

# The `vutinfth` class\*

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## **Abstract**

This class provides a  $\text{\LaTeX}$  2 $\epsilon$  template for theses at TU Wien Informatics. 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 `vutinfth` v1.12, dated 2023/06/04.

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# 1 Introduction

This class provides a L<sup>A</sup>T<sub>E</sub>X 2<sub>ε</sub> template for all theses at TU Wien Informatics. Further information on the document class and accompanying support can be found at <https://gitlab.com/ThomasAUZINGER/vutinfth>. Further guidelines may apply to both the format and structure of certain theses. These can be found at <https://informatics.tuwien.ac.at/study-services>. Thesis authors are advised to consult Section 3 for a documentation of all relevant commands. Information for class developers is provided in Section 4.

# 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 `vutinfth` 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 3.1.5). A superscript P, i.e., `\commandP`, indicates such a command.

### 3.1.1 Textual Data

`\setregnumber` All commands in this section are called with one mandatory argument, e.g., as  
`\settitle` `\command{⟨text⟩}`, where `⟨text⟩` defines the content of the commands. For polylin-  
`\setsubtitle` gual commands, given by `\commandP`, one `⟨text⟩` argument has to be supplied for each  
`\setcurriculum` language (see Section 3.1.5). The following textual data can be set:

	Command	Role	Type	Optional
<code>\setfirstreviewerdata</code>	<code>\setregnumber</code>	Registration number of the author	All	No
<code>\setsecondreviewerdata</code>	<code>\settitle<sup>P</sup></code>	Title of the thesis	All	No
	<code>\setsubtitle<sup>P</sup></code>	Subtitle of the thesis	All	Yes
	<code>\setcurriculum<sup>P</sup></code>	Name of the curriculum	B, M	No
Types: Bachelor (B), Master (M), Doctoral (D), All (All)				

Command	Role	Type	Optional
<code>\setfirstreviewerdata</code>	Affiliation and country of first reviewer	D	No
<code>\setsecondreviewerdata</code>	Affiliation and country of second reviewer	D	No
Types: Bachelor (B), Master (M), Doctoral (D), All (All)			

### 3.1.2 Persons

`\setauthor` All commands in this section are called with four mandatory arguments, e.g., as  
`\setadvisor` `\command{\langle pretitle \rangle \langle name \rangle \langle posttitle \rangle \langle gender \rangle}`, where `\langle name \rangle` defines both  
`\setsecondadvisor` the first name(s) and family name(s) of the person. A title that is placed before  
`\setfirstassistant` the name is assigned with `\langle pretitle \rangle`, while a trailing title is given with `\langle posttitle \rangle`.  
`\setsecondassistant` Both `\langle pretitle \rangle` and `\langle posttitle \rangle` can be left empty, to indicate an absence of such  
`\setthirdassistant` a title; the insertion of appropriate glue between titles and names is handled by  
`\setfirstreviewer` the `\vutinfth` class. The declaration of the persons gender via `\langle gender \rangle` allows  
`\setsecondreviewer` the use of gender-specific terms in languages that support them, e.g., German.  
The possible options for `\langle gender \rangle` are `male` and `female` (see Section 3.1.4). The following persons can be set:

Command	Role	Type	Optional
<code>\setauthor</code>	Author of the thesis	All	No
<code>\setadvisor</code>	Main advisor of the thesis	All	No
<code>\setsecondadvisor</code>	Second advisor of the thesis	D	Yes
<code>\setfirstassistant</code>	First advising assistant	B, M	Yes
<code>\setsecondassistant</code>	Second advising assistant	B, M	Yes
<code>\setthirdassistant</code>	Third advising assistant	B, M	Yes
<code>\setfirstreviewer</code>	First thesis reviewer	D	No
<code>\setsecondreviewer</code>	Second thesis reviewer	D	No
Types: Bachelor (B), Master (M), Doctoral (D), All (All)			

### 3.1.3 Dates

`\setdate` All commands in this section are called with three mandatory arguments, e.g., as  
`\command{\langle day \rangle \langle month \rangle \langle year \rangle}`. These commands derive from the `\DTMsave date`  
command of the `datetime2` package. The following dates can be set:

Command	Role	Type	Optional
<code>\setdate</code>	Signing date	All	No
Types: Bachelor (B), Master (M), Doctoral (D), All (All)			

### 3.1.4 List Data

All commands in this section are called with at least one mandatory argument called `\langle list \rangle`, e.g., as `\command{\dots \langle list \rangle \dots}`, where `\langle list \rangle` 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 3.1.2):

Command	Options	Description
<code>\command{&lt;.&gt;}{&lt;.&gt;}{&lt;.&gt;}{&lt;list&gt;}</code>	<b>male</b>	Specifies a male person.
	<b>female</b>	Specifies a female person.

No pronouns are generated based on the gender choice and it should be chosen in a way to reflect the preferred use of nouns (e.g., Autor or Autorin in German).

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

Command	Options	Description
<code>\setthesis{&lt;list&gt;}</code>	<b>bachelor</b>	Specifies a bachelor's thesis.
	<b>master</b>	Specifies a master's thesis.
	<b>doctor</b>	Specifies a dissertation.

`\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 enrolled in:

Command	Options	Description
<code>\setmasterdegree{&lt;list&gt;}</code>	<b>dipl.</b>	Specifies the degree 'Diplom-Ingenieur(in)'.
	<b>master</b>	Specifies the degree 'Master of Science'.
	<b>rer.nat.</b>	Specifies the degree 'Magist(er/ra) der Naturwissenschaften'.
	<b>rer.soc.oec.</b>	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 enrolled in:

Command	Options	Description
<code>\setdoctordegree{&lt;list&gt;}</code>	<b>techn.</b>	Specifies the degree 'Doktor(in) der Technischen Wissenschaften'.
	<b>rer.nat.</b>	Specifies the degree 'Doktor(in) der Naturwissenschaften'.
	<b>rer.soc.oec.</b>	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 enrolled 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.

`\addtitlepage` The titlepage can be generated in the following languages (see Section 3.2):

Command	Options	Description
<code>\addtitlepage{&lt;list&gt;}</code>	<code>english</code>	Generates an English title page.
	<code>naustrian</code>	Generates a German title page.

## 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.

`\addtitlepage` Used as `\addtitlepage{<lang>}`, where `<lang>` is the name of a language as given in the `babel` package (see Section 3.1.4). The necessary pieces of information have to be set beforehand (as described in Section 3.1). This command is usually used directly after `\begin{document}\frontmatter`.

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

`acknowledgements` (*env.*) 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` (*env.*) 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` (*env.*) 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` (*env.*) 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.

## 4 Usage for Class Writers

To accomodate shifting requirements, the `vutinfth` 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 `vutinfth` class, this is realized by the commands provided in Section 3.1. 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 `\vutinfth@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 `\vutinfth@data@<name>@def` is created, to increase source code readability when verifying the existence of a specific data item. See Section 5.2.6 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 `\vutinfth@person@<name>@...` as given in the table below.

Argument	Internal Variable
	<code>\vutinfth@person@&lt;name&gt;@def</code>
<code>&lt;pretitle&gt;</code>	<code>\vutinfth@person@&lt;name&gt;@pretitle</code>
<code>&lt;personname&gt;</code>	<code>\vutinfth@person@&lt;name&gt;@name</code>
<code>&lt;posttitle&gt;</code>	<code>\vutinfth@person@&lt;name&gt;@posttitle</code>
<code>&lt;gender&gt;</code>	<code>\vutinfth@person@&lt;name&gt;@gender</code>

The command `\vutinfth@person@<name>@def` is created to increase source code readability when verifying the existence of a specific person. Furthermore, the command `\vutinfth@person@<name>@fullname` returns the person's name together with existing titles and correct whitespace in between. The person's gender is either `\vutinfth@person@male` or `\vutinfth@person@female`, depending on the input. See Section 5.2.6 for examples.

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

**\CreatePolylingual** Used as `\CreatePolylingual[<expressions>]{<name>}`, it generates a command `\vutinfth@polylingual@<name>` that selects the appropriate expression based on the current language at the time of use. The argument `<expressions>` is a list of elements of the form `<expri>`, where each element defines the expression for a valid language, e.g., `<langi>=<texti>`. `<langi>` 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 5.2.6 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 (env.)` 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 `vutinfth` 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[userregional]{datetime2}%  
13 \RequirePackage{geometry}%  
14 \RequirePackage{calc}%  
15 \RequirePackage{etoolbox}%  
16 \RequirePackage{graphicx}%  
17 \graphicspath{{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}%
```

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

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

### 5.1.4 Fonts

`\vutinfth@HUGE` Initializes the font sizes.

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

`SFFont` (*env.*) Selects the given font family as sans serif font.

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

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

```
34 \begingroup
35   \sffamily
36   \global\let\vutinfth@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}{\vutinfth@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}{\vutinfth@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   \DTMsavedate{\vutinfth@date@signing}{#3-#2-#1}%
45 }%
```

### 5.2.2 Textual Data

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

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

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

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

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

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

```

59 }%
60 \vutinfth@def@data@invalid{#1}{\string\set#1}%
61 }%

```

### 5.2.3 Persons

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

```

62 \newcommand{\vutinfth@person@male}{male}%
63 \newcommand{\vutinfth@person@female}{female}%

```

`\ifmale` Convenience macros to determine the gender of a person.  
`\iffemale`

```

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

```

`\vutinfth@def@person` Creates the internal storage for a person's name, titles and gender.

```

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

```

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

```

81 \ifstrempy{#3}{%
82   \ifstrempy{#2}{%
83     \@namedef{\vutinfth@person@#1@fullname}{#4}%
84   }{%
85     \ifstrempy{#4}{%
86       \@namedef{\vutinfth@person@#1@fullname}{#2}%
87     }{%
88       \@namedef{\vutinfth@person@#1@fullname}{#2 #4}%
89     }%
90   }%
91 }{%
92   \ifstrempy{#2}{%
93     \ifstrempy{#4}{%
94       \@namedef{\vutinfth@person@#1@fullname}{#3}%
95     }{%
96       \@namedef{\vutinfth@person@#1@fullname}{#3, #4}%
97     }%

```

```

98   }{%
99     \ifstrempy{#4}{%
100       \@namedef{vutinfth@person@#1@fullname}{#2 #3}%
101     }{%
102       \@namedef{vutinfth@person@#1@fullname}{#2 #3, #4}%
103     }%
104   }%
105 }%
106 }%

```

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

```

107 \newcommand{\vutinfth@def@person@invalid}[2]{%
108   \@namedef{vutinfth@person@#1@error}{%
109     \ClassError{vutinfth}{No #2 issued}{Set #1 with #2.}%
110   }%
111   \@namedef{vutinfth@person@#1@name}{%
112     \@nameuse{vutinfth@person@#1@error}}%
113   \@namedef{vutinfth@person@#1@prettitle}{%
114     \@nameuse{vutinfth@person@#1@error}}%
115   \@namedef{vutinfth@person@#1@posttitle}{%
116     \@nameuse{vutinfth@person@#1@error}}%
117   \@namedef{vutinfth@person@#1@gender}{%
118     \@nameuse{vutinfth@person@#1@error}}%
119   \@namedef{vutinfth@person@#1@fullname}{%
120     \@nameuse{vutinfth@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     \vutinfth@def@person{#1}{##1}{##2}{##3}{##4}%
125   }%
126   \vutinfth@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 polylingual 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 `vutinfth` 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@vutinfth@#1}##1{%
130   \@namedef{vutinfth@current@#1}{##1}%
131 }%

```

The key value is initialized as empty.

```

132 \@nameuse{KV@vutinfth@#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{vutinfth@allocate@polylingual}{%

```

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

```

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

```

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

```

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

```

Define the transfer function to permanent storage.

```

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

```

Call the transfer routine of the previously defined language.

```

139   \@nameuse{vutinfth@allocate@polylingual@#1}{##1}%

```

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

```

140 \@namexdef{vutinfth@##1@#1}{%
141   \ifcempty{vutinfth@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{vutinfth@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{\vutinfth@selectlanguage@polylingual}{%
```

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

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

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

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

Define the selection function.

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

Call the selection routine of the previously defined language.

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

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

```
159 \ifdefstring{\language}{#1}{\@nameuse{\vutinfth@##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 `vutinfth` as the family name for the keys.

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

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

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

The mandatory argument `{⟨arg⟩}` is used to define the macro that returns the appropriate text for the currently active language.

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

## 5.2.5 Thesis Types

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

```

\thesis@basetype@undergraduate
\infth@thesis@basetype@graduate
170 \newcommand{\vutinfth@thesis@basetype@undergraduate}{%
171   \vutinfth@undergraduate}%
172 \newcommand{\vutinfth@thesis@basetype@graduate}{%
173   \vutinfth@graduate}%

\ifundergraduate Convenience macros to determine the category of the selected thesis type.
\ifgraduate
174 \newcommand{\ifundergraduate}[1]{%
175   \ifstrequal{\vutinfth@thesis@basetype}{%
176     \vutinfth@thesis@basetype@undergraduate
177   }{#1}{}%
178 }%
179 \newcommand{\ifgraduate}[1]{%
180   \ifstrequal{\vutinfth@thesis@basetype}{%
181     \vutinfth@thesis@basetype@graduate
182   }{#1}{}%
183 }%

\utinfth@thesis@basetype Initialize the thesis category, the type and the specific degree with error messages.
\utinfth@thesis@thesisname
\utinfth@thesis@degreename
184 \newcommand{\vutinfth@thesis@basetype}{%
185   \ClassError{\vutinfth}{No \string\setthesis \space issued}{%
186     Set thesis type with \string\setthesis.}%
187 }%
188 \newcommand{\vutinfth@polylingual@degreename}{%
189   \ClassError{\vutinfth}{No \string\setthesis \space issued}{%
190     Set thesis type with \string\setthesis.}%
191 }%
192 \newcommand{\vutinfth@polylingual@thesisname}{%
193   \ClassError{\vutinfth}{No \string\setthesis \space issued}{%
194     Set thesis type with \string\setthesis.}%
195 }%

\vutinfth@thesis@bachelor Three main thesis types are differentiated: bachelor, master, and doctor.
\vutinfth@thesis@master
\vutinfth@thesis@doctor
196 \newcommand{\vutinfth@thesis@bachelor}{bachelor}%
197 \newcommand{\vutinfth@thesis@master}{master}%
198 \newcommand{\vutinfth@thesis@doctor}{doctor}%

\setthesisname Internal convenience macros.
\setdegreename
\setgendereddegreename
199 \newcommand{\setthesisname}[1]{%
200   \renewcommand{\vutinfth@polylingual@thesisname}{#1}}%
201 \newcommand{\setdegreename}[1]{%
202   \renewcommand{\vutinfth@polylingual@degreename}{#1}}%
203 \newcommand{\setgendereddegreename}[2]{%
204   \ifmale{author}{\setdegreename{#1}}}%
205   \iffemale{author}{\setdegreename{#2}}}%
206 }%

```

`\setthesis` Sets the thesis type.

```
207 \newcommand{\setthesis}[1]{%
208   \ifdefstring{\vutinfth@thesis@bachelor}{#1}{%
```

Initializes bachelor thesis type.

```
209   \renewcommand{\vutinfth@thesis@basetype}{%
210     \vutinfth@thesis@basetype@undergraduate}%
211   \@setthesisname{\vutinfth@polylingual@BACHELORTHESIS}%
212   \@setdegreename{\vutinfth@polylingual@Bdeg}%
213   }{}%
214   \ifdefstring{\vutinfth@thesis@master}{#1}{%
```

Initializes master thesis type.

```
215   \renewcommand{\vutinfth@thesis@basetype}{%
216     \vutinfth@thesis@basetype@undergraduate}%
217   \@setthesisname{%
218     \ClassError{\vutinfth}{No \string\setmasterdegree \space issued}{%
219       Set masterdegree with \string\setmasterdegree.}%
220   }%
221   \@setdegreename{%
222     \ClassError{\vutinfth}{No \string\setmasterdegree \space issued}{%
223       Set master degree with \string\setmasterdegree.}%
224   }%
225   }{}%
226   \ifdefstring{\vutinfth@thesis@doctor}{#1}{%
```

Initializes doctor thesis type.

```
227   \renewcommand{\vutinfth@thesis@basetype}{%
228     \vutinfth@thesis@basetype@graduate}%
229   \@setthesisname{\vutinfth@polylingual@DOCTORTHESIS}%
230   \@setdegreename{%
231     \ClassError{\vutinfth}{No \string\setdoctordegree \space issued}{%
232       Set doctor degree with \string\setdoctordegree.}%
233   }%
234   }{}%
235 }%
```

```
\vutinfth@thesis@mdeg@dipl Four master degrees can be selected: dipl., master, rer.nat., and
\vutinfth@thesis@mdeg@master rer.soc.oec..
\vutinfth@thesis@mdeg@rernat
\vutinfth@thesis@mdeg@rersocoec 236 \newcommand{\vutinfth@thesis@mdeg@dipl}{dipl.}%
237 \newcommand{\vutinfth@thesis@mdeg@master}{master}%
238 \newcommand{\vutinfth@thesis@mdeg@rernat}{rer.nat.}%
239 \newcommand{\vutinfth@thesis@mdeg@rersocoec}{rer.soc.oec.}%
```

`\setmasterdegree` Sets the specific master degree.

```
240 \newcommand{\setmasterdegree}[1]{%
241   \ifdefstring{\vutinfth@thesis@mdeg@dipl}{#1}{%
242     \@setthesisname{\vutinfth@polylingual@DIPLOMATHESIS}%
243     \@setgendereddegreename{%
```



```

244 \vutinfth@polylingual@MdegDiplMale
245 }{%
246 \vutinfth@polylingual@MdegDiplFemale
247 }%
248 }{}%
249 \ifdefstring{\vutinfth@thesis@mdeg@master}{#1}{%
250 \setthesishname{\vutinfth@polylingual@MASTERTHESIS}%
251 \setdegreename{\vutinfth@polylingual@MdegMaster}%
252 }{}%
253 \ifdefstring{\vutinfth@thesis@mdeg@rernat}{#1}{%
254 \setthesishname{\vutinfth@polylingual@MASTERTHESIS}%
255 \setgendereddegreename{%
256 \vutinfth@polylingual@MdegRerNatMale
257 }{%
258 \vutinfth@polylingual@MdegRerNatFemale
259 }%
260 }{}%
261 \ifdefstring{\vutinfth@thesis@mdeg@rersocoec}{#1}{%
262 \setthesishname{\vutinfth@polylingual@MASTERTHESIS}%
263 \setgendereddegreename{%
264 \vutinfth@polylingual@MdegRerSocOecMale
265 }{%
266 \vutinfth@polylingual@MdegRerSocOecFemale
267 }%
268 }{}%
269 }%

```

```

\vutinfth@thesis@ddeg@rernat Three doctor degrees can be selected: rer.nat., techn., and rer.soc.oec..
\vutinfth@thesis@ddeg@techn
\vutinfth@thesis@ddeg@rersocoec
270 \newcommand{\vutinfth@thesis@ddeg@rernat}{rer.nat.}%
271 \newcommand{\vutinfth@thesis@ddeg@techn}{techn.}%
272 \newcommand{\vutinfth@thesis@ddeg@rersocoec}{rer.soc.oec.}%

```

`\setdoctordegree` Sets the specific doctor degree.

```

273 \newcommand{\setdoctordegree}[1]{%
274 \ifdefstring{\vutinfth@thesis@ddeg@rernat}{#1}{%
275 \setgendereddegreename{%
276 \vutinfth@polylingual@DdegRerNatMale
277 }{%
278 \vutinfth@polylingual@DdegRerNatFemale
279 }%
280 }{}%
281 \ifdefstring{\vutinfth@thesis@ddeg@techn}{#1}{%
282 \setgendereddegreename{%
283 \vutinfth@polylingual@DdegTechnMale
284 }{%
285 \vutinfth@polylingual@DdegTechnFemale
286 }%
287 }{}%
288 \ifdefstring{\vutinfth@thesis@ddeg@rersocoec}{#1}{%
289 \setgendereddegreename{%
290 \vutinfth@polylingual@DdegRerSocOecMale
291 }{%

```

```

292      \vutinfth@polylingual@DdegRerSocOecFemale
293    }%
294  }{}%
295 }%

```

### 5.2.6 Declarations

**Textual Data** Creates the required textual data entries.

```

296 % ^^A\CreateData{address}%
297 \CreateData{regnumber}%
298 \CreateData{firstreviewerdata}%
299 \CreateData{secondreviewerdata}%

```

**Persons** Creates the required person entries.

```

300 \CreatePerson{author}%
301 \CreatePerson{advisor}%
302 \CreatePerson{secondadvisor}%
303 \CreatePerson{firstassistant}%
304 \CreatePerson{secondassistant}%
305 \CreatePerson{thirdassistant}%
306 \CreatePerson{firstreviewer}%
307 \CreatePerson{secondreviewer}%

```

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

```

308 \AddLanguage{english}%
309 \AddLanguage{naustrian}%

```

**PolyLinguals** Creates the polylingual expressions.

```

310 \CreatePolylingual[
311   english=Advisor,
312   naustrian=Betreuung]{Advisor}%
313 \CreatePolylingual[
314   english=Second advisor,
315   naustrian=Zweitbetreuung]{Secondadvisor}%
316 \CreatePolylingual[
317   english=submitted in partial fulfillment of the requirements
318     for the degree of,
319   naustrian=zur Erlangung des akademischen Grades]{submission}%
320 \CreatePolylingual[
321   english=in,
322   naustrian=im Rahmen des Studiums]{in}%
323 \CreatePolylingual[
324   english=by,
325   naustrian=eingereicht von]{by}%
326 \CreatePolylingual[
327   english=Registration Number,
328   naustrian=Matrikelnummer]{Registrationnumber}%
329 \CreatePolylingual[
330   english=to the Faculty of Informatics,

```

```

331  naustrian=an der Fakult\"at f\"ur Informatik]{faculty}%
332 \CreatePolylingual[
333  english=at the TU Wien,
334  naustrian=der Technischen Universit\"at Wien]{university}%
335 \CreatePolylingual[
336  english=Assistance,
337  naustrian=Mitwirkung]{Assistance}%
338 \CreatePolylingual[
339  english=The dissertation has been reviewed by:,
340  naustrian=Diese Dissertation haben begutachtet:]{Reviewed}%
341 \CreatePolylingual[
342  english=External reviewers:]{Reviewers}%
343 \CreatePolylingual[
344  english=Vienna,
345  naustrian=Wien]{Place}%
346 \CreatePolylingual[
347  english=Declaration of Authorship,
348  naustrian=Erkl\"arung zur Verfassung der Arbeit]{StatementChapter}%
349 \CreatePolylingual[
350  english={I hereby declare that I have written this Doctoral Thesis
351    independently, that I have completely specified the utilized
352    sources and resources and that I have definitely marked all parts
353    of the work - including tables, maps and figures - which belong
354    to other works or to the internet, literally or extracted, by
355    referencing the source as borrowed.},
356  naustrian={Hiermit erkl\"are ich, dass ich diese Arbeit
357    selbst\"andig verfasst habe, dass ich die verwendeten Quellen
358    und Hilfsmittel vollst\"andig angegeben habe und dass ich die
359    Stellen der Arbeit -- einschlie{\ss}lich Tabellen, Karten und
360    Abbildungen --, die anderen Werken oder dem Internet im Wortlaut
361    oder dem Sinn nach entnommen sind, auf jeden Fall unter Angabe
362    der Quelle als Entlehnung kenntlich gemacht habe.}]{Statement}%

```

Degree titles.

```

363 \CreatePolylingual[
364  english=Bachelor of Science,
365  naustrian=Bachelor of Science]{Bdeg}%
366 \CreatePolylingual[
367  english=Master of Science,
368  naustrian=Master of Science]{MdegMaster}%
369 \CreatePolylingual[
370  english=Diplom-Ingenieur,
371  naustrian=Diplom-Ingenieur]{MdegDiplMale}%
372 \CreatePolylingual[
373  english=Diplom-Ingenieurin,
374  naustrian=Diplom-Ingenieurin]{MdegDiplFemale}%
375 \CreatePolylingual[
376  english=Magister der Naturwissenschaften,
377  naustrian=Magister der Naturwissenschaften]{MdegRerNatMale}%
378 \CreatePolylingual[
379  english=Magistra der Naturwissenschaften,
380  naustrian=Magistra der Naturwissenschaften]{MdegRerNatFemale}%
381 \CreatePolylingual[

```

```

382 english=Magister der Sozial- und Wirtschaftswissenschaften,
383 naustrian=Magister der Sozial- und Wirtschaftswissenschaften]{%
384 MdegRerSocOecMale}%
385 \CreatePolylingual[
386 english=Magistra der Sozial- und Wirtschaftswissenschaften,
387 naustrian=Magistra der Sozial- und Wirtschaftswissenschaften]{%
388 MdegRerSocOecFemale}%
389 \CreatePolylingual[
390 english=Doktor der Naturwissenschaften,
391 naustrian=Doktor der Naturwissenschaften]{DdegRerNatMale}%
392 \CreatePolylingual[
393 english=Doktorin der Naturwissenschaften,
394 naustrian=Doktorin der Naturwissenschaften]{DdegRerNatFemale}%
395 \CreatePolylingual[
396 english=Doktor der Technischen Wissenschaften,
397 naustrian=Doktor der Technischen Wissenschaften]{DdegTechnMale}%
398 \CreatePolylingual[
399 english=Doktorin der Technischen Wissenschaften,
400 naustrian=Doktorin der Technischen Wissenschaften]{DdegTechnFemale}%
401 \CreatePolylingual[
402 english=Doktor der Sozial- und Wirtschaftswissenschaften,
403 naustrian=Doktor der Sozial- und Wirtschaftswissenschaften]{%
404 DdegRerSocOecMale}%
405 \CreatePolylingual[
406 english=Doktorin der Sozial- und Wirtschaftswissenschaften,
407 naustrian=Doktorin der Sozial- und Wirtschaftswissenschaften]{%
408 DdegRerSocOecFemale}%

```

Thesis types.

```

409 \CreatePolylingual[
410 english=BACHELOR'S THESIS,
411 naustrian=BACHELORARBEIT]{BACHELORTHESIS}%
412 \CreatePolylingual[
413 english=MASTER'S THESIS,
414 naustrian=MASTERARBEIT]{MASTERTHESIS}%
415 \CreatePolylingual[
416 english=DIPLOMA THESIS,
417 naustrian=DIPLOMARBEIT]{DIPLOMATHESIS}%
418 \CreatePolylingual[
419 english=DISSERTATION,
420 naustrian=DISSERTATION]{DOCTORTHESIS}%

```

**\settitle** Sets the title of the thesis.

```

421 \newcommand{\settitle}[2]{%
422   \CreatePolylingual[english=#1,naustrian=#2]{Title}%
423 }%

```

**\setsubtitle** Sets the subtitle of the thesis.

```

424 \newcommand{\setsubtitle}[2]{%
425   \CreatePolylingual[english=#1,naustrian=#2]{Subtitle}%
426 }%

```

`\setcurriculum` Sets the curriculum name.

```
427 \newcommand{\setcurriculum}[2]{%
428   \CreatePolylingual[english=#1,naustrian=#2]{Curriculum}%
429 }%
```

## 5.3 Layout

### 5.3.1 Setup

`\vutinfth@squarebullet` Set internal convenience macros.

```
430 \newcommand{\newsetlength}[2]{%
431   \newlength{#1}%
432   \setlength{#1}{#2}%
433 }%
434 \newcommand{\vutinfth@squarebullet}{\rule[0.47ex]{0.4ex}{0.4ex}}%
```

`\vutinfth@tmp@parindent` Temporary storage for page layout lengths.

```
\vutinfth@tmp@baselineskip
\vutinfth@tmp@parskip
435 \newlength{\vutinfth@tmp@parindent}%
436 \newlength{\vutinfth@tmp@baselineskip}%
437 \newlength{\vutinfth@tmp@parskip}%
```

`\vutinfth@savelayout` Saves and restores relevant page layout lengths.

```
\vutinfth@restorelayout
438 \newcommand{\vutinfth@savelayout}{%
439   \setlength{\vutinfth@tmp@parindent}{\parindent}%
440   \setlength{\vutinfth@tmp@baselineskip}{\baselineskip}%
441   \setlength{\vutinfth@tmp@parskip}{\parskip}%
442 }%
443 \newcommand{\vutinfth@restorelayout}{%
444   \setlength{\parindent}{\vutinfth@tmp@parindent}%
445   \setlength{\baselineskip}{\vutinfth@tmp@baselineskip}%
446   \setlength{\parskip}{\vutinfth@tmp@parskip}%
447 }%
```

### 5.3.2 Title Page

Initialize the header graphics. The vertical placement of the header graphics on the title pages are given by `\vutinfth@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.

```
448 \newsetlength{\vutinfth@logo@offset@x}{10.6mm}%
449 \newsetlength{\vutinfth@logo@offset@y}{22mm}%
450 \newsetlength{\vutinfth@logo@width@safe}{74mm}%
451 \newsetlength{\vutinfth@logo@height}{11mm}%
452 \newsetlength{\vutinfth@header@width}{\paperwidth - \vutinfth@logo@offset@x - \vutinfth@logo@width}%
453 \newsetlength{\vutinfth@header@height}{\vutinfth@logo@height}%
454 \newsetlength{\vutinfth@header@separator}{-12mm}%
```

`\vutinfth@header@titlepage` Initialize header.

```
455 \newcommand{\vutinfth@header@titlepage}{%
456   \setlength{\unitlength}{1mm}%
457   \begin{picture}(74, 11)%
458     {\includegraphics[height=\vutinfth@logo@height]{Logo-schwarz.pdf}}
459   \end{picture}\hfill
460 }%
```

`\vutinfth@footer@titlepage` Initialize footer.

```
461 \newcommand{\vutinfth@footer@titlepage}{%
462   \centering
463   \begin{minipage}{\textwidth}%
464     \centering\vutinfth@normalsize\sffamily
465     Technische Universit{"a}t Wien\\
466     A-1040 Wien \vutinfth@squarebullet\space
467     Karlsplatz 13 \vutinfth@squarebullet\space
468     Tel. +43-1-58801-0 \vutinfth@squarebullet\space
469     www.tuwien.at%
470   \end{minipage}%
471 }%
```

`vutinfth@pagestyle@titlepage` Generate the title page style.

```
472 \makepagestyle{vutinfth@pagestyle@titlepage}%
473 \makerunningwidth{vutinfth@pagestyle@titlepage}{\textwidth}{%
474   \vutinfth@header@width}%
475 \makeheadposition{vutinfth@pagestyle@titlepage}{%
476   center}{center}{center}{center}%
477 \makeevenhead{vutinfth@pagestyle@titlepage}{-}{%
478   \vutinfth@header@titlepage}{-}%
479 \makeoddhead{vutinfth@pagestyle@titlepage}{-}{%
480   \vutinfth@header@titlepage}{-}%
481 \makefootrule{vutinfth@pagestyle@titlepage}{%
482   \vutinfth@pagestyle@titlepagefootrunwidth}{0.5pt}{\footruleskip}%
483 \makeevenfoot{vutinfth@pagestyle@titlepage}{-}{%
484   \vutinfth@footer@titlepage}{-}%
485 \makeoddfoot{vutinfth@pagestyle@titlepage}{-}{%
486   \vutinfth@footer@titlepage}{-}%

```

Set style element specifications.

```
487 \newsetlength{\vutinfth@bigskipamount}{6mm}%

```

Helper functions.

```
488 \newcommand{\vutinfth@bigskip}{\vspace{\vutinfth@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.

```
489 \newcommand{\AdvisorBlock}{%

```

```

490 \ifundergraduate{%
491   \begin{minipage}[t][2.5cm][t]{\textwidth}%
492     \vutinfth@normalsize
493     \begin{tabular}{@{}l@{ }l}%
494       \vutinfth@polylingual@Advisor: &
495       \vutinfth@person@advisor@fullname\\
496       \ifdef{\vutinfth@person@firstassistant@def}{%
497         \vutinfth@polylingual@Assistance: &
498         \vutinfth@person@firstassistant@fullname\\
499       }{}%
500       \ifdef{\vutinfth@person@secondassistant@def}{%
501         \ifundef{\vutinfth@person@firstassistant@def}{%
502           \vutinfth@person@firstassistant@error
503         }{%
504           & \vutinfth@person@secondassistant@fullname\\
505         }%
506       }{}%
507       \ifdef{\vutinfth@person@thirdassistant@def}{%
508         \ifundef{\vutinfth@person@firstassistant@def}{%
509           \vutinfth@person@firstassistant@error
510         }{%
511           \ifundef{\vutinfth@person@secondassistant@def}{%
512             \vutinfth@person@secondassistant@error
513           }{%
514             & \vutinfth@person@thirdassistant@fullname\\
515           }%
516         }%
517       }{}%
518     \end{tabular}%
519   \end{minipage}%
520 }%
521 \ifgraduate{%
522   \begin{minipage}[t][1.6cm][t]{\textwidth}%
523     \vutinfth@normalsize
524     \vutinfth@polylingual@Advisor:
525     \vutinfth@person@advisor@fullname
526     \ifdef{\vutinfth@person@secondadvisor@def}{%
527       \\
528       \vutinfth@polylingual@Secondadvisor:
529       \vutinfth@person@secondadvisor@fullname
530     }{}%
531   \end{minipage}\par%
532 }%
533 }%

```

`\vutinfth@signature@height` Set lengths of the signature blocks.

```

\vutinfth@signature@width
\vutinfth@placedate@width
534 \newsetlength{\vutinfth@signature@height}{25mm}%
535 \newsetlength{\vutinfth@signature@width}{51mm}%
536 \newsetlength{\vutinfth@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 corresponding 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.

```

537 \newcommand{\SignatureFields}[3][n]{%
538   {\vutinfth@normalsize
539     \ifstrequal{#1}{y}{%
540       \begin{minipage}[b][\vutinfth@signature@height]{%
541         \vutinfth@placedate@width
542       }%
543       \vutinfth@polylingual@Place,
544       \DTMusedate{\vutinfth@date@signing}\vspace*{\baselineskip}%
545       \end{minipage}%
546       \hfill
547     }{}%
548     \ifstrequal{#1}{n}{}{}%
549     \ifstrequal{#1}{h}{%
550       \hspace*{\vutinfth@placedate@width}%
551       \hfill
552     }{}%
553     \ifstreempty{#2}{%
554       \hspace*{\vutinfth@signature@width}%
555       \hfill
556     }{%
557       \begin{minipage}[b][\vutinfth@signature@height]{%
558         \vutinfth@signature@width
559       }%
560       \centering
561       \rule{\vutinfth@signature@width}{0.5pt}\\
562       #2%
563       \end{minipage}%
564       \hfill
565     }%
566     \ifstreempty{#3}{}{}%
567     \begin{minipage}[b][\vutinfth@signature@height]{%
568       \vutinfth@signature@width
569     }%
570     \centering
571     \rule{\vutinfth@signature@width}{0.5pt}\\
572     #3%
573     \end{minipage}%
574   }%
575 }%
576 }%

```

**\ReviewerBlock** Generates a block with the relevant signatures.

```

577 \newcommand{\ReviewerBlock}{%
578   \ifgraduate{%
579     {\vutinfth@normalsize
580       \vutinfth@polylingual@Reviewed\\
581       \SignatureFields[h]{%
582         \vutinfth@person@firstreviewer@name
583       }%

```



```

584         \vutinfth@person@secondreviewer@name
585     }%
586 }%
587 }%
588 }%

```

**\SignatureBlock** Generates a block with the relevant signatures.

```

589 \newcommand{\SignatureBlock}{%
590   \ifundergraduate{%
591     {\vutinfth@normalsize
592       \SignatureFields[y]{%
593         \vutinfth@person@author@name
594       }{%
595         \vutinfth@person@advisor@name
596       }%
597     }%
598   }%
599   \ifgraduate{%
600     {\vutinfth@normalsize
601       \SignatureFields[y]{}%
602       \vutinfth@person@author@name
603     }%
604   }%
605 }%
606 }%

```

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

```

607 \newcommand{\AddTitlePage}{
608   \thispagestyle{\vutinfth@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.

```

609   \newgeometry{%
610     left=2.4cm,right=2.4cm,bottom=2.5cm,top=2cm,
611     headsep=\vutinfth@header@separator,
612     head=\vutinfth@header@height
613   }%

```

Save the current page layout lengths for later restoration.

```

614   \vutinfth@savelayout
615   \setlength{\parindent}{0pt}%
616   \setlength{\baselineskip}{13.6pt}%
617   \setlength{\parskip}{0pt plus 1pt}%

```

Set title page text to helvetica.

```

618   \begin{SFFont}{phv}%
619     \sffamily
620     {\centering

```

621       \vspace\*{1.2cm}\par

Title and subtitle are bottom aligned and grow upwards.

```

622       \begin{minipage}[t][5cm][b]{\textwidth}%
623       \centering
624       \vutinfth@HUGE{\bfseries\vutinfth@polylingual@Title}\\
625       \bigskip
626       \vutinfth@huge{\bfseries
627       \ifdef{\vutinfth@polylingual@Subtitle}{%
628       \vutinfth@polylingual@Subtitle}{%
629       }%
630       }%
631       \end{minipage}\par
632       \vutinfth@bigskip\vutinfth@bigskip
633       {\vutinfth@LARGE\vutinfth@polylingual@thesisname}\par
634       \vutinfth@bigskip
635       {\vutinfth@large\vutinfth@polylingual@submission}\par
636       \vutinfth@bigskip
637       \ifundergraduate{%
638       {\vutinfth@LARGE{\bfseries\vutinfth@polylingual@degreename}}\par
639       \vutinfth@bigskip
640       {\vutinfth@large\vutinfth@polylingual@in}\par
641       \vutinfth@bigskip
642       {\vutinfth@Large{\bfseries\vutinfth@polylingual@Curriculum}}\par
643       }%
644       \ifgraduate{%
645       {\vutinfth@LARGE{\bfseries\vutinfth@polylingual@degreename}}\par
646       }%
647       \vutinfth@bigskip
648       {\vutinfth@large\vutinfth@polylingual@by}\par
649       \vutinfth@bigskip
650       {\vutinfth@Large{\bfseries\vutinfth@person@author@fullname}}\par
651       \smallskip
652       {\vutinfth@large\vutinfth@polylingual@Registrationnumber\
653       \vutinfth@data@regnumber}\par
654       }%
655       \vutinfth@bigskip\vutinfth@bigskip
656       \begin{minipage}[b][1.6cm][c]{\textwidth}%
657       \vutinfth@normalsize%
658       \vutinfth@polylingual@faculty\par
659       \vutinfth@polylingual@university
660       \end{minipage}\par
661       \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.

```

662       \vfill
663       \ReviewerBlock\par
664       \SignatureBlock\par
665       \vspace*{1cm}%
666       \end{SFFont}%
667       \pagestyle{empty}%
668       \cleardoublepage

```

```

669 \vutinfth@restorelayout
670 \restoregeometry
671 }%

```

### 5.3.3 Front Matter Material

`\AddStatementPage` Generates the statement page.

```

672 \newcommand{\AddStatementPage}{
Set the same page geometry as for the titlepages.

673 %^^A \newgeometry{%
674 %^^A left=2.4cm,right=2.4cm,bottom=2.5cm,top=2cm,
675 %^^A headsep=\vutinfth@header@separator,
676 %^^A head=\vutinfth@header@height
677 %^^A }%

Save the current page layout lengths for later restoration.

678 \vutinfth@savelayout
679 \setlength{\parindent}{0pt}%
680 \setlength{\baselineskip}{13.6pt}%
681 \setlength{\parskip}{0pt plus 1pt}%
682 \begin{SFFont}{phv}%
683 \sffamily
684 \chapter*{\vutinfth@polylingual@StatementChapter}%
685 \vutinfth@person@author@fullname\par
686 % ^^A \vutinfth@data@address\par
687 \vspace{1.2cm}%
688 {\normalfont\vutinfth@polylingual@Statement}\par
689 \vspace{1.2cm}%
690 \SignatureFields[y]{\vutinfth@person@author@name}{}%
691 \end{SFFont}%
692 \cleardoublepage
693 \vutinfth@restorelayout
694 %^^A \restoregeometry
695 }%

```

`\addtitlepage` Generates the titlepage in given language.

```

696 \newcommand{\addtitlepage}[1]{%
697 \selectlanguage{#1}%
698 \AddTitlePage
699 }%

```

`\addstatementpage` Generates the statement page.

```

700 \newcommand{\addstatementpage}{%
701 \selectlanguage{naustrian}%
702 \AddStatementPage
703 }%

```

`acknowledgements (env.)` Generates the English acknowledgement section.

```

704 \newenvironment{acknowledgements}{%
705   \selectlanguage{english}%
706   \chapter{Acknowledgements}%
707 }{%
708   \cleardoublepage
709 }%

```

**acknowledgements\*** (*env.*) Generates the English acknowledgement section without an entry in the table of contents.

```

710 \newenvironment{acknowledgements*}{%
711   \selectlanguage{english}%
712   \chapter*{Acknowledgements}%
713 }{%
714   \cleardoublepage
715 }%

```

**danksagung** (*env.*) Generates the German acknowledgement section.

```

716 \newenvironment{danksagung}{%
717   \selectlanguage{naustrian}%
718   \chapter{Danksagung}%
719 }{%
720   \cleardoublepage
721 }%

```

**danksagung\*** (*env.*) Generates the German acknowledgement section without an entry in the table of contents.

```

722 \newenvironment{danksagung*}{%
723   \selectlanguage{naustrian}%
724   \chapter*{Danksagung}%
725 }{%
726   \cleardoublepage
727 }%

```

**abstract** (*env.*) Generates the English abstract.

```

728 \renewenvironment{abstract}{%
729   \selectlanguage{english}%
730   \chapter{Abstract}%
731 }{%
732   \cleardoublepage
733 }%

```

**abstract\*** (*env.*) Generates the English abstract without an entry in the table of contents.

```

734 \newenvironment{abstract*}{%
735   \selectlanguage{english}%
736   \chapter*{Abstract}%
737 }{%
738   \cleardoublepage
739 }%

```

`kurzfassung` (*env.*) Generates the German abstract without an entry in the table of contents.

```
740 \newenvironment{kurzfassung}{%
741   \selectlanguage{naustrian}%
742   \chapter{Kurzfassung}%
743 }{%
744   \cleardoublepage
745 }%
```

`kurzfassung*` (*env.*) Generates the German abstract.

```
746 \newenvironment{kurzfassung*}{%
747   \selectlanguage{naustrian}%
748   \chapter*{Kurzfassung}%
749 }{%
750   \cleardoublepage
751 }%
```

### 5.3.4 Page Style

`vutinfth@pagestyle@default` Define the default page style of the thesis.

```
752 \makepagestyle{vutinfth@pagestyle@default}%
753 \makeevenfoot{vutinfth@pagestyle@default}{\thepage}{-}{}%
754 \makeoddfoot{vutinfth@pagestyle@default}{-}{-}{\thepage}%
```

`\frontmatter` Apply the default page style to the thesis.

```
\mainmatter
\backmatter 755 \aliaspagestyle{chapter}{vutinfth@pagestyle@default}%
756 \aliaspagestyle{part}{vutinfth@pagestyle@default}%
757 \addto\frontmatter{\pagestyle{vutinfth@pagestyle@default}}%
758 \addto\mainmatter{\pagestyle{Ruled}}%
759 \addto\backmatter{\pagestyle{vutinfth@pagestyle@default}}%
```

## 6 Change History

v0.9		<code>\AddTitlePage</code> : Added check for subtitle existence before usage.
General: Pre-release version . . . . .	1	<a href="#">Issue #1</a> . . . . . 25
v1.0		Updated to support PhD School mentioning and fixed the associated vertical overflow.
General: Initial release version . . .	1	<a href="#">Issue #4</a> . . . . . 25
v1.1		<code>\AdvisorBlock</code> : Updated to support second advisor. <a href="#">Issue #4</a> . . . . . 22
General: Added references to the GitLab environment . . . . .	1	<code>Persons</code> : Updated to support second advisor. <a href="#">Issue #4</a> 18
v1.3		<code>TextualData</code> : Updated to support external reviewer data. <a href="#">Issue #4</a> . . . . . 18
General: Added support for a dissertation at the Vienna Phd School of Informatics. <a href="#">Issue #4</a>	1	<code>PolyLinguals</code> : Added to support multiple dissertation types.
<code>\AddStatementPage</code> : Updated to support multiple languages. <a href="#">Issue #4</a>	27	
<code>\addstatementpage</code> : Updated to support English version. <a href="#">Issue #4</a>	27	

Issue #4 . . . . .	18	\AddStatementPage: Changed header graphics. . . . .	27
\ReviewerBlock: Updated to support external reviewers. Issue #4 . . . . .	24	\AddTitlePage: Changed header graphics. . . . .	25
\setthesis: Altered to support multiple dissertation types. Issue #4 . . . . .	16	\vutinfth@pagestyle@titlepage: Changed header graphics. . . . .	22
\SignatureBlock: Updated to support multiple dissertation types. Issue #4 . . . . .	25	\vutinfth@footer@titlepage: Changed university URL. . . . .	22
\vutinfth@thesis@doctor: Added to support multiple dissertation types. Issue #4 . . . . .	15	\vutinfth@header@titlepage: Changed header graphics. . . . .	22
v1.4		v1.11	
General: Added comma to separate posttitle and changed mainmatter pagestyle to 'Ruled'. . . . .	1	General: Updated name of faculty to 'TU Wien Informatics'. . . . .	1
\mainmatter: Added 'Ruled' pagestyle. . . . .	29	\setdate: Updated to datetime2 package. . . . .	10
\vutinfth@def@person: Added comma to separate posttitle. . . . .	11	\SignatureFields: Updated to datetime2 package. . . . .	23
v1.5		v1.12	
General: Updated name of university to 'TU Wien'. . . . .	1	General: Removed obsolete support for a dissertation at the Vienna PhD School of Informations. Issue #8 . . . . .	1
PolyLinguals: Updated name of university to 'TU Wien'. . . . .	18	\addstatementpage: Removed support for English version. Issue #8 . . . . .	27
v1.6		\AddTitlePage: Removed obsolete support for a dissertation at the Vienna PhD School of Informations. Issue #8 . . . . .	25
General: Enabled second advisor for dissertations. . . . .	1	PolyLinguals: Removed support of multiple dissertation types. Issue #8 . . . . .	18
\AdvisorBlock: Enabled second advisor for dissertations. . . . .	22	\ReviewerBlock: Removed support for external reviewers. Issue #8 . . . . .	24
PolyLinguals: Provided German term for second advisor. . . . .	18	\setthesis: Removed support for multiple dissertation types. Issue #8 . . . . .	16
v1.8		\SignatureBlock: Removed support for multiple dissertation types. Issue #8 . . . . .	25
General: Removed address information. . . . .	1	\vutinfth@thesis@doctor: Removed support for multiple dissertation types. Issue #8 . . . . .	15
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v1.9			
General: Changed header graphics and university URL. . . . .	1		

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