The vutinfth class*

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Abstract

This class provides a LaTeX 2ε 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.

^{*}This document corresponds to vutinfth v1.12, dated 2023/06/04.

Contents

1	Intr	oducti	on	3
2	Kno	own Iss	ues	3
3	Usa	ge for	Document Authors	3
	3.1	Data .		3
		3.1.1	Textual Data	3
		3.1.2	Persons	4
		3.1.3	Dates	4
		3.1.4	List Data	4
		3.1.5	Polylingual Data	5
	3.2	Layout	·	6
4	Usa	ge for	Class Writers	7
	4.1	_		7
	4.2	Layout	;	8
5 Implementation		tation	8	
	5.1	Initiali		8
		5.1.1	Class Options	8
		5.1.2	Loaded Class and Packages	9
		5.1.3	Low-Level Functionality	9
		5.1.4	Fonts	9
	5.2	Data .		10
		5.2.1	Dates	10
		5.2.2	Textual Data	10
		5.2.3	Persons	11
		5.2.4	Polylingual Text	12
		5.2.5	Thesis Types	15
		5.2.6	Declarations	18
	5.3	Layout	;	21
		5.3.1	Setup	21
		5.3.2	Title Page	21
		5.3.3	Front Matter Material	27
		5.3.4	Page Style	29
6	Cha	nge H	istory	29
In	dex			30

Introduction 1

This class provides a LATEX 2ε 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.

3.1.1Textual Data

\setfirstreviewerdata \setsecondreviewerdata

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

Command	Role	Type	Optional
\setregnumber	Registration number of the author	All	No
$\strut_{ m P}$	Title of the thesis	All	No
$\strut_{ m P}$	Subtitle of the thesis	All	Yes
$\strut_{ m P}$	Name of the curriculum	B, M	No
Types: Bachelor (B), Master (M), Doctoral (D), All (All)			

Command	Role	Type	Optional
\setfirstreviewerdata	Affiliation and country of first reviewer	D	No
\setsecondreviewerdata	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 $\$ \command{\langle pretitle \} {\langle name \} {\langle posttitle \} {\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
\setauthor	Author of the thesis	All	No
\setadvisor	Main advisor of the thesis	All	No
\setsecondadvisor	Second advisor of the thesis	D	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	No
\setsecondreviewer	Second thesis reviewer	D	No
Types: Bachelor (B), Master (M), Doctoral (D), All (All)			

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

3.1.3 Dates

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

Command	Role	Type	Optional
\setdate	Signing date	All	No
Types: Bac	helor (B), Mast	er (M),	Doctoral (D), All (All)

3.1.4 List Data

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

When setting a person, the person's gender is specified with a list argument (see \setauthor \setadvisor

Section 3.1.2):

Command	Options	Description
	male female	Specifies a male person. 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
\setthesis $\{\langle list \rangle\}$	bachelor master doctor	Specifies a bachelor's thesis. Specifies a master's thesis. 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
\setmasterdegree $\{\langle list \rangle\}$	dipl.	Specifies the degree 'Diplom-Ingenieur(in)'.
	master	Specifies the degree 'Master of Science'.
	rer.nat.	Specifies the degree 'Magist(er/ra) der Natur- wissenschaften'
	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 enrolled in:

Command	Options	Description
\setdoctordegree $\{\langle list \rangle\}$	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{ $\langle english \rangle$ }{ $\langle german \rangle$ }, it sets the name of the curriculum that the student is enroled in. The name can be given in English, with $\langle english \rangle$, and in German, with $\langle german \rangle$. 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{\langle english\}}{\langle german\}}, it sets the title of the thesis. The title can be given both in an English version, with $\langle english\rangle$, and in a German version, with $\langle german\rangle$. 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{ $\langle english \rangle$ }{ $\langle german \rangle$ }, 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
$\verb $	english naustrian	Generates an English title page. 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{ $\langle lang \rangle$ }, where $\langle lang \rangle$ 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} \langle text \end{acknowledgements}, this enviacknowledgements* (env.) ronment 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 gener-danksagung* (env.) ates 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 abstract* (env.) 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 $\ensuremath{\texttt{begin}\{kurzfassung}\ensuremath{\texttt{kurzfassung}\}}$, this environment genkurzfassung* (env.) erates a chapter with the German abstract. Use the starred version, i.e., kurzfassung*, to remove the table of content entry of this environment.

Usage for Class Writers 4

To accommodate 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 $\{\langle name \rangle\}$, it generates a command \set $\langle name \rangle$. Used as $\$ \set $\langle name \rangle \{\langle strinq \rangle \}$, the newly created command assigns the value $\langle strinq \rangle$ to the internal variable $\forall utinfth@data@(name)$. The variable is initialized with an error value to alert the user of the fact that $\langle string \rangle$ was not supplied via the $\$ \set $\langle name \rangle$ command. Furthermore, a command \vutinfth@data@ $\langle name \rangle$ @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 $\{\langle name \rangle\}$, it generates a command \set $\langle name \rangle$. Used as $\set\langle name\rangle \{\langle pretitle\rangle\} \{\langle personname\rangle\} \{\langle posttitle\rangle\} \{\langle gender\rangle\}$, the newly created command assigns the supplied values to the corresponding internal variables \vutinfth@person@ $\langle name \rangle$ @...as given in the table below.

Argument	Internal Variable
	$\verb \vutinfth@person@ \langle name \rangle @ \texttt{def}$
$\langle pretitle \rangle$	$\verb \vutinfth@person@ \langle name \rangle @ \texttt{pretitle} $
$\langle personname \rangle$	$\verb \vutinfth@person@ \langle name \rangle @ \texttt{name} $
$\langle posttitle \rangle$	$\verb \vutinfth@person@ \langle name \rangle \\ @posttitle$
$\langle gender \rangle$	$\verb \vutinfth@person@ \langle name \rangle @gender $

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{ $\langle lang \rangle$ }, it enables the language $\langle lang \rangle$ to by used by polylingual expressions. $\langle lanq \rangle$ has to be chosed 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 approriate expression based on the current language at the time of use. The argument $\langle expressions \rangle$ is a list of elements of the form $\langle expr_i \rangle$, where each element defines the expression for a valid language, e.g., $\langle lanq_i \rangle = \langle text_i \rangle$. $\langle lanq_i \rangle$ 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[\langle mode \rangle] \{\langle center \rangle}\{\langle right \rangle \rangle}, it creates a place and date description and/or one or two signature fields. \langle mode \rangle 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 $\langle center \rangle$, it is added below a rule, right to the possible date and place entry. If text is supplied to $\langle right \rangle$, it is added below a rule, right to the possible signature field created by $\langle center \rangle$. 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 $\begin{SFFont}{\langle family \rangle}$, 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[useregional]{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 \end{\csname} {\tt 18 \newcommand{\csname}} {\tt 18 \newc
```

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

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

5.1.4 Fonts

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 \setdata.

```
56 \newcommand{\CreateData}[1]{\%
57 \Qnamedef{\set#1}##1{\%
58 \vutinfth\Qdef\Qdata{\#1}{\##1}\%
```

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

5.2.3 Persons

\vutinfth@person@male \vutinfth@person@female

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

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

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

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

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

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

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

```
}{%
98
          \ifstrempty{#4}{%
99
            \@namedef{vutinfth@person@#1@fullname}{#2 #3}%
100
101
            \Onamedef{vutinfthOpersonO#1Ofullname}{#2 #3, #4}%
102
         }%
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}{%
       \ClassError{vutinfth}{No #2 issued}{Set #1 with #2.}%
109
110
     \@namedef{vutinfth@person@#1@name}{%
111
       \@nameuse{vutinfth@person@#1@error}}%
112
113
     \@namedef{vutinfth@person@#1@pretitle}{%
       \@nameuse{vutinfth@person@#1@error}}%
114
     \@namedef{vutinfth@person@#1@posttitle}{%
115
       \@nameuse{vutinfth@person@#1@error}}%
116
     \Onamedef{vutinfthOpersonO#1Ogender}{%
117
       \@nameuse{vutinfth@person@#1@error}}%
118
119
     \@namedef{vutinfth@person@#1@fullname}{%
       \@nameuse{vutinfth@person@#1@error}}%
120
121 }%
```

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

```
122 \newcommand{\CreatePerson}[1]{%
123 \Qnamedef{set#1}##1##2##3##4{%
124 \vutinfthQdefQperson{#1}{##1}{##2}{##3}{##4}%
125 }%
126 \vutinfthQdefQpersonQinvalid{#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.

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 \ifcsempty{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.

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

```
148 \\Quad \Quad \\Quad \Quad \\Quad \Quad \\Quad \Quad \\Quad \\Quad \\Quad \\Quad \\Quad \\Quad \\Quad \\Quad \Quad \\Quad \Quad \\Quad \\Qu
```

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 \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{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 transfered to permanent storage.

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

5.2.5 Thesis Types

```
Othesis Chasetype Cundergraduate Two thesis categories are differentiated: undergraduate and graduate.
{\tt 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]{%
                                                                                                                   \ifestrequal{\vutinfth@thesis@basetype}{%
                                                                                                                           \vutinfth@thesis@basetype@undergraduate
                                                                                                    176
                                                                                                    177
                                                                                                                   }{#1}{}%
                                                                                                    178 }%
                                                                                                    179 \newcommand{\ifgraduate}[1]{%
                                                                                                                    \ifestrequal{\vutinfth@thesis@basetype}{%
                                                                                                     180
                                                                                                                           \vutinfth@thesis@basetype@graduate
                                                                                                     182
                                                                                                                    }{#1}{}%
                                                                                                     183 }%
              \vutinfth@thesis@basetype Initialize the thesis category, the type and the specific degree with error messages.
       \vutinfth@thesis@thesisname
                                                                                                    184 \newcommand{\vutinfth@thesis@basetype}{%
       \vutinfth@thesis@degreename
                                                                                                     185
                                                                                                                    \ClassError{vutinfth}{No \string\setthesis \space issued}{%
                                                                                                     186
                                                                                                                            Set thesis type with \string\setthesis.}%
                                                                                                    187 }%
                                                                                                    188 \newcommand{\vutinfth@polylingual@degreename}{%
                                                                                                                     \ClassError{vutinfth}{No \string\setthesis \space issued}{%
                                                                                                    189
                                                                                                                            Set thesis type with \string\setthesis.}%
                                                                                                    190
                                                                                                     191 }%
                                                                                                     192 \newcommand{\vutinfth@polylingual@thesisname}{%
                                                                                                                    \ClassError{vutinfth}{No \string\setthesis \space issued}{%
                                                                                                                            Set thesis type with \string\setthesis.}%
                                                                                                     195 }%
              \vutinfth@thesis@bachelor Three main thesis types are differentiated: bachelor, master, and doctor.
                     \vutinfth@thesis@master
                     \verb|\vutinfth@thesis@doctor|| 196 \\ | \text{newcommand}{\text{\wutinfth@thesis@bachelor}}{\text{\wormand}}| \\ | \text{\wormand}{\text{\wormand}}| \\ | \text{\wormand}| \\ | \text{\wor
                                                                                                     197 \newcommand{\vutinfth@thesis@master}{master}%
                                                                                                     198 \newcommand{\vutinfth@thesis@doctor}{doctor}%
                                               \Osetthesisname Internal convenience macros.
                                               \@setdegreename
                     \label{lem:command} $$ \ensuremath{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\command{\c
                                                                                                                  \renewcommand{\vutinfth@polylingual@thesisname}{#1}}%
                                                                                                    200
                                                                                                    201 \newcommand{\@setdegreename}[1]{%
                                                                                                    203 \newcommand{\@setgendereddegreename}[2]{%
                                                                                                                    \ifmale{author}{\@setdegreename{#1}}%
                                                                                                                    \iffemale{author}{\@setdegreename{#2}}%
                                                                                                    205
```

206 }%

```
\setthesis Sets the thesis type.
                                                                   207 \newcommand{\setthesis}[1]{%
                                                                               Initializes bachelor thesis type.
                                                                                   \renewcommand{\vutinfth@thesis@basetype}{%
                                                                   209
                                                                                        \vutinfth@thesis@basetype@undergraduate}%
                                                                   210
                                                                                    \@setthesisname{\vutinfth@polylingual@BACHELORTHESIS}%
                                                                   211
                                                                   212
                                                                                   \@setdegreename{\vutinfth@polylingual@Bdeg}%
                                                                   213
                                                                              }{}%
                                                                               \ifdefstring{\vutinfth@thesis@master}{#1}{%
                                                                   214
                                                                   Initializes master thesis type.
                                                                                   \renewcommand{\vutinfth@thesis@basetype}{%
                                                                   215
                                                                                        \vutinfth@thesis@basetype@undergraduate}%
                                                                   216
                                                                                    \@setthesisname{%
                                                                   217
                                                                   218
                                                                                        \ClassError{vutinfth}{No \string\setmasterdegree \space issued}{%
                                                                   219
                                                                                            Set masterdegree with \string\setmasterdegree.}%
                                                                   220
                                                                   221
                                                                                   \@setdegreename{%
                                                                                        222
                                                                                            Set master degree with \string\setmasterdegree.}%
                                                                   223
                                                                   224
                                                                                   }%
                                                                   225
                                                                              }{}%
                                                                               \ifdefstring{\vutinfth@thesis@doctor}{#1}{%
                                                                   Initializes doctor thesis type.
                                                                                   \renewcommand{\vutinfth@thesis@basetype}{%
                                                                   227
                                                                                        \vutinfth@thesis@basetype@graduate}%
                                                                   228
                                                                                    \@setthesisname{\vutinfth@polylingual@DOCTORTHESIS}%
                                                                   229
                                                                                   \@setdegreename{%
                                                                    230
                                                                                        \ClassError{vutinfth}{No \string\setdoctordegree \space issued}{%
                                                                    231
                                                                                            Set doctor degree with \string\setdoctordegree.}%
                                                                    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 @ the sis @ mdeg @ rersocoec \\ 236 \\ le w command {\vutinfth @ the sis @ mdeg @ dipl} { dipl.} \\ % (a) \\ % (b) \\ % (c) \\ %
                                                                    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]{%
                                                                              \ifdefstring{\vutinfth@thesis@mdeg@dipl}{#1}{%
                                                                   241
                                                                                   \@setthesisname{\vutinfth@polylingual@DIPLOMATHESIS}%
                                                                   242
```

\@setgendereddegreename{%

243

```
\vutinfth@polylingual@MdegDiplMale
                                244
                                       }{%
                                245
                                          \verb|\vutinfth@polylingual@MdegDiplFemale| \\
                                246
                                        }%
                                247
                                248
                                      }{}%
                                      \ifdefstring{\vutinfth@thesis@mdeg@master}{#1}{%
                                249
                                        \@setthesisname{\vutinfth@polylingual@MASTERTHESIS}%
                                250
                                251
                                        \@setdegreename{\vutinfth@polylingual@MdegMaster}%
                                252
                                      }{}%
                                      \ifdefstring{\vutinfth@thesis@mdeg@rernat}{#1}{%
                                253
                                        \@setthesisname{\vutinfth@polylingual@MASTERTHESIS}%
                                254
                                        \@setgendereddegreename{%
                                255
                                          \vutinfth@polylingual@MdegRerNatMale
                                256
                                257
                                        }{%
                                          \vutinfth@polylingual@MdegRerNatFemale
                                258
                                259
                                      }{}%
                                260
                                      \ifdefstring{\vutinfth@thesis@mdeg@rersocoec}{#1}{%
                                261
                                        \@setthesisname{\vutinfth@polylingual@MASTERTHESIS}%
                                262
                                        \@setgendereddegreename{%
                                263
                                          \vutinfth@polylingual@MdegRerSocOecMale
                                264
                                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..
                                270 \newcommand{\vutinfth@thesis@ddeg@rernat}{rer.nat.}%
vutinfth@thesis@ddeg@rersocoec
                                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]{%
                                      \ifdefstring{\vutinfth@thesis@ddeg@rernat}{#1}{%
                                275
                                        \@setgendereddegreename{%
                                          \verb|\vutinfth@polylingual@DdegRerNatMale| \\
                                276
                                        }{%
                                277
                                          \vutinfth@polylingual@DdegRerNatFemale
                                278
                                279
                                       }%
                                280
                                      }{}%
                                      \ifdefstring{\vutinfth@thesis@ddeg@techn}{#1}{%
                                281
                                        \@setgendereddegreename{%
                                282
                                          \vutinfth@polylingual@DdegTechnMale
                                283
                                284
                                        }{%
                                          \verb|\vutinfth@polylingual@DdegTechnFemale| \\
                                285
                                       }%
                                286
                                      }{}%
                                287
                                      \ifdefstring{\vutinfth@thesis@ddeg@rersocoec}{#1}{%
                                288
                                        \@setgendereddegreename{%
                                289
                                          \vutinfth@polylingual@DdegRerSocOecMale
                                290
                                291
                                        }{%
```

\vutinfth@thesis@ddeg@techn

```
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
       for the degree of,
318
319 naustrian=zur Erlangung des akademischen Grades]{submission}%
320 \CreatePolylingual[
321 english=in,
    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[
     english=The dissertation has been reviewed by:,
     naustrian=Diese Dissertation haben begutachtet:]{Reviewed}%
340
341 \CreatePolylingual[
     english=External reviewers:]{Reviewers}%
342
343 \CreatePolylingual[
     english=Vienna,
344
     naustrian=Wien]{Place}%
345
346 \CreatePolylingual[
     english=Declaration of Authorship,
     naustrian=Erkl\"arung zur Verfassung der Arbeit]{StatementChapter}%
348
349 \CreatePolylingual[
     english={I hereby declare that I have written this Doctoral Thesis
351
       independently, that I have completely specified the utilized
       sources and resources and that I have definitely marked all parts
352
       of the work - including tables, maps and figures - which belong
353
       to other works or to the internet, literally or extracted, by
354
355
       referencing the source as borrowed.},
     naustrian={Hiermit erkl\"are ich, dass ich diese Arbeit
356
       selbst\"andig verfasst habe, dass ich die verwendeten Quellen
357
       und Hilfsmittel vollst\"andig angegeben habe und dass ich die
358
       Stellen der Arbeit -- einschlie{\ss}lich Tabellen, Karten und
359
360
       Abbildungen --, die anderen Werken oder dem Internet im Wortlaut
361
       oder dem Sinn nach entnommen sind, auf jeden Fall unter Angabe
       der Quelle als Entlehnung kenntlich gemacht habe.}]{Statement}%
362
Degree titles.
363 \CreatePolylingual[
     english=Bachelor of Science,
    naustrian=Bachelor of Science]{Bdeg}%
366 \CreatePolylingual[
367 english=Master of Science,
368
    naustrian=Master of Science]{MdegMaster}%
369 \CreatePolylingual[
     english=Diplom-Ingenieur,
     naustrian=Diplom-Ingenieur]{MdegDiplMale}%
371
372 \CreatePolylingual[
     english=Diplom-Ingenieurin,
373
     naustrian=Diplom-Ingenieurin]{MdegDiplFemale}%
374
375 \CreatePolylingual[
     english=Magister der Naturwissenschaften,
     naustrian=Magister der Naturwissenschaften]{MdegRerNatMale}%
377
378 \CreatePolylingual[
     english=Magistra der Naturwissenschaften,
     naustrian=Magistra der Naturwissenschaften]{MdegRerNatFemale}%
380
```

381 \CreatePolylingual[

```
english=Magister der Sozial- und Wirtschaftswissenschaften,
             382
                 naustrian=Magister der Sozial- und Wirtschaftswissenschaften]{%
             383
                 MdegRerSocOecMale}%
             384
             385 \CreatePolylingual[
                 english=Magistra der Sozial- und Wirtschaftswissenschaften,
             386
                 naustrian=Magistra der Sozial- und Wirtschaftswissenschaften]{%
                 MdegRerSocOecFemale}%
             389 \CreatePolylingual[
                 english=Doktor der Naturwissenschaften,
             390
                 naustrian=Doktor der Naturwissenschaften]{DdegRerNatMale}%
             391
             392 \CreatePolylingual[
                  english=Doktorin der Naturwissenschaften,
             393
                 naustrian=Doktorin der Naturwissenschaften]{DdegRerNatFemale}%
             394
             395 \CreatePolylingual[
                  english=Doktor der Technischen Wissenschaften,
                  naustrian=Doktor der Technischen Wissenschaften]{DdegTechnMale}%
             397
             398 \CreatePolylingual[
                  english=Doktorin der Technischen Wissenschaften,
                 naustrian=Doktorin der Technischen Wissenschaften]{DdegTechnFemale}%
             400
             401 \CreatePolylingual[
             402
                  english=Doktor der Sozial- und Wirtschaftswissenschaften,
                 naustrian=Doktor der Sozial- und Wirtschaftswissenschaften] {%
             403
                 DdegRerSocOecMale}%
             404
             405 \CreatePolylingual[
             406
                  english=Doktorin der Sozial- und Wirtschaftswissenschaften,
                  naustrian=Doktorin der Sozial- und Wirtschaftswissenschaften]{%
             407
                 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]{%
                 \CreatePolylingual[english=#1,naustrian=#2]{Title}%
             423 }%
\setsubtitle Sets the subtitle of the thesis.
             424 \newcommand{\setsubtitle}[2]{%
                 \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}}%
```

\vutinfth@tmp@parindent \vutinfth@tmp@baselineskip \vutinfth@tmp@parskip

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

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

\vutinfth@savelayout \vutinfth@restorelayout

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

```
438 \newcommand{\vutinfth@savelayout}{%
439 \setlength{\vutinfth@tmp@parindent}{\baselineskip}{\daselineskip}}{\daselineskip}{\daselineskip}}{\daselineskip}}{\daselineskip}}{\daselineskip}}{\daselineskip}{\daselineskip}}{\daselineskip}{\daselineskip}}{\daselineskip}}{\daselineskip}{\daselineskip}}{\daselineskip}}{\daselineskip}}{\daselineskip}}{\daselineskip}}{\daselineskip}}{\daselineskip}}{\daselineskip}}{\daselineskip}}{\daselineskip}}{\daselineskip}}{\daselineskip}}{\daselineskip}}{\daselineskip}}{\daselineskip}}{\daselineskip}}{\daselineskip}}{\daselineskip}}{\daselineskip}}{\daselineskip}}{\daselineskip}}{\daselineskip}}{\daselineskip}}{\daselineskip}}{\daselineskip}}{\daselineskip}}{\daselineskip}}{\daselineskip}}{\daselineskip}}{\daselineskip}}{\daselineskip}}{\daselineskip}}{\daselineskip}}{\daselineskip}}{\daselineskip}}{\daselineskip}}{\daselineskip}}{\daselineskip}}{\daselineskip}}{\daselineskip}}{\daselineskip}}{\daselineskip}}{\daselineskip}}{\daselineskip}}{\daselineskip}}{\daselineskip}}{\daselineskip}}{\daselineskip}}{\daselineskip}}{\daselineskip}}{\daselineskip}}{\daselineskip}}{\daselineskip}}{\daselineskip}}{\daselineskip}}{\daselineskip}}{\daselineskip}}{\daselineskip}}{\daselineskip}}{\daselineskip}}{\daselineskip}}{\daselineskip}}{\daselineskip}}{\daselineskip}}{\daselineskip}}{\daselineskip}}{\daselineskip}}{\daselineskip}}{\daselineskip}}{\daselineskip}}{\daselineskip}}{\daselineskip}}{\daselineskip}}{\daselineskip}}{\daselineskip}}{\daselineskip}}{\daselineskip}}{\daselineskip}}{\daselineskip}}{\daselineskip}}{\daselineskip}}{\daselineskip}}{\daselineskip}}{\daselineskip}}{\daselineskip}}{\daselineskip}}{\daselineskip}}{\daselineskip}}{\daselineskip}}{\daselineskip}}{\daselineskip}}{\daselineskip}}{\daselineskip}}{\daselineskip}}{\daselineskip}}{\daselineskip}}{\daselineskip}}{\daselineskip}}{\daselineskip}}{\daselineskip}}{\daselineskip}}{\daselineskip}}{\daselineskip}}{\daselineskip}}{\daselineskip}}{\daselineskip}}{\daselineskip}}{\daselineskip}}{\daselineskip}}{\daselineskip}}{\da
```

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.

```
\label{lem:prop:condition} 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
```

```
\vutinfth@header@titlepage Initialize header.
                             455 \newcommand{\vutinfth@header@titlepage}{%
                                   \setlength{\unitlength}{1mm}%
                             456
                                   \begin{picture}(74, 11)%
                             457
                                     {\includegraphics[height=\vutinfth@logo@height]{Logo-schwarz.pdf}}
                             458
                             459
                                   \end{picture}\hfill
                             460 }%
 \vutinfth@footer@titlepage Initialize footer.
                             461 \newcommand{\vutinfth@footer@titlepage}{%
                                   \centering
                                   \begin{minipage}{\textwidth}%
                             463
                             464
                                     \centering\vutinfth@normalsize\sffamily
                                     Technische Universit\"{a}t Wien\\
                             465
                                     A-1040 Wien \vutinfth@squarebullet\space
                             466
                                     Karlsplatz 13 \vutinfth@squarebullet\space
                             467
                                     Tel. +43-1-58801-0 \vutinfth@squarebullet\space
                             468
                             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]{%
                                  \vutinfth@header@width}%
                             475 \makeheadposition{vutinfth@pagestyle@titlepage}{%
                             476 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}{%
                                  \vutinfth@pagestyle@titlepagefootrunwidth}{0.5pt}{\footruleskip}%
                             483 \makeevenfoot{vutinfth@pagestyle@titlepage}{}{%
                                  \vutinfth@footer@titlepage}{}%
                             485 \makeoddfoot{vutinfth@pagestyle@titlepage}{}{%
                                  \vutinfth@footer@titlepage}{}%
                             Set style element specifications.
                              487 \newsetlength{\vutinfth@bigskipamount}{6mm}%
                             Helper functions.
                             488 \mbox{$\w \space{\wtinfth@bigskip}{\wspace{\wtinfth@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 $\newcommand{\AdvisorBlock}{%}$

```
\ifundergraduate{%
                            490
                                    \begin{minipage}[t][2.5cm][t]{\textwidth}%
                            491
                                      \vutinfth@normalsize
                            492
                                      \begin{tabular}{0{}10{}}1%
                            493
                                        \vutinfth@polylingual@Advisor: &
                            494
                                        \vutinfth@person@advisor@fullname\\
                            495
                                        \ifdef{\vutinfth@person@firstassistant@def}{%
                            496
                                          \vutinfth@polylingual@Assistance: &
                            497
                            498
                                          \vutinfth@person@firstassistant@fullname\\
                            499
                                        }{}%
                                        \ifdef{\vutinfth@person@secondassistant@def}{%
                            500
                                          \ifundef{\vutinfth@person@firstassistant@def}{%
                            501
                                            \vutinfth@person@firstassistant@error
                            502
                                          }{%
                            503
                                            & \vutinfth@person@secondassistant@fullname\\
                            504
                                          }%
                            505
                                        }{}%
                            506
                                        \ifdef{\vutinfth@person@thirdassistant@def}{%
                            507
                                          \ifundef{\vutinfth@person@firstassistant@def}{%
                            508
                            509
                                            \vutinfth@person@firstassistant@error
                                          }{%
                            510
                                            \ifundef{\vutinfth@person@secondassistant@def}{%
                            511
                                              \vutinfth@person@secondassistant@error
                            512
                                            ጉና%
                            513
                                              & \vutinfth@person@thirdassistant@fullname\\
                            514
                            515
                                           }%
                                         }%
                            516
                                      }{}%
                            517
                                      \end{tabular}%
                            518
                            519
                                    \end{minipage}%
                                 }%
                            520
                                 \ifgraduate{%
                            521
                                   \begin{minipage}[t][1.6cm][t]{\textwidth}%
                            522
                                      \vutinfth@normalsize
                            523
                                      \vutinfth@polylingual@Advisor:
                            524
                                      \vutinfth@person@advisor@fullname
                            525
                                      \ifdef{\vutinfth@person@secondadvisor@def}{%
                            526
                            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
                            534 \newsetlength{\vutinfth@signature@height}{25mm}%
\vutinfth@placedate@width
                            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]{%
     {\vutinfth@normalsize
538
       \ifstrequal{#1}{y}{%
539
         \begin{minipage}[b][\vutinfth@signature@height]{%
540
             \vutinfth@placedate@width
541
           }%
542
           \vutinfth@polylingual@Place,
543
           544
         \end{minipage}%
545
         \hfill
546
       }{}%
547
       \left\{ \frac{\#1}{n}{}\right\} 
548
       \left\{ \frac{41}{h}\right\} 
549
         \hspace*{\vutinfth@placedate@width}%
550
         \hfill
551
       }{}%
552
       \ifstrempty{#2}{%
553
         \hspace*{\vutinfth@signature@width}%
554
         \hfill
555
       }{%
556
         \begin{minipage}[b][\vutinfth@signature@height]{%
557
             \vutinfth@signature@width
558
           }%
559
           \centering
560
           \rule{\vutinfth@signature@width}{0.5pt}\\
561
562
           #2%
         \end{minipage}%
563
         \hfill
564
       }%
565
       \left\{ \frac{43}{3} \right\}
566
         \begin{minipage}[b][\vutinfth@signature@height]{%
567
             \vutinfth@signature@width
568
569
           }%
570
           \centering
571
           \rule{\vutinfth@signature@width}{0.5pt}\\
572
           #3%
         \end{minipage}%
573
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{%
        {\vutinfth@normalsize
591
          \SignatureFields[y]{%
592
            \vutinfth@person@author@name
593
594
         }{%
            \vutinfth@person@advisor@name
595
596
         }%
       }%
597
598
     }%
     \ifgraduate{%
599
600
       {\vutinfth@normalsize
          SignatureFields[y]{}{%
601
            \vutinfth@person@author@name
602
         }%
603
       }%
604
605
     }%
606 }%
```

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

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.

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

```
\vutinfth@restorelayout
                  669
                  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.
                        \vutinfth@savelayout
                  678
                  679
                        \setlength{\parindent}{0pt}%
                        \setlength{\baselineskip}{13.6pt}%
                  681
                        \setlength{\parskip}{Opt plus 1pt}%
                  682
                        \begin{SFFont}{phv}%
                  683
                          \sffamily
                            \chapter*{\vutinfth@polylingual@StatementChapter}%
                  684
                            \vutinfth@person@author@fullname\par
                  685
                  686 % ^^A
                                 \vutinfth@data@address\par
                  687
                            \vspace{1.2cm}%
                            {\normalfont\vutinfth@polylingual@Statement}\par
                  688
                  689
                            \vspace{1.2cm}%
```

\addtitlepage Generates the titlepage in given language.

\end{SFFont}%

692 \cleardoublepage 693 \vutinfth@restorelayout 694 %^A \restoregeometry

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

\addstatementpage Generates the statement page.

690

691 692

695 }%

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

acknowledgements (env.) Generates the English acknowledgement section.

\SignatureFields[y]{\vutinfth@person@author@name}{}%

```
707 }{%
                             \cleardoublepage
                        708
                        709 }%
acknowledgements* (env.) Generates the English acknowledgement section without an entry in the table of
                        710 \newenvironment{acknowledgements*}{%
                             \selectlanguage{english}%
                             \chapter*{Acknowledgements}%
                              \cleardoublepage
                        715 }%
       danksagung (env.) Generates the German acknowledgement section.
                        716 \newenvironment{danksagung}{%
                        717 \selectlanguage{naustrian}%
                             \chapter{Danksagung}%
                        718
                        719 }{%
                        720 \cleardoublepage
                        721 }%
      danksagung* (env.) Generates the German acknowledgement section without an entry in the table of
                        contents.
                        722 \newenvironment{danksagung*}{%
                            \selectlanguage{naustrian}%
                        723
                             \chapter*{Danksagung}%
                        724
                        725 }{%
                        726
                             \cleardoublepage
                        727 }%
         abstract (env.) Generates the English abstract.
                        728 \renewenvironment{abstract}{%
                             \selectlanguage{english}%
                              \chapter{Abstract}%
                        731 }{%
                        732 \cleardoublepage
                        733 }%
        abstract* (env.) Generates the English abstract without an entry in the table of contents.
                        734 \newenvironment{abstract*}{%
                             \selectlanguage{english}%
                        735
                             \chapter*{Abstract}%
                        736
                        737 }{%
                        738 \cleardoublepage
                        739 }%
```

704 \newenvironment{acknowledgements}{%

705 \selectlanguage{english}% \chapter{Acknowledgements}%

706

```
kurzfassung (env.) Generates the German abstract without an entry in the table of contents.
                                                               740 \newenvironment{kurzfassung}{%
                                                                            \selectlanguage{naustrian}%
                                                                            \chapter{Kurzfassung}%
                                                               742
                                                                743 }{%
                                                                744
                                                                          \cleardoublepage
                                                                745 }%
                   kurzfassung* (env.) Generates the German abstract.
                                                               746 \newenvironment{kurzfassung*}{%
                                                                           \selectlanguage{naustrian}%
                                                                            \chapter*{Kurzfassung}%
                                                                748
                                                               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
                                   \verb|\backmatter|| 755 \\ \verb|\cline{chapter}{vutinfth@pagestyle@default}| % \\ \verb|\cline{chapter}| % \\ \verb|\cline{chapter
                                                                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
                                                                                                                                                                  \AddTitlePage: Added check for
                                                                                                                                                                         subtitle existence before usage.
                                                                       General: Pre-release version . . . . . 1
                                                                                                                                                                         Issue #1 . . . . . . . . . . . . . . . . 25
                                                                       General: Initial release version . . . 1
                                                                                                                                                                       Updated to support PhD School
                                                               v1.1
                                                                                                                                                                         mentioning and fixed the
                                                                                                                                                                         associated vertical overflow.
                                                                       General: Added references to the
                                                                               GitLab environment . . . . . . . . 1
                                                                                                                                                                         Issue #4 . . . . . . . . . . . . . . . . . 25
                                                               v1.3
                                                                                                                                                                  \AdvisorBlock: Updated to
                                                                                                                                                                         support second advisor. Issue
                                                                       General: Added support for a
                                                                                                                                                                          \#4 ..... 22
                                                                              dissertation at the Vienna Phd
                                                                              School of Informatics. Issue #4
                                                                                                                                                                  Persons: Updated to support
                                                                       \AddStatementPage: Updated to
                                                                                                                                                                         second advisor. Issue Issue #4 18
                                                                              support multiple languages.
                                                                                                                                                                  Textual Data: Updated to support
                                                                               Issue #4 . . . . . . . . . . . . . . . . . 27
                                                                                                                                                                         external reviewer data. Issue
                                                                       \addstatementpage: Updated to
                                                                                                                                                                          support English version. Issue
                                                                                                                                                                 PolyLinguals: Added to support
                                                                               multiple dissertation types.
```

Issue #4	\AddStatementPage: Changed header graphics 27
\ReviewerBlock: Updated to support external reviewers.	\AddTitlePage: Changed header
Issue #4 24	graphics
\setthesis: Altered to support multiple dissertation types.	vutinfth@pagestyle@titlepage: Changed header graphics 22
Issue #4 16	\vutinfth@footer@titlepage:
\SignatureBlock: Updated to	Changed university URL 22
support multiple dissertation	$\verb \vutinfth@header@titlepage: $
types. Issue #4	Changed header graphics 22
\vutinfth@thesis@doctor: Added	v1.11
to support multiple	General: Updated name of faculty
dissertation types. Issue $\#4$ 15 $v1.4$	to 'TU Wien Informatics' 1 \setdate: Updated to datetime2
General: Added comma to	package
separate posttitle and changed	\SignatureFields: Updated to
mainmatter pagestyle to	datetime2 package 23
'Ruled'	v1.12
\mainmatter: Added 'Ruled'	General: Removed obsolete
pagestyle 29	support for a dissertation at
$\verb \vutinfth@def@person : Added $	the Vienna PhD School of
comma to separate posttitle 11	Informations. Issue #8 1
v1.5	\addstatementpage: Removed
General: Updated name of	support for English version.
university to 'TU Wien' 1	Issue #8
PolyLinguals: Updated name of university to 'TU Wien' 18	\AddTitlePage: Removed obsolete support for a dissertation at
v1.6	the Vienna PhD School of
General: Enabled second advisor	Informations. Issue #8 25
for dissertations 1	PolyLinguals: Removed support
\AdvisorBlock: Enabled second	of multiple dissertation types.
advisor for dissertations 22	Issue #8
PolyLinguals: Provided German	\ReviewerBlock: Removed
term for second advisor. \dots 18	support for external reviewers.
v1.8	Issue #8 24
General: Removed address	\setthesis: Removed support for
information	multiple dissertation types.
\AddStatementPage: Removed address information 27	Issue #8
Textual⊔Data: Removed address	support for multiple
information	dissertation types. Issue #8 25
v1.9	\vutinfth@thesis@doctor:
General: Changed header graphics	Removed support for multiple
and unversity URL 1	dissertation types. Issue $\#8$ 15
Index	
Symbols	
-	331, 334, 348, 356, 357, 358, 465
\@empty	134, 153
$ar{4}$	3, 74, 76, 79, 83, 86, 88, 94, 96, 100, 102,
108, 111, 113, 115, 117, 119, 12	3, 129, 130, 167
Mamalet	136 155

\@nameuse	54,	112,	114,	116,	118,	120,	132,	139,	148,	158,	159
\@namexdef										<u>18</u> ,	140
\@setdegreename							199,	212,	221,	230,	251
\@setgendereddegreename											
\@setthesisname											
\\											
\											
\mathbf{A}											
abstract (env.)											
abstract* (env.)											
acknowledgements (env.) .											
${\tt acknowledgements*} \ ({ m env.})$											
\AddLanguage											
\AddStatementPage											
\addstatementpage										. <i>6</i> ,	700
\AddTitlePage											
\addtitlepage										6, 6,	<u>696</u>
\addto									757,	758,	759
\AdvisorBlock									. 8,	489,	661
\aliaspagestyle										755,	756
В											
\backmatter											
\baselineskip							,	,	,	,	
\begin 457,											
\begingroup											
\bfseries											
\bigskip											625
C											
, C						100	101	F.00	F 70	000	con
\centering											
\chapter											
\chapterstyle											
\ClassError											
\cleardoublepage											
\CreateData			100	200	201	200	/, <u>50,</u>	290,	297,	298,	299
\CreatePerson	1.00 6	. 7,	<u>122,</u>	300,	301,	302,	პსპ,	304,	305,	300,	პს <i>1</i> იიი
\CreatePolylingual . 7,											
341, 343, 346, 349, 3							381,	385,	389,	392,	3 95.
398, 401, 405, 409, 4											10
\csname											
\CurrentOption											. 2
D											
danksagung (env.)										6	716
danksagung* (env.)											
\DeclareOption											
\DTMsavedate											
\DTMusedate											
											., ++

\edef											. 21	, 22
\else												144
\end	459,	470,	518,	519.	531,	545,	563,	573,	631,	660,	666,	691
\endcsname												
\endgroup												
environments:											, ,	
abstract											. 6.	728
abstract*												
acknowledgements												
acknowledgements												
danksagung												
danksagung*												
kurzfassung												
kurzfassung*												
SFFont												
\expandafter												
											-, -	,
	${f F}$											
\f@family											. 36	, 39
\fi												146
\fontsize												
footruleskip										,	,	,
\frontmatter												
	\mathbf{G}											
\global												36
graphicspath												17
	Η											
\hfill									,	,	,	
\hspace											550,	554
	_											
	Ι											
\ifcsempty												
\ifcsstring												
\ifdef								,	,	,	,	
\ifdefstrequal												
\ifdefstring \dots 75												
\ifdraftdoc												
\ifestrequal												
\iffemale												205
\ifgraduate												
\ifmale												
\ifstrempty												
\ifstrequal									23,	539,	548,	549
\ifundef												
\ifundergraduate									<u>174</u> ,	490,	590,	637
\includegraphics												458

K		
kurzfassung (env.)		6, 740
kurzfassung* (env.)		6, <u>746</u>
- , ,		
${f L}$		
\languagename		
\Languages		
\let		
\LoadClass		5
${f M}$		
\mainmatter		755
\makeevenfoot	4	83, 753
\makeevenhead		477
\makefootrule		481
$\mbox{\tt \mbox{\tt \m}}}}}}}}}}}}}}}}}}}}}}}}}}}}}}}}}}}}$		475
\makeoddfoot	4	85, 754
\makeoddhead		479
\makepagestyle	4	472, 752
\makerunningwidth		473
N		
- '	1 67 1	70 107
\newcommand 18, 19, 27, 28, 29, 30, 31, 32, 43, 46, 50, 56, 62, 63, 64		
122, 128, 134, 153, 162, 170, 172, 174, 179, 184, 188, 192, 1		
199, 201, 203, 207, 236, 237, 238, 239, 240, 270, 271, 272, 2427, 430, 434, 438, 443, 455, 461, 488, 489, 537, 577, 589, 6		
700	JU1, U	72, 090
\newenvironment	794 7	740 746
\newgeometry		
\newlength431,		
\newsetlength 430, 448, 449, 450, 451, 452, 453, 454, 487,		
\normalfont		000
P		
\pagestyle <u>667</u> ,	757, 7	758, 759
\paperwidth		452
\par . 531, 621, 631, 633, 635, 638, 640, 642, 645, 648, 650, 653, 6		
663, 664, 685, 686, 688		
\parindent 439,	444, 6	615, 679
\parskip 441,	446, 6	617, 681
\PassOptionsToClass		
\Persons		300
\PolyLinguals		
\ProcessOptions		4
${f R}$		
R ∖relax		4. 145
\renewcommand		,
\reneweovironment	,	
\RequirePackage		
\restoregeometry		; 10; 10 370 694

\ReviewerBlock		
\rule		434, 561, 571
${f s}$		
\selectfont	27 28	20 30 31 32
\selectlanguage 697, 701, 705, 71		' ' '
\set		
\setadvisor		
\setauthor\setcurriculum		• • •
\setdate\setdoctordegree		
0		, , ,
\setfirstassistant		•
\setfirstreviewer		•
\setfirstreviewerdata		
\setkeys		
\setlength 432, 439, 440, 441, 444, 445, 446, 45		
\setmasterdegree	, ,	
\setregnumber		
\setsecondadvisor		
\setsecondassistant		
\setsecondreviewer		
\setsecondreviewerdata		
\setsubtitle		
\setthesis		
$\verb \setthirdassistant \dots \dots \dots \dots \dots$		
\settitle		—
\sfdefault		,
\sffamily	$\dots 35, 39$, 464, 619, 683
SFFont (env.)		$8, \frac{33}{100}$
\SignatureBlock		. 8, <u>589</u> , 664
\SignatureFields	8, <u>537</u> , 581	, 592, 601, 690
\smallskip		651
\space 185, 189, 19	3, 218, 222, 231	, 466, 467, 468
\ss		359
\string 60, 126, 185, 186, 189, 190, 193, 19	4, 218, 219, 222	, 223, 231, 232
	, , ,	, , ,
${f T}$		
$\verb \Textual Data$		<u>296</u>
\textwidth	463, 473, 491	, 522, 622, 656
\thepage		753, 754
\thispagestyle		608
\mathbf{U}		
$\verb \unitlength \dots \dots$		456
\mathbf{V}		
\vfill		
\vspace		
\vutinfth@allocate@polvlingual	133, 134	. 137, 138, 165

\vutinfth@bigskip	488	632	634	636	639	641	647	649	655
\vutinfth@bigskipamount									
\vutinfth@data@address									
\vutinfth@data@regnumber									
\vutinfth@def@data									
\vutinfth@def@data@invalid									
\vutinfth@def@person									
\vutinfth@def@person@invalid									
\vutinfth@f@family@tmp									
\vutinfth@footer@titlepage									
\vutinfth@header@height									
\vutinfth@header@separator									
\vutinfth@header@titlepage									
\vutinfth@header@width									
\vutinfth@HUGE								,	
\vutinfth@huge									
\vutinfth@LARGE									
\vutinfth@Large									
\vutinfth@large								,	
\vutinfth@logo@height									
\vutinfth@logo@offset@x									
\vutinfth@logo@offset@y									
\vutinfth@logo@width@safe									
\vutinfth@normalsize									
\vutinfth@pagestyle@default									
\vutinfth@pagestyle@titlepage									
\vutinfth@pagestyle@titlepagefoo									
\vutinfth@person@advisor@fullnam									
\vutinfth@person@advisor@name									
\vutinfth@person@author@fullname									
\vutinfth@person@author@name									
\vutinfth@person@female									
\vutinfth@person@firstassistant@									
\vutinfth@person@firstassistant@									
\vutinfth@person@firstassistant@									
\vutinfth@person@firstreviewer@n	ame								582
\vutinfth@person@male							<u>62</u> , 6	5, 75	, 76
\vutinfth@person@secondadvisor@d	ef .								526
\vutinfth@person@secondadvisor@f	ulln	ame							529
\vutinfth@person@secondassistant	@def							500,	511
\vutinfth@person@secondassistant									
\vutinfth@person@secondassistant									
\vutinfth@person@secondreviewer@	name								584
\vutinfth@person@thirdassistant@	def								507
\vutinfth@person@thirdassistant@	full	name							514
\vutinfth@placedate@width									
\vutinfth@polylingual@Advisor									
\vutinfth@polylingual@Assistance									
\vutinfth@polylingual@BACHELORTH									
\vutinfth@polylingual@Bdeg									

\vutinfth@polylingual@by	 			648
\vutinfth@polylingual@Curriculum				
\vutinfth@polylingual@DdegRerNatFemale	 			278
\vutinfth@polylingual@DdegRerNatMale	 			276
\vutinfth@polylingual@DdegRerSocOecFemale	 			292
\vutinfth@polylingual@DdegRerSocOecMale	 			290
\vutinfth@polylingual@DdegTechnFemale	 			285
\vutinfth@polylingual@DdegTechnMale	 			283
\vutinfth@polylingual@degreename	 188,	202,	638,	645
\vutinfth@polylingual@DIPLOMATHESIS	 			242
\vutinfth@polylingual@DOCTORTHESIS				
\vutinfth@polylingual@faculty				
\vutinfth@polylingual@in	 			640
\vutinfth@polylingual@MASTERTHESIS				
\vutinfth@polylingual@MdegDiplFemale				
\vutinfth@polylingual@MdegDiplMale				
\vutinfth@polylingual@MdegMaster				
\vutinfth@polylingual@MdegRerNatFemale				
\vutinfth@polylingual@MdegRerNatMale				
\vutinfth@polylingual@MdegRerSocOecFemale				
\vutinfth@polylingual@MdegRerSocOecMale				
\vutinfth@polylingual@Place				
\vutinfth@polylingual@Registrationnumber				
\vutinfth@polylingual@Reviewed				
\vutinfth@polylingual@Secondadvisor				
\vutinfth@polylingual@Statement				
\vutinfth@polylingual@StatementChapter				
\vutinfth@polylingual@submission				
\vutinfth@polylingual@Subtitle				
\vutinfth@polylingual@thesisname				
\vutinfth@polylingual@Title				
\vutinfth@polylingual@university				
\vutinfth@restorelayout				
\vutinfth@savelayout\				
\vutinfth@selectlanguage@polylingual				
\vutinfth@signature@height				
\vutinfth@signature@width				
\vutinfth@squarebullet				
\vutinfth@tempa				
\vutinfth@tempb				
\vutinfth@thesis@bachelor				
\vutinfth@thesis@basetype				
\vutinfth@thesis@basetype@graduate				
\vutinfth@thesis@basetype@undergraduate				
\vutinfth@thesis@ddeg@rernat				
\vutinfth@thesis@ddeg@rersocoec				
\vutinfth@thesis@ddeg@techn				
\vutinfth@thesis@degreename				
\vutinfth@thesis@doctor	 			
\www.infth@thesis@master			196	21/

\vutinfth@thesis@mdeg@dipl	236,	241
\vutinfth@thesis@mdeg@master	<u>236</u> ,	249
\vutinfth@thesis@mdeg@rernat	<u>236</u> ,	253
\vutinfth@thesis@mdeg@rersocoec	<u>236</u> ,	261
\vutinfth@thesis@thesisname		184
$\verb \vutinfth@tmp@baselineskip $	440,	445
\vutinfth@tmp@parindent <u>435</u> ,	439,	444
$\verb \vutinfth@tmp@parskip \underline{435},$	441,	446
\mathbf{X}		
\xdef		18