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The usthesis Class and Style*

Danie Els†

e-mail: dnjels@sun.ac.za

Department of Mechanical Engineering,
University of Stellenbosch,
Private Bag X1, Matieland, 7602.

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Abstract

The usthesis class/style files are provided to typeset reports, theses and dissertations that conform to the requirements of the Engineering Faculty of the University of Stellenbosch, South Africa.

The class file usthesis.cls is based on the standard LaTeX book class, while usthesis.sty is a style file to be loaded on top of the very powerful memoir class. Both options give identical output, but the benefit of the using memoir is that it has many additional command and environments for formatting and processing of a document.

Usthesis is primarily concerned with the formatting of the front matter such as the title page, abstract, etc. It also works together with the babel package to provide language language options to typeset documents in Afrikaans or in English.

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†Any help with proofreading this document will be appreciated.

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1 User Interface

1.1 usthesis class and style files

Two style files are provided to typeset theses of the University of Stellenbosch. The class file usthesis.cls is based on the standard LaTeX book class, while usthesis.sty is a style file to be loaded on top of the very powerful memoir class. Both options give identical output, but the benefit of the using memoir is that it has many additional command and environments for formatting and processing of a document.

1.1.1 Loading the usthesis packages

The usthesis.cls class is loaded in the document preamble with

```
\documentclass[12pt,oneside,openany,a4paper,  %... Layout
               afrikaans,UKenglish,           %... Global language drivers
               masters-t, goldenblock         %... Thesis options
              ]{usthesis}
```

or usthesis.sty together with the memoir class

```
\documentclass[12pt,oneside,openany,a4paper,  %... Layout
               afrikaans,UKenglish,           %... Global language drivers
              ]{memoir}
\usepackage[masters-t, goldenblock]{usthesis} %... Thesis options

% --- If hyperref is loaded together with memoir ---
\iftrue
   \usepackage[⟨hyperref options⟩]{hyperref}    %... Hyperlinks
   \usepackage{memhfixc}                        %... Memoir fix
\else
   \usepackage{nohyperref}                      %... Disable hyperlinks
\fi
\hypersetup{⟨hyperref setup options⟩}
```

Please note when the memoir is used together with hyperref the the memhfixc patch must be loaded afterwards.

1.1.2 The usthesis options:

Document type options: This options for the usthesis class/style are for specific formatting of the title and abstract pages of the different document types.

- `report:` Final year project reports, etc.
- `masters-a:` An assignment masters degree.
- `masters-t:` A thesis masters degree.
- `PhD:` A PhD dissertation handed in for examination.
- `PhDfinal:` A PhD dissertation handed in for publication after acceptance.

Type block sizes: The ISO A4 paper size (297,3 mm × 210,2 mm) is not ideally suited for typesetting off books. The *A5 type block* (fig 1) and the *golden section type block* (fig 2) are layouts designed by the great typographer Jan Tschichold which adheres to the classic typographic principals. A 12 pt font size is recommended for most fonts.

The following options are provided as part of the usthesis class/style options:

`a5block:` ISO A4 paper with A5 type block

`goldenblock:` ISO A4 paper with golden ration type block, .

`stdblock:` Standard LaTeX type block [default].

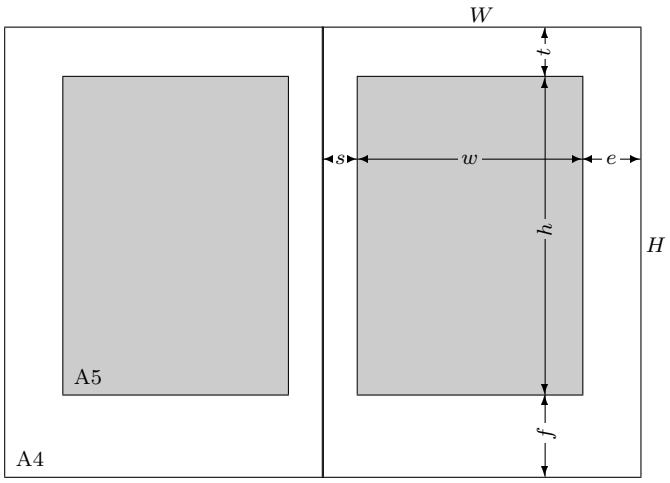

Figure 1: ISO A4 paper with A5 type block (`A5block`)

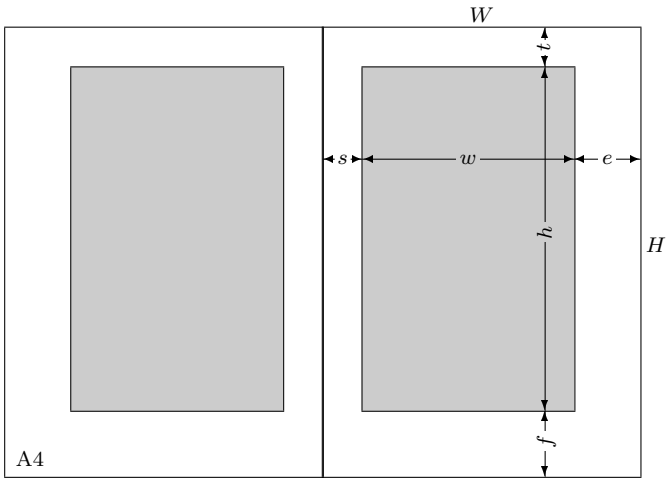

Figure 2: ISO A4 paper with golden ration type block (`goldenblock`)

Table 1: Page layout parameters

	A5 type block (`a5block`)		Golden section type block (`goldenblock`)	
Page width	W	$= 210{,}2\,\mathrm{mm}$	W	$= 210{,}2\,\mathrm{mm}$
Page height	$H = \sqrt{2}\,W$	$= 297{,}3\,\mathrm{mm}$	$H = \sqrt{2}\,W$	$= 297{,}3\,\mathrm{mm}$
Block width	$w = H/2$	$= 148{,}7\,\mathrm{mm}$	$w = 2W/3$	$= 140{,}1\,\mathrm{mm}$
Block height	$h = W$	$= 210{,}2\,\mathrm{mm}$	$h = H - W/3$	$= 227{,}2\,\mathrm{mm}$
Spine margin	$s = 3(W-w)/8$	$= 23{,}1\,\mathrm{mm}$	$s = 3W/24$	$= 26{,}3\,\mathrm{mm}$
Fore-edge margin	$e = 5(W-w)/8$	$= 38{,}5\,\mathrm{mm}$	$e = 5W/24$	$= 43{,}8\,\mathrm{mm}$
Top margin	$t = 3(H-h)/8$	$= 32{,}7\,\mathrm{mm}$	$t = 3W/24$	$= 26{,}3\,\mathrm{mm}$
Foot margin	$f = 5(H-h)/8$	$= 54{,}4\,\mathrm{mm}$	$f = 5W/24$	$= 43{,}8\,\mathrm{mm}$

The user can set up custom page layouts if needed. The setup depends on the class file used. The following example is for a page with 25 mm margins all around.

1. memoir.cls with usthesis.sty

```
\documentclass[a4paper,⟨options⟩]{memoir}
\usepackage[⟨options⟩]{usthesis}
   \setlrmarginsandblock{25mm}{25mm}{*} % Left/Right margins
   \setulmarginsandblock{25mm}{25mm}{*} % Upper/Lower margins
   \checkandfixthelayout
   \setlength{\headwidth}{\textwidth}
```

2. usthesis.cls

```
\documentclass[a4paper,⟨options⟩]{usthesis}
\usepackage[
    hmargin={25mm,25mm},
    vmargin={25mm,25mm}
    ]{geometry}
```

1.1.3 LaTeX class options:

The gray boxes are the LaTeX default options, while boxed options are the preferred options of usthesis package.

`10pt`, `11pt`, `12pt`: Sets the size of the main font in the document. The preferred font size depends very much on the font type. For Computer Modern (the default LaTeX font) is 11 or 12 points the most legible option on an A4 paper size.

`a4paper`, `a5paper`, `b5paper`, `letterpaper`, `executivepaper`, `legalpaper`: Defines the paper size. In South Africa is the ISO A4 paper size the standard.

`fleqn`: Typesets displayed formulae left-aligned instead of centred. This option is a matter of personal taste (but compulsory for Prof. Detlev Kröger's students).

`leqno`: Places the numbering of formulae on the left hand side instead of the right. This is the traditional layout of the American Mathematical Society, but is not used for Engineering theses.

`onecolumn`, `twocolumn`: Instructs LaTeX to typeset the document in one column or two columns. The University of Stellenbosch Engineering theses are traditionally single column documents.

`twoside`, `oneside`: Specifies whether double or single sided output should be generated. Note that this option concerns the style of the document only. The option `twoside` does not tell the printer you use that it should actually make a two-sided printout. If a printer with double sided printing capability is available, then this option can be used.

`openright`, `openany`: Makes chapters begin either only on right hand pages or on the next page available. Selection of `openright` depends on the selection of the `twoside` option.

1.1.4 Global package options:

Global options for packages and drivers can be loaded together with the class options. The most important options are the display drivers for color, graphicx and hyperref as well as the language options for babel, varioref, etc.

The display drivers are normally loaded by the LaTeX config system defaults.

The global language options for babel can be set with:

```
\documentclass[⟨options⟩, afrikaans, UKenglish]{usthesis}
\usepackage{babel}
\usepackage{varioref}
```

1.2 Required Packages

1.2.1 Language setup

LaTeX provides for a variety of languages. It set up hyphenation patterns and define language specific output such as chapter names, etc. The default language is American style English, while the South African English is the United Kingdom style.

Language options must be loaded with the babel package. The last language declared is the default document language.

`\usepackage[afrikaans, UKenglish]{babel}` → UK English default.

`\usepackage[UKenglish, afrikaans]{babel}` → Afrikaans default.

or preferably with global options

```
\documentclass[⟨options⟩, afrikaans, UKenglish]{usthesis}
\usepackage{babel}
```

Languages can be made active with the `\selectlanguage{`⟨*lang-name*⟩`}` command from babel. In the usthesis class, a command

`\AorE` `\AorE{`⟨*Afr-teks*⟩`}{`⟨*Eng-text*⟩`}`

is provided that types one of the two arguments, depending on whether `afrikaans` is the active language or not. Environments for changing the language options locally are also provided in usthesis (if languages are installed with babel).

`Afr` `Eng`

```
\begin{Afr}          \begin{Eng}
  Afr-teks ...         Eng-text ...
\end{Afr}            \end{Eng}
```

Table 2: Definitions from babel loaded with the `afrikaans` option.

`"e`	The character ë which hyphenates as -e. Implemented for the letters ä, ë, ï, ö and ü.
`"|`	Disable ligatures (ff, fi, ffl, ffi, etc.) at this position but allows a hyphen, e.g.: The word 'stoffilter' looks better as 'stoffilter'. It is then hyphenated as 'stof-filter'
`"-`	An explicit hyphen sign, allowing hyphenation in the rest of the word.
`"~`	To produce a hyphen character without the following discretionary break after it, e.g.: 'x-straal'.
`""`	To produce an invisible breakpoint.
`"‘`	Lowered double left quotes, e.g.: „lowered" versus "normal".
`"’`	Normal double right quotes.
`"/`	Enable hyphenation in two words, written together but separated by a slash, for example 'uitdrukking/opmerking'.
`\-`	A redefinition of the standard discretionary hyphen, `\-`. The new version indicates an extra hyphenation position, while allowing other hyphenation positions to be generated automatically.

With the `afrikaans` option of babel the character `"` is made active. In table 2 an overview is given of its purpose. One of the reasons for this is that in the Afrikaans language a word with a dieresis can be hyphenated just before the letter with the umlaut, but the dieresis has to disappear if the word is broken between the previous letter and the accented letter, for example 'geëerd' becomes 'ge-eerd'. It is extremely important that the commands `"a`, `"e`, ..., are used in Afrikaans documents, and not `\"e`, etc., and neither the direct input of ë with `Alt+137` (if `latin1` input encoding is selected).

The `afrikaans` option sometimes has problems with the hyphenation of the very long Afrikaans words, but it does a fairly good job, e.g.:

`\showhyphens{appelkooskonfytblik}` → `ap-pel-koos-kon-fyt-blik`

The simplest way to correct a wrongly hyphenated word is to include the discretionary hyphen command `\-` in the word: e.g.: `kom\-buis\-kas`.

Words that incorrectly hyphenated and appear frequently within the document can be put into a list of exceptions in the preamble of the document:

```
\hyphenation{Kom-buis-kas  ...}
```

It is also important to note that words that contain `"e`, etc. must be hyphenated by hand when they are near linebreaks, for example: koëffisiëntematriks

```
ko"ef\-fisi"en\-te\-mat\-riks
```

1.2.2 Input font encoding

In Afrikaans there are many words containing characters such as é, ô, à, ï, etc. These characters can be included directly in the input text file, except ä, ë, ï, ö and ü, which need to be inserted as `"a`, ..., for proper hyphenation (see previous section). As an example by typing `Alt+136`, you obtain `ê`. If the Western European input encoding (latin1) is loaded, LaTeX will recognizes these characters.

```
\usepackage[latin1]{inputenc}
```

1.2.3 Output font encoding

The classic TeX Computer Modern fonts contain only 126 characters (7-bit) per font set (OT1 encoding). It does not contain glyphs for characters such as `ê`. These characters are formed by two characters that are overprinted (`^ + e`). The result is that Afrikaans words such as *"koëffisiëntematriks,"* are not hyphenated automatically. The solution is to use the T1 encoding scheme with 256 character (8-bit) font sets. Postscript Type 1 and TrueType fonts can be configured, with the aid of TeX's virtual font mechanism, to be available for LaTeX. Font handling can be switched to T1 encoding (if you have the Postscript or the re-encoded TrueType fonts).

```
\usepackage[T1]{fontenc}
```

1.2.4 Font selection

To obtain a PDF e-document of your thesis you need to use Postscript fonts (and T1 encoding for Afrikaans). There are many free Postscript text fonts available in the TeX distributions, but Postscript fonts with a full set of mathematical symbols are vary scarce. The freely available ones are:

Computer Modern (CM-super): Newer LaTeX installations contain this classic TeX font in Type 1 format. This font set is loaded by default if T1 encoding is specified without any other font loaded. This document is set in Computer Modern.

Palatino: This beautiful font can be loaded with the mathpazo package. Palatino is one of the standard Postscript fonts on every Postscript printer.

Make sure that the fpl fonts are loaded. They provides true small caps and old style figures for the Palatino fonts.

Times Roman: This font is loaded with the mathptmx package. It contains no bold math characters or true small caps. Please do not use this font for theses, because it was designed for narrow newspaper columns resulting in very narrow characters. It is just not appropriate for single column theses.

Utopia: This font is loaded with the fourier package. It contains no true small caps. This font is very good on low resolution output devices.

CMbright: This is a sans serif font and is part of the CM-super font set. It can be loaded with the cmbright package. You need the hfbright fonts installed for the math symbols. A document with a sans serif font, such as CMbright, must be set ragged right. Use the `\RaggedRight` command of the ragged2e package.

Euler: This is a math font only and can be used with fonts such as Charter that do not have math characters. It is loaded with the eulervm package.

An example of a typical setup for an Afrikaans report with mathematics is:

```
\documentclass[report,                      %... Document type
               12pt,oneside,openany,a4paper,%... Layout
               a5block,                     %... Typeblock
               UKenglish,afrikaans,         %... Global language drivers
               ]{usthesis}
\usepackage{babel}%........... Language setup
\usepackage[latin1]{inputenc}% Recognizes ê, ë, etc
\usepackage{amsmath}%......... Advanced maths (before fonts)
\usepackage[T1]{fontenc}%..... Type 1 output fonts for proper hyphenation
\usepackage{textcomp}%........ Additional text characters
\usepackage{fourier}%......... Utopia (if you want a different font)
\usepackage{bm}%............... Bold math characters (after fonts)
```

1.2.5 Mathematics

Normal LaTeX contains many math typesetting commands and environments, but for serious mathematical typesetting you need to load the American Mathematical Society ($\mathcal{AMS}$) math packages. The $\mathcal{AMS}$ packages also include additional math symbols, but load it only if really necessary, because they are very big.

```
\usepackage{amsmath}
\usepackage{amssymb}% only if necessary
```

Bold math symbols can be obtained with the $\mathcal{AMS}$ command `\boldsymbol` or with the more advanced `\bm` command form the bm package.

1.2.6 Graphics and Color

The graphicx package is needed by the usthesis package to format the title page and must be loaded in the document preamble. The color package is optional, but very useful.

```
\usepackage[⟨options⟩]{graphicx}
\usepackage[⟨options⟩]{color}
```

If you need display drivers (such as `dvips`, pdftex, etc.) different from the default options, is it important that they are passed on to all the packages as a global option. With the MiKTEX this is achieved with the standard configuration file.

1.2.7 Line spacing

The guidelines for University of Stellenbosch theses dictates that either single, one-halve or double line spacing be used. Line spacing can be obtained with the setspace packages. With this packages, footnotes and captions are still single spaced, while no additional vertical spacing is added around display math or in lists.

```
\documentclass[12pt,oneside,openany,a4paper,%... Layout
               afrikaans,UKenglish,%............ Global language drivers
               ]{memoir}
\usepackage[masters-a,a5block]{usthesis}%....... Document type
  :
\usepackage[onehalfspacing]{setspace}%.......... Line spacing
  :
\begin{document}
     \frontmatter
     \begin{singlespace}
        \TitlePage%...... Single spaced title page
     \end{singlespace}
       :
```

1.2.8 Paragraph indent and spacing

The conventional way of typesetting running text has no separation between paragraphs, and the first line of each paragraph in a block of text indented.

It is sometimes required that paragraphs are separated with a blank line and without any first line indent. This can be obtained with the parskip package.

```
\usepackage{parskip}
```

Please note that this is not recommended for theses containg large amounts of mathematics, because it is difficult, if not impossible, to see where a new paragraph starts between equations.

1.3 Useful packages

The following are a number of packages that are very useful when writing a thesis.

1.3.1 SI units and numbers

SIstyle: This package is essential for the proper typesetting of SI units and numbers. It has an option for South African requirements. Read the documentation for the proper typesetting of units and numbers.

numprint: This packages typeset numbers and decimal columns in tables.

1.3.2 Tables and arrays

array: An extended implementation of the array and tabular environments which implements options to format columns.

longtable: Gives non-floating multi-page tables. It includes continuation headers.

dcolumn: The package provides a system for defining columns of entries in an array or a table which are to be aligned on a "decimal point".

dcolumn: It modifies the width of certain columns to obtain a table with required width.

booktabs: The package provides some additional commands to enhance the quality of tables in LaTeX. Guidelines are given as to what constitutes a good table. The documentation gives a very good discussion on the design of publication quality tables.

1.3.3 Hyper links

hyperref: It extends the functionality of all the LaTeX cross-referencing commands (including the table of contents, bibliographies etc) to produce hypertext links; it also provides new commands to allow the user to write ad hoc hypertext links, including those to external documents and URLs.

url A form of `that`allows line breaks at certain characters or combinations of characters, accepts reconfiguration, and can usually be used in the argument to another command. It is intended for email addresses, hypertext links, directories/paths, etc., which normally have no spaces.

It is implemented by hyperref.

A typical setup for hyper links (at the end of the preamble) is:

```
\iftrue
   \usepackage{hyperref}%............. Hyperlinks & backreferences
   %\usepackage{memhfixc} %........... Memoir fix
   \hypersetup{plainpages = false,
               breaklinks=true,
               a4paper=true,
               linktocpage,
               linkbordercolor = {0.8 0.8 0.8},
               urlbordercolor  = {0.8 0.8 0.8},
               menubordercolor = {0.8 0.8 0.8},
               filebordercolor = {0.8 0.8 0.8},
               runbordercolor  = {0.8 0.8 0.8},
               citebordercolor = {0.8 0.8 0.8},
               pagebordercolor = {0.8 0.8 0.8},
               pdfauthor={Danie Els},
               pdfkeywords={}}
\else
  \usepackage{nohyperref}%............ Disable hyperlinks
  \usepackage{url}
\fi
```

2 Front matter

2.1 Title page

The title page is inserted on the first page of a document with the command

\TitlePage

`\TitlePage`

Depending on the selected options, the following commands are used to set the contents of the title page:

Address

\address

`\address{`⟨*full address*⟩`}`

The address must be included in Afrikaans and English for Masters and PhD documents.

```
\adress{\AorE{
    Departement Meganiese Ingenieurswese,\\
    Universiteit van Stellenbosch,\\
    Privaatsak X1, 7602 Matieland, Suid Afrika.
         }{
    Department of Mechanical Engineering,\\
    University of Stellenbosch,\\
    Private Bag X1, 7602 Matieland, South Africa.
         }}
```

Author

`\author{`⟨*short name*⟩`}{`⟨*full names*⟩`}`

Provides the author name not only for the title page, but for various other places in the document.

```
\author{J.F.\ Els}{Jacobus Frederik Els}
```

Date

`\date{`⟨*month*⟩`}{`⟨*year*⟩`}`

The date when the document is handed in. The arguments must be numerical, e.g.:

`\date{10}{2003}` → October 2003

Degree/Subject

\degree

`\degree{`⟨*abbvr*⟩`}{`⟨*full name*⟩`}` or `\subject{`⟨*abbvr*⟩`}{`⟨*full name*⟩`}`

The degree or subject names. Please refer to the yearbook for the *correct* names. The degree names must be available in Afrikaans and English.

```
\degree{\AorE{MScIng (Meg)}{MScEng (Mech)}}
       {\AorE{Magister in die Natuurwetenskappe in Meganiese Ingenieurswese}
             {Master of Science in  Mechanical Engineering}}
```

or

```
\subject{MP 487}{Meganiese Projek 487}
```

Description

`\ReportDescript`
`\ThesisDescript`

`\ReportDescript{`⟨*text*⟩`}`
`\ThesisDescript{`⟨*text*⟩`}`

Set the description for reports.

```
\ReportDescript{Finale Verslag}
```

There is a similar command for theses and dissertations, `\ThesisDescript`, but its contents is predefined. The for a master thesis it can be customized as

```
\ThesisDescript{\ThesisType\ presented in partial fulfilment
      of the requirements for the degree of\par
         \vspace{1em}
        {\bfseries Master of Science in Mechanical Engineering\par}
         \vspace{1em}
      at the \USName}
```

If needed the thesis type can be changed with the (predefined) command `\ThesisType`.

Supervisor/Studyleader/Promotor

`\studyleader`
`\supervisor`
`\promotor`

`\supervisor[`⟨*align*⟩`]{`⟨*name*⟩`}`	or	`\supervisor{`⟨*name*⟩ `\and` ⟨*name*⟩`}`
`\studyleader[`⟨*align*⟩`]{`⟨*name*⟩`}`	or	`\studyleader{`⟨*name*⟩ `\and` ⟨*name*⟩`}`
`\promotor[`⟨*align*⟩`]{`⟨*name*⟩`}`	or	`\promotor{`⟨*name*⟩ `\and` ⟨*name*⟩`}`

The `\studyleader`, `\supervisor` and `\promoter` commands are synonyms and the output depends on the thesis type. The commands also have a starred (`*`) form that stack the names of multiple supervisors. The `\and` has an optional argument, e.g.: `\and[1ex]`, for spacing in a stacked environment.

```
\supervisor{Mnr.\ D.N.J.\ Els}
```

→ Supervisor: Mnr. D.N.J. Els

or

```
\supervisor{Mnr.\ D.\ Els
         \and
            Dr.\ J.\ Smith}
```

→ Supervisors:

Mnr. D. Els Dr. J. Smith

or

```
\supervisor*{Mnr.\ D.\ Els
          \and[0ex]
            Dr.\ J.\ Smith}
```

→ Supervisors:

Mnr. D. Els
Dr. J. Smith

or for `PhD` and `PhDfinal` options

```
\promotor{%
   Prof A.H.\ Basson\\[.5ex]
   Mechanical Engineering\\
   University of Stellenbosch
\and
   Prof P.A.\ Vermeer\\[.5ex]
   Institut f\"ur Geotechnic\\
   Universit\"at Stuttgart}
```

→

Promotors:

Prof A.H. Basson	Prof P.A. Vermeer
Mechanical Engineering	Institut für Geotechnic
University of Stellenbosch	Universität Stuttgart

or

```
\promotor[c]{%
   Prof A.H.\ Basson\\[.5ex]
   Mechanical Engineering\\
   University of Stellenbosch
\and
   Prof P.A.\ Vermeer\\[.5ex]
   Institut f\"ur Geotechnic\\
   Universit\"at Stuttgart}
```

→

Promotors:

Prof A.H. Basson	Prof P.A. Vermeer
Mechanical Engineering	Institut für Geotechnic
University of Stellenbosch	Universität Stuttgart

Note that some supervisors may prefers the term "study leader". This can be incorporated by adding the following to the preamble of your document:

```
\renewcommand\StudyLeaderAFR{Studieleier:}
\renewcommand\StudyLeadersAFR{Studieleiers:}
\renewcommand\StudyLeaderENG{Study leader:}
\renewcommand\StudyLeadersENG{Study leaders:}
```

Title

The title of the document is inserted on the front page as well as on the abstract pages of Masters or PhD theses.

`\title{`⟨*title text*⟩`}`

For a normal report, a simple title is sufficient, e.g.:

```
\title{Forced granular flow}
```

For a Masters or PhD thesis, the title must make provisions for both languages.

For an English document:

```
\title{\AorE{Geforseerde Partikelvloei\\[1ex]
                \normalfont\small\itshape(``Forced Granular flow'')}%
            {Forced granular flow}}
```

and for an Afrikaans document

```
\title{\AorE{Geforseerde Partikelvloei}%
            {Forced granular flow\\[1ex]
                \normalfont\small\itshape(``Geforseerde Partikelvloei'')}}
```

2.2 Custom title page

The user can create his or her own title page, for example:

```
%-----------------------------------------------------------------------------
    \thispagestyle{empty}
```

```
    \vfill
   {\LARGE\noindent   Seakeeping control of HYSUCATs \par}
    \vspace{2em}
   {\large\indent     by \par}
    \vspace{2em}
   {\Large\noindent   Giovanni Sergio Milandri \par}%
    \vfill\noindent
    \begin{minipage}{.9\textwidth} \large\slshape\raggedright
       Thesis presented in partial fulfilment of the requirements for the degree of
       Master of Science in Mechanical Engineering at the University of Stellenbosch
    \end{minipage}
    \vfill
   {\normalfont\noindent
    Department of Mechanical Engineering\\ University of Stellenbosch\\
    Private Bag X1, 7602 Matieland, South Africa \par}
    \vfill
   {\normalsize\noindent Supervisors:\\[1.5ex]
    \begin{tabular}{@{}ll@{}}
        Prof J.L. van Niekerk          & Dr G. Migeotte \\[.5ex]
        Dept of Mechanical Engineering & Unistel Technologies (Pty) Ltd\\
        University of Stellenbosch     & University of Stellenbosch
    \end{tabular}\par}
    \vspace{2em}
   {\large\noindent April 2006\par}%
    \clearpage
%-------------------------------------------------------------------------------
```

2.3 Copyright page

If you need a copyright page for a report, it must be inserted directly after the title page. The default copyright holder is the University of Stellenbosch.

`\CopyrightPage`

`\CopyrightPage`

`\CopyrightPage[`⟨*copyright holder*⟩`]`

2.4 Declaration page

Every thesis and dissertation *must* include a declaration page.

`\DeclarationPage`

`\DeclarationPage`

The command set the required text in the default language.

2.5 Abstract

An `abstract` environment is provided that prints a page containing all the thesis information. The layout of an abstract for a report differs from that of a thesis or a dissertation. It is also important to note that theses and dissertations require an English and an Afrikaans abstract.

abstract

`\begin{abstract}`	`\begin{abstract}[`⟨*language*⟩`]`
Text in default language ...	Text in ⟨*language*⟩ ...
`\end{abstract}`	`\end{abstract}`

If the traditional abstract page is preferred, then use a normal chapter

```
\chapter{Abstract}
This thesis ...
```

2.6 Acknowledgements, Dedications, etc.

Acknowledgements, etc. can be include in the front matter of a document after a `\chapter` command, e.g.:

```
\chapter{Acknowledgements}
I would like to express my sincere gratitude ...
```

3 Back Matter

3.1 Bibliography/List of References

The USbib package is provided to format bibliographies for theses and dissertations of the University of Stellenbosch. The package is language sensitive and provides the correct output for both Afrikaans and English theses.

Please note the difference between a bibliography and a List of references:

Bibliography: The list of all the citations in numerical order of citation, e.g.:

1. Rhodes, M. *Introduction to Particle Technology.* Wiley, New York (1998).
2. Cleary, P.W. The filling of dragline buckets. *Mathematical Engineering in Industry,* vol. 7, no. 1 (1998), pp. 1–24.

List of References: For author-year citations, all the citations sorted in alphabetic order, e.g.:

Cleary, P.W. (1998). The filling of dragline buckets. *Mathematical Engineering in Industry,* vol. 7, no. 1, pp. 1–24.

Rhodes, M. (1998). *Introduction to Particle Technology.* Wiley, New York.

The default name in the USthesis package is "Bibliography". To change this to "List of References" (for a thesis), we have to overrule the babel setup. Make the following declarations

```
\documentclass[12pt,oneside,openany,a4paper,%... Layout
               afrikaans,UKenglish,%............ Global language drivers
               ]{memoir}
\usepackage[masters-t,a5block]{usthesis}%....... Document type
\usepackage{babel}%............................. Language setup
  :
\usepackage{usbib}%............................. Bibliography
   \bibliographystyle{usmeg-a}%................. Auhor-year style
   \addto{\captionsafrikaans}{\renewcommand{\bibname}{Lys van Verwysings}}
   \addto{\captionsUKenglish}{\renewcommand{\bibname}{List of References}}
```

Back references (referring to the pages or sections of citations) can be included with the backref package. The backref package loaded as part of hyperref or on its own.:

```
\iftrue
    \usepackage[backref=page]{hyperref}%........ Hyperlinks & backreferences
\else
   \usepackage{nohyperref}%..................... Disable hyperlinks
   \usepackage[pageref]{backref}%............... Citation backreferences
\fi
   \renewcommand*{\backref}[1]{}
   \renewcommand*{\backrefalt}[4]{%............ Back reference format
      \ifcase #1 %
         % Not cited.
      \or
         (Cited on page~#2.)%
      \else
         (Cited on pages~#2.)
      \fi}
```

An example is:

Rhodes, M. (1998). *Introduction to Particle Technology.* Wiley, New York. (Cited on pages 13 and 15.)

4 Implementation: usthesis

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

- `cls` produce the document class usthesis.cls based on book.
- `mem` produce the document style usthesis.sty for use with memoir.

4.1 Identification

```
⟨*cls | mem⟩
\NeedsTeXFormat{LaTeX2e}[1999/12/01]
⟨*cls⟩
\def\US@basetype{book}
\ProvidesClass{usthesis}[\USfiledate\space
                         \USfileversion\space
                         Stellenbosh Thesis class (DNJ ELS)]
⟨/cls⟩
⟨*mem⟩
\ProvidesPackage{usthesis}[\USfiledate\space
                           \USfileversion\space
                           Stellenbosh Thesis class for use with Memoir (DNJ ELS)]
\@ifclassloaded{memoir}%
   {\PackageInfo{usthesis}{Stellenbosch thesis style for MEMOIR class}}%
   {\PackageError{usthesis}{You must use the Memoir class}{}}
⟨/mem⟩
```

4.2 Options

4.2.1 Language options

Utility commands:

Utility commands and environments to make local language changes.

`\US@AFRstr` String in the right catcode for tests against `\languagename`.

```
\edef\US@AFRstr{\string afrikaans}
```

`\AorE` Command `\AorE{`⟨*Afr*⟩`}{`⟨*Eng*⟩`}` to type text depending on the active language.

```
\newcommand{\AorE}[2]{%
   \ifx\US@AFRstr\languagename #1\else #2\fi}
```

`Afr` Makes an Afrikaans environment inside an English document.

```
\newenvironment{Afr}%
    {\ifx\languagename\US@AFRstr\relax\else
       \selectlanguage{afrikaans}%
     \fi}%
    {}
```

`\US@ENGstr` Make provisions for all the different types of English. The command is reset within the options.

```
\newcommand*\US@ENGstr{}
\let\US@ENGstr=\relax
```

`Eng` Makes an English environment inside an Afrikaans document.

```
\newenvironment{Eng}%
    {\ifx\relax\US@ENGstr\relax\else
        \ifx\languagename\US@ENGstr\relax\else
           \edef\US@tempa{\noexpand\selectlanguage{\US@ENGstr}}%
           \US@tempa
        \fi
     \fi}%
    {}
```

Maker commands:

Commands of which the contents are defined later.

Degree or subject

```
\newcommand\US@degree{%
⟨cls⟩   \ClassWarning{usthesis}{No degree or subject supplied}%
⟨mem⟩   \PackageWarning{usthesis}{No degree or subject supplied}%
   \textfb{[No degree!]}}
```

```
\newcommand\US@degreelong{%
⟨cls⟩   \ClassWarning{usthesis}{No degree or subject supplied}%
⟨mem⟩   \PackageWarning{usthesis}{No degree or subject supplied}%
   \textfb{[No degree!]}}
```

Language options:

Declare all the language specific text in separate macros, enabling language changes with the babel package commands.

University name

Afrikaans and English code:

```
\newcommand\USNameAFR{Universiteit van Stellenbosch}
\newcommand\USNameENG{University of Stellenbosch}
```

Holder macros that are set by the language setup.

```
\newcommand\USName{}
```

Thesis Description

```
\newcommand\PhDDescriptAFR{%
   \ThesisType\ ingelewer vir die graad \US@degreelong\ aan die \USName}
\newcommand\PhDFinalDescriptAFR{%
   \ThesisType\ goedgekeur vir die graad \US@degreelong\ aan die \USName}
\newcommand\MastersDescriptAFR{%
   \ThesisType\ ingelewer ter gedeeltelike voldoening aan die vereistes vir die
   graad \US@degreelong\ aan die \USName}
```

```
\newcommand\PhDDescriptENG{%
   \ThesisType\ presented for the degree of \US@degreelong\ at the \USName}
\newcommand\PhDFinalDescriptENG{%
   \ThesisType\ approved for the degree of \US@degreelong\ at the \USName{}}
\newcommand\MastersDescriptENG{%
   \ThesisType\ presented in partial fulfilment of the requirements for the degree
   of \US@degreelong\ at the \USName}
```

`\MastersDescript`
`\PhDDescript`
`\PhDFinalDescript`

```
\newcommand\MastersDescript{}
\newcommand\PhDDescript{}
\newcommand\PhDFinalDescript{}
```

Study leader & promotor

```
\newcommand\StudyLeaderAFR{Studieleier:}
\newcommand\StudyLeadersAFR{Studieleiers:}
\newcommand\PromotorAFR{Promotor:}
\newcommand\PromotorsAFR{Promotors:}
```

```
\newcommand\StudyLeaderENG{Supervisor:}
\newcommand\StudyLeadersENG{Supervisors:}
\newcommand\PromotorENG{Promoter:}
\newcommand\PromotorsENG{Promoters:}
```

\StudyLeaderType
\StudyLeadersType
\PromotorType
\PromotorsType

```
\newcommand\StudyLeaderType{}
\newcommand\StudyLeadersType{}
\newcommand\PromotorType{}
\newcommand\PromotorsType{}
```

Thesis types

```
\newcommand\TypeReportAFR{Verslag}
\newcommand\TypeAssignmentAFR{Werkstuk}
\newcommand\TypeThesisAFR{Tesis}
\newcommand\TypePhDAFR{Proefskrif}
```

```
\newcommand\TypeReportENG{Report}
\newcommand\TypeAssignmentENG{Assignment}
\newcommand\TypeThesisENG{Thesis}
\newcommand\TypePhDENG{Dissertation}
```

```
\newcommand\TypeReport{}
\newcommand\TypeAssignment{}
\newcommand\TypeThesis{}
\newcommand\TypePhD{}
```

Month names

```
\newcommand\MonthAFR[1]{\ifcase#1\or
   Januarie\or Februarie\or Maart\or April\or Mei\or Junie\or
   Julie\or  Augustus\or September\or Oktober\or November\or
   Desember\fi}
```

```
\newcommand\MonthENG[1]{\ifcase#1\or
   January\or February\or March\or April\or May\or June\or
   July\or August\or September\or October\or November\or
   December\fi}
```

```
\newcommand\MonthName[1]{}
```

Copyright

```
\newcommand\CopyrightHolderAFR{\USName}%
\newcommand\CopyrightTxtAFR{Kopiereg}
\newcommand\CopyrightAnotAFR{Alle regte voorbehou.}
```

```
\newcommand\CopyrightHolderENG{\USName}
```

```
\newcommand\CopyrightTxtENG{Copyright}
\newcommand\CopyrightAnotENG{All rights reserved.}
\newcommand\CopyrightHolder{}
\newcommand\CopyrightTxt{}
\newcommand\CopyrightAnot{}
```

Declaration

```
\newcommand\ThesisDeclareAFR{%
   Ek, die ondergetekende, verklaar hiermee dat die werk in
   hierdie \MakeLowercase{\ThesisType}{} vervat, my eie
   oorspronklike werk is en dat ek dit nie van te vore in
   geheel of gedeeltelik by enige universiteit ter verkryging
   van 'n graad voorgel\^{e} het nie.}
\newcommand\SignatAFR{Handtekening}
\newcommand\DateAFR{Datum}
\newcommand\ThesisDeclareENG{%
   I, the undersigned, hereby declare that the work contained
   in this \MakeLowercase{\ThesisType}{} is my own original
   work and that I have not previously in its entirety or in
   part submitted it at any university for a degree.}
\newcommand\SignatENG{Signature}
\newcommand\DateENG{Date}
\newcommand\ThesisDeclare{}
\newcommand\Signat{}
\newcommand\Datetxt{}
```

The holder commands

Enclose all the commands into a single command that can be used to change all the language text simultaneously.

`\USextrasafrikaans`

```
\newcommand{\USextrasafrikaans}{%
   \let\USName          =\USNameAFR
   \let\MasterDescript  =\MastersDescriptAFR
   \let\PhDDescript     =\PhDDescriptAFR
   \let\PhDFinalDescript=\PhDFinalDescriptAFR
   \let\StudyLeaderType =\StudyLeaderAFR
   \let\StudyLeadersType=\StudyLeadersAFR
   \let\PromotorType    =\PromotorAFR
   \let\PromotorsType   =\PromotorsAFR
   \let\TypeReport      =\TypeReportAFR
   \let\TypeAssignment  =\TypeAssignmentAFR
   \let\TypeThesis      =\TypeThesisAFR
   \let\TypePhD         =\TypePhDAFR
   \let\MonthName       =\MonthAFR
   \let\CopyrightHolder =\CopyrightHolderAFR
   \let\CopyrightTxt    =\CopyrightTxtAFR
   \let\CopyrightAnot   =\CopyrightAnotAFR
   \let\ThesisDeclare   =\ThesisDeclareAFR
   \let\Signat          =\SignatAFR
   \let\Datetxt         =\DateAFR
   }
```

\UScaptionsafrikaans Afrikaans captions

```
\newcommand{\UScaptionsafrikaans}{%
   \def\declarationname{Verklaring}%
   \def\abstractname{Uittreksel}%
     }
```

\USextrasenglish English code:

```
\newcommand{\USextrasenglish}{%
   \let\USName          =\USNameENG
   \let\MasterDescript  =\MastersDescriptENG
   \let\PhDDescript     =\PhDDescriptENG
   \let\PhDFinalDescript=\PhDFinalDescriptENG
   \let\StudyLeaderType =\StudyLeaderENG
   \let\StudyLeadersType=\StudyLeadersENG
   \let\PromotorType    =\PromotorENG
   \let\PromotorsType   =\PromotorsENG
   \let\TypeReport      =\TypeReportENG
   \let\TypeAssignment  =\TypeAssignmentENG
   \let\TypeThesis      =\TypeThesisENG
   \let\TypePhD         =\TypePhDENG
   \let\MonthName       =\MonthENG
   \let\CopyrightHolder =\CopyrightHolderENG
   \let\CopyrightTxt    =\CopyrightTxtENG
   \let\CopyrightAnot   =\CopyrightAnotENG
   \let\ThesisDeclare   =\ThesisDeclareENG
   \let\Signat          =\SignatENG
   \let\Datetxt         =\DateENG
   }
```

\UScaptionsenglish English captions

```
\newcommand{\UScaptionsenglish}{%
   \def\declarationname{Declaration}%
   \def\abstractname{Abstract}%
     }
```

Set English as default if no language option is selected.

```
\USextrasenglish
\UScaptionsenglish
```

Set language options

\US@addto A redefinition of the babel \addto command (taken from varioref).

```
\def\US@addto#1#2{%
  #2%
  \@temptokena{#2}%
  \ifx#1\relax
    \let#1\@empty
  \fi
  \ifx#1\undefined
     \edef#1{\the\@temptokena}%
  \else
     \toks@\expandafter{#1}%
     \edef#1{\the\toks@\the\@temptokena}%
```

```
\fi
\@temptokena{}\toks@\@temptokena}
```

\US@addlangextras
\US@addlangcaptions

Add the language definitions to \extras⟨*lang*⟩ and \captions⟨*lang*⟩ at the beginning of the document after babel.

```
\newcommand\US@addlangextras[2]{%
   \AtBeginDocument{%
      \expandafter\US@addto\csname extras#1\endcsname #2}}
\newcommand\US@addlangcaptions[2]{%
   \AtBeginDocument{%
      \expandafter\US@addto\csname captions#1\endcsname #2}}
```

Set all the different English language options.

```
\DeclareOption{english}{%
   \edef\US@ENGstr{\string english}%
   \US@addlangextras{english}{\USextrasenglish}%
   \US@addlangcaptions{english}{\UScaptionsenglish}}
\DeclareOption{UKenglish}{%
   \edef\US@ENGstr{\string UKenglish}%
   \US@addlangextras{UKenglish}{\USextrasenglish}%
   \US@addlangcaptions{UKenglish}{\UScaptionsenglish}}
\DeclareOption{USenglish}{%
   \edef\US@ENGstr{\string USenglish}%
   \US@addlangextras{USenglish}{\USextrasenglish}%
   \US@addlangcaptions{USenglish}{\UScaptionsenglish}}
\DeclareOption{british}{%
   \edef\US@ENGstr{\string british}%
   \US@addlangextras{british}{\USextrasenglish}%
   \US@addlangcaptions{british}{\UScaptionsenglish}}
```

Set Afrikaans language option.

```
\DeclareOption{afrikaans}{%
   \US@addlangextras{afrikaans}{\USextrasafrikaans}%
   \US@addlangcaptions{afrikaans}{\UScaptionsafrikaans}}
```

4.2.2 Thesis type options

\if@Report

Flag for report option.

```
\newif\if@Report
\@Reporttrue
```

\if@Masters

Flag for master-a and master-t options.

```
\newif\if@Masters
\@Mastersfalse
```

\if@PhD

Flag for PhD and PhDfinal options.

```
\newif\if@PhD
\@PhDfalse
```

\if@Final

Flag for PhDfinal option.

```
\newif\if@Final
\@Finalfalse
```

\ThesisType
\PromotorText
\PromotorsText

Global headings that are set according to the thesis type options.

```
\newcommand{\ThesisType}{}
\newcommand{\PromotorText}{}
\newcommand{\PromotorsText}{}
```

`report:` For normal reports an assignments.

```
\DeclareOption{report}{%
   \renewcommand{\ThesisType}{\TypeReport}%
   \renewcommand{\PromotorText}{\StudyLeaderType}
   \renewcommand{\PromotorsText}{\StudyLeadersType}
   \@Reporttrue
   \@Mastersfalse
   \@PhDfalse}
```

`masters-a:` Masters with and assignment.

```
\DeclareOption{masters-a}{%
   \renewcommand{\ThesisType}{\TypeAssignment}%
   \renewcommand{\PromotorText}{\StudyLeaderType}
   \renewcommand{\PromotorsText}{\StudyLeadersType}
   \@Reportfalse
   \@Masterstrue
   \@PhDfalse}
```

`masters-t:` Masters with a thesis.

```
\DeclareOption{masters-t}{%
   \renewcommand{\ThesisType}{\TypeThesis}%
   \renewcommand{\PromotorText}{\StudyLeaderType}%
   \renewcommand{\PromotorsText}{\StudyLeadersType}%
   \@Reportfalse
   \@Masterstrue
   \@PhDfalse}
```

`PhD:` PhD dissertation handed in for examination.

```
\DeclareOption{PhD}{%
   \renewcommand{\ThesisType}{\TypePhD}%
   \renewcommand{\PromotorText}{\PromotorType}%
   \renewcommand{\PromotorsText}{\PromotorsType}%
   \@Reportfalse
   \@Mastersfalse
   \@PhDtrue
   \@Finalfalse}
```

`PhDfinal:` Excepted PhD dissertation handed in for publication.

```
\DeclareOption{PhDfinal}{%
   \renewcommand{\ThesisType}{\TypePhD}%
   \renewcommand{\PromotorText}{\PromotorType}%
   \renewcommand{\PromotorsText}{\PromotorsType}%
   \@Reportfalse
   \@Mastersfalse
   \@PhDtrue
   \@Finaltrue}
```

4.2.3 Page layout options

Intercept 2-column requests.

```
⟨*cls⟩
\DeclareOption{twocolumn}{}
⟨/cls⟩
```

`\if@ABlock` `\if@GBlock` Flags for `a5block` and `goldenblock` options.

```
\newif\if@ABlock
\newif\if@GBlock
\@ABlockfalse
\@GBlockfalse
```

`a5block:` An A5 type block area.

```
\DeclareOption{a5block}{%
⟨cls⟩    \PassOptionsToClass{a4paper}{\US@basetype}%
    \@ABlocktrue
    \@GBlockfalse}
```

`goldenblock:` A golden section type block area.

```
\DeclareOption{goldenblock}{%
⟨cls⟩    \PassOptionsToClass{a4paper}{\US@basetype}%
    \@GBlocktrue
    \@ABlockfalse}
```

`stdblock:` Standard LaTeX type block area.

```
\DeclareOption{stdblock}{%
    \@GBlockfalse
    \@ABlockfalse}
```

4.2.4 Process package options

```
⟨cls⟩\DeclareOption*{\PassOptionsToClass{\CurrentOption}{\US@basetype}}
\ExecuteOptions{report}
\ProcessOptions*\relax
⟨cls⟩\LoadClass[oneside,openany]{\US@basetype}
```

4.3 External packages

```
\RequirePackage{calc}
```

`\phantomsection` A command needed, if the hyperref package is used, for putting before certain `\addcontentsline` commands.

```
\providecommand{\phantomsection}{}
```

`\ifpdf` We need the ifpdf package, but to reduce dependencies we provide the code here to check if a document is being processed by LaTeX or pdfLaTeX. It is all ready declared by memoir.

```
⟨*cls⟩
\newif\ifpdf
\ifx\pdfoutput\undefined
\else
  \ifx\pdfoutput\relax
  \else
    \ifcase\pdfoutput
    \else
      \pdftrue
    \fi
```

```
  \fi
\fi
⟨/cls⟩
```

We need the graphicx package and it must be loaded by the user in the document preamble.

```
\AtBeginDocument{%
  \@ifpackageloaded{graphicx}{}{%
⟨cls⟩      \ClassError{usthesis}{You must load the graphicx package}{}%
⟨mem⟩      \PackageError{usthesis}{You must load the graphicx package}{}%
      }%
  }
```

4.4 Temporaries

```
\newlength{\US@tdima}
\newlength{\US@tdimb}
\newsavebox{\US@tboxa}
\newcounter{US@tcnta}
\newcounter{US@tcntb}
```

4.5 Page layout

`\FixVertParams` Reset all the vertical parameters for a page layout. Note that memoir has its own setup.

```
⟨*cls⟩
\newcommand\FixVertParams[1]{%
    \normalsize
    \setlength\US@tdima{\textheight-\topskip}%
    \setcounter{US@tcnta}{\US@tdima}
    \setcounter{US@tcntb}{\baselineskip}
    \setcounter{US@tcnta}{\value{US@tcnta}/\value{US@tcntb}}
    \setlength\textheight{\baselineskip*\value{US@tcnta}+\topskip}%
    \setlength\US@tdima{\paperheight-\textheight}%
    \setlength\topmargin{#1\US@tdima-\headheight-\headsep-1in}%
    \@settopoint\topmargin}
⟨/cls⟩
```

`\FixHorizParams` Reset all the horizontal parameters for a page layout. Note that memoir has its own setup.

```
⟨*cls⟩
\newcommand\FixHorizParams[1]{%
    \@settopoint\textwidth
    \setlength\US@tdima{\paperwidth-\textwidth}%
    \if@twoside
        \setlength\oddsidemargin{#1\US@tdima-1in}%
    \else
        \setlength\oddsidemargin{.5\US@tdima-1in}%
    \fi
    \@settopoint\oddsidemargin
    \setlength\evensidemargin{\US@tdima-\oddsidemargin-2in}%
    \@settopoint\evensidemargin
    \setlength\marginparwidth{\evensidemargin+1in-\marginparsep-1cm}%
    \@settopoint\marginparwidth}
```

```
⟨/cls⟩
```

4.5.1 A5 type block area

```
⟨*cls⟩
\if@ABlock
    \setlength\paperheight  {297.3mm}
    \setlength\paperwidth   {210.2mm} % A4 paper
    \setlength\textwidth    {.5\paperheight}
    \setlength\textheight   {\paperwidth}
    \setlength\marginparsep {7\p@}
    \setlength\marginparpush{7\p@}
    \FixVertParams{0.375}
    \FixHorizParams{0.375}
    \ifpdf
       \setlength\pdfpagewidth{\paperwidth}
       \setlength\pdfpageheight{\paperheight}
    \fi
\fi
⟨/cls⟩
```

```
⟨*mem⟩
\if@ABlock
    \setstocksize{297.3mm}{210.2mm}% A4 paper
    \settrimmedsize{\stockheight}{\stockwidth}{*}
    \settypeblocksize{\paperwidth}
                     {.5\paperheight}{*}% A5 text block
    \setulmargins{*}{*}{1.666667}    % 5:3
    \if@twoside
       \setlrmargins{*}{*}{1.666667} % 5:3
    \else
       \setlrmargins{*}{*}{1.000000} % 1:1
    \fi
    \checkandfixthelayout
    \setlength{\headwidth}{\textwidth}
\fi
⟨/mem⟩
```

4.5.2 Golden section type block area

```
⟨*cls⟩
\if@GBlock
    \setlength\paperheight  {297.3mm}
    \setlength\paperwidth   {210.2mm} % A4 paper
    \setlength\textheight   {0.747547\paperheight}
    \setlength\textwidth    {0.666667\paperwidth}
    \setlength\marginparsep {7\p@}
    \setlength\marginparpush{7\p@}
    \FixVertParams{0.375}
    \FixHorizParams{0.375}
    \ifpdf
       \setlength\pdfpagewidth{\paperwidth}
       \setlength\pdfpageheight{\paperheight}
    \fi
\fi
⟨/cls⟩
```

```
⟨*mem⟩
\if@GBlock
    \setstocksize{297.3mm}{210.2mm}
    \settrimmedsize{\stockheight}{\stockwidth}{*}
    \settypeblocksize{0.747547\paperheight}
                     {0.666667\paperwidth}{*}% Golden ratio block
    \setulmargins{*}{*}{1.666667} % 5:3
    \if@twoside
       \setlrmargins{*}{*}{1.666667} % 5:3
    \else
       \setlrmargins{*}{*}{1.000000} % 1:1
    \fi
    \checkandfixthelayout
    \setlength{\headwidth}{\textwidth}
\fi
⟨/mem⟩
```

4.6 Utility commands

`\US@ifempt` Test for a empty argument (Wilson, Arseneau in ifmtarg)

```
\begingroup
   \catcode`\Q=3
   \long\gdef\US@ifempt#1{\US@xifempt#1QQ\@secondoftwo\@firstoftwo\@nil}
   \long\gdef\US@xifempt#1#2Q#3#4#5\@nil{#4}
\endgroup
```

`US@adjustwidth` Adjust the width of a paragraph. It differs from the memoir environment `AdjustWidth` in that all top and bottom spaces are removed.

```
\newenvironment{US@adjustwidth}[2]{%
   \begin{list}{}{%
      \setlength{\topsep}{0pt}%
      \setlength{\partopsep}{0pt}%
      \setlength{\leftmargin}{#1}%
      \setlength{\rightmargin}{#2}%
      \setlength{\listparindent}{\parindent}%
      \setlength{\itemindent}{\parindent}%
      \setlength{\parsep}{\parskip}%
      }%
   \item[]}{\end{list}}
```

`SetMargins` Adjust the margins of a paragraph. The parameter `#1` and `#2` are the left and right margins of the paragraph.

```
\newenvironment{SetMargins}[2]%
  {\setlength{\US@tdima}{-1in-\hoffset-\oddsidemargin}%
   \setlength{\US@tdimb}{-\US@tdima}%
   \addtolength{\US@tdima}{#1}%
   \addtolength{\US@tdimb}{-\paperwidth+\textwidth+#2}%
   \begin{US@adjustwidth}{\US@tdima}{\US@tdimb}%
  }%
  {\end{US@adjustwidth}}
```

4.7 Front pages

4.7.1 Title page

US@titlepage Make a single column empty page with predefined margins

\begin{US@titlepage}{⟨*top*⟩}{⟨*bottom*⟩}{⟨*left*⟩}{⟨*right*⟩}
⟨*title page*⟩
\end{US@titlepage}

```
\newenvironment{US@titlepage}[4]
 {\cleardoublepage
  \if@twocolumn
     \@restonecoltrue\onecolumn
  \else
     \@restonecolfalse\newpage
  \fi
  \thispagestyle{empty}%
  \setcounter{page}\@ne
```

Set the top margin by moving the starting point up.

```
  \setlength{\US@tdima}{1in+\voffset+\topmargin+\headheight+\headsep+\topskip}%
  \setlength{\US@tdimb}{#1 -\US@tdima}%
  \vspace*{\US@tdimb}%
```

Set the bottom margin by enlarging the page

```
  \addtolength{\US@tdima}{\textheight-\paperheight-\topskip}%
  \addtolength{\US@tdima}{#2}%
  \enlargethispage{-\US@tdima}%
```

Set the left and right margins by putting the contents in a list environment with widened margins.

```
  \setlength{\US@tdima}{-1in-\hoffset-\oddsidemargin}%
  \setlength{\US@tdimb}{-\US@tdima}%
  \addtolength{\US@tdima}{#3}%
  \addtolength{\US@tdimb}{-\paperwidth+\textwidth+#4}%
  \begin{US@adjustwidth}{\US@tdima}{\US@tdimb}%
 }%
 {\end{US@adjustwidth}%
  \if@restonecol\twocolumn \else \newpage \fi
  \if@twoside\else
     \setcounter{page}\@ne
  \fi}
```

Undefine the standard title page.

```
\let\maketitle\relax
```

The title page

\TitlePage The \TitlePage command set the full front page for the US theses and reports. All margins, spacing and font sizes must be set inside this command.

```
\newcommand{\TitlePage}{%
  \begingroup
     \let\footnote\relax
     \begin{US@titlepage}{2cm}{2.5cm}{2.5cm}{2.5cm}%
```

```
         \centering
         \if@Report
            \includegraphics[width=100mm]{USlogo-top}\par
         \else
            %\includegraphics[width=88mm]{UScrest-top}\par
         \fi
         \vfill
        {\LARGE \@title \par}
         \vspace{2em}
         \if@Authorpresent
            {\large \AorE{deur}{by}\par}
             \vspace{2em}
            {\Large
             \lineskip .75em\relax%
             \begin{tabular}[t]{c}%
                \US@authorlong
             \end{tabular}\par}%
             \vfill
         \fi
        {\large\slshape
         \begin{US@adjustwidth}{1.5cm}{1.5cm}
            \centering\US@ThesisDescript
         \end{US@adjustwidth}\par}
         \vfill
        {\US@adress\par}
         \vfill
        {\normalsize \US@promotorset \par}
         \vfill
        {\large \US@date\par}%
      \end{US@titlepage}%
   \endgroup
   \global\let\TitlePage\relax
   \setcounter{footnote}{0}%
   \global\let\thanks\relax
   \global\let\@thanks\@empty
%   \global\let\and\relax
   }
```

Author block

```
\newif\if@Authorpresent
\@Authorpresentfalse
```

```
\renewcommand\author[2]{%
   \@Authorpresenttrue%
   \gdef\US@author{#1}%
   \gdef\US@authorlong{#2}}
```

```
\newcommand\US@author{%
⟨cls⟩    \ClassWarning{usthesis}{No author supplied}%
⟨mem⟩    \PackageWarning{usthesis}{No author supplied}%
   }
```

```
\newcommand\US@authorlong{%
⟨cls⟩    \ClassWarning{usthesis}{No author supplied}%
⟨mem⟩    \PackageWarning{usthesis}{No author supplied}%
```

```
}
```

Thesis or report description

```
\newcommand{\US@ThesisDescript}{}
```

\ThesisDescript

```
\newcommand\ThesisDescript[1]{%
   \long\gdef\US@ThesisDescript{#1}}

\let\ReportDescript=\ThesisDescript

\if@Masters
   \ThesisDescript{\MasterDescript}
\fi

\if@PhD
   \if@Final
      \ThesisDescript{\PhDFinalDescript}
   \else
      \ThesisDescript{\PhDDescript}%
   \fi
\fi
```

Degree or subject

See beginning of class for \US@degree and \US@degreelong.

```
\newcommand\degree[2]{%
   \gdef\US@degree{#1}%
   \gdef\US@degreelong{#2}}

\let\subject=\degree
```

Address

```
\newcommand\adress[1]{\gdef\US@adress{#1}}

\newcommand\US@adress{%
⟨cls⟩    \ClassWarning{usthesis}{No institutional address supplied}}
⟨mem⟩    \PackageWarning{usthesis}{No institutional address supplied}}
```

Promotor or study leader

```
\newif\ifUS@multprm\US@multprmfalse
\newif\ifUS@prmstacked\US@prmstackedfalse

\newcommand\US@promotor{}
\newcommand*\US@prmalign{l}
\newcommand*\US@prmnewline{~}
```

\promotor

```
\newcommand{\promotor}{%
   \@ifstar{\US@prmstackedtrue\@promotor}%
           {\US@prmstackedfalse\@promotor}}

\newcommand{\@promotor}[2][l]{%
   \renewcommand*\US@prmalign{#1}%
   \renewcommand\US@promotor{#2}}
```

```
\newcommand{\US@promotorset}{%
   \edef\US@beginTab{%
      \noexpand\begin{tabular}[t]{@{}\US@prmalign @{}}}%
   \edef\US@endTab{%
      \noexpand\end{tabular}}%
   \sbox{\US@tboxa}{%
      \let\and\US@prm@and%
      \US@beginTab%
         \US@promotor%
      \US@endTab}%
   \ifUS@prmstacked
      \makebox[\wd\US@tboxa][\US@prmalign]{%
         \ifUS@multprm\PromotorsText\else\PromotorText\fi}\\[1ex]%
      \usebox{\US@tboxa}%
   \else
      \ifUS@multprm\PromotorsText\else\PromotorText\fi
      \US@prmnewline%
      \usebox{\US@tboxa}%
   \fi
   }
```

```
\newcommand*{\US@prm@and}[1][2ex]{%
      \gdef\US@prmnewline{\\[2ex]}%
      \global\US@multprmtrue%
      \ifUS@prmstacked
         \\[#1]%
      \else
         \US@endTab
         \hskip 1em \@plus.17fil\relax
         \US@beginTab
      \fi
      \ignorespaces}
```

```
\let\studyleader\promotor
\let\supervisor\promotor
```

Date

```
\newcount\US@month
\newcount\US@year
```

```
\US@month=0
\US@year=\number\year
\def\US@date{\MonthName{\US@month}\ \number\US@year}
```

```
\newcommand{\setdate}[2]{%
   \US@ifempt{#1}{\US@month=0}{\US@month=#1}%
   \US@year=#2
   \gdef\US@date{\MonthName{\US@month}\ \number\US@year}}
```

4.7.2 Copyright page

```
\newcommand\CopyrightPage[1][\CopyrightHolder]{%
   \clearpage
   \thispagestyle{empty}
   \mbox{}\par\vfill
   \begin{center}
```

```
      \CopyrightTxt\ \copyright\ \number\US@year\ #1\\
      \CopyrightAnot
   \end{center}
   \vfill\mbox{}\par
   \clearpage}
```

4.7.3 Declaration page

`\DeclarationPage` Set up the declaration page. The `\ThesisDeclare[`⟨*declaration*⟩`]` command has an optional argument to set a different declaration.

```
\newcommand{\DeclarationPage}[1][\ThesisDeclare]{%
   \if@twocolumn
      \@restonecoltrue\onecolumn
   \else
      \@restonecolfalse
   \fi
   \par
   \thispagestyle{plain}%
   \chapter*{\declarationname}%
   \declaremark
   \phantomsection
   \addcontentsline{toc}{chapter}{\declarationname}%
   #1\par
   \vspace{3cm}
   \noindent
   \begin{minipage}{.5\textwidth}
      \Signat:~\dotfill\mbox{}\\
      \phantom{\Signat:}~%
         \hfill\makebox[0pt][c]{\US@author}\hfill\mbox{}\\[1cm]
      \Datetxt:~\dotfill\mbox{}
   \end{minipage}
   \if@restonecol\twocolumn\fi}
```

4.7.4 Abstract page

`abstract` Provides the environment

```
\begin{abstract}[⟨lang⟩]
   ⟨abtract text⟩
\end{abstract}
```

to typeset the abstract. A different language can be selected with the optional argument to the environment.

```
⟨cls⟩\newenvironment{abstract}[1][\languagename]%
⟨mem⟩\renewenvironment{abstract}[1][\languagename]%
   {\edef\@tempa{\expandafter\string #1}%
    \ifx\@tempa\languagename\relax\else
      \edef\@tempa{\noexpand\selectlanguage{#1}}\@tempa%
    \fi
   \if@twocolumn
      \@restonecoltrue\onecolumn
   \else
      \@restonecolfalse
   \fi
   \par
```

```
   \chapter*{\abstractname}%
   \abstractmark
   \phantomsection
   \addcontentsline{toc}{chapter}{\abstractname}%
   \if@Report\else
       \begin{center}
          {\large\bfseries \@title \par}
           \medskip
          {\lineskip .75em\relax%
           \begin{tabular}[t]{@{}c@{}}%
              \US@author
           \end{tabular}\par}
           \smallskip
          {\small\itshape\US@adress\par}
           \smallskip
          {\ThesisType: \US@degree\par}
           \smallskip
          {\US@date\par}
       \end{center}
    \fi
    \if@restonecol\twocolumn\fi%
    }{}
```

4.7.5 Table of contents

```
⟨*cls⟩
\renewcommand\tableofcontents{%
   \if@twocolumn
      \@restonecoltrue\onecolumn
   \else
      \@restonecolfalse
   \fi
   \chapter*{\contentsname}%
   \tocmark
   \phantomsection
   \addcontentsline{toc}{chapter}{\contentsname}%
   \@starttoc{toc}%
   \if@restonecol\twocolumn\fi}
⟨/cls⟩
```

4.7.6 List of figures

```
⟨*cls⟩
\renewcommand\listoffigures{%
    \if@twocolumn
      \@restonecoltrue\onecolumn
    \else
      \@restonecolfalse
    \fi
    \chapter*{\listfigurename}%
    \lofmark
    \phantomsection
    \addcontentsline{toc}{chapter}{\listfigurename}%
    \@starttoc{lof}%
    \if@restonecol\twocolumn\fi
```

```
    }
\renewcommand*\l@figure{\@dottedtocline{1}{0em}{3em}}
⟨/cls⟩
```

4.7.7 List of tables

```
⟨*cls⟩
\renewcommand\listoftables{%
    \if@twocolumn
      \@restonecoltrue\onecolumn
    \else
      \@restonecolfalse
    \fi
    \chapter*{\listtablename}%
    \lotmark
    \phantomsection
    \addcontentsline{toc}{chapter}{\listtablename}%
    \@starttoc{lot}%
    \if@restonecol\twocolumn\fi}
\let\l@table\l@figure
⟨/cls⟩
```

4.8 Back matter

4.8.1 Bibliography

`\bibsection` natbib uses the `\bibsection` command. We change the `thebibliography` to use it also.

```
⟨*cls⟩
\providecommand\bibsection{}%
\AtBeginDocument{%
   \renewcommand{\bibsection}{%
      \chapter*{\bibname}%
      \bibmark
      \phantomsection
      \addcontentsline{toc}{chapter}{\bibname}}%
   }
⟨/cls⟩
```

`thebibliography` The environment is a mixture of code from book.cls and natbib

```
⟨*cls⟩
\renewenvironment{thebibliography}[1]{%
   \bibsection
   \parindent \z@
   \bibpreamble
   \bibfont
   \list{\@biblabel{\@arabic\c@enumiv}}%
        {\settowidth\labelwidth{\@biblabel{#1}}%
         \leftmargin\labelwidth
         \advance\leftmargin\labelsep
         \@openbib@code
         \usecounter{enumiv}%
         \let\p@enumiv\@empty
         \renewcommand\theenumiv{\@arabic\c@enumiv}}%
   \sloppy
```

```
    \clubpenalty4000
    \@clubpenalty \clubpenalty
    \widowpenalty4000%
    \sfcode\.\@m}
   {\def\@noitemerr%
       {\@latex@warning{Empty thebibliography environment}}%
    \endlist
    \vskip-\lastskip}
⟨/cls⟩
```

`\bibfont` Command to change font sizes.

`\bibpreamble` The user can add stuff before the bibliography.

```
⟨*cls⟩
\let\bibfont\relax
\let\bibpreamble\relax
⟨/cls⟩
```

`\setbiblabel` A user command to change the bib label format .

```
⟨*cls⟩
\newcommand*{\setbiblabel}[1]{%
    \renewcommand*{\@biblabel}[1]{#1}}
\setbiblabel{[#1]\hfill}
⟨/cls⟩
```

4.8.2 Index

`theindex`

```
⟨*cls⟩
\renewenvironment{theindex}
    {\if@twocolumn
        \@restonecolfalse
      \else
        \@restonecoltrue
      \fi
      \columnseprule \z@
      \columnsep 35\p@
      \twocolumn[\@makeschapterhead{\indexname}]%
      \indexmark
      \phantomsection
      \addcontentsline{toc}{chapter}{\indexname}
      \thispagestyle{plain}
      \parindent\z@
      \parskip\z@ \@plus .3\p@\relax
      \let\item\@idxitem}
    {\if@restonecol
        \onecolumn
      \else
        \clearpage
      \fi}
⟨/cls⟩
```

4.9 Page markup

4.9.1 Headers and footers

\US@headfnt Font for running headers.

\US@numfnt Font for running header numbers.

```
\newcommand*{\US@headfnt}[1]{{\slshape\small#1}}
\newcommand*{\US@numfnt}[1]{{\normalsize\bfseries#1}}
```

Define the usthesis page style The setup for headers and footers differs between the normal book class and memoir, therefor we split them up.

Headers for normal book class

```
⟨*cls⟩
\if@twoside
   \def\ps@usthesis{%
      \def\@evenhead{\US@numfnt{\thepage}\hfil\US@headfnt{\leftmark}}%
      \def\@oddhead{\US@headfnt{\rightmark}\hfil\US@numfnt{\thepage}}%
      \let\@oddfoot\@empty
      \let\@evenfoot\@empty
      \let\@mkboth\markboth
      \def\chaptermark##1{%
         \markboth{\MakeUppercase{%
            \ifnum \c@secnumdepth >\m@ne
               \if@mainmatter
                  \@chapapp\ \thechapter. \ %
               \fi
            \fi
            ##1}}{}}%
      \def\sectionmark##1{%
         \markright{\MakeUppercase{%
            \ifnum \c@secnumdepth > \z@
               \thesection. \ %
            \fi
            ##1}}}%
      \def\declaremark{\markboth{\MakeUppercase{\declarationname}}{}}%
      \def\abstractmark{\markboth{\MakeUppercase{\abstractname}}{}}%
      \def\tocmark{\markboth{\MakeUppercase{\contentsname}}{}}%
      \def\lofmark{\markboth{\MakeUppercase{\listfigurename}}{}}%
      \def\lotmark{\markboth{\MakeUppercase{\listtablename}}{}}%
      \def\bibmark{\markboth{\MakeUppercase{\bibname}}{}}%
      \def\indexmark{\markboth{\MakeUppercase{\indexname}}{}}%
      }
\else
   \def\ps@usthesis{%
      \def\@oddhead{\US@headfnt{\rightmark}\hfil\US@numfnt{\thepage}}%
      \let\@oddfoot\@empty
      \let\@mkboth\markboth
      \def\chaptermark##1{%
         \markright{\MakeUppercase{%
            \ifnum \c@secnumdepth >\m@ne
               \if@mainmatter
                  \@chapapp\ \thechapter. \ %
               \fi
```

```
            \fi
            ##1}}}%
      \def\declaremark{\markright{\MakeUppercase{\declarationname}}}%
      \def\abstractmark{\markright{\MakeUppercase{\abstractname}}}%
      \def\tocmark{\markright{\MakeUppercase{\contentsname}}}%
      \def\lofmark{\markright{\MakeUppercase{\listfigurename}}}%
      \def\lotmark{\markright{\MakeUppercase{\listtablename}}}%
      \def\bibmark{\markright{\MakeUppercase{\bibname}}}%
      \def\indexmark{\markright{\MakeUppercase{\indexname}}}%
      }
\fi
```

Redefine the `plain` page style.

```
\def\ps@plain{%
   \let\@mkboth\@gobbletwo
   \let\@oddhead\@empty
   \let\@evenhead\@empty
   \def\@oddfoot{\reset@font\hfil\US@numfnt{\thepage}\hfil}%
   \let\@evenfoot\@oddfoot
   }
⟨/cls⟩
```

Headers for use with memoir *class*

```
⟨*mem⟩
\makepagestyle{usthesis}
\setlength{\headwidth}{\textwidth}
\makerunningwidth{usthesis}{\headwidth}
\makeheadposition{usthesis}{flushright}{flushleft}{flushright}{flushleft}
\if@twoside
   \makepsmarks{usthesis}{%
      \let\@mkboth\markboth
      \def\chaptermark##1{%
         \markboth{\MakeUppercase{%
            \ifnum \c@secnumdepth >\m@ne
               \if@mainmatter
                  \@chapapp\ \thechapter. \ %
               \fi
            \fi
            ##1}}{}}%
      \def\sectionmark##1{%
         \markright{\MakeUppercase{%
            \ifnum \c@secnumdepth > \z@
               \thesection. \ %
            \fi
            ##1}}}%
      \def\declaremark{\markboth{\MakeUppercase{\declarationname}}{}}%
      \def\abstractmark{\markboth{\MakeUppercase{\abstractname}}{}}%
      \def\tocmark{\markboth{\MakeUppercase{\contentsname}}{}}%
      \def\lofmark{\markboth{\MakeUppercase{\listfigurename}}{}}%
      \def\lotmark{\markboth{\MakeUppercase{\listtablename}}{}}%
      \def\bibmark{\markboth{\MakeUppercase{\bibname}}{}}%
      \def\indexmark{\markboth{\MakeUppercase{\indexname}}{}}%
   }
   \makeevenhead{usthesis}{\US@numfnt{\thepage}}{}{\US@headfnt{\leftmark}}
```

```
   \makeoddhead{usthesis}{\US@headfnt{\rightmark}}{}{\US@numfnt{\thepage}}
\else
   \makepsmarks{usthesis}{%
      \let\@mkboth\markboth
      \def\chaptermark##1{%
         \markright{\MakeUppercase{%
            \ifnum \c@secnumdepth >\m@ne
               \if@mainmatter
                  \@chapapp\ \thechapter. \ %
               \fi
            \fi
            ##1}}}%
      \def\declaremark{\markright{\MakeUppercase{\declarationname}}}%
      \def\abstractmark{\markright{\MakeUppercase{\abstractname}}}%
      \def\tocmark{\markright{\MakeUppercase{\contentsname}}}%
      \def\lofmark{\markright{\MakeUppercase{\listfigurename}}}%
      \def\lotmark{\markright{\MakeUppercase{\listtablename}}}%
      \def\bibmark{\markright{\MakeUppercase{\bibname}}}%
      \def\indexmark{\markright{\MakeUppercase{\indexname}}}%
   }
   \makeoddhead{usthesis}{\US@headfnt{\rightmark}}{}{\US@numfnt{\thepage}}
\fi
```

Change the plain page style

```
\setlength{\headwidth}{\textwidth}
\makerunningwidth{plain}{\headwidth}
\makeevenfoot{plain}{}{\US@numfnt{\thepage}}{}
\makeoddfoot{plain}{}{\US@numfnt{\thepage}}{}
⟨/mem⟩
```

The default page style.

```
\pagestyle{usthesis}
```

4.9.2 Chapter and section headings

```
\newcommand{\US@headfamily}{\normalfont\rmfamily}
```

```
⟨*cls⟩
\def\section{%
   \@startsection{section}{1}%
                  {\z@}%
                  {-3.5ex plus -1ex minus -.2ex}%
                  {2.3ex plus .2ex}%
                  {\US@headfamily\Large\bfseries\raggedright}}
⟨/cls⟩
⟨*mem⟩
\setsecheadstyle{\US@headfamily\Large\bfseries\raggedright}
⟨/mem⟩
```

```
⟨*cls⟩
\def\subsection{%
   \@startsection{subsection}{2}%
                  {\z@}%
                  {-3.25ex plus -1ex minus -.2ex}%
                  {1.5ex plus .2ex}%
                  {\US@headfamily\large\bfseries\raggedright}}%
⟨/cls⟩
⟨*mem⟩
```

```
\setsubsecheadstyle{\US@headfamily\large\bfseries\raggedright}
⟨/mem⟩
⟨*cls⟩
\def\subsubsection{%
   \@startsection{subsubsection}{3}%
                  {\z@}%
                  {-3.25ex plus -1ex minus -.2ex}%
                  {1.5ex plus .2ex}%
                  {\US@headfamily\normalsize\bfseries\raggedright}}
⟨/cls⟩
⟨*mem⟩
\setsubsubsecheadstyle{\US@headfamily\normalsize\bfseries\raggedright}
⟨/mem⟩
⟨*cls⟩
\def\paragraph{%
   \@startsection{paragraph}{4}%
                  {\z@}%
                  {3.25ex plus 1ex minus .2ex}%
                  {-1em}%
                  {\US@headfamily\normalsize\bfseries}}
⟨/cls⟩
⟨*mem⟩
\setparaheadstyle{\US@headfamily\normalsize\bfseries}
⟨/mem⟩
⟨*cls⟩
\def\subparagraph{%
   \@startsection{subparagraph}{5}%
                  {\parindent}%
                  {3.25ex plus 1ex minus .2ex}%
                  {-1em}%
                  {\US@headfamily\normalsize\bfseries}}
⟨/cls⟩
⟨*mem⟩
\setsubparaheadstyle{\US@headfamily\normalsize\bfseries}
⟨/mem⟩
```

4.9.3 Floats and float pages

```
\setcounter{topnumber}{3}
\setcounter{bottomnumber}{2}
\setcounter{totalnumber}{4}
\setcounter{dbltopnumber}{3}
\renewcommand{\topfraction}{.85}
\renewcommand{\bottomfraction}{.7}
\renewcommand{\textfraction}{.1}
\renewcommand{\floatpagefraction}{.7}
\renewcommand{\dbltopfraction}{.85}
\renewcommand{\dblfloatpagefraction}{.7}
\setlength{\floatsep}{15pt plus 12pt}
\setlength{\textfloatsep}{\floatsep}
\setlength{\intextsep}{\floatsep}
\setlength{\dblfloatsep}{15pt plus 12pt}
\setlength{\dbltextfloatsep}{15pt plus 12pt}
```

```
\setlength{\@fptop}{0pt plus1fil}
\setlength{\@fpbot}{0pt plus1fil}
\setlength{\@fpsep}{8pt plus1fil}
\setlength{\@dblfptop}{0pt plus1fil}
\setlength{\@dblfpbot}{0pt plus1fil}
\setlength{\@dblfpsep}{8pt plus1fil}
```

4.9.4 Captions

Figures and tables use the same caption command in the standard book.cls. This causes problems with spacing, because figure captions are normally below the figure while table captions are above the table. Make the spacing equal.

Set parameters for usthesis.cls.

```
⟨*cls⟩
\setlength{\abovecaptionskip}{0.5\baselineskip}
\setlength{\belowcaptionskip}{0.5\baselineskip}
```

`\@makecaption` Redefine the caption output.

```
\long\def\@makecaption#1#2{%
  \vskip\abovecaptionskip
  \sbox\@tempboxa{\small{\bfseries #1:} #2}%
  \ifdim \wd\@tempboxa >\hsize
    \unhbox\@tempboxa\par
  \else
    \global \@minipagefalse
    \hb@xt@\hsize{\hfil\box\@tempboxa\hfil}%
  \fi
  \vskip\belowcaptionskip}
⟨/cls⟩
```

Set parameter for memoir.

```
⟨*mem⟩
\captiondelim{: }
\captionnamefont{\small\bfseries}
\captiontitlefont{\small}
\captionstyle{}
⟨/mem⟩
```

```
⟨/cls | mem⟩
```

The end of this package.

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