THE PUBLIC IS MORE FAMILIAR WITH BAD DESIGN THAN GOOD DESIGN. IT IS, IN EFFECT, CONDITIONED TO PREFER BAD DESIGN, BECAUSE THAT IS WHAT IT LIVES WITH. THE NEW BECOMES THREATENING, THE OLD REASSURING.
PAUL RAND, *"DESIGN, FORM, AND CHAOS"*

IN ANYTHING AT ALL, PERFECTION IS FINALLY ATTAINED NOT WHEN THERE IS NO LONGER ANYTHING TO ADD, BUT WHEN THERE IS NO LONGER ANYTHING TO TAKE AWAY, WHEN A BODY HAS BEEN STRIPPED DOWN TO ITS NAKEDNESS.
ANTOINE DE SAINT-EXUPÉRY, *"TERRE DES HOMMES"*

...THE DESIGNER OF A NEW SYSTEM MUST NOT ONLY BE THE IMPLE-MENTOR AND THE FIRST LARGE-SCALE USER; THE DESIGNER SHOULD ALSO WRITE THE FIRST USER MANUAL. ...IF I HAD NOT PARTICIPATED FULLY IN ALL THESE ACTIVITIES, LITERALLY HUNDREDS OF IMPROVE-MENTS WOULD NEVER HAVE BEEN MADE, BECAUSE I WOULD NEVER HAVE THOUGHT OF THEM OR PERCEIVED WHY THEY WERE IMPORTANT.
DONALD E. KNUTH, *"THE ERRORS OF TEX"*

A TUFTE-STYLE BOOK

Contents

List of Figures

List of Tables

Dedicated to those who appreciate LATEX

and the work of Edward R. Tufte and Donald E. Knuth.

Introduction

This sample book discusses the design of Edward Tufte's books[1] and the use of the `tufte-book` and `tufte-handout` document classes.

[1] Tufte 1990, 1997, 2001, 2006.

Additionally, it discusses changes made to the original Tufte-LaTeX document classes in attempt to modernize them. It also shows how to use the new features of the Tufte-LaTeX document classes. I want to say up front that I am neither a typographer nor a designer, this is my amateur attempt at making this project more accessible. After years of last official update to the Tufte-LaTeX project, it has become a bit outdated and harder to use on modern systems.

I freely admit that some of the changes made here are not in the spirit of the original Tufte-LaTeX project. I have tried to keep the changes as minimal as possible, and provide a way to turn them off if desired. These changes were motivated by my personal needs to make it more accessible to me, and I hope they will be useful to others as well.

The Design of Tufte's Books

THE PAGES of a book are usually divided into three major sections: the front matter (also called preliminary matter, or prelim), the main matter (the core text of the book), and the back matter (or end matter).

THE FRONT MATTER of a book refers to all of the material that comes before the main text. The following table from shows a list of material that appears in the front matter of: *The Visual Display of Quantitative Information*, *Envisioning Information*, *Visual Explanations*, and *Beautiful Evidence* along with its corresponding page number. Page numbers that appear in parentheses refer to folios that do not have a printed page number (but they are still counted in the page number sequence).

Page content	Books			
	VDQI	*EI*	*VE*	*BE*
Blank half title page	(1)	(1)	(1)	(1)
Frontispiece[2]	(2)	(2)	(2)	(2)
Full title page	(3)	(3)	(3)	(3)
Copyright page	(4)	(4)	(4)	(4)
Contents	(5)	(5)	(5)	(5)
Blank page	–	(6)	(6)	(6)
Dedication	(6)	(7)	(7)	7
Blank page	–	(8)	–	(8)
Epigraph	–	–	(8)	–
Introduction	(7)	(9)	(9)	9

Table 1: Overview of pages in front matter of Tufte's books. Page numbers in parentheses refer to folios without printed page numbers.

[2] The contents of this page vary from book to book. In *VDQI* this page is blank; in *EI* and *VE* this page holds a frontispiece; and in *BE* this page contains three epigraphs.

The design of the front matter in Tufte's books varies slightly from the traditional design of front matter. First, the pages in front matter are traditionally numbered with lowercase roman numerals (e.g., i, iv, ix, xiv, …). Second, the front matter page numbering sequence is usually separate from the main matter page numbering. That is, the page numbers restart at 1 when the main matter begins. In contrast, Tufte has enumerated his pages with arabic numerals, and share the count sequence with the main matter.

There are also some variations in design across Tufte's four books. The page opposite the full title page (labeled "frontispiece" in table 1)

has different content in every book. In *The Visual Display of Quantitative Information*, this page is blank; in *Envisioning Information*, and *Visual Explanations*, this page holds a frontispiece; and in *Beautiful Evidence*, this page contains three epigraphs.

The dedication appears on page 6 in *VDQI* (opposite the introduction), and is placed on its own spread in the other books. In *VE*, an epigraph shares the spread with the opening page of the introduction.

None of the page numbers (folios) of the front matter are expressed except in *BE*, where the folios start to appear on the dedication page. This book follows the style of *BE*, with folios on dedication and introduction pages. If that's not desired, use the "`\thispagestyle`{*empty*}" command on the dedication and introduction pages.

THE FULL TITLE PAGE of each of the books varies slightly in design. In all the books, the author's name appears at the top of the page, the title it set just above the center line, and the publisher is printed along the bottom margin. Some of the differences are outlined in the following table:

Feature	*VDQI*	*EI*	*VE*	*BE*
Author				
Typeface	serif	serif	serif	sans serif
Style	italics	italics	italics	upright, caps
Size	24 pt	20 pt	20 pt	20 pt
Title				
Typeface	serif	serif	serif	sans serif
Style	upright	italics	upright	upright, caps
Size	36 pt	48 pt	48 pt	36 pt
Subtitle				
Typeface	—	—	serif	—
Style	—	—	upright	—
Size	—	—	20 pt	—
Edition				
Typeface	sans serif	—	—	—
Style	upright, caps	—	—	—
Size	14 pt	—	—	—
Publisher				
Typeface	serif	serif	serif	sans serif
Style	italics	italics	italics	upright, caps
Size	14 pt	14 pt	14 pt	14 pt

Table 2: Comparison of full title page design features in Tufte's books.

THE TABLES OF CONTENTS in Tufte's books give first glimpse of the structure of the main matter. *The Visual Display of Quantitative Information* is split into two parts, each containing some number of chapters. His other three books only contain chapters—they're not broken into parts.

The following pages show examples of all four books' title pages and tables of contents. As you can see this sample document does its best to mimic the design of *Beautiful Evidence*, but it's not perfect. The main difference is caused by the fact that the fonts used in it are not freely available, and Tufte-LaTeX uses substitutes.

Edward R. Tufte

The Visual Display
of Quantitative Information

SECOND EDITION

Graphics Press · Cheshire, Connecticut

Edward R. Tufte

Envisioning Information

Graphics Press · Cheshire, Connecticut

Edward R. Tufte

Visual Explanations

Images and Quantities, Evidence and Narrative

Graphics Press · Cheshire, Connecticut

EDWARD R. TUFTE

BEAUTIFUL EVIDENCE

GRAPHICS PRESS LLC

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Typefaces

TUFTE'S BOOKS PRIMARILY USE TWO TYPEFACES: Bembo and Gill Sans. Bembo is used for the headings and body text, while Gill Sans is used for the title page and opening epigraphs in *Beautiful Evidence*.

Older versions of Tufte-LaTeX used Palatino, Helvetica, and Bera Mono fonts. This version of Tufte-LaTeX uses `ETbb` for a Bembo-like font, `gillius` for a Gill Sans-like font, and `FiraMono` as a `monospaced` `font`.

However this sample book overrides the default `FiraMono` it with `RecursiveMono` font. It uses the provided `custom-tufte-common.tex` file hook to override the default font. I have done that because I like the Recursive Mono font better. Sadly Recursive font is not available on CTAN, therefore I have used FiraMono as a default font. If you wish to use Recursive font, you can use font files provided in this package in the `fonts` directory.

While Tufte-LaTeX class tries to make documents compiled with XeLaTeX, LuaLaTeX, and pdfLaTeX look as similar as possible, it's impossible to make them look identical. There seem to be small differences between how the engines typeset text, encode fonts, and while pdfLaTeX uses `fontspec`, the other use `fontenc`.

LaTeX size	Font size	Leading	Used for
`\tiny`	5	6	sidenote numbers
`\scriptsize`	7	8	—
`\footnotesize`	8	10	sidenotes, captions
`\small`	9	12	quote, quotation, and verse environments
`\normalsize`	10	14	body text
`\large`	11	15	B-heads
`\Large`	12	16	A-heads, TOC entries, author, date
`\LARGE`	14	18	handout title
`\huge`	20	30	chapter heads
`\Huge`	24	36	part titles

Table 3: A list of LaTeX font sizes as defined by the Tufte-LaTeX document classes.

Headings

TUFTE'S BOOKS INCLUDE THE FOLLOWING HEADING LEVELS: parts, chapters,[3] sections, subsections, and paragraphs. By default subsubsection and subparagraph headings are not defined in the Tufte-LaTeX classes. [4]

[3] Parts and chapters are defined for the `tufte-book` class only.
[4] For more information on this topic, see (Bringhurst 2005), section 4.2.2

Table 4: Heading styles used in *Beautiful Evidence*.

Heading	Style	Size
Part	roman	24/36×40 pc
Chapter	italic	20/30×40 pc
Section	italic	12/16×26 pc
Subsection	italic	11/15×26 pc
Paragraph	italic	10/14

Paragraph   Paragraph headings (as shown here) are introduced by italicized text and separated from the main paragraph by a bit of space.

Environments

The following table lists characteristics defined for the various environ-
ments:

Environment	Font size	Notes
Body text	10/14×26 pc	
Block quote	9/12×24 pc	Block indent (left and right) by 1 pc
Sidenotes	8/10×12 pc	Sidenote number is set inline, followed by word space
Captions	8/10×12 pc	

Table 5: Environment styles used in *Beautiful Evidence*.

On the Use of the `tufte-book` Document Class

The Tufte-LaTeX document classes define a style similar to the style Edward Tufte uses in his books and handouts. Tufte's style is known for its extensive use of sidenotes, tight integration of graphics with text, and well-set typography. This document aims to be at once a demonstration of the features of the Tufte-LaTeX document classes, and a style guide to their use.

Page Layout

Headings

This style provides A- and B-heads (that is, `\section` and `\subsection`, demonstrated above).

If you need more than two levels of section headings, you'll have to define them yourself. This class does not provide pre-defined styles for `\subsubsection` or `\subparagraph`. As Bringhurst points out in *"The Elements of Typographic Style"*,[5] you should "use as many levels of headings as you need: no more, and no fewer".

[5] Bringhurst 2005.

The Tufte-LaTeX classes will emit an error if you try to use `\subsubsection` or `\subparagraph`.

IN HIS LATER BOOKS,[6] Tufte starts each section with a bit of vertical space, a non-indented paragraph, and sets the first few words of the sentence in SMALL CAPS. To accomplish this style, use the `\newthought` command

[6] Tufte 2006.

```
\newthought{In his later books}, Tufte starts...
```

Sidenotes

One of the most prominent and distinctive features of this style is the extensive use of sidenotes. The wide margin on the right side provides ample room for sidenotes and small figures. Any `\footnote` will automatically be converted into a `\sidenote`.[7] If you'd like to place ancillary information in the margin without the sidenote mark (the superscript number), you can use the `\marginnote` command.

[7] This is a sidenote that was entered using the `\footnote` command.

This is a margin note. Notice that there isn't a number preceding the note, and there is no number in the main text where this note was written.

In his books Tufte places margin on the right side of the page, regardless whether it's an even or odd page. If you prefer to alternate the placement of margins, so they fall on outer edge you can use the `symmetric` class option.

ON A PERSONAL NOTE, placing of sidenotes — be it footnote, citation, or other — should follow the following rules:

- If the sidenote applies to the whole sentence, it should be placed after the period or other punctuation mark.

- If the sidenote applies to a specific word, it should be placed immediately after that word, even if the word is in the middle of the sentence, or followed by a punctuation mark.

- If a sidenote is a complete sentence, or a citation, it should end with a period.

The specification of the \sidenote command is:

\sidenote[⟨*number*⟩][⟨*offset*⟩]{*Sidenote text.*}

Both the ⟨*number*⟩ and ⟨*offset*⟩ arguments are optional. If you provide a ⟨*number*⟩ argument, then that number will be used as the sidenote number. It will only change the number of the current sidenote, and will not affect the numbering sequence of subsequent sidenotes.

Sometimes a sidenote may run over the top of other text or graphics in the margin space. If this happens, you can adjust the vertical position of the sidenote by providing a dimension in the ⟨*offset*⟩ argument. Some examples of valid dimensions are:

1.0in   2.54cm   254mm   6\baselineskip

If the dimension is positive, it will push the sidenote down the page; if the dimension is negative, it will pull the sidenote up the page.

While both the ⟨*number*⟩ and ⟨*offset*⟩ arguments are optional, they must be provided in order. To adjust the vertical position of the sidenote while leaving the sidenote number alone, use the following syntax:

\sidenote[][⟨*offset*⟩]{*Sidenote text.*}

The empty brackets tell the \sidenote command to use the default sidenote number.

If you *only* want to change the sidenote number, however, you may completely omit the ⟨*offset*⟩ argument:

\sidenote[⟨*number*⟩]{*Sidenote text.*}

The \marginnote command has a similar *offset* argument:

\marginnote[⟨*offset*⟩]{*Margin note text.*}

References

References are placed alongside their citations as sidenotes, as well. This can be accomplished using the normal \cite command or the \autocite command, which functions similarly.[8]

You will need to specify a bibliography resource file in the preamble of your document using \addbibresource{*bibliography-file.bib*} command. The complete list of references may be printed automatically by using the \printbibliography command. See the end of this document

[8] If you use the \cite command within a sidenote, it will render as an in-line parenthetical citation, as demonstrated here (Tufte 2001).

for an example, and the BibLATEX documentation for more information. Bibliography can be turned off with the help of `nobib` class option.

To enter multiple citations at one location,[9] you can provide a list of keys separated by commas:

[9] Tufte 1990, 2006.

    \cite{*bibkey1,bibkey2,...*}

IN THE NEW VERSION OF TUFTE-LATEX, it's impossible to offset citation's position the same way sidenotes can be moved up or down the margin. This is caused by the change from `natbib` package and BIBTEX tool to `biblatex` package and biber tool. The `biblatex` provides it own optional arguments for the \cite commands, which are kept unchanged to avoid confusion. I see the possible breakage of old Tufte-LATEX documents as a fair tradeoff for the new features and flexibility that `biblatex` provides. It is worth noting that the `natbib` is mostly kept on life support, so it's better to switch now and make Tufte-LATEX more maintainable in the future. This is one of the reasons why this version of Tufte-LATEX classes has a new major version number.

Figures and Tables

Images and graphics play an integral role in Tufte's work. In addition to the standard `figure` and `tabular` environments, this style provides special figure and table environments for full-width floats.

    Full page-width figures and tables may be placed in `figure*` or `table*` environments. To place figures or tables in the margin, use the `marginfigure` or `margintable` environments as follows (see figure 1):

```
\begin{marginfigure}
  \includegraphics{margin-figure}
  \caption{Margin figure caption}%
  \label{fig:margin-figure-label}
\end{marginfigure}
```

    The `marginfigure` and `margintable` environments accept an optional parameter ⟨*offset*⟩ that adjusts the vertical position of the figure or table. See the "Sidenotes" section above for examples of how to use offsets. The specifications are:

```
\begin{marginfigure}[⟨offset⟩]
  ...
\end{marginfigure}

\begin{margintable}[⟨offset⟩]
  ...
\end{margintable}
```

    Figure 2 is an example of the `figure*` environment and figure 3 is an example of the normal `figure` environment.

AS WITH SIDENOTES AND MARGINNOTES, a caption may require vertical adjustment. The \caption command can take a second optional argument which enables you to do this by providing a dimension ⟨*offset*⟩. You may specify the caption in any one of the following forms:
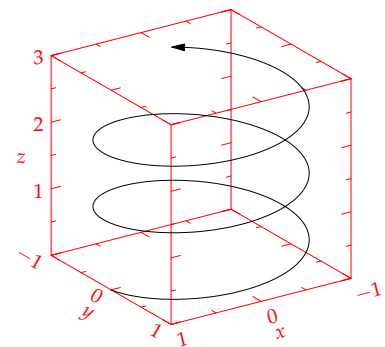

Figure 1: This is a margin figure. The helix is defined by $x = \cos(2\pi z)$, $y = \sin(2\pi z)$, and $z = [0, 2.7]$. The figure was drawn using Asymptote (http://asymptote.sf.net/).
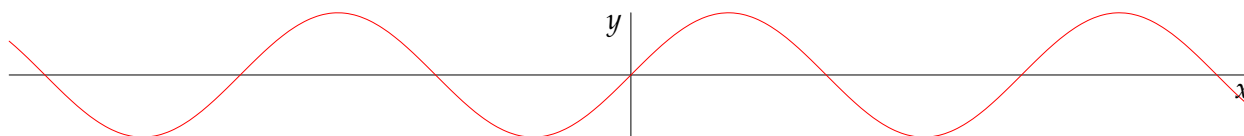
Figure 2: This graph shows $y = \sin x$ from about $x = [-10, 10]$. *Notice that this figure takes up the full page width.*
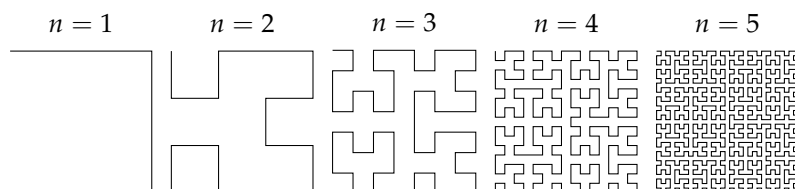
Figure 3: Hilbert curves of various degrees *n*. *Notice that this figure only takes up the main textblock width.*

```
\caption{long caption}
\caption[short caption]{long caption}
\caption[][⟨offset⟩]{long caption}
\caption[short caption][⟨offset⟩]{long caption}
```

A positive ⟨*offset*⟩ will push the caption down the page. The short caption, if provided, is what appears in the list of figures/tables, otherwise the "long" caption appears there. Note that although the arguments ⟨*short caption*⟩ and ⟨*offset*⟩ are both optional, they must be provided in order. Thus, to specify an ⟨*offset*⟩ without specifying a ⟨*short caption*⟩, you must include the first set of empty brackets [], which tell \caption to use the default "long" caption. As an example, the caption to figure 3 above was given in the form:

```
\caption[Hilbert curves...][1em]{Hilbert curves...}
```

NOTE THAT CAPTION OFFSET IS UNAVAILABLE for marginfigure and margintable environments. In these cases you need to offset the whole figure or table. Captions in marginfigure and margintable still support short captions.

TUFTE STYLE TABLES ARE SIMPLE and should be styled with the booktabs package. Table 6 shows table created with the booktabs package. Notice the lack of vertical rules—they serve only to clutter the table's data. Hence Tufte style tables use only horizontal rules. In cases where a table has many rows, colortbl can be used to make rows stand out visually from each other. Colors can be used to group related rows, highlight important data, or make one row stand out from the others.

Margin	Length
Paper width	$8^1/2$ inches
Paper height	11 inches
Textblock width	$6^1/2$ inches
Textblock/sidenote gutter	$3/8$ inches
Sidenote width	2 inches

Table 6: Here are the dimensions of the various margins used in the Tufte-handout class.

Too Many Floats

OCCASIONALLY LATEX will generate an error message:

```
Error:  Too many unprocessed floats
```

LATEX tries to place floats in the best position on the page. Until it's fin-
ished composing the page, however, it won't know where those positions
are. If you have a lot of floats on a page (including sidenotes, margin
notes, figures, tables, etc.), LATEX may run out of "slots" to keep track of
them and will generate the aforementioned error.

LATEX initially allocates 18 slots for storing floats. To work around this
limitation, the Tufte-LATEX document classes provide a \morefloats
command that will reserve more slots.

The first time \morefloats is called, it allocates an additional 34 slots.
The second time \morefloats is called, it allocates another 26 slots.

The \morefloats command may only be used two times. Calling it
a third time will generate an error message. (This is because allocating
more floats may lead to LATEX running out of memory.)

If, after using the \morefloats command twice, you continue to get
the Too many unprocessed floats error, there are a couple things you
can do.

The \FloatBarrier command will immediately process all the floats
before typesetting more material. Since \FloatBarrier will start a new
paragraph, you should place this command at the beginning or end of a
paragraph.

The \clearpage command will also process the floats before continu-
ing, but instead of starting a new paragraph, it will start a new page.

You can also try moving your floats around a bit: move a figure or
table to the next page or reduce the number of sidenotes. (Each sidenote
actually uses *two* slots.)

After placing the floats, LATEX will mark those slots as unused so they
are available for the next page to be composed.

Captions

You may notice that the captions are sometimes misaligned. Due to the
way LATEX's floats works, it's hard to know for sure where it decided
to put the float. Therefore, the Tufte-LATEX document classes provide
commands to override the caption position.

Vertical alignment   To override the vertical alignment, use the \setfloatalignment
command inside the float environment. For example:

```
\begin{figure}[btp]
  \includegraphics{sine.pdf}
  \caption{This is an example of a sine wave.}%
  \label{fig:sinewave}
  \setfloatalignment{b} % forces caption to be bottom-aligned
\end{figure}
```

The syntax of the \setfloatalignment command is:

```
\setfloatalignment{⟨pos⟩}
```

where ⟨*pos*⟩ can be either b for bottom–aligned captions, or t for top-aligned captions.

Horizontal alignment   To override the horizontal alignment, use either the \forceversofloat or the \forcerectofloat command inside of the float environment. Note that these commands only work when the symmetric option is enabled. For example:

```
\begin{figure}[btp]
  \includegraphics{sine.pdf}
  \caption{This is an example of a sine wave.}%
  \label{fig:sinewave}
  \forceversofloat % forces caption to be set to the left of the float
\end{figure}
```

The \forceversofloat command causes the algorithm to assume the float has been placed on a verso page—that is, a page on the left side of a two-page spread. Conversely, the \forcerectofloat command causes the algorithm to assume the float has been placed on a recto page—that is, a page on the right side of a two-page spread.

Full-width text blocks

In addition to the new float types, there is a fullwidth environment. This environment stretches across the main text block and the sidenotes area.

```
\begin{fullwidth}
  Lorem ipsum dolor sit amet...
\end{fullwidth}
```

Lorem ipsum dolor sit amet, consectetuer adipiscing elit. Ut purus elit, vestibulum ut, placerat ac, adipiscing vitae, felis. Curabitur dictum gravida mauris. Nam arcu libero, nonummy eget, consectetuer id, vulputate a, magna. Donec vehicula augue eu neque. Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas. Mauris ut leo. Cras viverra metus rhoncus sem. Nulla et lectus vestibulum urna fringilla ultrices. Phasellus eu tellus sit amet tortor gravida placerat. Integer sapien est, iaculis in, pretium quis, viverra ac, nunc. Praesent eget sem vel leo ultrices bibendum. Aenean faucibus. Morbi dolor nulla, malesuada eu, pulvinar at, mollis ac, nulla. Curabitur auctor semper nulla. Donec varius orci eget risus. Duis nibh mi, congue eu, accumsan eleifend, sagittis quis, diam. Duis eget orci sit amet orci dignissim rutrum.

Typography

Typefaces

When using X͟ΗLATEX or LuaLATEX, the Tufte-LATEX classes will load the fontspec package. This package allows you to set the typeface to any installed font, any local font files, or to any font files you have installed in your texmf tree.

By default the Tufte-LATEX classes will use the ET–Bembo font from the ETbb package, as the main typeface. If it's unavailable, the TEX Gyre Pagella from the tex-gyre-pagella package will be used as fallback serif font. For math fonts it tries to use the Palatino font from the mathpazo package. For sans serif text the Gillius No. 2 font from the gillius package will be used. If this one is unavailable, the TEX Gyre Heros font from

the `tex-gyre-heros` package will be used. In case of monospaced text the `Fira Mono` font from the `FiraMono` package will be used. If it's not present, the TEX Gyre Cursor font from the `tex-gyre-cursor` package will be used. However the provided `custom-tufte-common.tex` file hook overrides the default monospaced font with `RecursiveMono` font. This file shows how you can override the default fonts, and how the file hooks can be used.

The TEX Gyre faces are usually included with TEX Live distributions, hence why they are used as fallback fonts. If any of the selected fonts don't suit you, you can easily change them using the `fontspec` package.

Under pdfLATEX, the Tufte-LATEX classes will try to use the same default fonts, but will fall back to the default Computer Modern fonts if they are not available. The `fontspec` package is not available under pdfLATEX, so it uses the `fontenc` package to set the font encoding.

In cases where `nofonts` option is used, the Tufte-LATEX classes will not load any fonts. It will not load `fontspec` or `fontenc` packages either. However if the `nols` was **not** used, `fontspec` will be loaded in LuaLATEX or XƎLATEX engines, as they require it to set letterspacing.

Letterspacing

This document class includes two new commands and some improvements on existing commands for letterspacing.

When setting strings of ALL CAPS or SMALL CAPS, the letterspacing—that is, the spacing between the letters—should be increased slightly.[10] The `\allcaps` command has proper letterspacing for strings of FULL CAPITAL LETTERS, and the `\smallcaps` command has letterspacing for SMALL CAPITAL LETTERS. These commands will also automatically convert the case of the text to upper- or lowercase, respectively.

The `\textsc` command has also been redefined to include letterspacing. However, the case of the `\textsc` argument is left as is. This allows one to use both uppercase and lowercase letters: THE INITIAL LETTERS OF THE WORDS IN THIS SENTENCE ARE CAPITALIZED.

[10] Bringhurst 2005.

Document Class Options

The `tufte-book` class is based on the LATEX book document class. Conversely the `tufte-handout` class is based on the `article` document class. Therefore, you can pass any of the typical book or article options to them. There are a few options that are specific to the `tufte-book` and `tufte-handout` document classes, however.

Paper Size and Layout Options

The `a4paper` option will set the paper size to A4 instead of the default US letter size.

The `b5paper` option will set the paper size to B5 instead of the default US letter size.

The `a5paper`, `executivepaper`, and `legalpaper` options are un-available in the Tufte-LaTeX classes.

The `twoside` option will modify the running heads so that the page number is printed on the outside edge. By default Tufte-LaTeX classes always print the page number on the right-side edge.

The `symmetric` option typesets the sidenotes on the outside edge of the page. This is how books are traditionally printed, but is contrary to Tufte's book design which sets the sidenotes on the right side of the page. This option implicitly sets the `twoside` option.

The `landscape`, `onecolumn`, and `twocolumn` options are not avail-able in the Tufte-LaTeX classes.

Font and Text Options

The `sftitle` option will set the title page and title block in a sans serif typeface. The `nosftitle` option will set the title page and title block in a serif typeface. In case of `tufte-handout` these options also have an effect on the abstract. While in `tufte-book` they affect the epigraphs. By default the `tufte-book` class uses `sftitle` and the `tufte-handout` class uses `nosftitle`.

The `sfmarginals` option makes all marginals use sans serif typeface instead of the default roman typeface.

The `justified` option sets all the text fully justified (flush left and right). The default is to set the text ragged right. The body text of Tufte's books are set ragged right. This prevents needless hyphenation and makes it easier to read the text in the slightly narrower column.

The `10pt`, `11pt`, and `12pt` options are unavailable in the Tufte-LaTeX classes.

The `nofonts` option prevents the Tufte-LaTeX classes from auto-matically loading the Tufte typefaces You should use this option if you wish to load your own fonts in pdfLaTeX. If you're using XeLaTeX or LuaLaTeX, the will not be loaded, and you can use `fontspec` to set your own. If you aren't using the `nols` option, the `fontspec` package will be loaded as it is required for letterspacing.

The `nols` option inhibits the letterspacing code. The Tufte-LaTeX classes try to load the appropriate letterspacing package to adjust spacing of letters. It uses `letterspace` or the `soul` under pdfLaTeX. In case of XeLaTeX and LuaLaTeX it uses `fontspec`.

The `bidi` option loads the `bidi` package which is used with XeLaTeX to typeset bi-directional text. Since the `bidi` package needs to be loaded before the sidenotes and cite commands are defined, it can't be loaded in the document preamble.

Title Page Options

The `notitlepage` option causes `\maketitle` to generate a title block instead of a title page. By default the `tufte-book` class uses `titlepage` and the `tufte-handout` class uses `notitlepage`. There is an analogous `titlepage` option that forces `\maketitle` to generate a full title page instead of the title block.

Toggle Options

The `nobib` option inhibits loading of the natbib and bibtex packages and modification of the \cite command.

The `notoc` option suppresses Tufte-LaTeX's custom table of contents (TOC) design. The current TOC design only shows unnumbered chapter titles in books; it doesn't show sections or subsections. The `notoc` option will revert to LaTeX's TOC design.

The `nohyper` option prevents the hyperref package from being loaded. The default is to load the hyperref package and use the \title and \author contents as metadata for the generated PDF.

The `nomoderntitles` is a new option added in the latest version of Tufte-LaTeX. It only works in the `tufte-handout` class. It disables coloring and styling of the section and paragraph titles. The default is to color the titles and add a colored box to the left with section numbers.

Marginal Options

In the Tufte-LaTeX classes there are four types of marginal materials, which are: `sidenote`, `marginnote`, `caption`, and `citation`. Each of those can have their justification set to one of the following options:

justified Fully justifies the text (sets it flush left and right).

raggedleft Sets the text ragged left.

raggedright Sets the text ragged right.

raggedouter Sets the text ragged left if on the left-hand (verso) page, otherwise ragged right. This is useful in conjunction with the `symmetric` document class option.

auto Fully justifies the text if `justified` class option was specified, otherwise the text is set ragged right. This is the default justification option for marginal material.

Additionally, the `marginals` option can be used to set the justification settings for all marginal texts. See the Customizing Marginal Material section for more information on marginal material.

Debugging Options

The `debug` option causes the Tufte-LaTeX classes to output debug information to the log file which is useful in troubleshooting bugs. It prints list of options and their values under the `Tufte-LaTeX settings` section. It will also cause the graphics to be replaced by outlines. When combined with \geometry⟨*showframe*⟩ command it will show margins for debugging page layout issues.

Customizing Tufte-LaTeX

The Tufte-LaTeX document classes are designed to closely emulate Tufte's book design by default. However, each document is different and you may encounter situations where the default settings are insufficient. This chapter explores many of the ways you can adjust the Tufte-LaTeX document classes to better fit your needs.

File Hooks

When creating many documents using the Tufte-LaTeX classes, it's easier to store customizations in one file. Otherwise they would need to be copied into the preamble of each document. The Tufte-LaTeX classes provide three file hooks: `custom-tufte-common.tex`, `custom-tufte-book.tex`, and `custom-tufte-handout.tex`.

`custom-tufte-common.tex` If this file exists, it will be loaded by all of the Tufte-LaTeX document classes, just prior to any class-specific code. If your customizations or code should be included in both the book and handout classes, use this file hook.

`custom-tufte-book.tex` If this file exists, it will be loaded after all of the common and book-specific code has been read. If your customizations apply only to the book class, use this file hook.

`custom-tufte-handout.tex` If this file exists, it will be loaded after all of the common and handout-specific code has been read. If your customizations apply only to the handout class, use this file hook.

Numbered Section Headings

While Tufte dispenses with numbered headings in his books, if you require them, they can be enabled by changing the value of the `secnumdepth`counter. From the table below, select the heading level at which numbering should stop and set the `secnumdepth` counter to that value. For example, if you want parts and chapters numbered, but don't want numbering for sections or subsections, use the command:

```
\setcounter{secnumdepth}{0}
```

The default value of `secnumdepth` for the `tufte-book` class is -1. This version of `tufte-handout` class sets the counter to 2 so sections and subsections are numbered. This change was made to make the sections

stand out more as I found it hard to distinguish them from the body text. If you wish to revert to no numbering, set the counter to −1. You can also pass the `nomoderntitles` option to the `tufte-handout` class to disable the coloring and styling of the section and paragraph titles.

Heading level	Value
Part (in `tufte-book`)	−1
Part (in `tufte-handout`)	0
Chapter (only in `tufte-book`)	0
Section	1
Subsection	2
Subsubsection	3
Paragraph	4
Subparagraph	5

Table 7: Heading levels used with the `secnumdepth` counter.

Changing the Paper Size

The Tufte-LaTeX classes currently only provide three paper sizes: A4, B5, and US letter. To specify a different paper size (and/or margins), use the \geometry command in the preamble of your document (or one of the file hooks). The full documentation of the \geometry command may be found in the `geometry` package documentation.[11]

[11] Umeki 2008.

Customizing Marginal Material

Marginal material includes sidenotes, citations, margin notes, and captions. Normally, the justification of the marginal material follows the justification of the body text. If you specify the `justified` document class option, all of the margin material will be fully justified as well. If you don't specify the `justified` option, then the marginal material will be set ragged right.

You can set the justification of the marginal material separately from the body text using the following document class options: `sidenote`, `marginnote`, `caption`, `citation`, and `marginals`. Each option refers to its obviously corresponding marginal material type. The `marginals` option simultaneously sets the justification on all four marginal material types.

Each of the document class options takes one of five justification types:

justified Fully justifies the text (sets it flush left and right).

raggedleft Sets the text ragged left, regardless of which page it falls on.

raggedright Sets the text ragged right, regardless of which page it falls on.

raggedouter Sets the text ragged left if it falls on the left-hand (verso) page of the spread and otherwise sets it ragged right. This is useful in conjunction with the `symmetric` document class option.

auto If the `justified` document class option was specified, then set
the text fully justified; otherwise the text is set ragged right. This is
the default justification option if one is not explicitly specified.

For example,

```
\documentclass[symmetric,justified,marginals=raggedouter]{tufte-book}
```

will set the body text of the document to be fully justified. All of the
margin material (sidenotes, margin notes, captions, and citations) to be
flush against the body text with ragged outer edges.

THE FONT AND STYLE of the marginal material may also be modified
using the following commands:

```
\setsidenotefont{⟨font commands⟩}
\setcaptionfont{⟨font commands⟩}
\setmarginnotefont{⟨font commands⟩}
\setcitationfont{⟨font commands⟩}
```

The \setsidenotefont sets the font and style for sidenotes, the
\setcaptionfont for captions, the \setmarginnotefont for margin
notes, and the \setcitationfont for citations. The ⟨font commands⟩ can
contain font size changes (e.g., `\footnotesize`, `\Huge`, etc.), font style
changes (e.g., `\sffamily`, `\ttfamily`, `\itshape`, etc.), color changes
(e.g., `\color{tufte-blue}`), and many other adjustments.

If, for example, you wanted the captions to be set in italic sans serif,
you could use:

```
\setcaptionfont{\itshape\sffamily}
```

Compatibility Issues

When switching an existing document from one document class to a Tufte-LaTeX document class, a few changes to the document may have to be made.

Converting from `article` to `tufte-handout`

The following `article` class options are unsupported: `10pt`, `11pt`, `12pt`, `a5paper`, `b5paper`, `executivepaper`, `legalpaper`, `landscape`, `onecolumn`, and `twocolumn`.

The following headings are not supported: `\subsubsection` and `\subparagraph`.

Converting from `book` to `tufte-book`

The following `book` class options are unsupported: `10pt`, `11pt`, `12pt`, `a5paper`, `b5paper`, `executivepaper`, `legalpaper`, `landscape`, `onecolumn`, and `twocolumn`.

The following headings are not supported: `\subsubsection` and `\subparagraph`.

Troubleshooting and Support

Tufte-LaTeX Website

The website for the Tufte-LaTeX packages is located at `https://github.com/Tufte-LaTeX/tufte-latex`. On that website, you'll find links to the GIT repository, mailing lists, bug tracker, and documentation.

However as the project seems to be abandoned as of time of writing, the website may not be available in the future. Additionally some of the links there seem to have already been victim of link rot. You can find more help and information on the current development of the Tufte-LaTeX classes at the my GitHub repository. `https://github.com/MormonJesus69420/Modernized-Tufte-LaTeX`

Tufte-LaTeX Mailing Lists

There is only one surviving mailing list for the Tufte-LaTeX project:

Discussion list   The `tufte-latex` discussion list is for asking questions, getting assistance with problems, and help with troubleshooting. Release announcements were also posted to this list. You can subscribe to the `tufte-latex` discussion list at `http://groups.google.com/group/tufte-latex`.

Commits list   The `tufte-latex-commits` list used to exist as well as a read-only mailing list. Messages were sent to the list any time the Tufte-LaTeX code had been updated. This list was available at `http://groups.google.com/group/tufte-latex-commits`.

A more modern way to keep up with the development of the Tufte-LaTeX classes is to follow the GitHub repository. You can also open issues there if you encounter any problems or have suggestions for improvements. `https://github.com/MormonJesus69420/Modernized-Tufte-LaTeX`

Getting Help

If you've encountered a problem with one of the Tufte-LaTeX document classes, have a question, or would like to report a bug, please create an issue on the GitHub repository.

To help with troubleshooting the problem more quickly, please try
to compile your document using the `debug` class option and include
the generated `.log` file in the issue, along with a brief description of the
problem.

Errors, Warnings, and Informational Messages

The following is a list of all of the errors, warnings, and other messages
generated by the Tufte-LaTeX classes and a brief description of their
meanings.

`Error:  \subparagraph is undefined by this class.`

The `\subparagraph` command is not defined in the Tufte-LaTeX doc-
ument classes. If you'd like to use the `\subparagraph` command, you'll
need to redefine it yourself. See the Headings section on page 19 for a
description of the heading styles available in the Tufte-LaTeX document
classes.

`Error:  \subsubsection is undefined by this class.`

The `\subsubsection` command is not defined in the Tufte-LaTeX doc-
ument classes. If you'd like to use the `\subsubsection` command, you'll
need to redefine it yourself. See the Headings section on page 19 for a
description of the heading styles available in the Tufte-LaTeX document
classes.

`Error:  You may only call \morefloats twice.  See the`
`        Tufte-LaTeX documentation for other workarounds.`

LaTeX allocates 18 slots for storing floats. The first time `\morefloats` is
called, it allocates an additional 34 slots. The second time `\morefloats` is
called, it allocates another 26 slots.

The `\morefloats` command may only be called two times. Calling
it a third time will generate this error message. See the Too Many Floats
section on page 25 for more information.

`Warning:  Option '⟨`*class option*`⟩' is not supported -- ignoring option.`

This warning appears when you've tried to use ⟨*class option*⟩ with a
Tufte-LaTeX document class, but ⟨*class option*⟩ isn't supported by the
Tufte-LaTeX document class. In this situation, ⟨*class option*⟩ is ignored.

`Info:  The ' symmetric' option implies ' twoside'`

You specified the `symmetric` document class option. This option au-
tomatically forces the `twoside` option as well. See page 28 for more
information on the `symmetric` class option.

Package Dependencies

The following is a list of packages that the Tufte-LaTeX document classes
rely upon. Packages marked with an asterisk are optional.

- amsmath * *for* `Note` *environments*

- amssymb * *for* `Note` *environments*

- amsthm * *for* `Note` *environments*

- amsxtra * *for* `Note` *environments*

- biblatex * *only if* `nobib` *is off, requires* `biber` *backend*

- bidi * *only if using* `bidi` *option*

- changepage

- chngpage * *only if* `changepage` *is not available*

- cleveref * *for* `Note` *environments*

- ETbb * *if available, and* `nofonts` *is off*

- fancyhdr

- FiraMono * *if available, and* `nofonts` *is off*

- fontenc * *only with pdfLATEX, and* `nofonts` *is off*

- fontspec * *only with XƎLATEX or LuaLATEX, and* `nofonts` *is off*

- geometry

- gillius2 * *if available, and* `nofonts` *is off*

- hardwrap

- hyperref * *only if* `nohyper` *is off*

- iftex * *if not it assumes pdfLATEX*

- letterspace * *only if* `nols` *is off*

- mathpazo * *if available, and* `nofonts` *is off*

- multicol

- optparams

- paralist

- placeins

- ragged2e

- sectsty

- setspace

- soul * *only with pdfLATEX*

- textcase

- textcomp * *only with pdfLATEX, and* `nofonts` *is off*

- thmtools * *for* `Note` *environments*

- titlesec

- titletoc

- transparent

- xcolor

- xifthen

- xkeyval

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