgroup
  \else
    \def\@svsechd{#4{\hskip #1\relax #5}}%
  \fi
  \@xsect{#3}}
```

3.3.2 ltbibl.dtx

\bibliography
thebibliography

A bibliography is created by the thebibliography environment, which generates a title such as "Bibliography", and a list of entries. The BibTeX program will create a file containing such an environment, which will be read in by the \bibliography command. With BibTeX, the following commands will be used.

The document class must define the thebibliography environment. This environment has a single argument, which is the widest bibliography label– e.g., if the [Knuth67] is the widest entry, then this argument will be Knuth67.

The `\thebibliography` command must begin a list environment, which the `\endthebibliography` command ends.

`\bibliography` `\bibliography{`⟨*file1,file2,...,filen*⟩`}` : specifies the bibdata files. Writes a `\bibdata` entry on the `.aux` file and tries to read in `mainfile.bbl`.

We don't need to change it, but it explains why we need to override `thebibliography` even when we don't use it directly. (`ltbibl.dtx`, L284).

```
%\def\bibliography#1{%
%  \if@filesw
%    \immediate\write\@auxout{\string\bibdata{#1}}%
%  \fi
%  \@input@{\jobname.bbl}
%}
```

3.3.3 `ltoutput.dtx`

`\@DUT@clearpage` `\@DUT@cleardoublepage` `\@DUT@newpage` Versions of `\clear*page` and `\newpage` that only work in pagebreak mode (`ltoutput.dtx`, L877 and L904). Otherwise they add four blank lines.

```
\newcommand\@DUT@clearpage{%
  \if@DUT@pagebreak \clearpage \else \blanklinesp{4} \fi}
\newcommand\@DUT@cleardoublepage{%
  \if@DUT@pagebreak \cleardoublepage \else \blanklinesp{4} \fi}
\newcommand\@DUT@newpage{%
  \if@DUT@pagebreak \newpage \else \blanklinesp{4} \fi}
```

`\@DUT@blankpage` Add a useful extension to insert a blank page without numbering. If we're not in pagebreak mode, this macro is a no-op.

```
\newcommand\@DUT@blankpage{%
  \if@DUT@pagebreak
    \@DUT@clearpage
    \thispagestyle{empty}
    \hphantom{0}
    \@DUT@clearpage
  \fi
}
```

`\blanklines{`⟨*N*⟩`}`
`\blanklines*{`⟨*N*⟩`}`

`\blanklines` Insert ⟨*N*⟩ blank lines. The starred forms use `\vspace`, which inserts space even at the start and end of pages. The `p` forms add a trailing `\par`. *I'm still trying to get this part working cleanly...*

```
\newlength\@DUT@blanklines@length
\newcommand{\@blanklines@setup}[1]{%
  \set@lines@length{\@DUT@blanklines@length}{#1}%
  %\typeout{BLANKLINES -- #1}%
  %\showthe\@DUT@blanklines@length
```

```
}
\newcommand{\blanklines}{\@ifstar\@sblanklines\@blanklines}
\newcommand{\@blanklines}[1]{%
  \@blanklines@setup{#1}%
  \vspace{\@DUT@blanklines@length}}
\newcommand{\@sblanklines}[1]{%
  \@blanklines@setup{#1}%
  \vspace*{\@DUT@blanklines@length}}
\newcommand{\blanklinesp}{\@ifstar\@sblanklines\@blanklines}
\newcommand{\@blanklinesp}[1]{%
  \@blanklines@setup{#1}%
  \vspace{\@DUT@blanklines@length}\par}
\newcommand{\@sblanklinesp}[1]{%
  \@blanklines@setup{#1}%
  \vspace*{\@DUT@blanklines@length}\par}
```

3.4 hyperref inclusion

This is the awkward hyperref inclusion. See §3.2.13 for an explanation of why we stash it here.

```
\RequirePackage[final]{hyperref}
```

Nobody likes the default colored boxes. Color the text itself.

```
\hypersetup{colorlinks}
```

If blackref is set, set all hyperref colors to black.

```
\if@blackref
  \hypersetup{linkcolor=black}
  \hypersetup{anchorcolor=black}
  \hypersetup{citecolor=black}
  \hypersetup{filecolor=black}
  \hypersetup{menucolor=black}
  \hypersetup{runcolor=black}
  \hypersetup{urlcolor=black}
\fi
```

3.4.1 hypcap

hypcap for placing caption hyperlink anchors. Not strictly necessary, but we're using hyperref, and the poor link targets are annoying.

```
\RequirePackage[all]{hypcap}
```

all redefines the figure and table environments to place the anchor at the start of the float.

3.5 book overrides and extensions

Here we change the behavior of a bunch of macros and environments from book (generated by `classes.ins` from `classes.dtx`) in base). We'll copy in their

original notes along with their code, following the relevant documentation an order given in `classes.dtx`.

3.5.1 Floats on a text page

`\floatsep` `\textfloatsep` When a floating object is placed on a page with text, these parameters control the separation between the float and the other objects on the page.

`\floatsep` is the space between adjacent floats that are moved to the top or bottom of the text page.

`\textfloatsep` is the space between the main text and floats at the top or bottom of the page.

`\intextsep` is the space between in-text floats and the text. We don't bother overriding this one, because we've handled it with floatrow in §3.2.9.

From the Manual §2.3 p6, "Tables and Figures"

> Insert at least 3 single-spaced lines of space above table captions and figures and below figure captions, tables, and other graphics.

(`classes.dtx`, L1426)

```
\set@lines@length{\floatsep}{\@ssp}
\set@lines@length{\textfloatsep}{\@tsp}
```

3.5.2 The title

`\maketitle` Automate the creation of the title page. From Manual §3.1 p8, "Title Page", and the example on p16.

- This page is counted but not numbered (it counts as page i, but should not have a page number). TODO: How is this implemented?

Our definition simplifies book's by ignoring footnotes. (`classes.dtx`, L1796)

```
\newcommand\@DUT@maketitle{
  \begin{@DUT@titlepage}%
```

Add some bookmarks if we're using pdfLaTeX. The `frontmatter` bookmark is set at the *part* level (-1) to hold all bookmarks from the `preamble` environment, since those entries are all chapters.

```
    \ifpdf
      \pdfbookmark[-1]{Front Matter}{Front Matter}
      \pdfbookmark[0]{Title Page}{Title Page}
    \fi
```

Add some stretchy space to center the title vertically if we're in pagebreak mode.

```
    \if@DUT@pagebreak \vspace*{\fill} \fi
```

Here is the title text itself.

```
    \begin{center}%
      {\setstretch{\@tsp} \bfseries \@DUT@title \par}%
```

We want two blank lines (triple spacing) between the title and the remaining material, so add three but don't end the paragraph.

```
      \blanklines{\@tsp}%
      \setstretch{\@dsp}%
      A Thesis\\
      Submitted to the Faculty\\
      of\\
      Drexel University\\
      by\\
      \@DUT@author\\
      in partial fulfillment of the\\
      requirements for the degree\\
      of\\
      \@DUT@degree\\
      \@DUT@month\ \@DUT@year
    \end{center}\par
```

Some more stretchy space for the bottom if we're not in draft mode.

Add some stretchy space to center the title vertically if we're in pagebreak mode.

```
    \if@DUT@pagebreak \vspace*{\fill} \fi
  \end{@DUT@titlepage}%
```

And that's it. We reset the footnote counter for the rest of the document and save space by freeing the memory associated with the `\maketitle` and `\and` macros (by setting them equal to `\relax`).

```
  \setcounter{footnote}{0}%
  \global\let\maketitle\relax
  \global\let\and\relax
}
```

3.5.3 Copyright pages

`\@DUT@makecopyright`

The Manual allows for the selection of different copyrights, so we define a base macro that generates a proper copyright page containing `\@copyrighttext`, which the user can set with `\copyrighttext`. From Manual §3.2 p9, "Copyright Page".

- Include a copyright page with the following information: a copyright notice, full legal name of author, and date of publication on file.
- This page is neither counted nor numbered.

In final mode, we start off on a new page and center the blurb. In draft mode, we dive right into the text.

```
\newcommand\@DUT@makecopyright{%
  \@DUT@clearpage
```

If we're using pdfLaTeX, add a bookmark.

```
  \ifpdf \pdfbookmark[0]{Copyright Page}{Copyright Page} \fi
  \if@DUT@pagebreak \vspace*{\fill} \fi
  \begin{center}
```

```
    \copyright~Copyright \@DUT@year\\
    \@DUT@author.  \@DUT@copyrighttext
  \end{center}
  \if@DUT@pagebreak \vspace*{\fill} \fi
```

Turn off page numbering for this page.

```
  \thispagestyle{empty}
}
```

\copyrighttextCCBYSA
\DUTcopyrighttextCCBYSA

The Creative Commons Attribution-ShareAlike License.

```
\newcommand\copyrighttextCCBYSA{
  \begin{quote}
    This work is licensed under the terms of the Creative Commons
    Attribution-ShareAlike license Version 3.0.  The license is
    available at \\
    \url{http://creativecommons.org/licenses/by-sa/3.0/}.
  \end{quote}
}
\let\DUTcopyrighttextCCBYSA\copyrighttextCCBYSA
```

3.5.4 Mark commands

Default initializations of `\*mark` commands. These commands are used in the definition of the page styles.

\chaptermark

Setup colon rather than period separated chapter marks. (`classes.dtx`, L2053)

```
\renewcommand\chaptermark[1]{%
  \markboth {%
    \ifnum \c@secnumdepth >\m@ne
      \if@mainmatter
        \@chapapp\ \thechapter: \ %
      \fi
    \fi
    #1}{}}
```

\schaptermark

Setup unnumbered chapter marks for fancyhdr.

```
\newcommand\schaptermark[1]{\markboth{#1}{}}
```

\sectionmark

Setup space rather than period separated section marks. (`classes.dtx`, L2054)

```
\renewcommand{\sectionmark}[1]{%
  \markright {%
    \ifnum \c@secnumdepth >\z@
      \thesection \ %
    \fi
    #1}}
```

3.5.5 Front Matter, Main Matter, and Back Matter

A book contains these three (logical) sections. The switch `\@mainmatter` is true if and only if we are processing main matter[2]. When this switch is false, the `\chapter` command does not print chapter numbers.

`\mainmatter` This command clears the page (in final mode), 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.

We replace book's `\clear*page` calls with `\@DUT@clearpage` calls. (`classes.dtx`, L2211)

```
\renewcommand\mainmatter{%
  \@DUT@cleardoublepage
  \@mainmattertrue
  \pagenumbering{arabic}}
```

3.5.6 Parts

`\part` The command to start a new part of our document.

We start a new (righthand) page and use the *plain* pagestyle, replacing book's `\clear*page` calls with `\@DUT@clearpage` calls and dropping twopage code. (`classes.dtx`, L2249)

```
\renewcommand\part{%
  \if@openright
    \@DUT@cleardoublepage
  \else
    \@DUT@clearpage
  \fi
  \thispagestyle{plain}%
  \@tempswafalse
```

Add some stretchy space for vertical centering if we're in pagebreak mode.

```
  \if@DUT@pagebreak \null\vfil \fi
```

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 the part. We replace book's `\Huge` with `\large`, and make use of `\numberline` for consistent spacing.

When *secnumdepth* is larger than -2, we have a numbered part, otherwise it is unnumbered. (`classes.dtx`, L2310)

```
\def\@part[#1]#2{%
    \ifnum \c@secnumdepth >-2\relax
      \refstepcounter{part}%
      \addcontentsline{toc}{part}%
        {\protect\numberline{\thepart}#1}%
```

[2] Wikipedia suggests *body matter* for the main content, but LaTeX's book uses *Main Matter*. We're a LaTeX class, so we'll stick with "main matter" for consistency.

```
    \else
      \addcontentsline{toc}{part}{#1}%
    \fi
```

We empty the mark registers and center the title on the page. 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.

```
     \ifnum \c@secnumdepth >-2\relax
       \large\bfseries \partname\nobreakspace\thepart
       \par
```

We leave some space before we print the title and leave the finishing up to `\@endpart`.

```
       \vskip 20\p@
     \fi
     \large \bfseries #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. (`classes.dtx`, L2402)

```
\def\@spart#1{%
    {\centering
     \interlinepenalty \@M
     \normalfont
     \large \bfseries #1\par}%
    \@endpart}
```

`\@endpart` This macro finishes the part page, for both `\@part` and `\@spart`. We drop book's twoside handling. If we're in pagebreak mode, we fill the current page. (`classes.dtx`, L2435)

```
\def\@endpart{
  \if@DUT@pagebreak \vfil\newpage \fi
```

Then, when we are in twosided mode and the chapters are supposed to be on the right hand sides, we produce a completely blank page. We don't need to check pagebreak-mode here, because the pagebreak options set the book opening options.

```
  \if@twoside
    \if@openright
      \null
      \thispagestyle{empty}%
      \newpage
    \fi
  \fi}
```

3.5.7 Chapters

`\chapter` book always starts a chapter on a new page, but we don't want to do that if we're in draft mode. (`classes.dtx`, L2472).

```
\renewcommand\chapter{%
  \if@openright\@DUT@cleardoublepage\else\@DUT@clearpage\fi
  \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.

```
  \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}
```

`\listed@schapter` `\chapter` declares numbered chapters, which are listed in the table of contents. `\chapter*` declares unnumbered chapters, which are *not* listed in the TOC. `\listed@schapter` declares an unnumbered chapter that *is* listed in the TOC.

```
\newcommand\listed@schapter[1]{%
  \if@openright\@DUT@cleardoublepage\else\@DUT@clearpage\fi
  \thispagestyle{plain}%
  \global\@topnum\z@
  \phantomsection
  \addcontentsline{toc}{chapter}{#1}
  \@afterindentfalse
  \@schapter{#1}}
```

`\@chapter` This macro is called when we have a numbered chapter. When *secnumdepth* is larger than -1 and `\@mainmatter` is true, we display the chapter number. We drop book's twocolumn code. (`classes.dtx`, L2496).

```
\def\@chapter[#1]#2{
```

Inform the user that a new chapter is about to be typeset by writing a message to the terminal. Some users place `\label` in their chapter argument:

```
\chapter{Bla bla\label{x}}
```

rather than after (as recommended by the LaTeX Wikibook and The Not So Short Introduction to LaTeX 2_ε (§2.8, p36)):

```
\chapter{Bla bla}
\label{x}
```

The embedded `\label` chokes `\typeout` so we temporarily redefine `\label` to just gobble its contents. `\@DUT@label` stores the original definition.

```
  \let\@DUT@label=\label%
  \renewcommand{\label}[1]{}%
  \typeout{\@chapapp\space\thechapter. #1}%
```

Restore `\label` to its previous glory.

```
\let\label=\@DUT@label%
```

Now we can get on with the real work.

```
\ifnum \c@secnumdepth >\m@ne
  \if@mainmatter
    \refstepcounter{chapter}%
    \addcontentsline{toc}{chapter}{\protect\numberline{\thechapter}#1}%
  \else
    \addcontentsline{toc}{chapter}{#1}%
  \fi
\else
  \addcontentsline{toc}{chapter}{#1}%
\fi
```

After having written an entry to the table of contents we store the (alternative) title of this chapter with `\chaptermark`.

```
\chaptermark{#1}%
```

For nicer lists of figures and tables, we could add some white space to separate the chapters. However, nice lists $\neq$ Manual specifications.

```
% \addtocontents{lof}{\protect\addvspace{10\p@}}%
% \addtocontents{lot}{\protect\addvspace{10\p@}}%
```

Then we call upon `\@makechapterhead` to format the actual chapter title. `\@afterheading` which takes care of suppressing the indentation.

```
\@makechapterhead{#2}%
\@afterheading}
```

`\@makechapterhead` The `\@chapter` macro uses `\@makechapterhead`⟨*text*⟩ to format the heading of the chapter. From the Manual §3.11 p11.

> Chapter headings must be bold and centered. The chapter number and title must be on the same line, separated by a colon or period, as shown in the example below:
>
> CHAPTER 1: INTRODUCTION
>
> Headings must not be larger than 12 points. Headings must be single spaced.

`book` sets `\@chapapp` and `\thechapter` (e.g., "Chapter 5") on a line above the chapter title, but that doesn't match the Manual's specification.

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. (`classes.dtx`, L2540).

```
\def\@makechapterhead#1{%
%    \end{macro}
% Adding even a \vspace*{0\p@} here seems to increase the vertical
% space above the chapter heading by two lines.  I'm not sure why.
```

```
% Workaround is to pass the ``value of blanklines you want minus two''
% to |\blanklines*|.  HACK!
%    \begin{macro}
  \blanklines*{-1}% HACK!
  {\parindent \z@ \raggedright \normalfont
```

Ensure single spacing.

```
    \setstretch{\@ssp}%
```

Prevent a pagebreak from occuring in the middle of or after the title.

```
    \interlinepenalty\@M
```

Check whether the number of the chapter has to be printed.

```
    \ifnum \c@secnumdepth >\m@ne
```

Check whether there *is* a number to be printed.

```
      \if@mainmatter
```

Setup a "Chapter #: Title" heading.

```
        \center \large \bfseries \@chapapp{} \thechapter: #1\par\nobreak
      \else
```

Setup a "Title" heading.

```
        \center \large \bfseries #1\par\nobreak
      \fi
    \else
      \center \large \bfseries #1\par\nobreak
    \fi
```

Put a little space before the chapter body. We use four blank lines to comply with the Manual §3.13 p12

Begin the list of sources four spaces below the heading.

```
    \blanklines{4}
  }
}
```

`\@schapter` This macro is called when we have an unnumbered chapter. We drop `classes.dtx`'s twocolumn code and set marks for fancyhdr. (`classes.dtx`, L2582).

```
\def\@schapter#1{
```

Inform the user that a new chapter is about to be typeset by writing a message to the terminal.

```
  \typeout{\@chapapp\space #1}%
  \schaptermark{#1}%
  \@makeschapterhead{#1}%
  \@afterheading}
```

`\@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. (`classes.dtx`, L2595).

```
\def\@makeschapterhead#1{%
```

```
  \blanklines*{-1}% HACK!
  {\parindent \z@ \raggedright \normalfont
    \setstretch{\@ssp}%
    \interlinepenalty\@M
    \center \large \bfseries  #1\par\nobreak
    \blanklines{4}%
  }
}
```

3.5.8 Lower level headings

`\section` Setup section headings in `\large` rather than book's `\Large`. (`classes.dtx`, L2623).

```
\renewcommand\section{%
  \@startsection {section}{1}{\z@}%
    {-3.5ex \@plus -1ex \@minus -.2ex}%
    {2.3ex \@plus.2ex}%
    {\normalfont\large\bfseries}}
```

3.5.9 Defining new environments

We don't override any of book's environments, but this is where `classes.dtx` defines its environments (L2996), so we'll put ours here too.

`preamble`
`DUTpreamble`

```
\newenvironment{preamble}{%
  \cleardoublepage
  \@mainmatterfalse
  \pagenumbering{roman}
  \if@approvalform
    \ifpdf
      \pdfbookmark[-1]{Approval Form}{Approval Form}
    \fi
    \DUT@makeapprovalform
  \fi
```

From Manual §3.1 p8, "Title Page".

```
  \@DUT@maketitle
```

From Manual §3.2 p9, "Copyright Page".

```
  \@DUT@makecopyright
}{%
```

From the Manual §3.9, p11:

> Include a blank page (with no page number) before the first page of text. The blank page is neither numbered nor counted.

```
  \@DUT@blankpage
}
```

LaTeX's `\newenvironment` and company work by defining `\X` and `\endX` for the environment `X`. We can alias the preamble environment by saving these macros.

```
\let\DUTpreamble\preamble
\let\endDUTpreamble\endpreamble
```

`dedications`
`DUTdedications`

From the Manual §3.3 p9

- The heading `Dedications` must appear at the top of the page. The heading must be bold, centered, and without punctuation.
- This page is counted and numbered in lowercase Roman numerals.

```
\newenvironment{dedications}{%
  \@DUT@clearpage
  \ifpdf
    \phantomsection
    \pdfbookmark[0]{\DUTdedicationsname}{\DUTdedicationsname}
  \fi
  \chapter*{\DUTdedicationsname}
  \setstretch{\@dsp}%
}{%
  \par\setstretch{\@ssp}%
}
\let\DUTdedications\dedications
\let\endDUTdedications\enddedications
```

`acknowledgments`
`DUTacknowledgments`

From the Manual §3.4 p9

- The heading `Acknowledgments` must appear at the top of the page. The heading must be bold, centered, and without punctuation.
- This page is counted and numbered in lowercase Roman numerals.

```
\newenvironment{acknowledgments}{%
  \@DUT@clearpage
  \ifpdf
    \phantomsection
    \pdfbookmark[0]{\DUTacknowledgmentsname}{\DUTacknowledgmentsname}
  \fi
  \chapter*{\acknowledgmentsname}
  \setstretch{\@dsp}%
}{%
  \par\setstretch{\@ssp}%
}
```

`abstract`
`DUTabstract`

```
\newenvironment{abstract}{%
  \listed@schapter{\abstractname}%
```

Suck up some blank space to position the rest of the header right under the chapter title.

```
\blanklines{-4}%
```

From the Manual §3.9 p10

- The following heading must be centered at the top of the page

  Abstract
  Full Title of Dissertation or Thesis
  Author's Name as it appears on the Dissertation or Thesis

  In the example on p20, they list the advisor's name after the author, but that is not specified in the text on p10.
- The text begins four lines below this heading.

On p20

- These pages are numbered using lowercase Roman numerals.
- Note that the heading is single spaced, but the abstract is double spaced.

```
    \begin{center}
      \setstretch{\@ssp}%
      \@DUT@title\\
      \@DUT@author\\
```

If you're feeling daring, break the rules and add "Advisor(s):" to set off your list of advisor names.

```
      \ifdaring{%
        \ifnum\c@@DUT@advisors=\@ne%
        Advisor:
        \else%
        Advisors:
        \fi}{}
      \@DUT@advisor\\
    \end{center}
  \blanklines{4}%
  \setstretch{\@dsp}%
  \@nobreaktrue
  \@afterindentfalse
  \@afterheading
}{%
  \par\setstretch{\@ssp}%
}
\let\DUTabstract\abstract
\let\endDUTabstract\endabstract
```

`thesis`
`DUTthesis`

From the Manual §3.10 p11

- The pages are counted and numbered in Arabic numerals.

```
\newenvironment{thesis}{%
  \mainmatter
  \setstretch{\@dsp}%
}{%
  \setstretch{\@ssp}%
  \@DUT@clearpage
  \ifpdf
    \phantomsection
    \pdfbookmark[-1]{Back Matter}{Back Matter}
  \fi
}
\let\DUTthesis\thesis
\let\endDUTthesis\endthesis
```

Vita

vita
DUTvita

From the Manual §3.15 p13

- The heading `Vita` must appear at the top of the page. The heading must be bold, centered, and without punctuation.
- The Vita text should begin four spaces below the heading.
- List the Vita separately in the Table of Contents.
- The page is counted and numbered in Arabic numerals.

```
\newenvironment{vita}{%
  \listed@schapter{\vitaname}
  \setstretch{\@dsp}%
}{%
  \par\setstretch{\@ssp}%
}
\let\DUTvita\vita
\let\endDUTvita\endvita
```

3.5.10 Titlepage

titlepage

In the normal environments, the titlepage environment does nothing but start and end a page, and inhibit page numbers. We inhibit the paging in draft mode, since it seems silly to waste a whole page on the title. We also drop the twocolumn code. (`classes.dtx`, L3111)

```
\renewenvironment{titlepage}%
  {\thispagestyle{empty}\setcounter{page}\z@}%
  {\@DUT@newpage}
\let\@DUT@titlepage\titlepage
\let\end@DUT@titlepage\endtitlepage
```

3.5.11 Appendix

\appendix
\DUTappendix

The \appendix command is not really an environment, it is a macro that makes some changes in the way things are done.

In the article document class the \appendix command must do the following:

- reset the section and subsection counters to zero,
- redefine \thesection to produce alphabetic appendix numbers. This redefinition is done globally to ensure that it survives even if \appendix is issued within an environment such as multicols.

In addition to book's (or hyperref's) activity, we fiddle with the tocloft chapter settings add switch to global double-spacing. (classes.dtx, L3177)

```
\let\@DUT@appendix\appendix
\renewcommand\appendix{%
  \@DUT@appendix%
```

Setup TOC entries like

Appendix A: Chapter Title

We don't need to worry about the vita environment (page 45), because it is a \listed@schapter, and therefore lacks a \numberline section in its *.toc entry.

We increase numwidth to 6.5em to make room for Appendix~ before the chapter number/letter, and add a colon after it.

The \protect calls get the macros into *.toc unexpanded, so they function correctly when LaTeX parses *.toc.

```
  \addtocontents{toc}{%
    \protect\cftsetindents{chapter}{0pt}{6.5em}
    \protect\renewcommand{\protect\cftchappresnum}{\protect\appendixname~}
    \protect\renewcommand{\protect\cftchapaftersnum}{:}}
```

We also turn on double spacing by default, since we're no longer wrapped in the thesis environment.

```
  \setstretch{\@dsp}%
}
\let\DUTappendix\appendix
```

3.5.12 Table of Contents

From Manual §3.5 p9, "Table of Contents", and the example on p17.

- Do not list any sections that precede the Table of Contents (e.g., Dedications, Acknowledgments). Do not list the Table of Contents itself.
- These pages are counted and numbered in lowercase Roman numerals.

\cfttoctitlefont

Take advantange of tocloft's TOC title code. (tocloft.dtx, L1501)

```
\cfttoctitlefont\contentsname}{\cftaftertoctitle}
```

by setting it equal to something ending in `\chapter*`. That way LaTeXparses the whole thing as

```
...\chapter*\contentsname}{\cftaftertoctitle}
```

which will set up the TOC page correctly.

```
\renewcommand\cfttoctitlefont{%
```

Start a new page in final mode

```
  \@DUT@clearpage
```

Add a bookmark if we're using pdfLaTeX.

```
  \ifpdf
    \phantomsection
    \pdfbookmark[0]{\contentsname}{\contentsname}
  \fi
```

`\chapter*` to gobble and format the next token (`\contentsname`).

```
  \chapter*}
```

`\aftertoctitleskip` Don't add any extra space after the title (the chapter will take care of that).

```
\setlength\cftaftertoctitleskip{0pt}
```

`\l@DUT@toc@sep` Define a length for TOC/LOF/LOT spacing.

```
\newlength\l@DUT@toc@sep
\set@lines@length{\l@DUT@toc@sep}{\@DUT@toc@sep}
```

`\DUT@toc@high@font` Define a font for high level (part, chapter) entries.

```
\newcommand{\DUT@toc@high@font}{\normalsize\scshape}
```

`\DUT@toc@low@font` Define a font for low level (section, table, figure) entries.

```
\newcommand{\DUT@toc@low@font}{\normalfont}
```

`\DUT@toc@page@font` Define a font for page numbers.

```
\newcommand{\DUT@toc@page@font}{\normalfont}
```

`\cftbeforepartskip` `\cftpartfont` `\cftpartleader` `\cftpartdotsep` `\cftpartpagefont` Setup parts. See the tocloft manual for a description of the commands.

```
\setlength\cftbeforepartskip{\l@DUT@toc@sep}
\cftsetindents{part}{0pt}{3em}
\if@boldpart   \renewcommand{\cftpartfont}{\bfseries\DUT@toc@high@font}
\else          \renewcommand{\cftpartfont}{\DUT@toc@high@font}
\renewcommand{\cftpartleader}{\cftdotfill{\cftpartdotsep}}
\if@dottedpart \renewcommand{\cftpartdotsep}{\cftdotsep}
\else          \renewcommand{\cftpartdotsep}{\cftnodots} \fi
\renewcommand{\cftpartpagefont}{\DUT@toc@page@font}
```

\cftbeforechapskip
\cftchapaftersnum
\cftchapfont
\cftchapleader
\cftchapdotsep
\cftchappagefont

Setup chapters and appendicies. Some of these settings are adjusted for appendicies in particular by `\appendix` (Sec. 3.5.11).

```
\setlength\cftbeforechapskip{\l@DUT@toc@sep}
\cftsetindents{chapter}{0pt}{1.5em}
\renewcommand{\cftchapaftersnum}{.}
\if@boldchapter   \renewcommand{\cftchapfont}{\bfseries\DUT@toc@high@font}
\else             \renewcommand{\cftchapfont}{\DUT@toc@high@font} \fi
\renewcommand{\cftchapleader}{\cftdotfill{\cftchapdotsep}}
\if@dottedchapter \renewcommand{\cftchapdotsep}{\cftdotsep}
\else             \renewcommand{\cftchapdotsep}{\cftnodots} \fi
\renewcommand{\cftchappagefont}{\DUT@toc@page@font}
```

\cftbeforesecskip
\cftsecfont
\cftpagefont
\cftbeforesubsecskip
\cftsubsecfont
\cftsubsecpagefont
\cftbeforesubsubsecskip
\cftsubsubsecfont
\cftsubsubsecpagefont

Setup sections, subsections, etc.

```
%\cftsetindents{chap}{0pt}{1.5em}
\setlength\cftbeforesecskip{\l@DUT@toc@sep}
\cftsetindents{section}{0pt}{3em}
\renewcommand{\cftsecfont}{\DUT@toc@low@font}
\renewcommand{\cftsecpagefont}{\DUT@toc@page@font}
\setlength\cftbeforesubsecskip{\l@DUT@toc@sep}
\cftsetindents{subsection}{0pt}{4.5em}
\renewcommand{\cftsubsecfont}{\DUT@toc@low@font}
\renewcommand{\cftsubsecpagefont}{\DUT@toc@page@font}
\setlength\cftbeforesubsubsecskip{\l@DUT@toc@sep}
\cftsetindents{subsubsection}{0pt}{6em}
\renewcommand{\cftsubsubsecfont}{\DUT@toc@low@font}
\renewcommand{\cftsubsubsecpagefont}{\DUT@toc@page@font}
```

The default indents above are all `0pt`. If `indenttoc` was given, override this, restoring the tocloft defaults, see the tocloft manual, Table 1.

```
\if@indenttoc
  \cftsetindents{chapter}{0pt}{1.5em}
  \cftsetindents{section}{1.5em}{2.3em}
  \cftsetindents{subsection}{3.8em}{3.2em}
  \cftsetindents{subsubsection}{7.0em}{4.1em}
\fi
```

3.5.13 List of figures

From the Manual §3.7 p10

- The heading `List of Figures` must appear at the top of the first page.
- The heading must be bold, centered, and without punctuation. List figure captions exactly as they appear below the figures in the text.
- Single space each entry, but double-space between entries.
- Separate figure captions from page numbers with right-justified tabs and dot leaders.

- Do not use periods to separate captions and page numbers.
- These pages are counted and numbered in lowercase Roman numerals.

\cftloftitlefont Much like our \cfttoctitlefont, but the list of figures gets listed in the TOC.

```
\renewcommand\cftloftitlefont{\listed@schapter}
```

\afterloftitleskip Don't add any extra space after the title (the chapter will take care of that). Actually we make a one-line correction so the first line matches the first line in the TOC. HACK!

```
\setlength\cftafterloftitleskip{-12pt}
```

\cftbeforefigskip Setup figure entries.
\cftfigindent
\cftfigfont
\cftfigpagefont

```
\setlength{\cftbeforefigskip}{\l@DUT@toc@sep}
\setlength{\cftfigindent}{0pt}
\renewcommand{\cftfigfont}{\DUT@toc@low@font}
\renewcommand{\cftfigpagefont}{\DUT@toc@page@font}
```

3.5.14 List of tables

From the Manual §3.6 p10

- The heading `List of Tables` must appear at the top of the first page.
- The heading must be bold, centered, and without punctuation.
- List table captions exactly as they appear above the tables in the text.
- Single space each entry, but double-space between entries.
- Separate table captions from page numbers with right-justified tabs and dot leaders.
- Do not use periods to separate captions and page numbers. These pages are counted and numbered in lowercase Roman numerals.

\cftlottitlefont Much like our \cfttoctitlefont, but the list of tables gets listed in the TOC.

```
\renewcommand\cftlottitlefont{\listed@schapter}
```

\afterlottitleskip Don't add any extra space after the title (the chapter will take care of that). Actually we make a one-line correction so the first line matches the first line in the TOC. HACK!

```
\setlength\cftafterlottitleskip{-12pt}
```

\cftbeforetabskip Setup table entries.
\cfttabindent
\cfttabfont
\cfttabpagefont

```
\setlength{\cfttabindent}{0pt}
\setlength{\cftbeforetabskip}{\l@DUT@toc@sep}
\renewcommand{\cfttabfont}{\DUT@toc@low@font}
\renewcommand{\cfttabpagefont}{\DUT@toc@page@font}
```

3.5.15 Bibliography

thebibliography The `thebibliography` environment is a list environment. To save the use of an extra counter, it should use `enumiv` as the item counter. Instead of using `\item`, items in the bibliography are produced by the following commands:
`\bibitem{`⟨*name*⟩`}` : Produces a numbered entry cited as ⟨*name*⟩.
`\bibitem[`⟨*label*⟩`]{`⟨*name*⟩`}` : Produces an entry labeled by ⟨*Label*⟩ and cited by ⟨*name*⟩.

Override book's version, adding a line to the table of contents. We split out the section-creation code into `\bib@heading` for natbib compatibility. (`classes.dtx`, L4063).

```
\renewenvironment{thebibliography}[1]
     {\bib@heading%
      \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}}%
```

Because it's hard to do line breaks in bibliographies.

```
      \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%
```

Cause a '.' (period) not to produce an end-of-sentence space.

```
      \sfcode`\.\@m}
```

Warn if an empty 'thebibliography' environment is found.

```
     {\def\@noitemerr
       {\@latex@warning{Empty `thebibliography' environment}}%
      \endlist}
```

\bib@heading natbib messes with `thebibliography`. We setup `\bib@heading` so we will still get our table of contents entry.

```
\newcommand{\bib@heading}{%
  \listed@schapter{\bibname}%
}
```

3.5.16 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.

Override `book`'s version, adding a line to the table of contents. We split out the section-creation code into `\bib@heading` for `natbib` compatibility. (`classes.dtx`, L4107).

```
\renewenvironment{theindex}
                 {\if@twocolumn
                    \@restonecolfalse
                  \else
                    \@restonecoltrue
                  \fi
```

Here we add our TOC entry, and setup two columns by hand to avoid the `\clearpage` in LaTeX's default `\twocolumn`.

```
  \listed@schapter{\indexname}
  \global\columnwidth\textwidth
  \global\advance\columnwidth-\columnsep
  \global\divide\columnwidth\tw@
  \global\hsize\columnwidth
  \global\linewidth\columnwidth
  \global\@twocolumntrue
  \global\@firstcolumntrue
  \col@number \tw@
```

Parameter changes to `\columnseprule` and `\columnsep` have to be done after `\twocolumn` has acted. Otherwise they can affect the last page before the index.

```
                  \parindent\z@
                  \parskip\z@ \@plus .3\p@\relax
                  \columnseprule \z@
                  \columnsep 35\p@
                  \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\@DUT@clearpage\fi}
```

3.5.17 Words

Set the official names of the various sections encountered. Some of these are not defined in `classes.dtx` but are close analogs of those that are.

`\dedicationsname` From the Manual §3.3 p9, "The heading `Dedications` must appear at the top of the page."

```
\newcommand\dedicationsname{Dedications}
\let\DUTdedicationsname\dedicationsname
```

`\acknowledgmentsname` From the Manual §3.4 p9, "The heading `Acknowledgments` must appear at the top of the page."

```
\newcommand\acknowledgmentsname{Acknowledgments}
\let\DUTacknowledgmentsname\acknowledgmentsname
```

`\contentsname` From the Manual §3.5 p9, "The heading `Table of Contents` must appear at the top of the page." (`classes.dtx`, L4331)

```
\renewcommand\contentsname{Table of Contents}
\let\DUTcontentsname\contentsname
```

`\listtablename` From the Manual §3.6 p10, "The heading `List of Tables` must appear at the top of the page." (`classes.dtx`, L4333)

```
\renewcommand\listtablename{List of Tables}
\let\DUTlisttablename\listtablename
```

`\listfigurename` From the Manual §3.7 p10, "The heading `List of Figures` must appear at the top of the page." (`classes.dtx`, L4332)

```
\renewcommand\listfigurename{List of Figures}
\let\DUTlistfigurename\listfigurename
```

`\abstractname` From the Manual §3.8 p10, "The following heading must be centered at the top of the first page: `Abstract`…." (`classes.dtx`, L4367)

```
\newcommand\abstractname{Abstract}
\let\DUTabstractname\abstractname
```

`\bibname` From the Manual §3.13 p12, "The heading `Bibliography` (or `List of References`) must appear at the top of first page." (`classes.dtx`, L4344)

```
\renewcommand\bibname{Bibliography}
\let\DUTbibname\bibname
```

`\appendixname` From the Manual §3.14 p12, "Number the appendicies consecutively either alphabetically or numerically (`Appendix A`, `Appendix B`… or `Appendix 1`, `Appendix 2`…)." (`classes.dtx`, L4366)

```
\renewcommand\appendixname{Appendix}
\let\DUTappendixname\appendixname
```

`\vitaname` From the Manual §3.15 p13, "The heading `Vita` must appear at the top of the page."

```
\newcommand\vitaname{Vita}
\let\DUTvitaname\vitaname
```

`\DUTnames` Some packages (e.g., babel) mess with our `\*name` values and we have to restore them.

3.6 Remaining details

3.6.1 Terminal blank page

Add a terminal blank page (in pagebreak mode) From the Manual §3.16 p13

> Include a blank page (with no page number) at the end of the thesis or dissertation. The blank page is neither counted nor numbered.

```
\AtEndDocument{\@DUT@blankpage}
```

⟨/class⟩

4 Examples

4.0.2 Template

```
⟨*template⟩
% See drexel-thesis.pdf for details.
\documentclass{drexel-thesis}

%% Enter the appropriate information here
\author{}    % Fullname
\title{}     % Title Of Thesis
\DUTmonth{}  % Name of the month of you defense
\DUTyear{}   % Year you are defending
\degree{}    % Your target degree, spelled out
\advisor{}   % Advisor's full name, degree
\copyrighttext{} % If not "All Rights Reserved."

%% unsrt style give references in order of citation
\bibliographystyle{unsrt}

\begin{document}
\begin{preamble}

\begin{dedications} % OPTIONAL
%% Type dedications here
\end{dedications}

\begin{acknowledgments} % OPTIONAL
%% Type acknowledgments here
\end{acknowledgments}

\tableofcontents
\listoftables  % If you have tables
\listoffigures % If you have figures

\begin{abstract}
%% Type abstract here
\end{abstract}
\end{preamble}

\begin{thesis}
%% If your thesis does not use \part{}s, you may want to add a
%% part-level PDF bookmark to set the main matter of from the front
%% matter.
%%\pdfbookmark[-1]{Main Matter}{Main Matter}

%% Use include statements to include your main thesis code
%% from seperate files.
%%\include{part1}
%%...
```

```
\end{thesis}

\bibliography{references} % Include references.bib BibTeX

\appendix % If you have appendices
%% include files with your appendicies (if any) here
%%\include{appendixA}
%%...

\begin{vita} % Ph.D. only.
%%Vita text.
\end{vita}

\end{document}
```
⟨/template⟩

4.1 A better example

4.1.1 Main

⟨∗example | example-draft⟩
```
%% See drexel-thesis.pdf for details.
```
⟨example⟩`\documentclass[subfig,blackref,approvalform]{drexel-thesis}`
⟨example-draft⟩`\documentclass[draft,subfig]{drexel-thesis}`
```

%% Enter the appropriate information here
\author{Johny Henry}
\title{Inadequacies of Steam-Driven Boring Machines}
\DUTmonth{July}
\DUTyear{1872}
\degree{Doctor of Philosophy}
\advisor{Collis Potter Huntington, R.R.D.}
\advisor{Advisor 2, Ph.D.}
\advisor{Advisor 3, Ph.D.}
\copyrighttext{\copyrighttextCCBYSA}

\usepackage[super,sort&compress]{natbib} % fancy citation extensions
\bibliographystyle{unsrtnat}

\usepackage{fancyvrb} % nicer verbatim handling
\DefineShortVerb{\|}  % \verb+TEXT+  ->  |TEXT|
```

Sometimes other packages clobber drexel-thesis's macros and environments. It's ok though, the originals are all aliased to `\DUT*`. We'll just have to use `DUTpreamble` instead.

```
\renewenvironment{preamble}{% look, we're clobbering an environment!
  What preamble?\begingroup\color{white}}{\endgroup}

```

Use blindtext for dummy text creation. blindtext requires babel.

```
\usepackage[english]{babel} % English blindtext
```

```
\usepackage{blindtext} % macros for producing dummy output
```

babel messes with some of our words (§3.5.17), so we have to reset them. See the TEX FAQ for details.

```
\addto\captionsenglish{\DUTnames}

\begin{document}
\begin{DUTpreamble} % "DUT" because original preamble was clobbered.

\begin{dedications}
We're in \iffinal{final}{draft} mode!

\Blindtext[3]
\end{dedications}

\begin{acknowledgments}
\Blindtext[3]
\end{acknowledgments}

\tableofcontents
\listoftables
\listoffigures

\begin{abstract}
\Blindtext[3]
\end{abstract}
\end{DUTpreamble}

\begin{thesis}
\include{example-1}
\end{thesis}

\bibliography{example-ref}

\appendix
\include{example-a}

\begin{vita}
\Blindtext[3]
\end{vita}

\end{document}
```

⟨/example | example-draft⟩

4.1.2 Part

⟨*example-part⟩

```
\part{A Part Heading}
\chapter{A Chapter Heading}
\section{A Section Heading}
The following sectioning commands are available:
```

```
\begin{quote}
 part \\
 chapter \\
 section \\
 subsection \\
 subsubsection \\
 paragraph \\
 subparagraph
\end{quote}

\subsection{natbib}
You can cite your references with |natbib|'s |\citet| and |\citep|
macros.  See
\href{http://www.ctan.org/tex-archive/macros/latex/contrib/natbib/}
{the natbib manual} for details.

Here we have a text citation \citet{rief97} followed by a
parenthetical citation\citep{rief97}.

\subsubsection{Tables and Figures}
\Blindtext[2]
\begin{table}
  \begin{center}
  \begin{tabular}{r@{.}l r@{.}l r@{.}l}
    \multicolumn{2}{c}{Time (s)} &
      \multicolumn{2}{c}{John Henry (m)} &
      \multicolumn{2}{c}{Steam drill (m)} \\
    0&0 & 0&0 & 0&0 \\
    10&0 & 4&3 & 3&75 \\
    30&0 & 11&9 & 10&1 \\
    \ldots
  \end{tabular}
  \caption{A table float.} % low caption allowed with floatrow
%% Note the strange |r@{.}l| notation in the |\tabular| column
%% definition.  This allows for numbers aligned at the decimal point
%% (see \href{http://www.stat.unipg.it/tex-man/ltx-68.html}{here}).
%%
%% |\multicolumn{num_cols}{alignment}{contents}| allows the headings
%% to span the pre- and post-decimal columns.
  \end{center}
\end{table}
\Blindtext[2]
\begin{figure}
  \caption{A figure float. \blindtext} % high caption allowed with floatrow
  \begin{center}
    \includegraphics[width=0.4\textwidth]{drexel-logo}
  \end{center}
\end{figure}
\Blindtext[3]
\begin{figure}
```

```
  \begin{center}
    \subfloat[][]{%
      \includegraphics[width=0.2\textwidth]{drexel-logo}%
      \label{fig:sub-a}}
    \subfloat[][]{%
      \includegraphics[width=0.2\textwidth]{drexel-logo}%
      \label{fig:sub-b}}
    \caption{(a) One subfig float. (b) Another subfig float.%
      \label{fig:both}}
  \end{center}
\end{figure}
You can reference the subfig floats individually (\ref{fig:sub-a}) or
together (\ref{fig:both}).

\Blindtext[3]

\part{Another Part}
\chapter{Another Chapter}
\Blindtext[5]
\chapter{A Long Title Bla Bla Bla Bla Bla Bla Bla Bla Bla Bla Bla
Bla Bla Bla Bla Bla Bla Bla Bla Bla Bla Bla Bla Bla Bla Bla Bla}
\Blindtext[5]
⟨/example-part⟩
```

4.1.3 BibTeX

What goes into the BibTeX file `example-ref.bib`? For more information, check out this basic tutorial. If you want to get deeper, take a look at Tame the BeaST. Other resources: how the process works, entry types, fields, entries and fields, assorted style examples, and assorted BibTeXtools.

Here is an example BibTeX file to get you started. We define strings for the publishers, journals, and authors to avoid duplication, minimize the risk of typos, etc.

```
⟨*example-bibtex-refs⟩
%% Publishers
@String{APS = "American Physical Society"}

%% Journals
@String{SCI = "Science"}

%% Authors
@String{MRief = "Rief, Matthias"}
@String{MGautel = "Gautel, Mathias"}
@String{FOesterhelt = "Oesterhelt, Filipp"}
@String{JFernandez = "Fernandez, Julio M."}
@String{HGaub = "Gaub, Hermann E."}

%% Articles
@Article{rief97,
  author = MRief #" and "# MGautel #" and "# FOesterhelt #" and "#
```

```
          JFernandez #" and "# HGaub,
  title = "Reversible Unfolding of Individual Titin Immunoglobulin
          Domains by {AFM}",
  journal = SCI,
  volume =  276,
  number =  5315,
  pages =   "1109--1112",
  year =    1997,
  doi =     "10.1126/science.276.5315.1109",
  URL =     "http://www.sciencemag.org/cgi/content/abstract/276/5315/1109",
  eprint =  "http://www.sciencemag.org/cgi/reprint/276/5315/1109.pdf",
  mynote = "Seminal paper for force spectroscopy on Titin. Cited by
          Dietz '04 (ref 9) as an example of how unfolding large
          proteins is easily interpreted (vs.\ confusing unfolding in
          bulk), but Titin is a rather simple example of that, because
          of its globular-chain structure.",
}
%% ...
```
⟨/example-bibtex-refs⟩

4.1.4 Appendix

⟨∗example-appendix⟩
```
\chapter{Some Appendix Heading}
\Blindtext[5]
\chapter{Another Appendix Heading}
\Blindtext[5]
```
⟨/example-appendix⟩

5 Known bugs and issues

5.1 Hacks

- `\vspace*{0\p@}` space between page top and chapter headings (`\@makechapterhead` and `\@makeschapterhead`, Sec. 3.5.7).
- Extra space under LOT and LOF titles compared to TOC. (Secs. 3.5.13 and 3.5.14).

5.2 Bugs

- Different space between chapter heading and section heading, vs. chapter heading and text. Compare *A Chapter Heading* and *Another Chapter* in `example.pdf`. This is a problem (although with opposite order) in the book class itself. For example, compile

```
\documentclass{book}
\begin{document}
\chapter{Chapter with text}
Bla bla bla.
```

```
\chapter{Chapter with section}
\section{Section}
Bla bla bla.
\end{document}
```

- Footer overlap if chapter/section names are particularly long. See *Section in long-titled chapter* in `example.pdf`. Workaround: turn off sections in the footer:

```
\fancyfoot[RE,LO]{\scshape\leftmark}
\fancyfoot[LE,RO]{}
```

For more header or footer manipulation ideas, see §3.2.11.

Change History

0.1

General: Rewrite by Daniel J. Cross 1

0.10

General: W. Trevor King added `\DUT*` aliases for all public macros and environments and renamed `\defmonth` and `\defyear` to `\DUTmonth` and `\DUTyear` for consistency with the new aliases. 1

0.11

`\DUTifdaring`: W. Trevor King added ifdaring macro. 10

`DUTabstract`: W. Trevor King added "Advisor(s):" for daring users. 44

0.12

`DUTabstract`: W. Trevor King added `\par` to detach the single space `\setstretch` from the from the final paragraph. 44

`DUTacknowledgments`: W. Trevor King added `\par` to detach the single space `\setstretch` from the from the final paragraph. . 43

`DUTdedications`: W. Trevor King added `\par` to detach the single space `\setstretch` from the from the final paragraph. 43

`DUTvita`: W. Trevor King added `\par` to detach the single space `\setstretch` from the from the final paragraph. 45

0.13

General: W. Trevor King cleaned up TOC/LOT/LOF code. 1

`\cftfigpagefont`: Added `\cftfigpagefont` definition and switch `\cftfigfont` from hardcoded `\normalsize` `\singlespace` to `\DUT@toc@low@font`. The `\singlespace` portion appears to be unnecessary, and it was causing post-number linebreak issues with latex (pdflatex always worked). 49

`\cftsubsubsecpagefont`: Added `\cft*pagefont` definitions and switch `\cft*font` from hardcoded `\normalsize` to `\DUT@toc@low@font`. 48

`\cfttabpagefont`: Added `\cfttabpagefont` definition and switch `\cftfabfont` from hardcoded `\normalsize` `\singlespace` to `\DUT@toc@low@font`. The `\singlespace` portion appears to be unnecessary, and it was causing post-number linebreak issues with latex (pdflatex always worked). 49

`\DUT@toc@high@font`: Renamed from `\@cont@font`. 47

`\DUT@toc@low@font`: Macro added. 47

`\DUT@toc@page@font`: Macro added. 47

`\l@DUT@toc@sep`: Renamed from `\l@cont@sep`. 47

`blackref`: W. Trevor King added blackref option. 20

0.14

General: Evan Sultanik added the `approvalform` option for including a LaTeX version of the T-1 thesis form. 1

`\drexellogobw`: Evan Sultanik added macro. 12

`\DUT@makeapprovalform`: Evan Sultanik added macro. 10

0.15

`\@DUT@newpage`: W. Trevor King added \DUTnewpage macro. . 32

General: W. Trevor King added the `nodraftwatermark` option for clearing previous watermark options. 1

W. Trevor King added the `pagebreak` and `nopagebreak` options for controlling page breaking independently of `final` and `draft`. 1

`xdraftwatermark`: W. Trevor King renamed mydraftwatermark to

xdraftwatermark. 21
\DUTifdaring: W. Trevor King added DUTifdaring macro. . . 10
\DUTifdraftwatermark: W. Trevor King added DUTifdraftwatermark macro. 10
W. Trevor King added ifdraftwatermark macro. 10
\DUTiffinal: W. Trevor King added DUTiffinal macro. 10
nodraftwatermark: W. Trevor King added nodraftwatermark option. 21

0.2
General: W. Trevor King transitioned from thesis.cls to drexelthesis.dtx and did a good deal of reorganizing. 1

0.3
\@DUT@baselineskip: Use \setlength to store the value at the default font. The previous version used \let, which made \DUT@baselineskip a synonym for \baselineskip that changed with font size. . . 29
General: W. Trevor King merged drexelthesis.cls developed in the Comp. Sci. Department by Jeff Abrahamson, Evan Sultanik, C.Y. Ip, Christopher S. Dahn, Christopher D. Cera, Mitchell Peabody, David T. McWherter, and Vincent A. Cicirello. Based on the University of Toronto Thesis LaTeX 2$_\varepsilon$ Class. Also greatly improved the documentation by incorperating bits of the base/*.dtx files. 1

0.4
General: W. Trevor King repositioned hyperref inclusion for proper hyperref overriding. The previous implementation couldn't handle \label for \paragraph and some other section levels. The page number for the reference was correct, but the link went to the label's parent chapter. 1
\DUTcopyrighttextCCBYSA: W. Trevor King renamed from \copyrighttextCC, and made specific to Creative Commons Attribution-ShareAlike Version 3.0. 36

0.5
General: W. Trevor King use hypcap for better caption hyperlink anchor placement. 1

0.6
General: W. Trevor King fixed \if@final handling. Previous versions used it more like a hypothetical \if@finalspace. Also adjusted theindex to use a \listed@schapter. 1

0.7
\DUTiffinal: W. Trevor King added iffinal macro. 10

0.8
\maketitle: W. Trevor King replaced Frontmatter with Front Matter and Titlepage with Title Page for consistency with LaTeX's book class. 34
DUTthesis: W. Trevor King replaced Backmatter with Back Matter for consistency with LaTeX's book class. 45

0.9
\@chapter: W. Trevor King disabled the label macro for typeout. 39