The kauthesis package*

Stefan Berthold
stefan.berthold@kau.se

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1 Introduction

The kauthesis package provides LaTeX classes for master's theses (kaumasters class), collection theses (kaucollection class), and monographs (kaureport class). The latest version can be obtained from

http://github.com/ZjMNZHgG5jMXw/kauthesis .

The user's manual is found in kauguide.pdf. This file provides the source code documentation to all three classes.

2 Usage

2.1 Master's thesis

This template can be found in kaumasterstemplate.tex. The kaumasters class is quite similar to LaTeX's article class. After loading the class, title, author, and institute have to be declared. Different authors in author lists can be separated by commata (","). The formatting will be done by LaTeX.

```
⟨*masterstemplate⟩
\documentclass{kaumasters} % available class options: garamond
\title{Title}
\author{Author}
\supervisor{Super}
\examiner{Exam}
\institute{Department of Mathematics and Computer Science}
\place{Place}
```

The thesis starts with the front matter \frontmatter. It will (re)print the title. The macro \maketitle does not exist, since the title will be created by Karlstad University Studies.

```
\begin{document}
\frontmatter
```

The two mandatory inhabitants of the front matter are the abstract (abstract environment) and the \tableofcontents. If you like to write acknowledgements, put it between the abstract and the table of contents.

*This document corresponds to kauthesis v1.16, dated 2014/12/04.

```
\begin{abstract}
  Abstract.
  \keywords keywords
\end{abstract}
\approvalpage%
\begin{acknowledgements}
  Thanks.
\end{acknowledgements}
\tableofcontents
```

The main matter starts with `\mainmatter` for adjusting the page numbering. The content in the main matter is your work. Any macro or environment known from LaTeX's article class can be used here.

```
\mainmatter
\section{Introduction}
\end{document}
⟨/masterstemplate⟩
```

2.2 Report

This template can be found in `kaureporttemplate.tex`. Like the master's thesis class, the report class is derived from the LaTeX article class.

```
⟨*reporttemplate⟩
\documentclass{kaureport}
```

After loading the class, title, author, and institute have to be declared. Different authors in author lists can be separated by commata (","). The formatting will be done by LaTeX.

```
\title{Title}
\author{Author}
\institute{Department of Mathematics and Computer Science}
\place{Place}
\begin{document}
```

The two mandatory inhabitants of the front matter are the abstract (`abstract` environment) and the `\tableofcontents`. If you like to write acknowledgements, put it between the abstract and the table of contents.

```
\frontmatter
\begin{abstract}
  Brief abstract.
  \keywords keywords
\end{abstract}
\begin{acknowledgements}
  Thanks.
\end{acknowledgements}
\tableofcontents
```

The main matter starts with `\mainmatter` for adjusting the page numbering. The content in the main matter is your work. Any macro or environment known from LaTeX's article class can be used here.

```
\mainmatter
\part{Introduction}
\section{Related work}
\part{Conclusions and Future Work}
```

```
\end{document}
⟨/reporttemplate⟩
```

2.3 Collection thesis

This template can be found in `kaucollectiontemplate.tex`. Like the master's thesis class, the report class is derived from the LaTeX article class.

```
⟨*collectiontemplate⟩
\documentclass{kaucollection}
```

Page headings and can be created using the scrheadings packages.

```
\usepackage{scrpage2}
\pagestyle{scrheadings}
\renewcommand*\headfont{\normalfont\small}
\rehead{\thepaper}
\lohead{\thepapertitle}
```

After loading the class, title, author, and institute have to be declared. Different authors in author lists can be separated by commata (","). The formatting will be done by LaTeX.

```
\title{Title}
\author{Author}
\institute{Department of Mathematics and Computer Science}
\place{Place}
\begin{document}
```

The two mandatory inhabitants of the front matter are the abstract (`abstract` environment) and the `\tableofcontents`. If you like to write acknowledgements, put it between the abstract and the table of contents.

```
\frontmatter
\begin{abstract}
  Brief abstract.
  \keywords keywords
\end{abstract}
\begin{acknowledgements}
  Thanks.
\end{acknowledgements}
\tableofcontents
```

The table of contents is followed by the list of papers.

```
\listofpapers
```

The main matter starts with `\mainmatter` for adjusting the page numbering.

```
\mainmatter
\section{Introduction}
```

Create a list of summaries of all appended papers with `\listofsummaries`.

```
\section{Summary of Appended Papers}
\listofsummaries
\section{Conclusions and Future Work}
```

Append papers, each in an own `kaupaper` environment.

```
\begin{kaupaper}[ author=Author
                , title=Paper Title
                , reference=reference text.
                , email=author@kau.se
```

```
                , summary=Abstract in the intro.
                , participation=I am the main author.
                , label=paper:shorttitle
                ]
```

Appended papers may have their own titles and abstracts.

```
  \maketitle
  \begin{abstract}
    Paper abstract.
  \end{abstract}
  Paper content.
\end{kaupaper}
\end{document}
⟨/collectiontemplate⟩
```

3 Implementation

3.1 Class options and dependencies

Class options are neither parsed nor passed to the underlying article class. All macros are derived from the standard article class.

```
⟨∗collection | report | masters⟩
\LoadClass{article}
```

kauclear provides page style switches in `\cleardoublepage`, kaumeta defines the macros relevant for creating title information, e. g., `\institute`.

```
\RequirePackage{kauclear}
\RequirePackage{kaumeta}
\RequirePackage{kaulist}
\RequirePackage{kaulanguage}
```

kaustudies sets the page dimension to the format required by Karlstad University Studies, kauenvironments defines environments such as `researchquestions` and `contributions`, tikz allows to place content material with absolute coordinates (required by `\vanityquote`).

```
⟨∗collection | report⟩
\RequirePackage{kaustudies}
\RequirePackage{kauenvironments}
\RequirePackage{tikz}
⟨/collection | report⟩
```

kaupaper defines the macros for appending papers to the collection thesis.

```
⟨∗collection⟩
\RequirePackage{kaupaper}
⟨/collection⟩
```

kauparts defines `\kaupart`, a replacement for `\part`.

```
⟨∗report⟩
\RequirePackage{kauparts}
⟨/report⟩
```

Garamond becomes the default font on A4 page layout, if the `nofont` option was not given.

```
⟨∗masters⟩
\newif\if@kaufont\@kaufontfalse
```

```
\DeclareOption{garamond}{\@kaufonttrue}
⟨/masters⟩
\ProcessOptions\relax
⟨*masters⟩
\if@kaufont
\RequirePackage{garamondx}
\RequirePackage[garamondx,cmbraces]{newtxmath}
\fi
\RequirePackage[paper=a4,pagesize,twoside=semi]{typearea}
⟨/masters⟩
```

3.2 Language support

\acknowledgementname

By default, the `acknowledgements` environment will create an unnumbered section with the title "Acknowledgements" (or "Tacksägelser", if Swedish is chosen as default language). The section headline can be changed to any other language by redefining the macro `\acknowledgementname`.

```
\AtBeginDocument{%
  \setname{acknowledgementname}{Acknowledgements}{Tacks\"agelser}%
}
```

\keywordname

The abstract is followed by the list of keywords. By default, the list is introduced by the word "Keywords" (and "Nyckelord" if the default language is set to Swedish). The list introduction can be changed to any other language by redefining the macro `\keywordname`.

```
\AtBeginDocument{%
  \setname{keywordname}{Keywords}{Nyckelord}%
}
```

\intronname

In collection thesis, the main matter starts automatically with an Introductory Summary. The name of the Introductory Summary ("Inledande sammanfattning" in Swedish) can be changed to any other language by redefining the macro `\intronname`.

```
⟨*collection⟩
\AtBeginDocument{%
  \setname{intronname}{Introductory Summary}{Inledande sammanfattning}%
}
⟨/collection⟩
```

A master's thesis needs to be approved by the supervisor and the examiner.

```
⟨*masters⟩
```

\approvalname

This macro contains the word "approved".

```
\AtBeginDocument{%
  \setname{approvalname}{Approved}{Godk\"and}%
}
```

\examinationname

This macro contains the name of the examination.

```
\AtBeginDocument{%
  \setname{examinationname}{Master's degree}{magisterexamen}%
}
```

`\approvaltext` The approval text.

```
\AtBeginDocument{%
  \setname{approvaltext}%
    {This thesis is submitted in partial fulfillment of the %
      requirements for the \examinationname{} in Computer Science. %
      All material in this thesis which is not my own work has been %
      identified and no material is included for which a degree has %
      previously been conferred.}%
    {Denna uppsats \"ar skriven som en del av det arbete som kr\"avs %
      f\"or att erh\aa lla en \examinationname{} i datavetenskap. Allt %
      material i denna rapport, vilket inte \"ar mitt eget, har blivit %
      tydligt identifierat och inget material \"ar inkluderat som %
      tidigare anv\"ants f\"or erh\aa llande av annan examen.}%
}
```

`\supervisorname` This macro contains the word "supervisor".

```
\AtBeginDocument{%
  \setname{supervisorname}{Supervisor}{Handledare}%
}
```

`\examinername` This macro contains the word "examiner".

```
\AtBeginDocument{%
  \setname{examinername}{Examiner}{Examinator}%
}
```

⟨/masters⟩

3.3 Title page

Karlstad University Studies will create the title page for the thesis, thus, creating an own title page is not necessary.

`\kauths@maketitle` The definition of `\maketitle` in the article class creates a title without creating a separate page. The original definition is preserved in `\kauths@maketitle`.

```
\let\kauths@maketitle\maketitle
```

`\maketitle` `\maketitle` does not serve any purpose. When invoked, it produces a warning, refering the user to the `abstract` environment.

```
\renewcommand\maketitle{%
  \PackageWarning{maketitle does not serve any purpose in this class.
    The abstract environment reproduces the title instead.}%
}
```

3.4 Front matter

The front matter starts after the title on page iii. It contains the abstract of the thesis, followed by an optional acknowledgements section and the table of contents. In collection theses and reports, the keywords are defined in the front matter.

`\kauths@abstract` The `abstract` environment of the article class provides a perfect layout for article abstracts in collection theses. It will be used for the abstracts of appended papers and preserved in the macro `\kauths@abstract`.

```
\let\kauths@abstract\abstract%
\let\kauths@endabstract\endabstract%
```

`\frontmatter` The front matter is started with `\frontmatter`. It is assumed that this macro directly runs after the optional `\maketitle`.

```
\newcommand*\frontmatter{%
  \clearpage%
```

The front matter starts on page iii, i. e., two pages are reserved for the title.

```
  \setcounter{page}{3}%
  \renewcommand\thepage{\roman{page}}%
```

`abstract` The `abstract` environment in the front matter creates a title and an unnumbered abstract section.

```
  \renewenvironment{abstract}{%
```

`\keywords` The abstract's last line in collection theses and reports is supposed to be a list of keywords preceeded by `\keywords`.

```
    \newcommand\keywords{\paragraph{\keywordname:}}%
```

`english` It is common to append an English translation of the abstract, if the thesis or report is not written in English.

```
    \newenvironment{english}{%
      \renewcommand\keywords{\paragraph{Keywords:}}%
      \section*{Abstract}%
    }{%
    }
```

The abstract starts by repeating the title, author, and the institue.

```
    \cleardoublepage%
    \section*{\@title}%
    \textsc{\prettylist{\@author}}\par%
    \noindent\textit{\@institute}%
    \section*{\abstractname}%
  }{%
```

The thesis continues after the abstract on an odd page.

```
    \cleardoublepage%
  }%
}
```

`\approvalpage` The macro `\approvalpage` creates an approval page for Master's theses.

```
⟨*masters⟩
\newcommand\approvalpage{%
  \cleardoublepage%
  \newcommand\sig{\makebox[7cm]{\hrulefill}\\}%
  \newcommand\signer[1]{\begin{quote}\sig ##1\end{quote}\mbox{}}%
  \noindent\approvaltext\\\mbox{}\bigskip%
  \foreach \x in \@author {\signer{\x}}%
  \\\mbox{}\bigskip\\\mbox{}\bigskip%
  \approvalname,\\\mbox{}\bigskip%
  \begin{quote}%
    \sig\supervisorname: \@supervisor\\\mbox{}\bigskip\\%
    \sig\examinername: \@examiner
  \end{quote}%
}
⟨/masters⟩
```

acknowledgements The environment `acknowledgements` creates an unnumbered section.

```
\newenvironment{acknowledgements}{%
  \cleardoublepage%
  \section*{\acknowledgementname}%
}{%
```

The author's name is reused to create an attribution line at the end of the acknowledgements section.

```
  \par\bigskip\bigskip\bigskip\noindent\@place, \@date\hfill \prettylist{\@author}%
  \cleardoublepage%
}
```

\kauths@tableofcontents The `\tableofcontents` definition from the article class is preserved. It is not reused in this class.

```
\let\kauths@tableofcontents\tableofcontents
```

\tableofcontents The redefined macro makes the table of contents start on an odd page.

```
\renewcommand\tableofcontents{%
  \cleardoublepage%
  \kauths@tableofcontents%
}
```

3.5 Main matter

The main matter is started with `\mainmatter`. The macro resets the page counter to page 1 and, for collection theses, it immediately creates the part Introductory Summary.

\mainmatter The optional argument of `\mainmatter[`⟨*body material*⟩`]` can be used to get access to the part's title page, e. g., for adding a quote with `\vanityquote`.

```
\newcommand\mainmatter[1][]{%
  \cleardoublepage%
```

The original definition of the `abstract` environment is restored.

```
  \renewenvironment{abstract}{\kauths@abstract}{\kauths@endabstract}%
```

The page counter is set to page 1.

```
  \setcounter{page}{1}%
  \pagenumbering{arabic}%
```

The Introductory Summary title page is created with `\intropname` and ⟨*body material*⟩.

```
⟨*collection⟩
  \kaupart*[body={#1}]{\intropname}%
⟨/collection⟩
}
```

\vanityquote The macro `\vanityquote{`⟨*quote*⟩`}{`⟨*reference*⟩`}` can be used in collection theses and reports to add quotes to the cover pages of parts, e. g., in ⟨*body material*⟩ of `\mainmatter`. The first argument, ⟨*quote*⟩, is the quote and the second, ⟨*reference*⟩, is the reference to the person which is quoted.

```
⟨*collection | report⟩
\newcommand\vanityquote[2]{%
```

The quote is placed relative to the borders of the page. TikZ is doing the actual placing.

```
\begin{tikzpicture}[remember picture,overlay]%
```

The placing reference is the lower right corner of the page.

```
  \path (current page.south east) +(-3,3.5)%
    node%
      [ anchor=south east%
      , font=\large%
      , text width=25em%
```

The closing quotation marks are placed outside the quote's right margin.

```
      ] {\raggedleft``#1\rlap{''}%
         \normalfont\par\medskip\itshape #2\par};%
\end{tikzpicture}%
}
```

⟨/collection | report⟩

\part In the kaureport class, the \part{⟨*headline*⟩} is replaced by \kaupart.

```
⟨*report⟩
\let\part\kaupart
⟨/report⟩
```

⟨/collection | report | masters⟩

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v1.0
General: SBe's licentiate version . . 1
v1.1
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v1.10
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v1.6
General: Merged the styles' dtx files 1
v1.7
General: Added approval page to kaumasters 1
v1.8
General: Improved author's signatures on the approval page of kaumasters 1
v1.9
General: Added keywords to kaumasters, added an environment for English abstracts 1

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