The **thesistu** class[*]

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Abstract

This class provides a $\LaTeX\,2_\varepsilon$ template for theses at the Faculty of Physics at the TU Wien. With a little effort it can be adapted to fit any Faculty at any Universit. In the current version, bachelor and master theses as well as dissertations are supported in both English and German.

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[*]This document corresponds to thesistu v0.1, dated 2016/09/01.

Contents

1 Introduction

This class provides a LaTeX 2ε template for all theses at the Faculty of Physics at the TU Wien. It can be adapted to fit any Faculty at any Universit. Further information on the document class and accompanying support can be found at https://github.com/MaximilianHoheiser/vutphys. Further guidelines may apply to both the format and structure of certain theses. Thesis authors are advised to consult Section **??** for a documentation of all relevant commands. Information for class developers is provided in Section **??**.

2 Known Issues

This class is incompatible with the `minitoc` package as of version 60, due to the incompatibility of the underlying `memoir` class. Use the `titletoc` package as a replacement.

3 Usage for Document Authors

This section contains relevant information for authors of theses that are based on the `thesistu` document class.

3.1 Data

To allow the generation of the title pages, signature fields, statements, etc., several pieces of information have to be set by the author using the commands in the subsequent sections. We discern several categories of data: *(i)* textual data, which is given by a simple text string, *(ii)* persons, which are defined by their names, optional titles, and their gender, as well as, *(iii)* dates and *(iv)* list data, which allow the selection of one argument from a list of permissible arguments. Several commands have polylingual capabilities and support different languages (see Section **??**). A superscript P, i.e., $\command^P$, indicates such a command.

3.1.1 Textual Data

`\setaddress`
`\setregnumber`
`\settitle`
`\setsubtitle`
`\setcurriculum`
`\setuniversity`
`\setfirstreviewerdata`
`\setsecondreviewerdata`
`\setfaculty`
`\setinstitut`

All commands in this section are called with one mandatory argument, e.g., as $\command\{\langle text\rangle\}$, where $\langle text\rangle$ defines the content of the commands. For polylingual commands, given by $\command^P$, one $\langle text\rangle$ argument has to supplied for each language (see Section **??**). The following textual data can be set:

3

Command	Role	Type	Optional
\setaddress	Address of the author	All	No
\setregnumber	Registration number of the author	All	No
\settitle[P]	Title of the thesis	All	No
\setsubtitle[P]	Subtitle of the thesis	All	Yes
\setcurriculum[P]	Name of the curriculum	B, M	No
\setuniversity	Name of the university	B, M	No
\setfaculty	Name of the faculty	B, M	No
\setinstitut	Name of the institut	B, M	No

Types: Bachelor (B), Master (M), Doctoral (D), PhD School (P), All (All)

Command	Role	Type	Optional
\setfirstreviewerdata	Affiliation and country of first reviewer	P	No
\setsecondreviewerdata	Affiliation and country of second reviewer	P	No

Types: Bachelor (B), Master (M), Doctoral (D), PhD School (P), All (All)

3.1.2 Persons

\setauthor
\setadvisor
\setsecondadvisor
\setfirstassistant
\setsecondassistant
\setthirdassistant
\setfirstreviewer
\setsecondreviewer

All commands in this section are called with four mandatory arguments, e.g., as \command{⟨pretitle⟩}{⟨name⟩}{⟨posttitle⟩}{⟨gender⟩}, where ⟨name⟩ defines both the first name(s) and family name(s) of the person. A title that is placed before the name is assigned with ⟨pretitle⟩, while a trailing title is given with ⟨posttitle⟩. Both ⟨pretitle⟩ and ⟨posttitle⟩ can be left empty, to indicate an absence of such a title; the insertion of appropriate glue between titles and names is handled by the thesistu class. The declaration of the persons gender via ⟨gender⟩ allows the use of gender-specific terms in languages that support them, e.g., German. The possible options for ⟨gender⟩ are male and female (see Section **??**). The following persons can be set:

Command	Role	Type	Optional
\setauthor	Author of the thesis	All	No
\setadvisor	Main advisor of the thesis	All	No
\setsecondadvisor	Second advisor of the thesis	P	Yes
\setfirstassistant	First advising assistant	B, M	Yes
\setsecondassistant	Second advising assistant	B, M	Yes
\setthirdassistant	Third advising assistant	B, M	Yes
\setfirstreviewer	First thesis reviewer	D, P	No
\setsecondreviewer	Second thesis reviewer	D, P	No

Types: Bachelor (B), Master (M), Doctoral (D), PhD School (P), All (All)

3.1.3 Dates

\setdate   All commands in this section are called with three madatory arguments, e.g., as
`\command{⟨day⟩}{⟨month⟩}{⟨year⟩}`. The syntax is identical to the last three
arguments of the `\newdate` command of the `datetime` package, from which these
commands derive. The following dates can be set:

Command	Role	Type	Optional
\setdate	Signing date	All	No

Types: Bachelor (B), Master (M), Doctoral (D), PhD School (P), All (All)

3.1.4 List Data

All commands in this section are called with at least one madatory argument called
⟨list⟩, e.g., as `\command...{⟨list⟩}...`, where ⟨list⟩ is given one element from a set
of possible arguments.

\setauthor   When setting a person, the person's gender is specified with a list argument (see
\setadvisor   Section **??**):
...

Command	Options	Description
\command{⟨.⟩}{⟨.⟩}{⟨.⟩}{⟨list⟩}	male	Specifies a male person.
	female	Specifies a female person.

\setthesis   The thesis type is selected from one of the fundamental types:

Command	Options	Description
\setthesis{⟨list⟩}	bachelor	Specifies a bachelor's thesis.
	master	Specifies a master's thesis.
	doctor	Specifies a dissertation.
	phd-school	Specifies a disseration at the Vienna PhD school of Informatics.

\setmasterdegree   With a master's curriculum, different degrees can be achieved and the appropriate
type has to be chosen based on the curriculum that the author is enroled in:

Command	Options	Description
\setmasterdegree{⟨*list*⟩}	dipl.	Specifies the degree 'Diplom-Ingenieur(in)'.
	master	Specifies the degree 'Master of Science'.
	rer.nat.	Specifies the degree 'Magist(er/ra) der Naturwissenschaften'.
	rer.soc.oec.	Specifies the degree 'Magist(er/ra) der Sozial- und Wirtschaftswissenschaften'.

\setdoctordegree With a doctorate study, different degrees can be achieved and the appropriate type has to be chosen based on the program that the author is enroled in:

Command	Options	Description
\setdoctordegree{⟨*list*⟩}	techn.	Specifies the degree 'Doktor(in) der Technischen' Wissenschaften'.
	rer.nat.	Specifies the degree 'Doktor(in) der Naturwissenschaften'.
	rer.soc.oec.	Specifies the degree 'Doktor(in) der Sozial- und Wirtschaftswissenschaften'.

3.1.5 Polylingual Data

\setcurriculum Used as \setcurriculum{⟨*english*⟩}{⟨*german*⟩}, it sets the name of the curriculum that the student is enroled in. The name can be given in English, with ⟨*english*⟩, and in German, with ⟨*german*⟩. Note that the curriculum name does not need to be supplied for all thesis types, since, e.g., doctoral studies do not have a curriculum per se. If a title page of one of the languages is not used, the corresponding argument can be left empty.

\settitle Used as \settitle{⟨*english*⟩}{⟨*german*⟩}, it sets the title of the thesis. The title can be given both in an English version, with ⟨*english*⟩, and in a German version, with ⟨*german*⟩. For title pages in a given language, the corresponding title will be used. Unused languages can be supplied as empty brackets and it is possible to use the English or German title for both language versions.

\setsubtitle Used as \setsubtitle{⟨*english*⟩}{⟨*german*⟩}, it sets the subtitle of the thesis. The same specifications as for \settitle apply.

\setuniversity Use as \setuniversity{⟨*english*⟩}{⟨*german*⟩}, it sets the university name both

in englisch and in german, if both the english and the german titlepage are used, both names must be supplied.

\setfaculty   Use as `\setfaculty{`⟨*englisch*⟩`}{`⟨*german*⟩`}`,it sets the faculty name both in englisch and in german, if bot the englisch and the german titlepage are used, both names mutst be supplied.

\setinstitut   Use as `\setinstitut}{`⟨*english*⟩`}{`⟨*german*⟩`}`, it specifies a name for yout institut, like the `\setinstitut` macro depending on which tilepage is used, the german and, or the english name must be supplied.

\addtitlepage   The titlepage can be generated in the following languages (see Section **??**):

Command	Options	Description
`\addtitlepage{`⟨*list*⟩`}`	`english`	Generates an English title page.
	`naustrian`	Generates a German title page.

Note that a non-English title page is not yet available for a dissertation at the Vienna PhD School.

3.2   Layout

Most of the data that is supplied with the commands of the previous sections is used to generate the front matter of the thesis. It consists of obligatory items such as the title page(s) and the statement of originality as well as optional items such as the acknowledgements or the abstract in different languages. In the remainder of this section, the available items of the front matter are given.

\setlogo   Used as `\setlogo{`⟨*UNins*⟩`}`, where ⟨*UN*⟩ are the first two Letters of your university and ⟨*ins*⟩ are the first tree letters of your institut. The Logo-File must be a vektor graphic with the `.eps` format. to create your own, use the given ones as referenc.

\addtitlepage   Used as `\addtitlepage{`⟨*lang*⟩`}`, where ⟨*lang*⟩ is the name of a language as given in the `babel` package (see Section **??**). The necessary pieces of information have to be set beforehand (as described in Section **??**). This command is usually used directly after `\begin{document}\frontmatter`.

\addstatementpage   Used as `\addstatementpage`, it generates a page with the statement of originality.

acknowledgements
acknowledgements*   Used as `\begin{acknowledgements}`⟨*text*⟩`\end{acknowledgements}`, this environment generates a chapter with the English acknowledgements. Use the starred version, i.e., `acknowledgements*`, to remove the table of content entry of this environment.

danksagung
danksagung*   Used as `\begin{danksagung}`⟨*text*⟩`\end{danksagung}`, this environment generates a chapter with the German acknowledgements. Use the starred version, i.e., `danksagung*`, to remove the table of content entry of this environment.

abstract abstract*	Used as \begin{abstract}⟨*text*⟩\end{abstract}, this environment generates a chapter with the English abstract. Use the starred version, i.e., abstract*, to remove the table of content entry of this environment.
kurzfassung kurzfassung*	Used as \begin{kurzfassung}⟨*text*⟩\end{kurzfassung}, this environment generates a chapter with the German abstract. Use the starred version, i.e., kurzfassung*, to remove the table of content entry of this environment.

All the above sections are displayed without chapter header, chapter or section numbering and are listed and are numberd in the table of contents with roman numbers.

4 Usage for Class Writers

To accomodate shifting requirements, the thesistu class provides various convenience functions that allow the modification and extension of its functionality.

4.1 Data

To compose several parts of the thesis layout, input from the thesis author is required. For the thesistu class, this is realized by the commands provided in Section **??**. Additional data can be defined with the the commands in the remainder of this section.

\CreateData Used as \CreateData{⟨*name*⟩}, it generates a command \set⟨*name*⟩. Used as \set⟨*name*⟩{⟨*string*⟩}, the newly created command assigns the value ⟨*string*⟩ to the internal variable \thesistu@data@⟨*name*⟩. The variable is initialized with an error value to alert the user of the fact that ⟨*string*⟩ was not supplied via the \set⟨*name*⟩ command. Furthermore, a command \thesistu@data@⟨*name*⟩@def is created, to increase source code readability when verifying the existance of a specific data item. See Section **??** for examples.

\CreatePerson Used as \CreatePerson{⟨*name*⟩}, it generates a command \set⟨*name*⟩. Used as \set⟨*name*⟩{⟨*pretitle*⟩}{⟨*personname*⟩}{⟨*posttitle*⟩}{⟨*gender*⟩}, the newly created command assigns the supplied values to the corresponding internal variables \thesistu@person@⟨*name*⟩@... as given in the table below.

Argument	Internal Variable
	\thesistu@person@⟨*name*⟩@def
⟨*pretitle*⟩	\thesistu@person@⟨*name*⟩@pretitle
⟨*personname*⟩	\thesistu@person@⟨*name*⟩@name
⟨*posttitle*⟩	\thesistu@person@⟨*name*⟩@posttitle
⟨*gender*⟩	\thesistu@person@⟨*name*⟩@gender

The command `\thesistu@person@⟨name⟩@def` is created to increase source code readability when verifying the existance of a specific person. Furthermore, the command `\thesistu@person@⟨name⟩@fullname` returns the person's name together with existing titles and correct whitespace in between. The person's gender is either `\thesistu@person@male` or `\thesistu@person@female`, depending on the input. See Section **??** for examples.

`\AddLanguage` Used as `\AddLanguage{⟨lang⟩}`, it enables the language ⟨lang⟩ to by used by polylingual expressions. ⟨lang⟩ has to be chosed from the languages of the `babel` package that is used by this class. Currently, `thesistu` uses two languages, i.e., `english` for English expressions and `naustrian` for German expressions.

`\CreatePolylingual` Used as `\CreatePolylingual[⟨expressions⟩]{⟨name⟩}`, it generates a command `\thesistu@polylingual@⟨name⟩` that selects the approriate expression based on the current language at the time of use. The argument ⟨expressions⟩ is a list of elements of the form ⟨expr$_i$⟩, where each element defines the expression for a valid language, e.g., ⟨lang$_i$⟩=⟨text$_i$⟩. ⟨lang$_i$⟩ has to be chosen from the languages that were defined via `\AddLanguage`. As a convention, text that needs to start with an uppercase letter is assigned to a name that starts with an uppercase letter. The same holds for uppercase words, e.g.,
`\CreatePolylingual[english=advisor,naustrian=Betreuer]{advisor}`
`\CreatePolylingual[english=Advisor,naustrian=Betreuer]{Advisor}`
`\CreatePolylingual[english=ADVISOR,naustrian=BETREUER]{ADVISOR}`.
See Section **??** for examples.

4.2 Layout

Several key elements in the layout of the frontmatter are encapsulated to allow a convenient extension of this functionality.

`\SignatureFields` Used as `\SignatureFields[⟨mode⟩]{⟨center⟩}{⟨right⟩}`, it creates a place and date description and/or one or two signature fields. ⟨mode⟩ can be set to `y`, which adds an entry with date and place to the left, to `h`, which adds the corresponding whitespace, or to `n`, which adds nothing. If text is supplied to ⟨center⟩, it is added below a rule, right to the possible date and place entry. If text is supplied to ⟨right⟩, it is added below a rule, right to the possible signature field created by ⟨center⟩. This command ensures a uniform width and positioning of the signature fields on both the title pages and the statement of originality.

`\SignatureBlock` Used as `\SignatureBlock`, it generates the signature fields for both author and advisor.

`\ReviewerBlock` Used as `\ReviewerBlock`, it generates the signature fields for both reviewers.

`\AdvisorBlock` Used as `\AdvisorBlock`, it generates the name fields for both the advisor and the potential assistants.

\AddTitlePage	Used as \AddTitlePage, it generates a title page in the current language. This command contains the placement of the header graphics, the footer, the appropriate blocks, etc.
\AddStatementPage	Used as \AddStatementPage, it generates a chapter with the statement of originality together with the author's signature field.
SFFont	Alters the sans serif font inside the environment. Called with one mandatory argument as \begin{SFFont}{⟨*family*⟩}, which determines the sans serif font family that should be used, e.g., phv for Helvetica.

5 Implementation

5.1 Initialization

5.1.1 Class Options

Pass the options to the underlying memoir class.

```
1 \DeclareOption*{%
2   \PassOptionsToClass{\CurrentOption}{memoir}%
3 }%
4 \ProcessOptions\relax
```

5.1.2 Loaded Class and Packages

The thesistu class is based on the memoir class.

```
5 \LoadClass[a4paper,11pt]{memoir}%
6 \chapterstyle{veelo}%
```

The following packages are required for the functionality and style of the document class.

```
7  \RequirePackage[scaled]{helvet}%
8  \RequirePackage{lmodern}%
9  \RequirePackage{courier}%
10 \RequirePackage[T1]{fontenc}%
11 \RequirePackage[english,naustrian]{babel}%
12 \RequirePackage[nodayofweek]{datetime}%
13 \RequirePackage{geometry}%
14 \RequirePackage{calc}%
15 \RequirePackage{etoolbox}%
16 \RequirePackage{graphicx}%
17 \graphicspath{{graphics/}}%
```

To use subfolders for each section in the graphics directory each subfolder hase to be defind in the main thesis.tex file as a search path for latex eg: \graphicspath{{../graphics/chapter01}{../graphics/chapter02/}} where the .. is used, so that each chapter can be placed in a subfolder relative to the main thesis.tex file and still find the correct path for the graphics.

5.1.3 Low-Level Functionality

This section provides low-level functionality for macro definitions and macro expansions.

\@namexdef   Globally defines a control sequence with an expanded argument.

```
18 \newcommand{\@namexdef}[1]{\expandafter\xdef\csname#1\endcsname}%
```

\ifestrequal   A variant of \ifstrequal that fully expands the first two arguments.

```
19 \newcommand{\ifestrequal}[4]{%
20   \begingroup
21     \edef\thesistu@tempa{{#1}}%
22     \edef\thesistu@tempb{{#2}}%
23     \expandafter\expandafter\expandafter\ifstrequal
24       \expandafter\thesistu@tempa\thesistu@tempb{#3}{#4}%
25   \endgroup
26 }%
```

5.1.4 Fonts

\thesistu@HUGE
\thesistu@huge
\thesistu@LARGE
\thesistu@Large
\thesistu@large
\thesistu@normalsize

Initializes the font sizes.

```
27 \newcommand{\thesistu@HUGE}{\fontsize{30}{34}\selectfont}%
28 \newcommand{\thesistu@huge}{\fontsize{20}{23}\selectfont}%
29 \newcommand{\thesistu@LARGE}{\fontsize{17}{22}\selectfont}%
30 \newcommand{\thesistu@Large}{\fontsize{14}{18}\selectfont}%
31 \newcommand{\thesistu@large}{\fontsize{12}{14.5}\selectfont}%
32 \newcommand{\thesistu@normalsize}{\fontsize{11}{13.6}\selectfont}%
```

SFFont   Selects the given font family as sans serif font.

```
33 \newenvironment{SFFont}[1]{%
```

Stores the current sans serif font in \thesistu@f@family@tmp and changes to the given sans serif font.

```
34   \begingroup
35     \sffamily
36     \global\let\thesistu@f@family@tmp=\f@family
```

```
37    \endgroup
38    \renewcommand{\sfdefault}{#1}%
```

In case the outer scope is already sans serif, the new font has to be activated.

```
39    \ifdefstrequal{\f@family}{\thesistu@f@family@tmp}{\sffamily}{}%
40 }{%
```

The scope of the font change is the environment itself. Thus, no cleanup code is required in case the outer scope was already sans serif.

```
41    \renewcommand{\sfdefault}{\thesistu@f@family@tmp}%
42 }%
```

5.2   Data

5.2.1   Dates

\setdate   Creates the internal storage for the signing date.

```
43 \newcommand{\setdate}[3]{%
44    \newdate{thesistu@date@signing}{#1}{#2}{#3}%
45 }%
```

5.2.2   Textual Data

\thesistu@def@data   Creates the internal storage for simple data entries.

```
46 \newcommand{\thesistu@def@data}[2]{%
47    \@namedef{thesistu@data@#1@def}{}%
48    \@namedef{thesistu@data@#1}{#2}%
49 }%
```

\thesistu@def@data@invalid   Initializes the internal storage with error messages.

```
50 \newcommand{\thesistu@def@data@invalid}[2]{%
51    \@namedef{thesistu@data@#1@error}{%
52      \ClassError{thesistu}{No #2 issued}{Set #1 with #2.}%
53    }%
54    \@namedef{thesistu@data@#1}{\@nameuse{thesistu@data@#1@error}}%
55 }%
```

\CreateData   Issues the construction of a setter function for a `data` entry given by \setdata.

```
56 \newcommand{\CreateData}[1]{%
57    \@namedef{set#1}##1{%
58      \thesistu@def@data{#1}{##1}%
59    }%
```

```
60    \thesistu@def@data@invalid{#1}{\string\set#1}%
61 }%
```

5.2.3   Persons

\thesistu@person@male
\thesistu@person@female

Two genders are differentiated for each person: `male` and `female`.

```
62 \newcommand{\thesistu@person@male}{male}%
63 \newcommand{\thesistu@person@female}{female}%
```

\ifmale
\iffemale

Convenience macros to determine the gender of a person.

```
64 \newcommand{\ifmale}[2]{%
65    \ifcsstring{thesistu@person@#1@gender}{\thesistu@person@male}{#2}{}%
66 }%
67 \newcommand{\iffemale}[2]{%
68    \ifcsstring{thesistu@person@#1@gender}{\thesistu@person@female}{#2}{}%
69 }%
```

\thesistu@def@person

Creates the internal storage for a person's name, titles and gender.

```
70 \newcommand{\thesistu@def@person}[5]{%
71    \@namedef{thesistu@person@#1@def}{}%
72    \@namedef{thesistu@person@#1@pretitle}{#2}%
73    \@namedef{thesistu@person@#1@name}{#3}%
74    \@namedef{thesistu@person@#1@posttitle}{#4}%
75    \ifdefstring{\thesistu@person@male}{#5}{%
76      \@namedef{thesistu@person@#1@gender}{\thesistu@person@male}%
77    }{}%
78    \ifdefstring{\thesistu@person@female}{#5}{%
79      \@namedef{thesistu@person@#1@gender}{\thesistu@person@female}%
80    }{}%
```

For the full name, additional spaces have to be inserted depending on the presence of pre- or posttitles.

```
81    \ifstrempty{#3}{%
82      \ifstrempty{#2}{%
83        \@namedef{thesistu@person@#1@fullname}{#4}%
84      }{%
85        \ifstrempty{#4}{%
86          \@namedef{thesistu@person@#1@fullname}{#2}%
87        }{%
88          \@namedef{thesistu@person@#1@fullname}{#2 #4}%
89        }%
90      }%
91    }{%
92      \ifstrempty{#2}{%
93        \ifstrempty{#4}{%
```

13

```
94        \@namedef{thesistu@person@#1@fullname}{#3}%
95      }{%
96        \@namedef{thesistu@person@#1@fullname}{#3, #4}%
97      }%
98    }{%
99      \ifstrempty{#4}{%
100       \@namedef{thesistu@person@#1@fullname}{#2 #3}%
101     }{%
102       \@namedef{thesistu@person@#1@fullname}{#2 #3, #4}%
103     }%
104   }%
105  }%
106 }%
```

\thesistu@def@person@invalid   Initializes the internal storage with error messages.

```
107 \newcommand{\thesistu@def@person@invalid}[2]{%
108   \@namedef{thesistu@person@#1@error}{%
109     \ClassError{thesistu}{No #2 issued}{Set #1 with #2.}%
110   }%
111   \@namedef{thesistu@person@#1@name}{%
112     \@nameuse{thesistu@person@#1@error}}%
113   \@namedef{thesistu@person@#1@pretitle}{%
114     \@nameuse{thesistu@person@#1@error}}%
115   \@namedef{thesistu@person@#1@posttitle}{%
116     \@nameuse{thesistu@person@#1@error}}%
117   \@namedef{thesistu@person@#1@gender}{%
118     \@nameuse{thesistu@person@#1@error}}%
119   \@namedef{thesistu@person@#1@fullname}{%
120     \@nameuse{thesistu@person@#1@error}}%
121 }%
```

\CreatePerson   Issues the construction of a setter function for a person given by \setperson.

```
122 \newcommand{\CreatePerson}[1]{%
123   \@namedef{set#1}##1##2##3##4{%
124     \thesistu@def@person{#1}{##1}{##2}{##3}{##4}%
125   }%
126   \thesistu@def@person@invalid{#1}{\string\set#1}%
127 }%
```

5.2.4   Polylingual Text

This class supports bi- and polylingual text via a key-value mechanism. See the
\CreatePolylingual command further down for the actual definition of polylin-
gual expressions.

\AddLanguage   Constructs the temporary variables and the permanent storage for polylingual text in the given language.

```
128 \newcommand{\AddLanguage}[1]{%
```

First, the key for the current language, given by its name in the `babel` package, is created. Keys of the `keyval` package are internally stored as KV@family@keyname, where we use `thesistu` as family name and the argument as key name. The value that is given to this key as part of a function argument is assigned to a temporary storage.

```
129   \@namedef{KV@thesistu@#1}##1{%
130     \@namedef{thesistu@current@#1}{##1}%
131   }%
```

The key value is initialized as empty.

```
132   \@nameuse{KV@thesistu@#1}{}%
```

The transfer from temporary to permanent storage is achieved by adding code to the already existing transfer routine. This causes each new language to issue the transfer for the previously defined language.

```
133   \ifundef{\thesistu@allocate@polylingual}{%
```

Define the transfer function, if it has not been defined so far.

```
134     \newcommand{\thesistu@allocate@polylingual}[1]{\@empty}%
135   }{}%
```

Store the current transfer function via `\let` to allow recursion.

```
136   \@namelet{thesistu@allocate@polylingual@#1}%
137     \thesistu@allocate@polylingual
```

Define the transfer function to permanent storage.

```
138   \renewcommand{\thesistu@allocate@polylingual}[1]{%
```

Call the transfer routine of the previously defined language.

```
139     \@nameuse{thesistu@allocate@polylingual@#1}{##1}%
```

To define the permanent storage, `\@namexdef` is used the definition's scope has to be global.

```
140     \@namexdef{thesistu@##1@#1}{%
141       \ifcsempty{thesistu@current@#1}{%
```

In draft mode we mark unassigned languages, i.e., polylingual expression that were not defined for a language that is in use when the polylingual expression is called.

```
142        \ifdraftdoc{%
143          [Draft: No '#1' text for polylingual '##1'.]%
144        }\else{%
145          \relax
146        }\fi
147     }{%
```

The use of `\@namexdef` expands the content of the temporary storage before assigning it to the permanent one.

```
148        \@nameuse{thesistu@current@#1}%
149      }%
150    }%
151  }%
```

At time of usage, the language, which is given as an argument, is checked against the currently active language.

```
152  \ifundef{\thesistu@selectlanguage@polylingual}{%
```

Define the language selection function, if it has not been defined so far.

```
153      \newcommand{\thesistu@selectlanguage@polylingual}[1]{\@empty}%
154  }{}%
```

Store the current selection function via `\let` to allow recursion.

```
155  \@namelet{thesistu@selectlanguage@polylingual@#1}%
156    \thesistu@selectlanguage@polylingual
```

Define the selection function.

```
157  \renewcommand{\thesistu@selectlanguage@polylingual}[1]{%
```

Call the selection routine of the previously defined language.

```
158      \@nameuse{thesistu@selectlanguage@polylingual@#1}{##1}%
```

The currently active language is given by `\languagename`. If it matches the language, which was supplied as the argument, the content of the current permanent storage is returned.

```
159      \ifdefstring{\languagename}{#1}{\@nameuse{thesistu@##1@#1}}{}%
160  }%
161 }%
```

\CreatePolylingual   Creates the actual polylingual expressions.

```
162 \newcommand{\CreatePolylingual}[2][]{%
163   \begingroup
```

The key-value pairs of the optional argument define the text that is returned for the respective languages. We use `thesistu` as the family name for the keys.

```
164     \setkeys{thesistu}{#1}%
```

Each key was already assigned a temporary storage, whose content has to be transfered to permanent storage.

```
165     \thesistu@allocate@polylingual{#2}%
166   \endgroup
```

The mandatory argument $\{\langle arg \rangle\}$ is used to define the macro that returns the appropriate text for the currently active language.

```
167   \@namedef{thesistu@polylingual@#2}{%
168     \thesistu@selectlanguage@polylingual{#2}}%
169 }%
```

5.2.5 Thesis Types

<div style="text-align: right">u@thesis@basetype@undergraduate
esistu@thesis@basetype@graduate</div>

Two thesis categories are differentiated: `undergraduate` and `graduate`.

```
170 \newcommand{\thesistu@thesis@basetype@undergraduate}{%
171   thesistu@undergraduate}%
172 \newcommand{\thesistu@thesis@basetype@graduate}{%
173   thesistu@graduate}%
```

<div style="text-align: right">\ifundergraduate
\ifgraduate</div>

Convenience macros to determine the category of the selected thesis type.

```
174 \newcommand{\ifundergraduate}[1]{%
175   \ifestrequal{\thesistu@thesis@basetype}{%
176     \thesistu@thesis@basetype@undergraduate
177   }{#1}{}%
178 }%
179 \newcommand{\ifgraduate}[1]{%
180   \ifestrequal{\thesistu@thesis@basetype}{%
181     \thesistu@thesis@basetype@graduate
182   }{#1}{}%
183 }%
```

<div style="text-align: right">esistu@thesis@doctortype@doctor
\thesistu@thesis@doctortype@phd</div>

Two doctor thesis categories are differentiated: `doctor` and `phd`, where the latter is for dissertation in the context of the Vienna PhD School of Informatics.

```
184 \newcommand{\thesistu@thesis@doctortype@doctor}{%
185   thesistu@doctor}%
186 \newcommand{\thesistu@thesis@doctortype@phd}{%
187   thesistu@phd}%
```

`\ifdoctor` Convenience macros to determine the category of the selected doctor thesis type.
`\ifphd`   These need to be nested inside `\ifgraduate` conditions.

```
188 \newcommand{\ifdoctor}[1]{%
189   \ifestrequal{\thesistu@thesis@doctortype}{%
190     \thesistu@thesis@doctortype@doctor
191   }{#1}{}%
192 }%
193 \newcommand{\ifphd}[1]{%
194   \ifestrequal{\thesistu@thesis@doctortype}{%
195     \thesistu@thesis@doctortype@phd
196   }{#1}{}%
197 }%
```

`\thesistu@thesis@basetype`   Initialize the thesis category, the type and the specific degree with error messages.
`\thesistu@thesis@doctortype`
`\thesistu@thesis@thesisname`
`\thesistu@thesis@degreename`

```
198 \newcommand{\thesistu@thesis@basetype}{%
199   \ClassError{thesistu}{No \string\setthesis \space issued}{%
200     Set thesis type with \string\setthesis.}%
201 }%
202 \newcommand{\thesistu@thesis@doctortype}{%
203   \ClassError{thesistu}{No \string\setthesis \space issued}{%
204     Set thesis type with \string\setthesis.}%
205 }%
206 \newcommand{\thesistu@polylingual@degreename}{%
207   \ClassError{thesistu}{No \string\setthesis \space issued}{%
208     Set thesis type with \string\setthesis.}%
209 }%
210 \newcommand{\thesistu@polylingual@thesisname}{%
211   \ClassError{thesistu}{No \string\setthesis \space issued}{%
212     Set thesis type with \string\setthesis.}%
213 }%
```

`\thesistu@thesis@bachelor`   Four main thesis types are differentiated: `bachelor`, `master`, `doctor`, and
`\thesistu@thesis@master`   `phd-school`.
`\thesistu@thesis@doctor`
`\thesistu@thesis@phd`

```
214 \newcommand{\thesistu@thesis@bachelor}{bachelor}%
215 \newcommand{\thesistu@thesis@master}{master}%
216 \newcommand{\thesistu@thesis@doctor}{doctor}%
217 \newcommand{\thesistu@thesis@phd}{phd-school}%
```

`\@setthesisname`   Internal convenience macros.
`\@setdegreename`
`\@setgendereddegreename`

```
218 \newcommand{\@setthesisname}[1]{%
219   \renewcommand{\thesistu@polylingual@thesisname}{#1}}%
220 \newcommand{\@setdegreename}[1]{%
221   \renewcommand{\thesistu@polylingual@degreename}{#1}}%
222 \newcommand{\@setgendereddegreename}[2]{%
223   \ifmale{author}{\@setdegreename{#1}}%
224   \iffemale{author}{\@setdegreename{#2}}%
```

```
225 }%
```

Sets the thesis type.

```
226 \newcommand{\setthesis}[1]{%
227   \ifdefstring{\thesistu@thesis@bachelor}{#1}{%
```

Initializes `bachelor` thesis type.

```
228     \renewcommand{\thesistu@thesis@basetype}{%
229       \thesistu@thesis@basetype@undergraduate}%
230     \@setthesisname{\thesistu@polylingual@BACHELORTHESIS}%
231     \@setdegreename{\thesistu@polylingual@Bdeg}%
232   }{}%
233   \ifdefstring{\thesistu@thesis@master}{#1}{%
```

Initializes `master` thesis type.

```
234     \renewcommand{\thesistu@thesis@basetype}{%
235       \thesistu@thesis@basetype@undergraduate}%
236     \@setthesisname{%
237       \ClassError{thesistu}{No \string\setmasterdegree \space issued}{%
238         Set masterdegree with \string\setmasterdegree.}%
239     }%
240     \@setdegreename{%
241       \ClassError{thesistu}{No \string\setmasterdegree \space issued}{%
242         Set master degree with \string\setmasterdegree.}%
243     }%
244   }{}%
245   \ifdefstring{\thesistu@thesis@doctor}{#1}{%
```

Initializes `doctor` thesis type.

```
246     \renewcommand{\thesistu@thesis@basetype}{%
247       \thesistu@thesis@basetype@graduate}%
248     \renewcommand{\thesistu@thesis@doctortype}{%
249       \thesistu@thesis@doctortype@doctor}%
250     \@setthesisname{\thesistu@polylingual@DOCTORTHESIS}%
251     \@setdegreename{%
252       \ClassError{thesistu}{No \string\setdoctordegree \space issued}{%
253         Set doctor degree with \string\setdoctordegree.}%
254     }%
255   }{}%
256   \ifdefstring{\thesistu@thesis@phd}{#1}{%
```

Initializes `phd-school` thesis type.

```
257     \renewcommand{\thesistu@thesis@basetype}{%
258       \thesistu@thesis@basetype@graduate}%
259     \renewcommand{\thesistu@thesis@doctortype}{%
260       \thesistu@thesis@doctortype@phd}%
```

```
261     \@setthesisname{\thesistu@polylingual@PHDTHESIS}%
262     \@setdegreename{\thesistu@polylingual@Pdeg}%
263   }{}%
264 }%
```

\thesistu@thesis@mdeg@dipl
\thesistu@thesis@mdeg@master
\thesistu@thesis@mdeg@rernat
\thesistu@thesis@mdeg@rersocoec

Four master degrees can be selected: dipl., master, rer.nat., and rer.soc.oec..

```
265 \newcommand{\thesistu@thesis@mdeg@dipl}{dipl.}%
266 \newcommand{\thesistu@thesis@mdeg@master}{master}%
267 \newcommand{\thesistu@thesis@mdeg@rernat}{rer.nat.}%
268 \newcommand{\thesistu@thesis@mdeg@rersocoec}{rer.soc.oec.}%
```

\setmasterdegree Sets the specific master degree.

```
269 \newcommand{\setmasterdegree}[1]{%
270   \ifdefstring{\thesistu@thesis@mdeg@dipl}{#1}{%
271     \@setthesisname{\thesistu@polylingual@DIPLOMATHESIS}%
272     \@setgendereddegreename{%
273       \thesistu@polylingual@MdegDiplMale
274     }{%
275       \thesistu@polylingual@MdegDiplFemale
276     }%
277   }{}%
278   \ifdefstring{\thesistu@thesis@mdeg@master}{#1}{%
279     \@setthesisname{\thesistu@polylingual@MASTERTHESIS}%
280     \@setdegreename{\thesistu@polylingual@MdegMaster}%
281   }{}%
282   \ifdefstring{\thesistu@thesis@mdeg@rernat}{#1}{%
283     \@setthesisname{\thesistu@polylingual@MASTERTHESIS}%
284     \@setgendereddegreename{%
285       \thesistu@polylingual@MdegRerNatMale
286     }{%
287       \thesistu@polylingual@MdegRerNatFemale
288     }%
289   }{}%
290   \ifdefstring{\thesistu@thesis@mdeg@rersocoec}{#1}{%
291     \@setthesisname{\thesistu@polylingual@MASTERTHESIS}%
292     \@setgendereddegreename{%
293       \thesistu@polylingual@MdegRerSocOecMale
294     }{%
295       \thesistu@polylingual@MdegRerSocOecFemale
296     }%
297   }{}%
298 }%
```

\thesistu@thesis@ddeg@rernat
\thesistu@thesis@ddeg@techn
\thesistu@thesis@ddeg@rersocoec

Three doctor degrees can be selected: rer.nat., techn., and rer.soc.oec..

```
299 \newcommand{\thesistu@thesis@ddeg@rernat}{rer.nat.}%
300 \newcommand{\thesistu@thesis@ddeg@techn}{techn.}%
```

```
301 \newcommand{\thesistu@thesis@ddeg@rersocoec}{rer.soc.oec.}%
```

\setdoctordegree Sets the specific doctor degree.

```
302 \newcommand{\setdoctordegree}[1]{%
303   \ifdefstring{\thesistu@thesis@ddeg@rernat}{#1}{%
304     \@setgendereddegreename{%
305       \thesistu@polylingual@DdegRerNatMale
306     }{%
307       \thesistu@polylingual@DdegRerNatFemale
308     }%
309   }{}%
310   \ifdefstring{\thesistu@thesis@ddeg@techn}{#1}{%
311     \@setgendereddegreename{%
312       \thesistu@polylingual@DdegTechnMale
313     }{%
314       \thesistu@polylingual@DdegTechnFemale
315     }%
316   }{}%
317   \ifdefstring{\thesistu@thesis@ddeg@rersocoec}{#1}{%
318     \@setgendereddegreename{%
319       \thesistu@polylingual@DdegRerSocOecMale
320     }{%
321       \thesistu@polylingual@DdegRerSocOecFemale
322     }%
323   }{}%
324 }%
```

5.2.6 Declarations

Textual Data Creates the required textual data entries.

```
325 \CreateData{address}%
326 \CreateData{regnumber}%
327 \CreateData{firstreviewerdata}%
328 \CreateData{secondreviewerdata}%
```

Persons Creates the required person entries.

```
329 \CreatePerson{author}%
330 \CreatePerson{advisor}%
331 \CreatePerson{secondadvisor}%
332 \CreatePerson{firstassistant}%
333 \CreatePerson{secondassistant}%
334 \CreatePerson{thirdassistant}%
335 \CreatePerson{firstreviewer}%
336 \CreatePerson{secondreviewer}%
```

Languages Adds the desired languages to the polylingual expressions. All added languages
have to be given as arguments to the `babel` package.

```
337 \AddLanguage{english}%
338 \AddLanguage{naustrian}%
```

PolyLinguals Creates the polylingual expressions.

```
339 \CreatePolylingual[
340   english=Advisor,
341   naustrian=Betreuung]{Advisor}%
342 \CreatePolylingual[
343   english=Second advisor]{Secondadvisor}%
344 \CreatePolylingual[
345   english=submitted in partial fulfillment of the requirements
346     for the degree of,
347   naustrian=zur Erlangung des akademischen Grades]{submission}%
348 \CreatePolylingual[
349   english=in,
350   naustrian=im Rahmen des Studiums]{in}%
351 \CreatePolylingual[
352   english=within the]{within}%
353 \CreatePolylingual[
354   english=Vienna PhD School of Informatics]{School}%
355 \CreatePolylingual[
356   english=by,
357   naustrian=eingereicht von]{by}%
358 \CreatePolylingual[
359   english=Registration Number,
360   naustrian=Matrikelnummer]{Registrationnumber}%
361 \CreatePolylingual[
362   english=to the Faculty of Informatics,
363   naustrian=an der Fakult\"at f\"ur Informatik]{faculty}%
364 \CreatePolylingual[
365   english=at the TU Wien,
366   naustrian=der Technischen Universit\"at Wien]{university}%
367 \CreatePolylingual[
368   english=Assistance,
369   naustrian=Mitwirkung]{Assistance}%
370 \CreatePolylingual[
371   english=The dissertation has been reviewed by:,
372   naustrian=Diese Dissertation haben begutachtet:]{Reviewed}%
373 \CreatePolylingual[
374   english=External reviewers:]{Reviewers}%
375 \CreatePolylingual[
376   english=Vienna,
377   naustrian=Wien]{Place}%
378 \CreatePolylingual[
379   english=Declaration of Authorship,
380   naustrian=Erkl\"arung zur Verfassung der Arbeit]{StatementChapter}%
```

```
381 \CreatePolylingual[
382   english={I hereby declare that I have written this Doctoral Thesis
383     independently, that I have completely specified the utilized
384     sources and resources and that I have definitely marked all parts
385     of the work - including tables, maps and figures - which belong
386     to other works or to the internet, literally or extracted, by
387     referencing the source as borrowed.},
388   naustrian={Hiermit erkl\"are ich, dass ich diese Arbeit
389     selbst\"andig verfasst habe, dass ich die verwendeten Quellen
390     und Hilfsmittel vollst\"andig angegeben habe und dass ich die
391     Stellen der Arbeit -- einschlie{\ss}lich Tabellen, Karten und
392     Abbildungen --, die anderen Werken oder dem Internet im Wortlaut
393     oder dem Sinn nach entnommen sind, auf jeden Fall unter Angabe
394     der Quelle als Entlehnung kenntlich gemacht habe.}]{Statement}%
```

Degree titles.

```
395 \CreatePolylingual[
396   english=Bachelor of Science,
397   naustrian=Bachelor of Science]{Bdeg}%
398 \CreatePolylingual[
399   english=Master of Science,
400   naustrian=Master of Science]{MdegMaster}%
401 \CreatePolylingual[
402   english=Diplom-Ingenieur,
403   naustrian=Diplom-Ingenieur]{MdegDiplMale}%
404 \CreatePolylingual[
405   english=Diplom-Ingenieurin,
406   naustrian=Diplom-Ingenieurin]{MdegDiplFemale}%
407 \CreatePolylingual[
408   english=Magister der Naturwissenschaften,
409   naustrian=Magister der Naturwissenschaften]{MdegRerNatMale}%
410 \CreatePolylingual[
411   english=Magistra der Naturwissenschaften,
412   naustrian=Magistra der Naturwissenschaften]{MdegRerNatFemale}%
413 \CreatePolylingual[
414   english=Magister der Sozial- und Wirtschaftswissenschaften,
415   naustrian=Magister der Sozial- und Wirtschaftswissenschaften]{%
416   MdegRerSocOecMale}%
417 \CreatePolylingual[
418   english=Magistra der Sozial- und Wirtschaftswissenschaften,
419   naustrian=Magistra der Sozial- und Wirtschaftswissenschaften]{%
420   MdegRerSocOecFemale}%
421 \CreatePolylingual[
422   english=Doktor der Naturwissenschaften,
423   naustrian=Doktor der Naturwissenschaften]{DdegRerNatMale}%
424 \CreatePolylingual[
425   english=Doktorin der Naturwissenschaften,
426   naustrian=Doktorin der Naturwissenschaften]{DdegRerNatFemale}%
427 \CreatePolylingual[
```

```
428   english=Doktor der Technischen Wissenschaften,
429   naustrian=Doktor der Technischen Wissenschaften]{DdegTechnMale}%
430 \CreatePolylingual[
431   english=Doktorin der Technischen Wissenschaften,
432   naustrian=Doktorin der Technischen Wissenschaften]{DdegTechnFemale}%
433 \CreatePolylingual[
434   english=Doktor der Sozial- und Wirtschaftswissenschaften,
435   naustrian=Doktor der Sozial- und Wirtschaftswissenschaften]{%
436   DdegRerSocOecMale}%
437 \CreatePolylingual[
438   english=Doktorin der Sozial- und Wirtschaftswissenschaften,
439   naustrian=Doktorin der Sozial- und Wirtschaftswissenschaften]{%
440   DdegRerSocOecFemale}%
441 \CreatePolylingual[
442   english=Doctor of Technical Sciences]{%
443   Pdeg}%
```

Thesis types.

```
444 \CreatePolylingual[
445   english=BACHELOR'S THESIS,
446   naustrian=BACHELORARBEIT]{BACHELORTHESIS}%
447 \CreatePolylingual[
448   english=MASTER'S THESIS,
449   naustrian=MASTERARBEIT]{MASTERTHESIS}%
450 \CreatePolylingual[
451   english=DIPLOMA THESIS,
452   naustrian=DIPLOMARBEIT]{DIPLOMATHESIS}%
453 \CreatePolylingual[
454   english=DISSERTATION,
455   naustrian=DISSERTATION]{DOCTORTHESIS}%
456 \CreatePolylingual[
457   english=PhD THESIS]{PHDTHESIS}%
```

\settitle   Sets the title of the thesis.

```
458 \newcommand{\settitle}[2]{%
459   \CreatePolylingual[english=#1,naustrian=#2]{Title}%
460 }%
```

\setsubtitle   Sets the subtitle of the thesis.

```
461 \newcommand{\setsubtitle}[2]{%
462   \CreatePolylingual[english=#1,naustrian=#2]{Subtitle}%
463 }%
```

\setcurriculum   Sets the curriculum name.

```
464 \newcommand{\setcurriculum}[2]{%
465   \CreatePolylingual[english=#1,naustrian=#2]{Curriculum}%
```

```
466 }%
```

\setuniversity   Sets the curriculum name.

```
467 \newcommand{\setuniversity}[2]{%
468   \CreatePolylingual[english=#1,naustrian=#2]{University}%
469 }%
```

\setfaculty   Sets the curriculum name.

```
470 \newcommand{\setfaculty}[2]{%
471   \CreatePolylingual[english=#1,naustrian=#2]{Fakulty}%
472 }%
```

\setinstitut   Sets the curriculum name.

```
473 \newcommand{\setinstitut}[2]{%
474   \CreatePolylingual[english=#1,naustrian=#2]{Institut}%
475 }%
```

5.3 Layout

5.3.1 Setup

\thesistu@squarebullet   Set internal convenience macros.

```
476 \newcommand{\newsetlength}[2]{%
477   \newlength{#1}%
478   \setlength{#1}{#2}%
479 }%
480 \newcommand{\thesistu@squarebullet}{\rule[0.47ex]{0.4ex}{0.4ex}}%
```

\thesistu@tmp@parindent
\thesistu@tmp@baselineskip
\thesistu@tmp@parskip   Temporary storage for page layout lengths.

```
481 \newlength{\thesistu@tmp@parindent}%
482 \newlength{\thesistu@tmp@baselineskip}%
483 \newlength{\thesistu@tmp@parskip}%
```

\thesistu@savelayout
\thesistu@restorelayout   Saves and restores relevant page layout lengths.

```
484 \newcommand{\thesistu@savelayout}{%
485   \setlength{\thesistu@tmp@parindent}{\parindent}%
486   \setlength{\thesistu@tmp@baselineskip}{\baselineskip}%
487   \setlength{\thesistu@tmp@parskip}{\parskip}%
488 }%
489 \newcommand{\thesistu@restorelayout}{%
490   \setlength{\parindent}{\thesistu@tmp@parindent}%
```

```
491    \setlength{\baselineskip}{\thesistu@tmp@baselineskip}%
492    \setlength{\parskip}{\thesistu@tmp@parskip}%
493 }%
```

5.3.2   Title Page

Initialize the header graphics. The vertical placement of the header graphics on the title pages are given by `\thesistu@header@placement`, while the composition of the graphical elements are determined by the subsequent lengths, which constitute direct measurements of the graphics. If the header graphics are changed, these values have to be adapted.

```
494 \newsetlength{\thesistu@header@placement}{-41.49731pt}%
495 \newsetlength{\thesistu@bar@width}{511bp}%
496 \newsetlength{\thesistu@bar@height}{47bp}%
497 \newsetlength{\thesistu@bar@pivot@x}{330.71bp}%
498 \newsetlength{\thesistu@bar@pivot@y}{25.31bp}%
499 \newsetlength{\thesistu@logo@height}{46bp}%
500 \newsetlength{\thesistu@logo@pivot@x}{4.57bp}%
501 \newsetlength{\thesistu@logo@pivot@y}{5.37bp}%
502 \newsetlength{\thesistu@logo@offset@height}{\thesistu@logo@height
503    + \thesistu@bar@pivot@y - \thesistu@logo@pivot@y}%
504 \newsetlength{\thesistu@logo@offset@x}{-\thesistu@bar@width
505    + \thesistu@bar@pivot@x - \thesistu@logo@pivot@x}%
506 \newsetlength{\thesistu@logo@offset@y}{
507    - \thesistu@bar@pivot@y + \thesistu@logo@pivot@y}%
```

`\thesistu@header@titlepage`   Initialize header.

```
508 \newcommand{\thesistu@header@titlepage}{%
509    \centering
510    \begin{minipage}[b][\thesistu@logo@offset@height][t]{%
511        \thesistu@bar@width
512    }%
513    \includegraphics{TU_INF_header}%
514    \hspace*{\thesistu@logo@offset@x}%
515    \raisebox{\thesistu@logo@offset@y}{%
516        \includegraphics[scale=1]{TU_INF_Logo_gray}%
517    }%
518    \end{minipage}%
519 }%
```

`\thesistu@footer@titlepage`   Initialize footer.

```
520 \newcommand{\thesistu@footer@titlepage}{%
521    \centering
522    \begin{minipage}{\textwidth}%
523        \centering\thesistu@normalsize\sffamily
```

```
524      Technische Universit\"{a}t Wien\\
525      A-1040 Wien \thesistu@squarebullet\space
526      Karlsplatz 13 \thesistu@squarebullet\space
527      Tel. +43-1-58801-0 \thesistu@squarebullet\space
528      www.tuwien.ac.at%
529    \end{minipage}%
530 }%
```

thesistu@pagestyle@titlepage   Generate the title page style.

```
531 \makepagestyle{thesistu@pagestyle@titlepage}%
532 \makerunningwidth{thesistu@pagestyle@titlepage}[\textwidth]{%
533   \thesistu@bar@width}%
534 \makeheadposition{thesistu@pagestyle@titlepage}{%
535   center}{center}{center}{center}%
536 \makeevenhead{thesistu@pagestyle@titlepage}{}{%
537   \thesistu@header@titlepage}{}%
538 \makeoddhead{thesistu@pagestyle@titlepage}{}{%
539   \thesistu@header@titlepage}{}%
540 \makefootrule{thesistu@pagestyle@titlepage}{%
541   \thesistu@pagestyle@titlepagefootrunwidth}{0.5pt}{\footruleskip}%
542 \makeevenfoot{thesistu@pagestyle@titlepage}{}{%
543   \thesistu@footer@titlepage}{}%
544 \makeoddfoot{thesistu@pagestyle@titlepage}{}{%
545   \thesistu@footer@titlepage}{}%
```

Set style element specifications.

```
546 \newsetlength{\thesistu@bigskipamount}{6mm}%
```

Helper functions.

```
547 \newcommand{\thesistu@bigskip}{\vspace{\thesistu@bigskipamount}}%
```

\AdvisorBlock   Generates a block with the advisor's name (and potential assistances' names). An error is thrown, if the advisors are not defined consecutively, starting with the first.

```
548 \newcommand{\AdvisorBlock}{%
549   \ifundergraduate{%
550     \begin{minipage}[t][2.5cm][t]{\textwidth}%
551       \thesistu@normalsize
552       \begin{tabular}{@{}l@{ }l}%
553         \thesistu@polylingual@Advisor: &
554         \thesistu@person@advisor@fullname\\
555         \ifdef{\thesistu@person@firstassistant@def}{%
556           \thesistu@polylingual@Assistance: &
557           \thesistu@person@firstassistant@fullname\\
558         }{}%
559         \ifdef{\thesistu@person@secondassistant@def}{%
```

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```
560        \ifundef{\thesistu@person@firstassistant@def}{%
561          \thesistu@person@firstassistant@error
562        }{%
563          & \thesistu@person@secondassistant@fullname\\
564        }%
565      }{}%
566      \ifdef{\thesistu@person@thirdassistant@def}{%
567        \ifundef{\thesistu@person@firstassistant@def}{%
568          \thesistu@person@firstassistant@error
569        }{%
570          \ifundef{\thesistu@person@secondassistant@def}{%
571            \thesistu@person@secondassistant@error
572          }{%
573            & \thesistu@person@thirdassistant@fullname\\
574          }%
575        }%
576      }{}%
577      \end{tabular}%
578    \end{minipage}%
579  }%
580  \ifgraduate{%
581    \begin{minipage}[t][1.6cm][t]{\textwidth}%
582      \thesistu@normalsize
583      \thesistu@polylingual@Advisor:
584      \thesistu@person@advisor@fullname
585      \ifphd{%
586        \ifdef{\thesistu@person@secondadvisor@def}{%
587          \\
588          \thesistu@polylingual@Secondadvisor:
589          \thesistu@person@secondadvisor@fullname
590        }{}%
591      }%
592    \end{minipage}\par%
593  }%
594 }%
```

\thesistu@signature@height   Set lengths of the signature blocks.
 \thesistu@signature@width
 \thesistu@placedate@width
```
595 \newsetlength{\thesistu@signature@height}{25mm}%
596 \newsetlength{\thesistu@signature@width}{51mm}%
597 \newsetlength{\thesistu@placedate@width}{50mm}%
```

\SignatureFields   Generates a block with signatures and an optional place-date entry. The first
argument is optional and adds an entry with date and place [y], or adds corre-
sponding whitespace [h] or adds nothing [n], which is also the default value. The
second arguments adds a rule and the given text below it, if a text is given, or the
corresponding whitespace, if not. The third argument adds a rule and the given
text below it, if a text is given.

```
598 \newcommand{\SignatureFields}[3][n]{%
599   {\thesistu@normalsize
600     \ifstrequal{#1}{y}{%
601       \begin{minipage}[b][\thesistu@signature@height]{%
602           \thesistu@placedate@width
603         }%
604         \thesistu@polylingual@Place,
605         \displaydate{thesistu@date@signing}\vspace*{\baselineskip}%
606       \end{minipage}%
607       \hfill
608     }{}%
609     \ifstrequal{#1}{n}{}{}%
610     \ifstrequal{#1}{h}{%
611       \hspace*{\thesistu@placedate@width}%
612       \hfill
613     }{}%
614     \ifstrempty{#2}{%
615       \hspace*{\thesistu@signature@width}%
616       \hfill
617     }{%
618       \begin{minipage}[b][\thesistu@signature@height]{%
619           \thesistu@signature@width
620         }%
621         \centering
622         \rule{\thesistu@signature@width}{0.5pt}\\
623         #2%
624       \end{minipage}%
625       \hfill
626     }%
627     \ifstrempty{#3}{}{%
628       \begin{minipage}[b][\thesistu@signature@height]{%
629           \thesistu@signature@width
630         }%
631         \centering
632         \rule{\thesistu@signature@width}{0.5pt}\\
633         #3%
634       \end{minipage}%
635     }%
636   }%
637 }%
```

\ReviewerBlock   Generates a block with the relevant signatures.

```
638 \newcommand{\ReviewerBlock}{%
639   \ifgraduate{%
640     \ifdoctor{%
641       {\thesistu@normalsize
642       \thesistu@polylingual@Reviewed\\
643       \SignatureFields[h]{%
644         \thesistu@person@firstreviewer@name
```

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```
645        }{%
646          \thesistu@person@secondreviewer@name
647        }%
648      }%
649    }%
650    \ifphd{%
651      {\thesistu@normalsize
652        \thesistu@polylingual@Reviewers\\
653        \thesistu@person@firstreviewer@name.
654        \thesistu@data@firstreviewerdata.\\
655        \thesistu@person@secondreviewer@name.
656        \thesistu@data@secondreviewerdata.\\
657      }%
658    }%
659  }%
660 }%
```

\SignatureBlock   Generates a block with the relevant signatures.

```
661 \newcommand{\SignatureBlock}{%
662   \ifundergraduate{%
663     {\thesistu@normalsize
664       \SignatureFields[y]{%
665         \thesistu@person@author@name
666       }{%
667         \thesistu@person@advisor@name
668       }%
669     }%
670   }%
671   \ifgraduate{%
672     {\thesistu@normalsize
673       \ifdoctor{%
674         \SignatureFields[y]{}{%
675           \thesistu@person@author@name
676         }%
677       }%
678       \ifphd{%
679         \SignatureFields[y]{%
680           \thesistu@person@author@name
681         }{%
682           \thesistu@person@advisor@name
683         }%
684       }%
685     }%
686   }%
687 }%
```

\AddTitlePage   Generates the language-dependant title page. Multiline title and subtitle are supported.

```
688 \newcommand{\AddTitlePage}{
689   \thispagestyle{thesistu@pagestyle@titlepage}%
```

Set a new page geometry where the header separation length (`headsep`) places the header. The actual header height (`head`) has to be large enough to contain the header content otherwise the underlying `memoir` class issues a warning.

```
690   \newgeometry{%
691     left=2.4cm,right=2.4cm,bottom=2.5cm,top=2cm,
692     headsep=\thesistu@header@placement,
693     head=2\thesistu@logo@offset@height
694   }%
```

Save the current page layout lengths for later restoration.

```
695   \thesistu@savelayout
696   \setlength{\parindent}{0pt}%
697   \setlength{\baselineskip}{13.6pt}%
698   \setlength{\parskip}{0pt plus 1pt}%
```

Set title page text to helvetica.

```
699   \begin{SFFont}{phv}%
700     \sffamily
701     {\centering
702       \vspace*{1.2cm}\par
```

Title and subtitle are bottom aligned and grow upwards.

```
703       \begin{minipage}[t][5cm][b]{\textwidth}%
704         \centering
705         \thesistu@HUGE{\bfseries\thesistu@polylingual@Title}\\
706         \bigskip
707         \thesistu@huge{\bfseries
708           \ifdef{\thesistu@polylingual@Subtitle}{%
709             \thesistu@polylingual@Subtitle}{%
710           }%
711         }%
712       \end{minipage}\par
713       \thesistu@bigskip\thesistu@bigskip
714       {\thesistu@LARGE\thesistu@polylingual@thesisname}\par
715       \thesistu@bigskip
716       {\thesistu@large\thesistu@polylingual@submission}\par
717       \thesistu@bigskip
718       \ifundergraduate{%
719         {\thesistu@LARGE{\bfseries\thesistu@polylingual@degreename}}\par
720         \thesistu@bigskip
721         {\thesistu@large\thesistu@polylingual@in}\par
722         \thesistu@bigskip
723         {\thesistu@Large{\bfseries\thesistu@polylingual@Curriculum}}\par
724       }%
```

```
725        \ifgraduate{%
726          {\thesistu@LARGE{\bfseries\thesistu@polylingual@degreename}}\par
727          \ifphd{%
728            \thesistu@bigskip
729            {\thesistu@large\thesistu@polylingual@within}\par
730            \thesistu@bigskip
731            {\thesistu@LARGE{\bfseries\thesistu@polylingual@School}}\par
732          }%
733        }%
734        \thesistu@bigskip
735        {\thesistu@large\thesistu@polylingual@by}\par
736        \thesistu@bigskip
737        {\thesistu@Large{\bfseries\thesistu@person@author@fullname}}\par
738        \smallskip
739        {\thesistu@large\thesistu@polylingual@Registrationnumber\
740        \thesistu@data@regnumber}\par
741      }%
742      \thesistu@bigskip\thesistu@bigskip
743      \ifgraduate{\ifphd{\vspace*{-8mm}}}%
744      \begin{minipage}[b][1.6cm][c]{\textwidth}%
745        \thesistu@normalsize%
746        \thesistu@polylingual@faculty\par
747        \thesistu@polylingual@university
748      \end{minipage}\par
749      \AdvisorBlock\par
```

Add stretchable glue between the advisor block and the signatures. This ensures that the signature part is always at the bottom of the page.

```
750      \vfill
751      \ReviewerBlock\par
752      \SignatureBlock\par
753      \vspace*{1cm}%
754    \end{SFFont}%
755    \pagestyle{empty}%
756    \cleardoublepage
757    \thesistu@restorelayout
758    \restoregeometry
759 }%
```

5.3.3   Front Matter Material

\AddStatementPage   Generates the statement page.

```
760 \newcommand{\AddStatementPage}{
```

Set the same page geometry as for the titlepages.

```
761 %^^A  \newgeometry{%
```

```
762 %^^A    left=2.4cm,right=2.4cm,bottom=2.5cm,top=2cm,
763 %^^A    headsep=\thesistu@header@placement,
764 %^^A    head=2\thesistu@logo@offset@height
765 %^^A }%
```

Save the current page layout lengths for later restoration.

```
766   \thesistu@savelayout
767   \setlength{\parindent}{0pt}%
768   \setlength{\baselineskip}{13.6pt}%
769   \setlength{\parskip}{0pt plus 1pt}%
770   \begin{SFFont}{phv}%
771     \sffamily
772       \chapter*{\thesistu@polylingual@StatementChapter}%
773       \thesistu@person@author@fullname\\
774       \thesistu@data@address\par
775       \vspace{1.2cm}%
776       {\normalfont\thesistu@polylingual@Statement}\par
777       \vspace{1.2cm}%
778       \SignatureFields[y]{\thesistu@person@author@name}{}%
779   \end{SFFont}%
780   \cleardoublepage
781   \thesistu@restorelayout
782 %^^A  \restoregeometry
783 }%
```

`\addtitlepage`   Generates the titlepage in given language.

```
784 \newcommand{\addtitlepage}[1]{%
785   \selectlanguage{#1}%
786   \AddTitlePage
787 }%
```

`\addstatementpage`   Generates the statement page.

```
788 \newcommand{\addstatementpage}{%
789   \selectlanguage{naustrian}%
790   \ifundergraduate{\AddStatementPage}%
791   \ifgraduate{%
792     \ifdoctor{\AddStatementPage}%
793     \ifphd{%
794       \selectlanguage{english}%
795       \AddStatementPage
796     }%
797   }%
798 }%
```

`acknowledgements`   Generates the English acknowledgement section.

```
799 \newenvironment{acknowledgements}{%
```

```
800   \selectlanguage{english}%
801   \chapter{Acknowledgements}%
802 }{%
803   \cleardoublepage
804 }%
```

acknowledgements* Generates the English acknowledgement section without an entry in the table of contents.

```
805 \newenvironment{acknowledgements*}{%
806   \selectlanguage{english}%
807   \chapter*{Acknowledgements}%
808 }{%
809   \cleardoublepage
810 }%
```

danksagung Generates the German acknowledgement section.

```
811 \newenvironment{danksagung}{%
812   \selectlanguage{naustrian}%
813   \chapter{Danksagung}%
814 }{%
815   \cleardoublepage
816 }%
```

danksagung* Generates the German acknowledgement section without an entry in the table of contents.

```
817 \newenvironment{danksagung*}{%
818   \selectlanguage{naustrian}%
819   \chapter*{Danksagung}%
820 }{%
821   \cleardoublepage
822 }%
```

abstract Generates the English abstract.

```
823 \renewenvironment{abstract}{%
824   \selectlanguage{english}%
825   \chapter{Abstract}%
826 }{%
827   \cleardoublepage
828 }%
```

abstract* Generates the English abstract without an entry in the table of contents.

```
829 \newenvironment{abstract*}{%
830   \selectlanguage{english}%
831   \chapter*{Abstract}%
```

34

```
832 }{%
833   \cleardoublepage
834 }%
```

kurzfassung   Generates the German abstract without an entry in the table of contents.

```
835 \newenvironment{kurzfassung}{%
836   \selectlanguage{naustrian}%
837   \chapter{Kurzfassung}%
838 }{%
839   \cleardoublepage
840 }%
```

kurzfassung*   Generates the German abstract.

```
841 \newenvironment{kurzfassung*}{%
842   \selectlanguage{naustrian}%
843   \chapter*{Kurzfassung}%
844 }{%
845   \cleardoublepage
846 }%
```

5.3.4   Page Style

thesistu@pagestyle@default   Define the default page style of the thesis.

```
847 \makepagestyle{thesistu@pagestyle@default}%
848 \makeevenfoot{thesistu@pagestyle@default}{\thepage}{}{}%
849 \makeoddfoot{thesistu@pagestyle@default}{}{}{\thepage}%
```

\frontmatter   Apply the default page style to the thesis.
\mainmatter
\backmatter
```
850 \aliaspagestyle{chapter}{thesistu@pagestyle@default}%
851 \aliaspagestyle{part}{thesistu@pagestyle@default}%
852 \addto\frontmatter{\pagestyle{thesistu@pagestyle@default}}%
853 \addto\mainmatter{\pagestyle{Ruled}}%
854 \addto\backmatter{\pagestyle{thesistu@pagestyle@default}}%
```