The Form of Theses
Written in \LaTeX

Bachelor’s Thesis

Vít Novotný

Brno, Spring 2015
Declaration

Hereby I declare that this paper is my original authorial work, which I have worked out by my own. All sources, references and literature used or excerpted during elaboration of this work are properly cited and listed in complete reference to the due source.

Vít Novotný

Advisor: Doc. RNDr. Petr Sojka, Ph.D.
Acknowledgement

I wish to express my most sincere gratitude and appreciation to Doc. RNDr. Petr Sojka, Ph.D. for sharing expertise, valuable guidance and encouragement, Doc. Ing. Michal Bradejs, CSc. for providing me with statistical data, which proved invaluable for the initial research, and one and all who, directly or indirectly, have lent their hand in this venture. I also thank my parents for their unceasing encouragement and support during my studies.
Abstract

This bachelor’s thesis aims to assess existing templates for the typesetting of theses and to analyze the trends in the usage of \TeX\ at the Masaryk University in Brno. Based on the findings, the author designs a new \LaTeX\ document class for the typesetting of theses at the Masaryk University in Brno.
Keywords

\LaTeX{} document classes, thesis typesetting, fithesis, \TeX{} usage statistics
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1 Introduction

For many university students, a bachelor’s thesis is the first relatively complex document they ever had to complete. The task of writing and typesetting a thesis in a run-of-the-mill word processor is not unsurmountable, but it can be greatly simplified by the use of the right tools. One of such tools is the \LaTeX{} document preparation system, which has been the industry standard for the creation of scientific documents ever since its inception in 1984.

For this reason, the faculties of major universities often provide their students with \LaTeX{} typesetting templates. The Faculty of Informatics of the Masaryk University in Brno (FI) is no exception and provides its students with the \texttt{fithesis1} \LaTeX{} thesis typesetting templates. The ecosystem around \LaTeX{} constantly evolves and the typesetting templates need to be groomed in order to stay compatible with the various \TeX{} engines (engines) and \LaTeX{} packages (packages). With the last public update of \texttt{fithesis1} dating back to 2006, an update was required. The main goal of this thesis was therefore to create a new \LaTeX{} document class that would fix the ailments of \texttt{fithesis1} and implement meaningful new features.

In Chapter 2, the author describes the state of \texttt{fithesis1} and related software projects prior to the author’s involvement. Chapter 3 contains the author’s analysis of the trends in the usage of \TeX{} and \LaTeX{} at the Masaryk University in Brno (MU). In Chapter 4, the author reviews the typesetting styles used at Czech universities as well as generic typesetting templates. Based on the research described in chapters 3 and 4, the author designed a new thesis typesetting template in \LaTeX{}. This procedure is described in detail in Chapter 5. This entire thesis was typeset using the template.

Appendix A contains the list of electronic attachments. Appendices B–J then contain the user documentation of the template for the various faculties of MU and Appendix K contains the full technical documentation of the template.
2 Existing Codebase

The implementation part of this thesis concerns the development of a new version of an already existing software project. In this chapter, the author is going to briefly describe the history of the project prior to his involvement, the state of the project’s codebase at the time of his arrival as well as his contributions, which are not directly related to the fithesis3 class, but bear relevance to its development.

2.1 The fithesis1 and fithesis2 classes

The fithesis1 class had been created by Mgr. Daniel Marek in 1998 as a bachelor’s project under the supervision of Doc. RNDr. Petr Sojka, Ph.D. Despite the best effort on part of both the author and the staff of the Computer Systems Unit at FI, neither the source code of fithesis1, nor the thesis accompanying the project, was recovered.

In 2002, the main maintainership was transferred to RNDr. Jan Pavlovič, Ph.D. who extended the class to serve as one of the backends to his DocBook-based system for thesis writing. This project is described separately in Section 2.2. During 2002–2008, the codebase of fithesis1 remained relatively stable under the maintenance of Jan Pavlovič and Petr Sojka, with one of the few major additions being the addition of support for Slovak by Mgr. Peter Čerenský in 2004.

In 2008, Mgr. Stanislav Filipčík created a derivative of fithesis1 called fithesis2 as the implementation part of his bachelor’s thesis [1]. This derivative contained desirable changes, such as the removal of the mandatory ISO Latin-2 character encoding and the addition of the logos of all the faculties of MU. These changes, however, were insufficiently documented, which is why fithesis2 was not released. In 2012, Bc. Tomáš Janoušek was tasked to document the code of fithesis2, which he did only partially [2]. In 2013, Mgr. Tomáš Fábry created a package adding support for the usage of Comenia fonts purchased by MU to TeX as the implementation part of his thesis. This project is described separately in Section 2.3.

During January–March 2015, the author and Petr Sojka finished the technical documentation of fithesis2, refactored its source code and published it on the website of FI [3]. A thematic discussion forum
2. Existing Codebase

[4] was also founded by Doc. Ing. Michal Brandejs, CSc. to foster discussion about the typesetting of theses at the Masaryk University.

2.2 The xslt and xslt2 modules

The xslt module was developed in 2001 by RNDr. Jan Pavlovič, Ph.D. as the implementation part of his bachelor’s thesis [5]. The module combined several tools to enable the conversion of theses written using the DocBook format into various output formats including LaTeX documents for the fithesis1 class. The development of the module continued until 2003. During 2003–2004, Jan Pavlovič co-wrote several articles concerning DocBook [6–8] and released a rewritten version of the module called xslt2. The latest contribution to the xslt2 module was the implementation part of the bachelor’s thesis of Bc. Tomáš Baluch [9] supervised by Jan Pavlovič. The thesis modernized the user interface of the module and added support for access to Java content repositories.

During January–March 2015, the author tested the final version of fithesis1 with the final version of xslt2 available on the UNIX servers at FI and concluded that the projects retained compatibility and could be used without apparent issues. The author therefore included a section regarding the use of the xslt2 module into the documentation of fithesis1 and restored the website dedicated to the module [10]. Since the xslt2 module is only loosely coupled with the fithesis1 class, the author also concluded that the module should be reasonably simple to extend to support fithesis2 and fithesis3.

2.3 The comenia package

The comenia package was developed in 2013 by Mgr. Tomáš Fábry as the implementation part of his bachelor’s thesis [11]. The package added support for the usage of the Comenia font superfamily within TeX. During January–March 2015, the author tested the final version of fithesis1 and fithesis2 with the comenia package and encountered no technical difficulties.
3 TeX usage at the Masaryk University in Brno

During December 2014–January 2015, the author performed an initial research to obtain user feedback regarding the fthesis1 and fthesis2 classes and to analyze the trends in the use of TeX across the faculties of MU. In this chapter, the author is going to summarize the results of his research.

3.1 User Survey

At the end of December 2014, an online questionnaire was distributed amongst the students of MU. Table 3.1 illustrates the distribution of the respondents across the faculties of MU according to the claims of the respondents. Several respondents claimed to be studying at more than one faculty of MU, which is the reason for the distortion of percentage. The raw data obtained from the questionnaire in Czech is available in the survey.csv comma-separated values (CSV) file distributed alongside this thesis (see Appendix A).

The overwhelming majority of respondents claimed that the highest degree for which they were studying was that of a bachelor (see

<table>
<thead>
<tr>
<th>On which faculty of MU do you study?</th>
<th>#</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Faculty of Informatics</td>
<td>82</td>
<td>92.1</td>
</tr>
<tr>
<td>Faculty of Science</td>
<td>3</td>
<td>3.4</td>
</tr>
<tr>
<td>Faculty of Education</td>
<td>2</td>
<td>2.2</td>
</tr>
<tr>
<td>Faculty of Social Studies</td>
<td>2</td>
<td>2.2</td>
</tr>
<tr>
<td>Faculty of Law</td>
<td>1</td>
<td>1.1</td>
</tr>
<tr>
<td>Faculty of Medicine</td>
<td>1</td>
<td>1.1</td>
</tr>
<tr>
<td>Faculty of Arts</td>
<td>1</td>
<td>1.1</td>
</tr>
<tr>
<td>Faculty of Economics &amp; Administration</td>
<td>1</td>
<td>1.1</td>
</tr>
<tr>
<td>Faculty of Sports Studies</td>
<td>0</td>
<td>0.0</td>
</tr>
</tbody>
</table>
3. **TeX usage at the Masaryk University in Brno**

Table 3.2: The highest academic degrees currently pursued by the respondents of the questionnaire

<table>
<thead>
<tr>
<th>Which academic degree are you currently pursuing?</th>
<th>#</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bachelor’s degree</td>
<td>70</td>
<td>78.7</td>
</tr>
<tr>
<td>Master’s degree</td>
<td>17</td>
<td>19.1</td>
</tr>
<tr>
<td>Doctorate</td>
<td>2</td>
<td>2.2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>89</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Table 3.3: The software the respondents of the questionnaire were using or planning to use to write their theses

<table>
<thead>
<tr>
<th>Which application do you use / are you planning to use to write your thesis?</th>
<th>#</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>\TeX / \LaTeX</td>
<td>65</td>
<td>73.0</td>
</tr>
<tr>
<td>Microsoft Office</td>
<td>16</td>
<td>18.0</td>
</tr>
<tr>
<td>Apache OpenOffice, LibreOffice or another free office software suite</td>
<td>4</td>
<td>4.5</td>
</tr>
<tr>
<td>Other</td>
<td>4</td>
<td>4.5</td>
</tr>
<tr>
<td>Google Documents</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>89</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Table 3.2) and that they were planning to use \TeX to write their theses (see Table 3.3). Most of those who claimed to be planning to use \TeX also claimed to know about the existence of the \texttt{fithesis1} class and claimed to be planning to use it as a template for their theses (see Table 3.4).

Some of the respondents who claimed to be using or planning to use \TeX to typeset their theses also provided feedback regarding the \texttt{fithesis1} class. Unknown to the author at the time of the survey was the fact that \texttt{fithesis2} had not yet been made publicly available, as detailed in Section 2. As a result of that, much of the feedback was regarding issues long fixed in \texttt{fithesis2}. Among the feedback relevant to \texttt{fithesis2} were calls for a more extensive user and technical documentation (see Appendix K) and a suggestion that the class should support the
Table 3.4: The attitude towards the usage of the \texttt{fithesis} class amongst those respondents who claimed to be using or planning to use \TeX{} to typeset their theses

<table>
<thead>
<tr>
<th>Are you planning to use the \texttt{fithesis1} class?</th>
<th>#</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>47</td>
<td>72.3</td>
</tr>
<tr>
<td>Maybe, I did not know it existed</td>
<td>10</td>
<td>15.4</td>
</tr>
<tr>
<td>No, I'm going to use another class</td>
<td>5</td>
<td>7.7</td>
</tr>
<tr>
<td>Other</td>
<td>2</td>
<td>3.1</td>
</tr>
<tr>
<td>No, I'm going to use plain \TeX{}</td>
<td>1</td>
<td>1.5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>65</td>
<td>100.0</td>
</tr>
</tbody>
</table>

typesetting of printed and electronic versions of theses as separate documents.

### 3.2 Statistical analysis of existing theses

Along with the user survey, a statistical analysis of theses defended at MU during 2010–2015 was carried out by the author. The sample data for the analysis were kindly provided by Doc. Ing. Michal Brandejs, CSc., the head of the Computer Systems Unit at FI. The raw data is available within the \texttt{statistics.zip} ZIP archive distributed alongside this thesis (see Appendix A).

Table 3.5 details the distribution of theses written and defended during 2010–2015 across the faculties of MU and Table 3.6 illustrates how many of these theses were written using \TeX{}. Table 3.7 then details the trends in the usage of \TeX{} by the students of bachelor’s, master’s and doctoral degree programmes at FI and the Faculty of Science of the Masaryk University in Brno (Sci). Other faculties of MU were not considered, since the number of theses written at them using \TeX{} was statistically insignificant (see Table 3.6). Theses written by students of lifelong education programmes were likewise ignored, since none of them were written using \TeX{}.

A thesis was considered to be written using \TeX{}, if one or more files submitted with it satisfied one or more of the following conditions:

- The suffix was \texttt{tex}. 


### Table 3.5: The distribution of theses defended between 2010 and 2015 across the faculties of MU

<table>
<thead>
<tr>
<th>Faculty</th>
<th>#</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arts</td>
<td>10 000</td>
<td>21.98</td>
</tr>
<tr>
<td>Education</td>
<td>8 219</td>
<td>18.07</td>
</tr>
<tr>
<td>Social Studies</td>
<td>5 599</td>
<td>12.31</td>
</tr>
<tr>
<td>Science</td>
<td>5 275</td>
<td>11.60</td>
</tr>
<tr>
<td>Law</td>
<td>4 824</td>
<td>10.60</td>
</tr>
<tr>
<td>Economics &amp; Administration</td>
<td>4 591</td>
<td>10.09</td>
</tr>
<tr>
<td>Informatics</td>
<td>2 904</td>
<td>6.38</td>
</tr>
<tr>
<td>Medicine</td>
<td>2 014</td>
<td>4.43</td>
</tr>
<tr>
<td>Sports Studies</td>
<td>2 062</td>
<td>4.53</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>45 488</strong></td>
<td><strong>100.00</strong></td>
</tr>
</tbody>
</table>

### Table 3.6: The distribution of theses written using \TeX, which were defended during 2010–2015 across the faculties of MU

<table>
<thead>
<tr>
<th>Faculty</th>
<th>With \TeX</th>
<th>Total</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Informatics</td>
<td>1 716</td>
<td>2 904</td>
<td>59.09</td>
</tr>
<tr>
<td>Science</td>
<td>786</td>
<td>5 275</td>
<td>14.90</td>
</tr>
<tr>
<td>Economics &amp; Administration</td>
<td>64</td>
<td>4 591</td>
<td>1.39</td>
</tr>
<tr>
<td>Arts</td>
<td>69</td>
<td>10 000</td>
<td>0.69</td>
</tr>
<tr>
<td>Medicine</td>
<td>8</td>
<td>2 014</td>
<td>0.40</td>
</tr>
<tr>
<td>Law</td>
<td>15</td>
<td>4 824</td>
<td>0.31</td>
</tr>
<tr>
<td>Education</td>
<td>19</td>
<td>8 219</td>
<td>0.23</td>
</tr>
<tr>
<td>Social Studies</td>
<td>12</td>
<td>5 599</td>
<td>0.21</td>
</tr>
<tr>
<td>Sports Studies</td>
<td>3</td>
<td>2 062</td>
<td>0.15</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>2 692</strong></td>
<td><strong>45 488</strong></td>
<td><strong>5.92</strong></td>
</tr>
</tbody>
</table>
3. TeX usage at the Masaryk University in Brno

Table 3.7: The percentage of theses written using TeX which were defended in each year during 2010–2014 and the sample correlation coefficient $R$ between the percentage and the years with remarkably strong correlations emphasized

<table>
<thead>
<tr>
<th>Degree</th>
<th>Fac.</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>$R$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bachelor’s</td>
<td>FI</td>
<td>58.92</td>
<td>59.44</td>
<td>49.54</td>
<td>53.77</td>
<td>59.06</td>
<td>−0.195</td>
</tr>
<tr>
<td></td>
<td>Sci</td>
<td>11.55</td>
<td>13.00</td>
<td>15.90</td>
<td>19.79</td>
<td>15.16</td>
<td>+0.703</td>
</tr>
<tr>
<td></td>
<td>All</td>
<td>5.08</td>
<td>6.19</td>
<td>6.00</td>
<td>6.08</td>
<td>6.24</td>
<td>+0.731</td>
</tr>
<tr>
<td>Master’s</td>
<td>FI</td>
<td>60.61</td>
<td>59.91</td>
<td>60.08</td>
<td>64.50</td>
<td>57.96</td>
<td>−0.046</td>
</tr>
<tr>
<td></td>
<td>Sci</td>
<td>19.38</td>
<td>13.54</td>
<td>13.75</td>
<td>13.78</td>
<td>17.71</td>
<td>−0.180</td>
</tr>
<tr>
<td></td>
<td>All</td>
<td>6.02</td>
<td>4.88</td>
<td>5.22</td>
<td>6.59</td>
<td>6.29</td>
<td>+0.490</td>
</tr>
<tr>
<td>Doctoral</td>
<td>FI</td>
<td>100.00</td>
<td>76.67</td>
<td>71.88</td>
<td>83.87</td>
<td>90.91</td>
<td>−0.155</td>
</tr>
<tr>
<td></td>
<td>Sci</td>
<td>18.09</td>
<td>10.71</td>
<td>12.75</td>
<td>10.19</td>
<td>8.85</td>
<td>−0.830</td>
</tr>
<tr>
<td></td>
<td>All</td>
<td>8.83</td>
<td>8.23</td>
<td>8.41</td>
<td>9.38</td>
<td>7.43</td>
<td>−0.361</td>
</tr>
<tr>
<td>All</td>
<td>FI</td>
<td>60.83</td>
<td>60.53</td>
<td>54.92</td>
<td>60.57</td>
<td>59.34</td>
<td>−0.188</td>
</tr>
<tr>
<td></td>
<td>Sci</td>
<td>14.86</td>
<td>12.96</td>
<td>14.74</td>
<td>16.55</td>
<td>15.45</td>
<td>+0.577</td>
</tr>
<tr>
<td></td>
<td>All</td>
<td>5.67</td>
<td>5.70</td>
<td>5.73</td>
<td>6.41</td>
<td>6.28</td>
<td>+0.855</td>
</tr>
</tbody>
</table>

- The magic number was that of a DVI file.
- The Multipurpose Internet Mail Extensions Type (MIME type) was application/postscript and the file contained the TeXDict substring suggesting that the file was a PostScript (PS) document, which had been created using the dvips utility.
- The MIME type was application/pdf and either the Creator or the Producer Portable Document Format (PDF) header contained the TeX substring suggesting that the file had been created using either the dvipdfm utility or an engine, which supports PDF output.

Provided the heuristic is sound, there has been a marked and steady increase in the use of TeX for the typesetting of theses during 2010–2014 (see Table 3.7). This, however, does not necessarily hold true for individual faculties and degree study programmes with some of them showing barely any correlation between the years and the use of
Table 3.8: The contingency table of the numbers of marks awarded to theses written and defended during 2010–2015 with Pearson’s goodness-of-fit measure $(E - O)^2 / E$ between the expected $(O)$ and the observed $(E)$ numbers of marks awarded to theses written using \TeX

<table>
<thead>
<tr>
<th></th>
<th>Without \TeX</th>
<th>E(With \TeX)</th>
<th>O(With \TeX)</th>
<th>$(E - O)^2 / E$</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>15 476</td>
<td>987.635</td>
<td>1 181</td>
<td>37.858</td>
</tr>
<tr>
<td>B</td>
<td>9999</td>
<td>638.108</td>
<td>587</td>
<td>4.093</td>
</tr>
<tr>
<td>C</td>
<td>7 926</td>
<td>505.815</td>
<td>381</td>
<td>30.799</td>
</tr>
<tr>
<td>D</td>
<td>4 020</td>
<td>256.545</td>
<td>194</td>
<td>15.248</td>
</tr>
<tr>
<td>E</td>
<td>2 783</td>
<td>177.603</td>
<td>128</td>
<td>13.853</td>
</tr>
<tr>
<td>F</td>
<td>1 979</td>
<td>126.294</td>
<td>145</td>
<td>2.771</td>
</tr>
<tr>
<td>Total</td>
<td>42 183</td>
<td>2 692</td>
<td>2 692</td>
<td>104.623</td>
</tr>
</tbody>
</table>

\TeX and others showing a strong negative correlation. A particularly striking example of the latter is the pronounced downwards trend in the use of \TeX for the typesetting of doctoral theses at Sci.

Suppose the null hypothesis $h_1$ that the grades awarded to theses written using and not using \TeX, respectively, have the same distribution on the significance level $\alpha = 0.05$. The one-tailed Pearson’s $\chi^2$ test \cite{12} of the goodness of fit was applied to the observations of awarded grades that made up more than one percent of the sample data (grades A, B, C, D, E and F, see Table 3.8). Since

$$\sum_{A,B,...,F} (E - O)^2 / E = 104.623 \gg 11.07 = \chi^2_{1-\alpha}(5) \quad (3.1)$$

the author refused the null hypothesis $h_1$ and concluded that the grades are indeed differently distributed on the significance level $\alpha$.

Having shown that the distribution of grades awarded to theses written using and not using \TeX is different, the author proceeded to inspect, if this holds for individual grades. Suppose the null hypothesis $h_A$ that the distribution of grade A being awarded to theses written using \TeX is equivalent to the distribution of grade A being awarded to theses not written using \TeX. The two-tailed Mann-Whitney U test \cite{13,14} was applied to the observations of grade A being and not being
3. TeX usage at the Masaryk University in Brno

Figure 3.1: A box plot of the grades of theses written and defended during 2010–2015 at FI, Sci and all the faculties of MU with and without TeX.

awarded to theses written using and not using TeX:

\[ m_1 = 15,476 \quad \text{(Without TeX (grade A))} \]
\[ m_2 = 1,181 \quad \text{(With TeX (grade A))} \]
\[ n_1 = 42,183 \quad \text{(Without TeX (total))} \]
\[ n_2 = 2,692 \quad \text{(With TeX (total))} \]

\[ U_1 = m_1(m_2 \cdot 0.5 + (n_2 - m_2)) + (n_1 - m_1)((n_2 - m_2) \cdot 0.5) \quad (3.2) \]
\[ = 52,699,952.5 \]
\[ U_2 = m_2(m_1 \cdot 0.5 + (n_1 - m_1)) + (n_2 - m_2)((n_1 - m_1) \cdot 0.5) \quad (3.3) \]
\[ = 60,856,683.5 \]
\[ U = \min(U_1, U_2) = U_1 = 52,699,952.5 \quad (3.4) \]

Since \( n_1 n_2 \gg 20 \), \( U \sim N \left( \frac{n_1 n_2}{2}, \frac{n_1 n_2 (n_1 n_2 + 1)}{12} \right) \). After normalization to

\[ N(0,1) \sim z = \frac{U - \frac{n_1 n_2}{2}}{\sqrt{\frac{n_1 n_2 (n_1 + n_2 + 1)}{12}}} \approx -4.078 \text{,365.5} \approx -6.258 \quad (3.5) \]

the two-tailed \( p \)-value \( \beta \) was computed by the author as follows:

\[ \arg \min_{\beta} P(\Phi^{-1}_{\beta/2} \leq z \leq \Phi^{-1}_{1-\beta/2}) = \beta \quad (3.6) \]
\[ \iff \Phi^{-1}_{\beta/2} = -6.258 \iff \beta/2 = 1 - \Phi(6.258) \iff \beta \approx 0 \]
3. TeX usage at the Masaryk University in Brno

Since $\beta < \alpha$, the author refused the null hypothesis $h_A$ on the significance level $\alpha$. Following a similar procedure for marks B–F, the author arrived at the following conclusions on the significance level $\alpha$:

- Theses written using \TeX had been awarded grade A statistically significantly more often than theses not written using \TeX.
- Theses written using \TeX had been awarded grades C and D statistically less often than theses not written using \TeX.
- No statistically significant difference was observed in the distributions of grades B, E and F being awarded to theses written using and not using \TeX.

A box plot of the grades is shown in Figure 3.1.
4 Review of Existing Templates

During December 2014–January 2015, the author also assessed several \TeX templates for the typesetting of theses in order to gather ideas for the design of the fithesis3 class (see Chapter 5). Initially, the author is going to focus on templates used at Czech technical universities. At the end of the section, select generic templates will also be considered.

4.1 Charles University and Czech Technical University

4.1.1 CUStyle and CTUStyle

The first of the reviewed thesis typesetting templates were the CUStyle [15] and CTUStyle [16] macro packages from RNDr. Petr Olšák, which were designed to be used at the Charles University in Prague (CUNI) and at the Faculty of Electrical Engineering of the Czech Technical University in Prague (CTU FEL), respectively. The sole dependencies of these templates are the \ttfamily{csplain} and \ttfamily{OPmac} packages.

The templates are closely tied with the visual styles of the universities, which is mainly achieved through color-coding. Aside from black-and-white text, the CTUStyle macro package typesets various typographic elements in the \textcolor{Pantone 300}{Pantone 300} color, which makes for a visually pleasing combination. The CUStyle macro package uses the combination of black, gray and \textcolor{Pantone 1797}{Pantone 1797} color to a similar end.

Unlike with fithesis2, documents typeset with the CTUStyle and CUStyle templates are double-sided by default. The text width of CTUStyle (4.1) and CUStyle (4.2)

\begin{align*}
210 \text{ mm (A4 width)} - 2 \cdot 32 \text{ mm} & = 146 \text{ mm} \quad (4.1) \\
210 \text{ mm (A4 width)} - 2 \cdot 31 \text{ mm} & = 148 \text{ mm} \quad (4.2)
\end{align*}

is also much larger than that of fithesis2 (127 mm [2, lines 989, 1017, 1045]). The margins of CTUStyle and CUStyle, in conjunction with the chosen font family, allow for up to 100 characters per line, which is not only wearying to the eye of an inexperienced reader [19, section 2.1.2], but also against the recommendations of FI [20, section 3.2.3]. According to the statements of the author of the styles [21, post 25], both
decisions have likely been made in an effort to reduce the required storage space for the archival of physical prints of theses.

4.1.2 Official template of Czech Technical University

The felthesis class from Ing. Vít Zýka Ph.D. provides an alternative for those CTU FEL students, who prefer \LaTeX\ over Č\TeX\plain used by the CTUStyle macro package. Much like fitthesis1 and fitthesis2, felthesis loads the KOMA-Script scrreprt class, redefines some of its commands and \LaTeX\ environments (environments), loads additional packages and defines additional thesis sectioning commands. Unlike fitthesis1 and fitthesis2, felthesis loads the babel package, whose main language it chooses based on the language of the thesis [22, lines 687–691]. Felthesis also loads Bib\LaTeX\ [22, line 722], automatically generates index [22, line 763] and stamps the title, author, subject, and keywords into the header of the resulting PDF file [22, lines 959–971]. Alongside the package, both a technical [22] and a user documentation [23] is distributed.

4.1.3 Official template of Charles University

Along with Petr Olšák’s CUStyle, CUNI also provides an official \LaTeX\ template for the typesetting of theses [24]. Rather than defining a new class, the archive contains a makefile and a skeleton \LaTeX\ document using the base report class for both Czech and English theses. The students are expected to modify the said document to suit their requirements. The template uses Č\TeX\ rather than the babel package, which means that Č\TeX\ fonts rather than the superior Latin Modern fonts (LM fonts) [25] are used by default.

4.2 Mendel University in Brno

Despite not being an official thesis template of the Mendel University in Brno (MENDELU), the d\texttt{ipp.sty} package from Doc. Ing. Dr. Jiří Rybičká warrants a mention. The package depends on the extended macro set of the \XeLaTeX\ typesetting engine and is intended to be used with the base article class. Although the article class was not designed
with European typography in mind, the dipp.sty package redefines much of the geometry.

Noteworthy is also the rich selection of additional markup, which is meant to ease the task of typesetting a thesis for those unfamiliar with \LaTeX. To this end, the package defines thesis sectioning commands, macros and wrapper environments for the inclusion of bibliography, tables or figures and discretionary macros specific to Czech typography such as \texttt{\az} for the typesetting of ranges and \texttt{\spoj} for hyphenation [26].

### 4.3 Brno University of Technology

The official thesis typesetting template of the Brno University of Technology (BUT) is the thesis.sty package. Unlike dipp.sty, thesis.sty is meant to be used with the base report class. All packages required by the package are documented within the package documentation [27, p. 9]. The implicit text width of the package is 150 mm [27, p. 2], which, in conjunction with the usage of ČS fonts at 12 pt, allows for up to 90 characters per line. This is problematic for reasons mentioned in Subsection 4.1.1.

The thesis.sty package also adds additional markup. This includes wrapper commands such as \texttt{\novazkratka}, \texttt{\zk}, \texttt{\zkratka} and \texttt{\zkratkatext} for the typesetting of acronyms, the \texttt{\seznamzkratek} and \texttt{\literatura} environments for acronyms and bibliography, respectively, and various math mode macros (see [27, p. 6–9]). Like felthesis, thesis.sty is also able to stamp thesis metadata into the PDF header. The thesis.sty package can be downloaded from [28].

### 4.4 Technical University of Liberec

Unlike the preceding typesetting templates, tulthesis from Doc. RNDr. Pavel Satrapa, Ph.D. is not a standalone class, but rather a part of the tul package, which is the official package used for the typesetting of documents on the Technical University in Liberec (TUL). Tulthesis uses the base report class [29, section 1] and is quite visually distinctive. An interesting bit of trivia is the fact that it inspired [21, post 21] the creation of Petr Olšák’s CUSTyle and CTUStyle macro packages. The tul
4. Review of Existing Templates

package, along with the tulthesis class, can be downloaded from [30].

4.5 Technical University of Ostrava

The official style for the typesetting of documents at the Technical University of Ostrava (VŠB-TU) is the diploma class by Jiří Dvorský. Like Jiří Rybička’s dipp.sty, diploma uses the base article class, modifies its geometry and adds thesis sectioning commands and additional macros for the users’ convenience [31]. The output documents are one-sided by default and the font size of 11 pt is too small for the text width of

\begin{align}
210 \text{ mm (A4 width)} - 28 \text{ mm (left margin)} \\
- 32 \text{ mm (right margin)} = 150 \text{ mm (4.3)}
\end{align}

as defined in [32, lines 111, 123], resulting in overlong lines as discussed earlier (see Subsection 4.1.1).

The additional macros range from mathematical environments [31, section 3.5] and commands and environments for the typesetting of code with syntax highlighting [31, section 3.6] through commands for the insertion of graphics [31, section 3.7].

4.6 Silesian University in Opava

At the time of the reasearch, there was no official or unofficial \LaTeX{} document class or package of the Silesian University in Opava (SU) available on the Internet. There is a mention [33] of the works on a class at the webpage of RNDr. Šárka Vavřečková, Ph.D. who teaches typography at the Faculty of Philosophy and Science in Opava of the Silesian University in Opava. There is also a bachelor’s thesis [34] written by Michal Hanzal from the School of Business Administration in Karviná of the Silesian University in Opava (OPFSU) who describes the process of creating a \LaTeX{} document class for what is supposed to be the official thesis typesetting template at OPFSU. There is, however, no mention of the style at the website of the faculty [35], although the linked Dean’s directives were written with \LaTeX{} in mind. Enshrouded in mystery is, the author opines, the only accurate way to describe the state of affairs.
4.7 Palacký University Olomouc

There are three independent \LaTeX{} thesis typesetting templates available at the Faculty of Science of the Palacký University in Olomouc (UP) provided by the departments of Experimental Physics, Informatics and Mathematical Analysis and Applications, respectively.

The template used at the Department of Experimental Physics is just an example \LaTeX{} document using the base `article' class, which the students are expected to edit according to their needs. The template is supposed to be typeset using the pdf\LaTeX{} engine meaning that \text{C}\text{S} fonts instead of the superior \text{LM} fonts are used. Along with the thesis template, a beamer template for thesis defense presentations is also distributed. Both templates can be downloaded at [36].

The template used at the Department of Informatics is `Kldiplom' from Jan Outrata and Martin Rotter and it is a combination of a class, which is built on the base `article' class and is meant for the typesetting of theses, and a package, which was designed as a general template for the typesetting of documents in the visual style of the Department of Informatics. Amongst the vices of the template are the disabled double-sided typesetting [37, lines 69–72] and the text width of

\[
426 \text{ pt (a4paper text width)} \cdot 1,05 \text{ [37, line 81]} \approx 157,23 \text{ mm (4.4)}
\]

which, in conjunction with the 12 pt \text{LM} fonts is, the author opines, too generous [37, lines 74–82] and causes overlong lines (see Subsection 4.1.1). The template implicitly loads \text{BibLaTeX} and packages for the typesetting of glossaries and index. The added convenience macros comprise thesis sectioning commands and environments for the typesetting of mathematical definitions, theorems or proofs as well as code snippets. Along with the thesis template, \LaTeX{} templates for the typesetting of thesis reader’s reports and \text{BibLaTeX} ISO-690 [38, 39] citation styles are distributed. The templates can be downloaded at [40].

The template used at the Department of Mathematical Analysis and Applications is the `maan-dipl.sty' package, which only defines basic thesis sectioning commands and is meant to be used with the base `article' class. The template can be downloaded at [41].
4. Review of Existing Templates

4.8 Masaryk University in Brno

Aside from FI, the only other faculty of MU to offer a thesis typesetting template in \TeX was Sci. This is in line with the statistics of usage of \TeX, which are by and large dominated by FI and Sci (see Section 3.2). The template used at Sci is the \texttt{sci.muni.thesis.sty} package, which is intended to be used with the base \texttt{book} class. The output documents are one-sided by default and the font size of 12 pt is too small for the text width of

\[
210 \text{ mm (A4 width)} - 34 \text{ mm (left margin)}
- 25 \text{ mm (right margin)} = 151 \text{ mm (4.5)}
\]

as defined in [42, line 109], resulting in overlong lines as discussed earlier (see Subsection 4.1.1).

4.9 Generic templates

Amongst the noteworthy generic thesis typesetting templates the author had the opportunity to encounter was the \texttt{classicthesis} package, which heavily modifies the \texttt{scrreprt} KOMA-Script class in an endeavor to replicate the design of Bringhurst’s \textit{The Elements of Typographic Style} [19]. The author notes that the \texttt{classicthesis} package is one of the few that manage to avoid overlong lines (see Subsection 4.1.1). The package can be downloaded at [43].

Another generic thesis typesetting template, which the author found refreshing, was the \texttt{graduate-thesis} class, which is based on the base \texttt{book} class and which, like CTUStyle, uses a visually pleasing combination of black and blue. Like most of the reviewed templates, \texttt{graduate-thesis}, too, suffers from overlong lines (see Subsection 4.1.1). The \texttt{package} can be downloaded at [44].
5 Design and Implementation

Following the analysis of the usage of \TeX at MU (see Chapter 3) and the review of existing thesis typesetting templates (see Chapter 4) conducted during December 2014–January 2015, the author developed a new \texttt{fitthesis3} class during January–May 2015. In this chapter, the author is going to describe the main goals of the class along with its design and implementation.

5.1 Goals

The \texttt{fitthesis2} document class included the logos of all faculties of MU, which in theory enabled its usage across the faculties of MU. In practice, however, each faculty of MU had a vastly different rules regarding the structure and the formatting of theses. These differences had to be resolved by the end users, which decreased the usefulness of the class. One of the main goals of \texttt{fitthesis3} was therefore the addition of a more comprehensive support for the various faculties of MU.

With the advent of the digital age, the importance of printed works has diminished in favour of electronic documents. Another main goal of \texttt{fitthesis3} was therefore better utilization of the PDF format capabilities, as demonstrated by the \texttt{felthesis} class (see Section 4.1.2). Other goals included the addition of support for modern engines other than \TeX and pdflatex and the addition of support for color printing.

5.2 Design

The \texttt{fitthesis1} and \texttt{fitthesis2} classes had the following responsibilities:

1. The management of Czech, Slovak and English locale strings
2. The definition of the document style
3. The processing of the class options and thesis metadata

These responsibilities had been hard-wired into the classes with little thought given to extensibility. With the addition of support for faculties other than FI, it was necessary to enable easy addition of new
5. Design and Implementation

languages such as French [45] or Russian [46]. To enable the automatic
typesetting of the mandatory parts of theses in compliance with the
requirements of the faculties of MU, new metadata fields also had to
be added to the class and the document style had to respond to the
faculty at which the thesis was going to be written and defended.
For these reasons, the author had decided to decompose the class
into the following parts:

1. **Locale files** that encapsulate locale strings
2. **Style files** that define the look and layout of the document
3. **The class file** that processes the user input and loads the according
   locale and style files

When a user specified the class in the preamble of the document,
only the class file would get loaded. The user would then input the
metadata of their thesis, which would be processed by the class. If
no metadata were input, placeholder values would be used instead.
At the end of the preamble, the metadata would be written to the
header of the output document, the corresponding locale and style
files would be loaded and the mandatory parts specified by the style
file would be appended to the document.

The compatibility with various engines would be ensured by the
style files, which would detect the engine used and behave accordingly.
The support for color printing would likewise be added at the style
file level.

5.3 Implementation

The directory structure of fithesis3 is shown in Figure 5.1. The locale/
and style/ directories contain the locale and style files and the logo/
directory contains the university and faculty logos in PDF and Encaps-
ulated PostScript (EPS) formats. The fithesis3.cls file represents
the fithesis3 class.

5.3.1 Locale files

The structure of the locale/ directory is shown in in Figure 5.2. The
locale files of a given locale for a given faculty of a given university are
5. Design and Implementation

fithesis3/
  - locale/
  - style/
  - logo/
  - fithesis3.cls

Figure 5.1: The directory structure of fithesis3

locale/
  - locale.def
  - university/
    - locale.def
  - faculty/
    - locale.def

Figure 5.2: The directory structure of the locale files of fithesis3

named locale.def and are loaded from the least to the most specific one starting at the root of the locale/ directory and ending up in the university/faculty/ subdirectory. The motivation for this scheme was code reuse. If each of m faculties at n universities used the same k strings, then \( \binom{k \cdot m \cdot n}{2} \) pairs of strings would need to be kept mutually consistent. An inheritance scheme largely eliminated this problem by allowing the creation of one copy of the k shared strings, which is shared by the subsequently loaded m \( n \) locale files.

For documentation and maintenance purposes, each locale consists of only one locale.dtx Documented TeX file (DTX) file stored within the locale/ directory. This file is decomposed into individual files using the locale.ins DocStrip installer file (INS) file and the makefile stored within the locale directory.

5.3.2 Style files

The structure of the style/ directory is shown in Figure 5.3. The style files for a given faculty of a given university are named fithesis3-faculty.sty and are stored within the university/ subdirectory. Common behavior is inherited from the fithesis3-base.sty style files, which, much like locale files, are loaded from the least to the most specific one starting at the root of the style/ directory and ending up in the university/ subdirectory. The fithesis3- filename prefix
5. Design and Implementation

serves to prevent naming collisions. Since the style files are ordinary \LaTeX\ packages and the \TeX\ Directory Structure (TDS) is flat, naming the style files only \texttt{faculty.sty} would run the risk of clashing with a similarly named package.

The majority of the style files of MU were developed in accordance with Dean’s directives or formal requirements published at the website of the faculties [47–52]. The exceptions were the Faculty of Social Studies of the Masaryk University in Brno (FSS) and the Faculty of Medicine of the Masaryk University in Brno (Med). At FSS, there was a multitude of conflicting recommendations by its various departments with no unifying set of requirements. A skeleton style file was created, which the user can alter in accordance with the requirements of the given department. At Med, only the department of optometrics specified any formal requirements [53]. The style file of Med was therefore prepared in accordance with these requirements. The style file of Sci also warrants a mention, since it was deliberately designed to resemble the thesis typesetting template of Sci (see Section 4.8) in order to facilitate the adoption of fithesis3 at Sci.

The compatibility of the style files of MU with the \texttt{Xe\TeX}\ and \texttt{Lua\TeX} engines is implemented by the \texttt{fithesis3-base.sty} style file stored within the \texttt{mu/} directory, which loads engine-specific packages based on the engine used. Drawing inspiration from Petr Olšák’s \texttt{CTUStyle} and \texttt{CUSstyle} macro packages (see Section 4.1.1), the addition of support for colorful typesetting was added to the style files of MU spanning links, tables and the university and faculty logos.

For documentation and maintenance purposes, the style file for each faculty of a given university consists of one \texttt{faculty.dtx} DTX file stored within the \texttt{university/} subdirectory. This file is converted into the \texttt{fithesis3-faculty.sty} file using the \texttt{faculty.ins} INS file and the \texttt{makefile} stored within the \texttt{locale/} directory.
5. Design and Implementation

5.3.3 Logo files

The structure of the logo/ directory is shown in Figure 5.4. The university logo of a given university is stored in the base.pdf PDF and base.eps EPS files within the university/ subdirectory. The faculty logo for a given faculty of a given university is stored in the faculty.pdf PDF and faculty.eps EPS files within the university/ subdirectory. The university/color/ subdirectory is required by the style files of MU when color printing is enabled and contains the color versions of logos in an identical directory structure.

The monochrome and color versions of the logos in EPS format were downloaded from the website of MU [54] and subsequently converted to PDF using the epstopdf utility. The only exception was the logo of FI, which was instead taken from the bachelor's thesis of Mgr. Matúš Kominka [55]. Figure 5.5 contrasts the vector logo with the original METAFONT logo designed by Doc. RNDr. Petr Sojka, Ph.D. and implemented by the founding Dean of FI, Prof. Jiří Zlatuška [56].

For maintenance purposes, the logo files consist of only the EPS files. The EPS files can be converted into PDF files using the makefiles stored in the university/ and university/color/ subdirectories.

5.3.4 The class file

With the majority of the fithesis2 code being reduced to layout definitions in the fithesis3-base.sty style file and the fithesis3-10, 11 and 12.clo class options files, the fithesis3 class was written from
5. Design and Implementation

Figure 5.5: A comparison of the METAFONT and the vector logo of FI at 40 mm

scratch. Although most of the class file concerns dry processing of the input metadata, there are some parts that warrant a mention. Specifically, the support for automatic locale detection was added, drawing inspiration from the felthesis class (see Section 4.1.2). Fithesis3 automatically detects the main language of either the babel or the polyglossia package and sets it as the locale, when the locale is unspecified by the user.

In order to be future-proof for the modern TeX engines, the class mandates the use of the UTF-8 character encoding. This is also in line with the belief of the author that the production of new documents in character encodings other than UTF-8 hinders accessibility, has no grounds and should be avoided.

For documentation and maintenance purposes, the fithesis3 class file consists of only one fithesis.dtx DTX file stored within the root directory of the class. This file is converted into the fithesis3.cls file using the locale.ins INS file and the makefile stored within the root directory. The all target of this makefile can be used to build all the locale and style files as well as the fithesis3.cls file. The complete target of this makefile typesets the technical documentation of the class [57] into the fithesis.pdf file stored within the root directory. The target also typesets the user documentation of the class into the faculty.pdf files stored within the guide/university/subdirectory.

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5.4 Further reading

To familiarize themselves with the class, the reader is advised to consult the user documentation in appendices B–J. In case of further interest, the technical documentation of the class contains a detailed description of the complete public and private interface of the class and is available in Appendix K.
6 Conclusion

In the thesis, the author described the state of the \LaTeX{} thesis typesetting templates at MU and the related software projects prior to the author’s involvement and delineated the author’s contributions to the projects.

The author then performed an analysis of the trends in the usage of \TeX{} at FI, concluding that there has been a steady rise in the use of \TeX{} and that there has been a statistically significant correlation between the use of \TeX{} and the grades being awarded to theses at MU in the recent years. The author then proceeded to perform a review of the typesetting styles used at Czech universities and of generic typesetting templates. The results of the research were accepted for publication in the \textit{CS}TUG bulletin [58].

Finally, the author designed and implemented a new \texttt{fitthesis3} class, which will be used for the typesetting of theses at the faculties of MU. Along with this thesis, several other theses were prepared using the \texttt{fitthesis3} class already this semester [59–61]. Being a part of the Dean’s program for the support of software development projects, the testing of the \texttt{fitthesis3} class will continue until the end of June 2015, when it will be published at online collaboration platforms, the Comprehensive \TeX{} Archive Network (CTAN) and the website of FI.

During July–September 2015, the user guide will be expanded to its full length reflecting the user feedback submitted to the discussion forum [4]. An author’s cookbook summarizing the formal requirements for theses will also be created and, drawing inspiration from the Department of Experimental Physics and the Department of Informatics at UP (see Section 4.7), so will a beamer template for thesis defense presentations and a template for the typesetting of reader’s reports by thesis advisors and opponents.
Appendices
A List of Electronic Attachments

Along with the thesis, the author also submitted the following files:

- `fithesis.zip` – The current release of the fithesis3 class along with its source. This material is subject to the LaTeX Project Public License.

- `survey.csv` – A CSV file containing the results of the questionnaire regarding the usage of \LaTeX{} for the writing of theses at MU, as detailed in Section 3.1.

- `statistics.zip` – A ZIP archive containing the statistical data of theses written and defended during 2010–2015 at MU, as detailed in Section 3.2.

- `thesis.zip` – A ZIP archive containing the full \LaTeX{} source of this thesis and related resources.

Appendices B–J contain the user documentation of the template for the various faculties of MU and Appendix K contains the full technical documentation of the template. The author trusts that the kind reader will excuse some typographical deficiencies within the technical documentation.
A fitthesis3 user guide
for the Faculty of Informatics

Bachelor’s Thesis

Vít Novotný

Brno, Spring 2015
1 Introduction

Fithesis3 is a L\TeX{} document class, which aims to streamline the typesetting of mandatory parts of theses and dissertations, so that the author can focus on content alone. Unlike its predecessors, fithesis3 can be used to write theses across the faculties of the Masaryk University. To this end, the class comprises:

- **Style files**, which are unique for each faculty and which encapsulate the look and the arrangement of the final documents
- **Locale files**, which define the strings for the given locale
- **The base class**, which serves as a glue between style files, locale files and the input document

The overarching design and the interactions between the style files, locale files and the base class are described in the technical documentation of the class [1] distributed along with the class. This guide, on the other hand, only aims to document the selected parts of the public API of the fithesis3 class that bear relevance to the style file of the Faculty of Informatics. Note that this guide is typeset using the said style file.

1.1 Required packages and fonts

In order to be able to use the fithesis3 class, your \TeX{} installation needs to include the rapport3 class\(^1\) and the following packages:

- keyval, etoolbox, ifxetex, ifluatex
- inputenc – only when typesetting with \TeX{} or pdf\TeX{}

In order to be able to use the fithesis3 class with the style files of the Faculty of Informatics, your \TeX{} installation needs to also include the following packages:

- xcolor, graphix, pdfpages, hyperref, keyval

---

1. See https://www.ctan.org/pkg/ntgclass
1. Introduction

- fontspec, unicode-math – only when typesetting with Xe\TeX or Lua\TeX
- mathpazo, tgpagella, lmodern, cmap, fontenc – only when typesetting with \TeX or pdf\TeX
- tabularx, booktabs – only when the `table` option is specified (see Section 2.3)

The \TeX Gyre Pagella\(^2\) and \TeX Gyre Pagella Math\(^3\) OpenType fonts are also required, when typesetting with Xe\TeX or Lua\TeX. All these are likely to be a part of any reasonably modern \TeX distribution.

1.2 Installation

This section covers the installation of the fithesis3 class. Please note that the installation of the class is fully optional. You can typeset your thesis by either directly editing either the `pdflatex.tex`, `xelatex.tex` or `lualatex.tex` example files distributed along with the class or by pointing your source document to the class as follows:

\begin{verbatim}
\documentclass{path/fithesis3}
\thesissetup{basepath=path}
% The rest of the document
\end{verbatim}

where `path` corresponds to the path of the directory containing the `fithesis3.cls` file.

When installing, first make sure that the fithesis3 class is not a part of your \TeX distribution already. This can be easily verified by creating the minimal document described in the next section and typesetting it using either the Xe\TeX, Lua\TeX or the pdf\TeX engine, respectively. In case fithesis3 is not a part of your \TeX distribution, the typesetting will prematurely terminate with the following error:

\begin{verbatim}
! LaTeX Error: File `fithesis3/fithesis3.cls` not found.
\end{verbatim}

---

2. See https://www.ctan.org/pkg/tex-gyre-pagella
3. See https://www.ctan.org/pkg/tex-gyre-math-pagella

---

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If the fithesis3 class is not a part of your distribution, you can proceed to the installation. This can be achieved by extracting the fithesis3.tds.zip archive distributed along with the class into one of the \TeX directory structure trees within your \TeX distribution. If you are using \TeX Live\textsuperscript{4}, this can be achieved by creating a \texttt{texmf} directory within your user home directory and by extracting the fithesis3.tds.zip archive into it. For MiK\TeX, see the online documentation\textsuperscript{5}.

### 1.3 A minimal document

Before using the fithesis3 class, you should be familiar with the L\LaTeX typesetting system. A good way to get started is to read one of the introductory texts in English [2–5] or in Czech [6, 7]. We will start by creating a plain text document named \texttt{helloworld.tex} in the UTF-8 encoding with the following content:

\begin{verbatim}
\documentclass{fithesis3}
\thesissetup{faculty=fi}
\begin{document}
  Hello world
\end{document}
\end{verbatim}

Now, typeset the document using either the \Xe\TeX, Lua\TeX or the \Xe\TeX engine with the L\LaTeX format. If everything is set up correctly, you should end up with a document containing all the mandatory parts of a thesis and one page of the main matter containing a \texttt{Hello world} paragraph. You should notice that the document is implicitly typeset in English and that it contains lots of placeholder strings for missing metadata (see Figure 1.1). In the next chapter, we are going to address that.

---

4. See https://www.tug.org/texlive/doc.html, Chapter 2.3
5. See http://docs.miktex.org/manual/localadditions.html
1. Introduction

Masaryk University
Faculty of Informatics
«title»
Bachelor's Thesis
«author»
Brno, Spring 2015

Figure 1.1: The placeholder strings in the minimal document
2 Configuring the class

In this chapter, we will configure the class to use the correct locale, to insert the correct metadata into the output document and to be laid out in a meaningful way.

2.1 Setting the locale

First, we are going to set the locale of the document class. This affects the locale of the mandatory parts of thesis. To see what locales are available, list the contents of the \texttt{fithesis3/locale/} directory. It should contain several \texttt{locale.dtx} files. Each of these \texttt{locales} can be leaded by inserting the \texttt{\thesissetup{locale=locale}} command into the preamble of the document.

If you use the \texttt{babel} or the \texttt{polyglossia} package to load the hyphenation patterns for your locale, you don’t need to set the locale at all, \texttt{fithesis3} will use the main language of \texttt{babel} or \texttt{polyglossia}.

\begin{verbatim}
\documentclass{fithesis3}
\thesissetup{faculty=fi}
% Using the babel package:
\usepackage[czech]{babel}
\begin{document}
  The mandatory parts of the thesis are going to be typeset in Czech.
\end{document}
\end{verbatim}

\begin{verbatim}
\documentclass{fithesis3}
\thesissetup{faculty=fi}
% Using the polyglossia package:
\usepackage{polyglossia}
\setmainlanguage{czech}
\begin{document}
  The mandatory parts of the thesis are going to be typeset in Czech.
\end{document}
\end{verbatim}

At the time of writing this text, \texttt{polyglossia} can only be used with \texttt{Xe\LaTeX}.
2. Configuring the class

whereas babel can be used with pdflatex, xetex and luatex. On the other hand, the babel package can only be used with Latin scripts, while the polyglossia package supports non-Latin scripts as well. You are advised to use one of them, depending on your choice of \TeX engine and requirements.

2.2 Inserting metadata

Next, we are going to insert some metadata into the document using the \thesissetup command. This command accepts a comma-delimited key=value list. The placeholder strings in our minimal document map directly into the keys, so to change the «author» placeholder into Jane Doe, simply insert the \thesissetup{author=Jane Doe} command into the preamble of your document.

Note, however, that some keys can not be deduced directly from the output document. The thanks key, for example, is invisible by default, since the acknowledgement is not a mandatory part of the thesis and it only gets inserted into the document, when the thanks key is defined. Some other keys, like the abstract key, can also span multiple paragraphs, in which case they need to be set using the \thesislong{key}{value} command as follows:

\documentclass{fithesis3}
\thesissetup{
  faculty=fi,
  author=Jane Doe}
\thesislong{abstract}{
  In this document, I am going to explore the craft of creating abstracts \ldots
\ldots
  that span multiple paragraphs.}
\begin{document}
  Hello world!
\end{document}

If the value of a key contains a comma, the \thesissetup{key=value}
command would erroneously interpret it as a delimiter. To prevent this behaviour, enclose the \textit{value} in curly braces as follows:

\begin{verbatim}
\documentclass{fithesis3}
\thesissetup{
  faculty=fi,
  author=Jane Doe,
  advisor={RNDr.\ John Doe, Ph.D.},
  keywords={keyword1, keyword2}}
\begin{document}
Hello world!
\end{document}
\end{verbatim}

The complete list of keys and their effects can be found in the technical documentation of the class [1, chapter Public API] distributed along with the class.

2.3 Style options

The look of the resulting document can be affected by \textit{options} passed to the style file using the \texttt{\documentclass[options]{fithesis3}} syntax. The complete list of options for the style files of the Masaryk University can be found in the technical documentation of the class [1, chapter Style files] distributed along with the package. Some of the more important options are listed in Table 2.1 for your convenience.
### Table 2.1: A non-exhaustive list of basic options accepted by the styles of the Masaryk University

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>oneside</td>
<td>Enables one-sided typesetting. This is generally discouraged. Use only if you don’t have access to a double-sided printer, or if one-sided typesetting is a formal requirement.</td>
</tr>
<tr>
<td>twoside</td>
<td>Enables double-sided typesetting. Double-sided typesetting consumes less paper, is generally regarded as more visually pleasing and is enabled by default. Use at least 120 grams per square meter paper to prevent show-through.</td>
</tr>
<tr>
<td>color</td>
<td>Enables colors. A colorful version of the document is more visually pleasing, but shouldn’t be used in a printed version, if you don’t have access to a color printer. Unless you have a compelling reason not to, always use this option in the e-version.</td>
</tr>
<tr>
<td>monochrome</td>
<td>Disables colors. Disabling colors is generally discouraged, unless you don’t have access to a color printer.</td>
</tr>
<tr>
<td>cover</td>
<td>Typesets the cover of the thesis. Should be generally used in the e-version.</td>
</tr>
<tr>
<td>nocover</td>
<td>Forbids the typesetting of the thesis cover. Use, if you’re typesetting the printed version and have no desire to have a cover made for your thesis. This option is the default.</td>
</tr>
<tr>
<td>table</td>
<td>Redefines the <code>tabular</code> and <code>tabularx</code> environments to use alternating colors for odd and even rows like this table does.</td>
</tr>
<tr>
<td>oldtable</td>
<td>Instructs the style not to redefine the <code>tabular</code> and <code>tabularx</code> environments. This option is the default.</td>
</tr>
</tbody>
</table>
3 Advanced usage

This chapter is dedicated to those users, who wish to customize the class to better suit their needs.

3.1 Troubleshooting option clashes

When a package is required twice, each time with different options, an option clash error occurs:

\begin{verbatim}
! LaTeX Error: Option clash for package hyperref
\end{verbatim}

If you need to load a package with a specific set of options and the package happens to be required by the fithesis3 class, as specified in Section 1.1, prepend the \PassOptionsToPackage{options}{package} command before the \documentclass{...} statement. If you need to configure the package, you can do that anywhere within the document preamble.

If you need to load a package with a specific set of options and the package happens to be required by the style files of the Masaryk University, as specified in Section 1.1, insert the \PassOptionsToPackage{options}{package} command anywhere within the document preamble. If you need to configure the package, you can do that anywhere after the document preamble. If you need to configure the package within the preamble, you can load the style files prematurely using the \thesis@load command as follows:

\begin{verbatim}
\documentclass{fithesis3}
% Preamble
\makeatletter\thesis@load\makeatother
% The package configuration goes here
\begin{document}
\end{document}
\end{verbatim}

Note that only a small portion of the packages required by the style files need to be loaded with a specific set of options, so clashes should be relatively rare.
3. Advanced usage

If you are unsatisfied with the automatic arrangement of the mandatory parts of the thesis, you can disable it using the autoLayout metadata key:

```latex
\documentclass{fithesis3}
\thesissetup{faculty=fi,autoLayout=false}
\begin{document}
A document which, except for this line, is completely empty.
\end{document}
```

This results in a document, which only consists of the main matter of the thesis (see Figure 3.1). You can now manually insert the preamble and the postamble of the document as follows:

```latex
\documentclass{fithesis3}
\thesissetup{
  faculty=fi,
  autoLayout=false}
\begin{document}
\makeatletter
\thesis@preamble\makeatother
A document which once again contains all the mandatory parts of a thesis.
\makeatletter
\thesis@postamble\makeatother
\end{document}
```

This alone would be a useless exercise, as we’re now back to the original document. However, instead of inserting the \thesis@preamble and \thesis@postamble commands into the document, we can insert only certain sections of the document preamble and postamble to which these commands expand. \thesis@preamble expands to the following commands:

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\thesis@blocks@cover
\thesis@blocks@titlePage
\thesis@blocks@frontMatter
\thesis@blocks@assignment
\thesis@blocks@declaration
\thesis@blocks@thanks
\thesis@blocks@clearRight
\thesis@blocks@abstract
\thesis@blocks@keywords
\thesis@blocks@tables
\thesis@blocks@mainMatter

and \thesis@postamble expands to the following commands:

\langle empty \rangle

To create a document, which only contains the thesis cover prior to the text, we would use the following:

\documentclass{fithesis3}
\thesissetup{
  faculty=fi,
  autoLayout=false}
\begin{document}
  \makeatletter
  \thesis@blocks@cover
  \thesis@blocks@mainMatter
  \makeatother
  A document which contains only the cover of the thesis and the main matter.
\end{document}

The available blocks are documented in the technical documentation of the class [1, chapter Style files] distributed along with the package.
Bibliography


A fithesis3 user guide
for the Faculty of Science

Bakalářská práce

Vít Novotný

Vedoucí práce: Doc. RNDr. Petr Sojka, Ph.D.

Brno 2015
1 Introduction

Fithesis3 is a \LaTeX{} document class, which aims to streamline the typesetting of mandatory parts of theses and dissertations, so that the author can focus on content alone. Unlike its predecessors, fithesis3 can be used to write theses across the faculties of the Masaryk University. To this end, the class comprises:

- **Style files**, which are unique for each faculty and which encapsulate the look and the arrangement of the final documents
- **Locale files**, which define the strings for the given locale
- **The base class**, which serves as a glue between style files, locale files and the input document

The overarching design and the interactions between the style files, locale files and the base class are described in the technical documentation of the class \cite{class-technical} distributed along with the class. This guide, on the other hand, only aims to document the selected parts of the public API of the fithesis3 class that bear relevance to the style file of the Faculty of Science. Note that this guide is typeset using the said style file.

1.1 Required packages and fonts

In order to be able to use the fithesis3 class, your \TeX{} installation needs to include the rapport3 class\footnote{See https://www.ctan.org/pkg/ntgclass} and the following packages:

- keyval, etoolbox, ifxetex, ifluatex
- inputenc – only when typesetting with \TeX{} or pdf\TeX{}

In order to be able to use the fithesis3 class with the style files of the Faculty of Science, your \TeX{} installation needs to also include the following packages:

- xcolor, graphix, pdfpages, hyperref, keyval, tikz, changepage

\footnotetext{1. See https://www.ctan.org/pkg/ntgclass}
1. Introduction

- fontspec, unicode-math – only when typesetting with \texttt{Xe\LaTeX} or Lua\LaTeX

- mathpazo, tgpagella, lmodern, cmap, fontenc – only when typesetting with \TeX{} or pdf\TeX

- tabularx, booktabs – only when the \texttt{table} option is specified (see Section 2.3)

The \TeX{} Gyre Pagella\textsuperscript{2} and \TeX{} Gyre Pagella Math\textsuperscript{3} OpenType fonts are also required, when typesetting with \texttt{Xe\LaTeX} or Lua\LaTeX. All these are likely to be a part of any reasonably modern \TeX{} distribution.

1.2 Installation

This section covers the installation of the fithesis3 class. Please note that the installation of the class is fully optional. You can typeset your thesis by either directly editing either the \texttt{pdflatex.tex}, \texttt{xelatex.tex} or \texttt{lualatex.tex} example files distributed along with the class or by pointing your source document to the class as follows:

\begin{verbatim}
\documentclass{path/fithesis3}
\thesissetup{basepath=path}
% The rest of the document
\end{verbatim}

where \texttt{path} corresponds to the path of the directory containing the \texttt{fithesis3.cls} file.

When installing, first make sure that the fithesis3 class is not a part of your \TeX{} distribution already. This can be easily verified by creating the minimal document described in the next section and typesetting it using either the \texttt{Xe\LaTeX}, \texttt{Lua\LaTeX} or the \texttt{pdf\LaTeX} engine, respectively. In case fithesis3 is not a part of your \TeX{} distribution, the typesetting will prematurely terminate with the following error:

\begin{verbatim}
! LaTeX Error: File `fithesis3/fithesis3.cls' not found.
\end{verbatim}

2. See https://www.ctan.org/pkg/tex-gyre-pagella
3. See https://www.ctan.org/pkg/tex-gyre-math-pagella
1. Introduction

If the fithesis3 class is not a part of your distribution, you can proceed to the installation. This can be achieved by extracting the fithesis3.tds.zip archive distributed along with the class into one of the \TeX{} directory structure trees within your \TeX{} distribution. If you are using \TeX{}Live\textsuperscript{4}, this can be achieved by creating a \texttt{texmf} directory within your user home directory and by extracting the fithesis3.tds.zip archive into it. For MiK\TeX{}, see the online documentation\textsuperscript{5}.

1.3 A minimal document

Before using the fithesis3 class, you should be familiar with the \LaTeX{} typesetting system. A good way to get started is to read one of the introductory texts in English [2–5] or in Czech [6, 7]. We will start by creating a plain text document named \texttt{helloworld.tex} in the UTF-8 encoding with the following content:

\begin{verbatim}
\documentclass{fithesis3}
\thesissetup{faculty=sci}
\begin{document}
Hello world
\end{document}
\end{verbatim}

Now, typeset the document using either the \texttt{Xe\TeX{}}, \texttt{Lua\TeX{}} or the \texttt{Xe\TeX{}} engine with the \LaTeX{} format. If everything is set up correctly, you should end up with a document containing all the mandatory parts of a thesis and one page of the main matter containing a \texttt{Hello world} paragraph. You should notice that the document is implicitly typeset in English and that it contains lots of placeholder strings for missing metadata (see Figure 1.1). In the next chapter, we are going to address that.

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\textsuperscript{4} See https://www.tug.org/texlive/doc.html, Chapter 2.3
\textsuperscript{5} See http://docs.miktex.org/manual/localadditions.html
1. Introduction

Figure 1.1: The placeholder strings in the minimal document
2 Configuring the class

In this chapter, we will configure the class to use the correct locale, to insert the correct metadata into the output document and to be laid out in a meaningful way.

2.1 Setting the locale

First, we are going to set the locale of the document class. This affects the locale of the mandatory parts of thesis. To see what locales are available, list the contents of the fithesis3/locale/ directory. It should contain several locale.dtx files. Each of these locales can be leaded by inserting the \thesissetup{locale=locale} command into the preamble of the document.

If you use the babel or the polyglossia package to load the hyphenation patterns for your locale, you don’t need to set the locale at all, fithesis3 will use the main language of babel or polyglossia.

\documentclass{fithesis3}
\thesissetup{faculty=sci}
% Using the babel package:
\usepackage[czech]{babel}
\begin{document}
  The mandatory parts of the thesis are going to be typeset in Czech.
\end{document}

\documentclass{fithesis3}
\thesissetup{faculty=sci}
% Using the polyglossia package:
\usepackage{polyglossia}
\setmainlanguage{czech}
\begin{document}
  The mandatory parts of the thesis are going to be typeset in Czech.
\end{document}

At the time of writing this text, polyglossia can only be used with XeLaTeX,
2. Configuring the class

whereas babel can be used with pdf\TeX, \LaTeX\X and Lua\TeX. On the other hand, the babel package can only be used with Latin scripts, while the polyglossia package supports non-Latin scripts as well. You are advised to use one of them, depending on your choice of \TeX engine and requirements.

2.2 Inserting metadata

Next, we are going to insert some metadata into the document using the $\$\texttt{\theisissetup}$ command. This command accepts a comma-delimited $key=value$ list. The placeholder strings in our minimal document map directly into the $keys$, so to change the «author» placeholder into $Jane \ Doe$, simply insert the $\$\texttt{\theisissetup{author=Jane Doe}}$ command into the preamble of your document.

Note, however, that some keys can not be deduced directly from the output document. The thanks key, for example, is invisible by default, since the acknowledgement is not a mandatory part of the thesis and it only gets inserted into the document, when the thanks key is defined. Some other keys, like the abstract key, can also span multiple paragraphs, in which case they need to be set using the $\$\texttt{\thesislong{key}{value}}$ command as follows:

\begin{verbatim}
\documentclass{fithesis3}
\theisissetup{
   faculty=sci,
   author=Jane Doe}
\thesislong{abstract}{
   In this document, I am going to explore the craft of creating abstracts \ldots
   \ldots that span multiple paragraphs.}
\begin{document}
   Hello world!
\end{document}
\end{verbatim}

If the $value$ of a $key$ contains a comma, the $\$\texttt{\theisissetup{key=value}}$
command would erroneously interpret it as a delimiter. To prevent this behaviour, enclose the value in curly braces as follows:

\documentclass{fithesis3}
\thesissetup{
    faculty=sci,
    author=Jane Doe,
    advisor={RNDr. John Doe, Ph.D.},
    keywords={keyword1, keyword2}}
\begin{document}
    Hello world!
\end{document}

The complete list of keys and their effects can be found in the technical documentation of the class [1, chapter Public API] distributed along with the class.

2.3 Style options

The look of the resulting document can be affected by options passed to the style file using the \documentclass[options]{fithesis3} syntax. The complete list of options for the style files of the Masaryk University can be found in the technical documentation of the class [1, chapter Style files] distributed along with the package. Some of the more important options are listed in Table 2.1 for your convenience.
<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>oneside</td>
<td>Enables one-sided typesetting. This is generally discouraged. Use only if you don’t have access to a double-sided printer, or if one-sided typesetting is a formal requirement.</td>
</tr>
<tr>
<td>twoside</td>
<td>Enables double-sided typesetting. Double-sided typesetting consumes less paper, is generally regarded as more visually pleasing and is enabled by default. Use at least 120 grams per square meter paper to prevent show-through.</td>
</tr>
<tr>
<td>color</td>
<td>Enables colors. A colorful version of the document is more visually pleasing, but shouldn’t be used in a printed version, if you don’t have access to a color printer. Unless you have a compelling reason not to, always use this option in the e-version.</td>
</tr>
<tr>
<td>monochrome</td>
<td>Disables colors. Disabling colors is generally discouraged, unless you don’t have access to a color printer.</td>
</tr>
<tr>
<td>cover</td>
<td>Typesets the cover of the thesis. Should be generally used in the e-version.</td>
</tr>
<tr>
<td>nocover</td>
<td>Forbids the typesetting of the thesis cover. Use, if you’re typesetting the printed version and have no desire to have a cover made for your thesis. This option is the default.</td>
</tr>
<tr>
<td>table</td>
<td>Redefines the <code>tabular</code> and <code>tabularx</code> environments to use alternating colors for odd and even rows like this table does.</td>
</tr>
<tr>
<td>oldtable</td>
<td>Instructs the style not to redefine the <code>tabular</code> and <code>tabularx</code> environments. This option is the default.</td>
</tr>
</tbody>
</table>

Table 2.1: A non-exhaustive list of basic options accepted by the styles of the Masaryk University
3 Advanced usage

This chapter is dedicated to those users, who wish to customize the class to better suit their needs.

3.1 Troubleshooting option clashes

When a package is required twice, each time with different options, an option clash error occurs:

```
! LaTeX Error: Option clash for package hyperref
```

If you need to load a package with a specific set of options and the package happens to be required by the fithesis3 class, as specified in Section 1.1, prepend the `\PassOptionsToPackage{options}{package}` command before the `\documentclass{...}` statement. If you need to configure the package, you can do that anywhere within the document preamble.

If you need to load a package with a specific set of options and the package happens to be required by the style files of the Masaryk University, as specified in Section 1.1, insert the `\PassOptionsToPackage{options}{package}` command anywhere within the document preamble. If you need to configure the package, you can do that anywhere after the document preamble. If you need to configure the package within the preamble, you can load the style files prematurely using the `\thesis@load` command as follows:

```
\documentclass{fithesis3}
\makeatletter\thesis@load\makeatother
% The package configuration goes here
\begin{document}
\end{document}
```

Note that only a small portion of the packages required by the style files needs to be loaded with a specific set of options, so clashes should be relatively rare.
3. Advanced usage

Figure 3.1: A document with disabled autoLayout

3.2 Changing the layout

If you are unsatisfied with the automatic arrangement of the mandatory parts of the thesis, you can disable it using the autoLayout metadata key:

```latex
\documentclass{fithesis3}
\thesissetup{faculty=sci,autoLayout=false}
\begin{document}
A document which, except for this line, is completely empty.
\end{document}
```

This results in a document, which only consists of the main matter of the thesis (see Figure 3.1). You can now manually insert the preamble and the postamble of the document as follows:

```latex
\documentclass{fithesis3}
\thesissetup{
    faculty=sci,
    autoLayout=false}
\begin{document}
\makeatletter\thesis@preamble\makeatother
A document which once again contains all the mandatory parts of a thesis.
\makeatletter\thesis@postamble\makeatother
\end{document}
```

This alone would be a useless exercise, as we’re now back to the original document. However, instead of inserting the \thesis@preamble and \thesis@postamble commands into the document, we can insert only certain sections of the document preamble and postamble to which these commands expand. \thesis@preamble expands to the following commands:
3. Advanced usage

\{\def
\thesis@locale
{czech}\thesis@blocks@cover
\thesis@blocks@frontMatter
\thesis@blocks@titlePage
\thesis@blocks@clearRight
\thesis@blocks@bibEntry
\thesis@blocks@bibEntryEn
\thesis@blocks@abstract
\thesis@blocks@abstractEn
\thesis@blocks@assignment
\thesis@blocks@thanks
\thesis@blocks@declaration
\thesis@blocks@tables
\thesis@blocks@mainMatter
\}\thesis@blocks@mainMatter

and \thesis@postamble expands to the following commands:

\langle empty \rangle

To create a document, which only contains the thesis cover prior to the text, we would use the following:

\documentclass{fithesis3}
\thesissetup{
  faculty=sci,
  autoLayout=false}
\begin{document}
\makeatletter
\thesis@blocks@cover
\thesis@blocks@mainMatter
\makeatother
A document which contains only the cover of the thesis and the main matter.
\end{document}

The available blocks are documented in the technical documentation of the class [1, chapter Style files] distributed along with the package.
Bibliography


A fitthesis3 user guide
for the Faculty of Economics and Administration

Bachelor’s Thesis

Advisor:
Doc. RNDr. Petr Sojka, Ph.D.

Author:
Vít Novotný

Brno, 2015
1 Introduction

Fithesis3 is a \LaTeX document class, which aims to streamline the typesetting of mandatory parts of theses and dissertations, so that the author can focus at content alone. Unlike its predecessors, fithesis3 can be used to write theses across the faculties of the Masaryk University. To this end, the class comprises:

- **Style files**, which are unique for each faculty and which encapsulate the look and the arrangement of the final documents
- **Locale files**, which define the strings for the given locale
- **The base class**, which serves as a glue between style files, locale files and the input document

The overarching design and the interactions between the style files, locale files and the base class are described in the technical documentation of the class \cite{ntgclass} distributed along with the class. This guide, on the other hand, only aims to document the selected parts of the public API of the fithesis3 class that bear relevance to the style file of the Faculty of Economics and Administration. Note that this guide is typeset using the said style file.

1.1 Required packages and fonts

In order to be able to use the fithesis3 class, your \TeX installation needs to include the \texttt{rapport3} class\footnote{See \url{https://www.ctan.org/pkg/ntgclass}} and the following packages:

- keyval, etoolbox, ifxetex, ifluatex
- inputenc – only when typesetting with \TeX or pdf\TeX

In order to be able to use the fithesis3 class with the style files of the Faculty of Economics and Administration, your \TeX installation needs to also include the following packages:

- xcolor, graphix, pdfpages, hyperref, keyval, tikz, geometry
- fontspec, unicode-math – only when typesetting with Xe\TeX or Lua\TeX
- mathpazo, tgpagella, lmodern, cmap, fontenc – only when typesetting with \TeX or pdf\TeX
- tabularx, booktabs – only when the table option is specified (see Section 2.3)

The \TeX Gyre Pagella\footnote{See \url{https://www.ctan.org/pkg/tex-gyre-pagella}} and \TeX Gyre Pagella Math\footnote{See \url{https://www.ctan.org/pkg/tex-gyre-math-pagella}} OpenType fonts are also required, when typesetting with Xe\TeX or Lua\TeX. All these are likely to be a part of any reasonably modern \TeX distribution.

---

1. See \url{https://www.ctan.org/pkg/ntgclass}
2. See \url{https://www.ctan.org/pkg/tex-gyre-pagella}
3. See \url{https://www.ctan.org/pkg/tex-gyre-math-pagella}
1. Introduction

1.2 Installation

This section covers the installation of the fithesis3 class. Please note that the installation of the class is fully optional. You can typeset your thesis by either directly editing either the pdflatex.tex, xelatex.tex or lualatex.tex example files distributed along with the class or by pointing your source document to the class as follows:

\documentclass{path/fithesis3}
\thesissetup{basepath=path}
\% The rest of the document

where path corresponds to the path of the directory containing the fithesis3.cls file.

When installing, first make sure that the fithesis3 class is not a part of your \TeX{} distribution already. This can be easily verified by creating the minimal document described in the next section and typesetting it using either the Xe\TeX{}, Lua\TeX{} or the pdf\TeX{} engine, respectively. In case fithesis3 is not a part of your \TeX{} distribution, the typesetting will prematurely terminate with the following error:


If the fithesis3 class is not a part of your distribution, you can proceed to the installation. This can be achieved by extracting the fithesis3.tds.zip archive distributed along with the class into into one of the \TeX{} directory structure trees within your \TeX{} distribution. If you are using \TeX{}Live\textsuperscript{4}, this can be achieved by creating a texmf directory within your user home directory and by extracting the fithesis3.tds.zip archive into it. For Mi\TeX{}, see the online documentation\textsuperscript{5}.

1.3 A minimal document

Before using the fithesis3 class, you should be familiar with the \LaTeX{} typesetting system. A good way to get started is to read one of the introductory texts in English \textsuperscript{[2–5]} or in Czech \textsuperscript{[6,7]}. We will start by creating a plain text document named helloworld.tex in the UTF-8 encoding with the following content:

\documentclass{fithesis3}
\thesissetup{faculty=econ}
\begin{document}
Hello world
\end{document}

Now, typeset the document using either the Xe\TeX{}, Lua\TeX{} or the Xe\TeX{} engine with the \LaTeX{} format. If everything is set up correctly, you should end up with a document containing all the mandatory parts of a thesis and one page of the main matter containing a Hello world paragraph. You should notice that the document is implicitly typeset in English and that it contains lots of placeholder strings for missing metadata (see Figure 1.1). In the next chapter, we are going to address that.

\textsuperscript{4} See https://www.tug.org/texlive/doc.html, Chapter 2.3
\textsuperscript{5} See http://docs.miktex.org/manual/localadditions.html
1. Introduction

Figure 1.1: The placeholder strings in the minimal document
2 Configuring the class

In this chapter, we will configure the class to use the correct locale, to insert the correct metadata into the output document and to be laid out in a meaningful way.

2.1 Setting the locale

First, we are going to set the locale of the document class. This affects the locale of the mandatory parts of thesis. To see what locales are available, list the contents of the $\texttt{fithesis3/locale/}$ directory. It should contain several $\texttt{locale.dtx}$ files. Each of these locales can be leaded by inserting the $\texttt{\thesissetup{locale=locale}}$ command into the preamble of the document.

If you use the babel or the polyglossia package to load the hyphenation patterns for your locale, you don’t need to set the locale at all, $\texttt{fithesis3}$ will use the main language of babel or polyglossia.

\begin{verbatim}
\documentclass{fithesis3}
\thesissetup{faculty=econ}
% Using the babel package:
\usepackage[czech]{babel}
\begin{document}
  The mandatory parts of the thesis are going to be typeset in Czech.
\end{document}
\end{verbatim}

\begin{verbatim}
\documentclass{fithesis3}
\thesissetup{faculty=econ}
% Using the polyglossia package:
\usepackage{polyglossia}
\setmainlanguage{czech}
\begin{document}
  The mandatory parts of the thesis are going to be typeset in Czech.
\end{document}
\end{verbatim}

At the time of writing this text, polyglossia can only be used with $\TeX$, whereas babel can be used with pdf$\TeX$, X$\TeX$ and Lua$\TeX$. On the other hand, the babel package can only be used with Latin scripts, while the polyglossia package supports non-Latin scripts as well. You are advised to use one of them, depending on your choice of $\TeX$ engine and requirements.

2.2 Inserting metadata

Next, we are going to insert some metadata into the document using the $\texttt{\thesissetup}$ command. This command accepts a comma-delimited $key=value$ list. The place-
2. Configuring the class 

holder strings in our minimal document map directly into the keys, so to change the «author» placeholder into Jane Doe, simply insert the \thesesetup{author=Jane Doe} command into the preamble of your document.

Note, however, that some keys can not be deduced directly from the output document. The thanks key, for example, is invisible by default, since the acknowledgement is not a mandatory part of the thesis and it only gets inserted into the document, when the thanks key is defined. Some other keys, like the abstract key, can also span multiple paragraphs, in which case they need to be set using the \thesislong{key}{value} command as follows:

\documentclass{fithesis3}
\thesesetup{
  faculty=econ,
  author=Jane Doe}
\thesislong{abstract}{
  In this document, I am going to explore the craft of creating abstracts \ldots

  \ldots that span multiple paragraphs.}
\begin{document}
  Hello world!
\end{document}

If the value of a key contains a comma, the \thesesetup{key=value} command would erroneously interpret it as a delimiter. To prevent this behaviour, enclose the value in curly braces as follows:

\documentclass{fithesis3}
\thesesetup{
  faculty=econ,
  author=Jane Doe,
  advisor={RNDr. John Doe, Ph.D.},
  keywords={keyword1, keyword2}}
\begin{document}
  Hello world!
\end{document}

The complete list of keys and their effects can be found in the technical documentation of the class [1, chapter Public API] distributed along with the class.

2.3 Style options

The look of the resulting document can be affected by options passed to the style file using the \documentclass[options]{fithesis3} syntax. The complete list of options for the style files of the Masaryk University can be found in the technical documentation.
### 2. Configuring the class

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>oneside</td>
<td>Enables one-sided typesetting. This is generally discouraged. Use only if you don’t have access to a double-sided printer, or if one-sided typesetting is a formal requirement.</td>
</tr>
<tr>
<td>twoside</td>
<td>Enables double-sided typesetting. Double-sided typesetting consumes less paper, is generally regarded as more visually pleasing and is enabled by default. Use at least 120 grams per square meter paper to prevent show-through.</td>
</tr>
<tr>
<td>color</td>
<td>Enables colors. A colorful version of the document is more visually pleasing, but shouldn’t be used in a printed version, if you don’t have access to a color printer. Unless you have a compelling reason not to, always use this option in the e-version.</td>
</tr>
<tr>
<td>monochrome</td>
<td>Disables colors. Disabling colors is generally discouraged, unless you don’t have access to a color printer.</td>
</tr>
<tr>
<td>cover</td>
<td>Typesets the cover of the thesis. Should be generally used in the e-version.</td>
</tr>
<tr>
<td>nocover</td>
<td>Forbids the typesetting of the thesis cover. Use, if you’re typesetting the printed version and have no desire to have a cover made for your thesis. This option is the default.</td>
</tr>
<tr>
<td>table</td>
<td>Redefines the <code>tabular</code> and <code>tabularx</code> environments to use alternating colors for odd and even rows like this table does.</td>
</tr>
<tr>
<td>oldtable</td>
<td>Instructs the style not to redefine the <code>tabular</code> and <code>tabularx</code> environments. This option is the default.</td>
</tr>
</tbody>
</table>

Table 2.1: A non-exhaustive list of basic options accepted by the styles of the Masaryk University of the class [1, chapter Style files] distributed along with the package. Some of the more important options are listed in Table 2.1 for your convenience.
3 Advanced usage

This chapter is dedicated to those users, who wish to customize the class to better suit their needs.

3.1 Troubleshooting option clashes

When a package is required twice, each time with different options, an option clash error occurs:

```
! LaTeX Error: Option clash for package hyperref
```

If you need to load a package with a specific set of options and the package happens to be required by the fithesis3 class, as specified in Section 1.1, prepend the `\PassOptionsToPackage{options}{package}` command before the `\documentclass{...}` statement. If you need to configure the package, you can do that anywhere within the document preamble.

If you need to load a package with a specific set of options and the package happens to be required by the style files of the Masaryk University, as specified in Section 1.1, insert the `\PassOptionsToPackage{options}{package}` command anywhere within the document preamble. If you need to configure the package, you can do that anywhere after the document preamble. If you need to configure the package within the preamble, you can load the style files prematurely using the `\thesis@load` command as follows:

```
\documentclass{fithesis3}
\thesissetup{faculty=econ,autoLayout=false}
\begin{document}
\end{document}
```

Note that only a small portion of the packages required by the style files needs to be loaded with a specific set of options, so clashes should be relatively rare.

3.2 Changing the layout

If you are unsatisfied with the automatic arrangement of the mandatory parts of the thesis, you can disable it using the autoLayout metadata key:

```
\documentclass{fithesis3}
\thesissetup{faculty=econ,autoLayout=false}
\begin{document}
  A document which, except for this line, is completely empty.
\end{document}
```
This results in a document, which only consists of the main matter of the thesis (see Figure 3.1). You can now manually insert the preamble and the postamble of the document as follows:

```latex
\documentclass{fithesis3}
\thesissetup{
  faculty=econ,
  autoLayout=false}
\begin{document}
  \makeatletter\thesis@preamble\makeatother
  A document which once again contains all the mandatory parts of a thesis.
  \makeatletter\thesis@postamble\makeatother
\end{document}
```

This alone would be a useless exercise, as we’re now back to the original document. However, instead of inserting the `\thesis@preamble` and `\thesis@postamble` commands into the document, we can insert only certain sections of the document preamble and postamble to which these commands expand. `\thesis@preamble` expands to the following commands:

- `\thesis@blocks@cover`
- `\thesis@blocks@frontMatter`
- `\thesis@blocks@titlePage`
- `\thesis@blocks@assignment`
- `\thesis@blocks@clearRight`
- `\thesis@blocks@abstract`
- `\thesis@blocks@abstractEn`
- `\thesis@blocks@keywords`
- `\thesis@blocks@keywordsEn`
- `\thesis@blocks@declaration`
- `\thesis@blocks@thanks`
- `\thesis@blocks@toc`
- `\thesis@blocks@mainMatter`

and `\thesis@postamble` expands to the following commands:

- `\thesis@blocks@tables`

To create a document, which only contains the thesis cover prior to the text, we would use the following:

```latex
\documentclass{fithesis3}
\thesissetup{
```
faculty=econ,
autoLayout=false}
\begin{document}
\makeatletter
\thesis@blocks@cover
\thesis@blocks@mainMatter
\makeatother
A document which contains only the cover
of the thesis and the main matter.
\end{document}

The available blocks are documented in the technical documentation of the class [1,
chapter Style files] distributed along with the package.
Bibliography

1 Introduction

Fithesis3 is a \LaTeX{} document class, which aims to streamline the typesetting of mandatory parts of theses and dissertations, so that the author can focus on content alone. Unlike its predecessors, fithesis3 can be used to write theses across the faculties of the Masaryk University. To this end, the class comprises:

- **Style files**, which are unique for each faculty and which encapsulate the look and the arrangement of the final documents
- **Locale files**, which define the strings for the given locale
- **The base class**, which serves as a glue between style files, locale files and the input document

The overarching design and the interactions between the style files, locale files and the base class are described in the technical documentation of the class \cite{fithesis3-technical} distributed along with the class. This guide, on the other hand, only aims to document the selected parts of the public API of the fithesis3 class that bear relevance to the style file of the Faculty of Social Studies. Note that this guide is typeset using the said style file.

1.1 Required packages and fonts

In order to be able to use the fithesis3 class, your \TeX{} installation needs to include the rapport3 class\footnote{See \url{https://www.ctan.org/pkg/ntgclass}} and the following packages:

- keyval, etoolbox, ifxetex, ifluatex
- inputenc – only when typesetting with \TeX{} or pdf\TeX{}

In order to be able to use the fithesis3 class with the style files of the Faculty of Social Studies, your \TeX{} installation needs to also include the following packages:

- xcolor, graphix, pdfpages, hyperref, keyval
1. Introduction

- fontspec, unicode-math – only when typesetting with XeLaTeX or LuaLaTeX
- mathpazo, tgpagella, lmodern, cmap, fontenc – only when typesetting with TeX or pdfTeX
- tabularx, booktabs – only when the table option is specified (see Section 2.3)

The TeX Gyre Pagella\(^2\) and TeX Gyre Pagella Math\(^3\) OpenType fonts are also required, when typesetting with XeLaTeX or LuaLaTeX. All these are likely to be a part of any reasonably modern TeX distribution.

1.2 Installation

This section covers the installation of the fithesis3 class. Please note that the installation of the class is fully optional. You can typeset your thesis by either directly editing either the pdflatex.tex, xelatex.tex or lualatex.tex example files distributed along with the class or by pointing your source document to the class as follows:

\begin{verbatim}
\documentclass{path/fithesis3}
\thesissetup{basepath=path}
\% The rest of the document
\end{verbatim}

where path corresponds to the path of the directory containing the fithesis3.cls file.

When installing, first make sure that the fithesis3 class is not a part of your TeX distribution already. This can be easily verified by creating the minimal document described in the next section and typesetting it using either the XeLaTeX, LuaLaTeX or the pdfTeX engine, respectively. In case fithesis3 is not a part of your TeX distribution, the typesetting will prematurely terminate with the following error:

\begin{verbatim}
\end{verbatim}

\(^2\) See https://www.ctan.org/pkg/tex-gyre-pagella
\(^3\) See https://www.ctan.org/pkg/tex-gyre-math-pagella
1. Introduction

If the fithesis3 class is not a part of your distribution, you can proceed to the installation. This can be achieved by extracting the fithesis3.tds.zip archive distributed along with the class into one of the \TeX{} directory structure trees within your \TeX{} distribution. If you are using \TeX{}Live\textsuperscript{4}, this can be achieved by creating a \texttt{texmf} directory within your user home directory and by extracting the fithesis3.tds.zip archive into it. For MiK\TeX{}, see the online documentation\textsuperscript{5}.

1.3 A minimal document

Before using the fithesis3 class, you should be familiar with the \LaTeX{} typesetting system. A good way to get started is to read one of the introductory texts in English \cite{2-5} or in Czech \cite{6,7}. We will start by creating a plain text document named \texttt{helloworld.tex} in the UTF-8 encoding with the following content:

```
\documentclass{fithesis3}
\thesissetup{faculty=fss}
\begin{document}
Hello world
\end{document}
```

Now, typeset the document using either the \Xe\TeX{}, Lua\TeX{} or the \Xe\TeX{} engine with the \LaTeX{} format. If everything is set up correctly, you should end up with a document containing all the mandatory parts of a thesis and one page of the main matter containing a \texttt{Hello world} paragraph. You should notice that the document is implicitly typeset in English and that it contains lots of placeholder strings for missing metadata (see Figure 1.1). In the next chapter, we are going to address that.

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\textsuperscript{4} See https://www.tug.org/texlive/doc.html, Chapter 2.3
\textsuperscript{5} See http://docs.miktex.org/manual/localadditions.html
1. Introduction

Figure 1.1: The placeholder strings in the minimal document
2 Configuring the class

In this chapter, we will configure the class to use the correct locale, to insert the correct metadata into the output document and to be laid out in a meaningful way.

2.1 Setting the locale

First, we are going to set the locale of the document class. This affects the locale of the mandatory parts of thesis. To see what locales are available, list the contents of the \fithesis3/locale/ directory. It should contain several locale.dtx files. Each of these locales can be leded by inserting the \thesissetup{locale=locale} command into the preamble of the document.

If you use the babel or the polyglossia package to load the hyphenation patterns for your locale, you don’t need to set the locale at all, fithesis3 will use the main language of babel or polyglossia.

\documentclass{fithesis3}
\thesissetup{faculty=fss}
% Using the babel package:
\usepackage[czech]{babel}
\begin{document}
    The mandatory parts of the thesis are going to be typeset in Czech.
\end{document}

\documentclass{fithesis3}
\thesissetup{faculty=fss}
% Using the polyglossia package:
\usepackage{polyglossia}
\setmainlanguage{czech}
\begin{document}
    The mandatory parts of the thesis are going to be typeset in Czech.
\end{document}

At the time of writing this text, polyglossia can only be used with \TeX, \LaTeX
2. Configuring the class

whereas babel can be used with pdf\TeX, Xe\TeX and Lua\TeX. On the
other hand, the babel package can only be used with Latin scripts,
while the polyglossia package supports non-Latin scripts as well. You
are advised to use one of them, depending on your choice of \TeX en-
gine and requirements.

2.2 Inserting metadata

Next, we are going to insert some metadata into the document using
the \thesissetup command. This command accepts a comma-
delimited key=value list. The placeholder strings in our minimal doc-
ument map directly into the keys, so to change the «author» place-
holder into Jane Doe, simply insert the \thesissetup{author=Jane
Doe} command into the preamble of your document.

Note, however, that some keys can not be deduced directly from
the output document. The thanks key, for example, is invisible by de-
fault, since the acknowledgement is not a mandatory part of the thesis
and it only gets inserted into the document, when the thanks key is
defined. Some other keys, like the abstract key, can also span multi-
ple paragraphs, in which case they need to be set using the \thet-
islong{key}{value} command as follows:

\documentclass{fithesis3}
\thesissetup{
  faculty=fss,
  author=Jane Doe}
\thesislong{abstract}{{
  In this document, I am going to
  explore the craft of creating
  abstracts \ldots

  \ldots that span multiple
  paragraphs.}}
\begin{document}
  Hello world!
\end{document}

If the value of a key contains a comma, the \thesissetup{key=value}
2. Configuring the class

command would erroneously interpret it as a delimiter. To prevent this behaviour, enclose the value in curly braces as follows:

\documentclass{fithesis3}
\thesissetup{
  faculty=fss,
  author=Jane Doe,
  advisor={RNDr. \ John Doe, Ph.D.},
  keywords={keyword1, keyword2}}
\begin{document}
  Hello world!
\end{document}

The complete list of keys and their effects can be found in the technical documentation of the class [1, chapter Public API] distributed along with the class.

2.3 Style options

The look of the resulting document can be affected by options passed to the style file using the \documentclass[options]{fithesis3} syntax. The complete list of options for the style files of the Masaryk University can be found in the technical documentation of the class [1, chapter Style files] distributed along with the package. Some of the more important options are listed in Table 2.1 for your convenience.
## Configuring the class

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>oneside</td>
<td>Enables one-sided typesetting. This is generally discouraged. Use only if you don't have access to a double-sided printer, or if one-sided typesetting is a formal requirement.</td>
</tr>
<tr>
<td>twoside</td>
<td>Enables double-sided typesetting. Double-sided typesetting consumes less paper, is generally regarded as more visually pleasing and is enabled by default. Use at least 120 grams per square meter paper to prevent show-through.</td>
</tr>
<tr>
<td>color</td>
<td>Enables colors. A colorful version of the document is more visually pleasing, but shouldn't be used in a printed version, if you don't have access to a color printer. Unless you have a compelling reason not to, always use this option in the e-version.</td>
</tr>
<tr>
<td>monochrome</td>
<td>Disables colors. Disabling colors is generally discouraged, unless you don't have access to a color printer.</td>
</tr>
<tr>
<td>cover</td>
<td>Typesets the cover of the thesis. Should be generally used in the e-version.</td>
</tr>
<tr>
<td>nocover</td>
<td>Forbids the typesetting of the thesis cover. Use, if you’re typesetting the printed version and have no desire to have a cover made for your thesis. This option is the default.</td>
</tr>
<tr>
<td>table</td>
<td>Redefines the <code>tabular</code> and <code>tabularx</code> environments to use alternating colors for odd and even rows like this table does.</td>
</tr>
<tr>
<td>oldtable</td>
<td>Instructs the style not to redefine the <code>tabular</code> and <code>tabularx</code> environments. This option is the default.</td>
</tr>
</tbody>
</table>

Table 2.1: A non-exhaustive list of basic options accepted by the styles of the Masaryk University
3 Advanced usage

This chapter is dedicated to those users, who wish to customize the class to better suit their needs.

3.1 Troubleshooting option clashes

When a package is required twice, each time with different options, an option clash error occurs:

```
! LaTeX Error: Option clash for package hyperref
```

If you need to load a package with a specific set of options and the package happens to be required by the fithesis3 class, as specified in Section 1.1, prepend the `\PassOptionsToPackage{options}{package}` command before the `\documentclass{...}` statement. If you need to configure the package, you can do that anywhere within the document preamble.

If you need to load a package with a specific set of options and the package happens to be required by the style files of the Masaryk University, as specified in Section 1.1, insert the `\PassOptionsToPackage{options}{package}` command anywhere within the document preamble. If you need to configure the package, you can do that anywhere after the document preamble. If you need to configure the package within the preamble, you can load the style files prematurely using the `\thesis@load` command as follows:

```
\documentclass{fithesis3}
% Preamble
\makeatletter\thesis@load\makeatother
% The package configuration goes here
\begin{document}
\end{document}
```

Note that only a small portion of the packages required by the style files needs to be loaded with a specific set of options, so clashes should be relatively rare.
3. Advanced usage

A document which, except for this line, is completely empty.

Figure 3.1: A document with disabled autoLayout

3.2 Changing the layout

If you are unsatisfied with the automatic arrangement of the mandatory parts of the thesis, you can disable it using the autoLayout metadata key:

\documentclass{fithesis3}
\thesissetup{faculty=fss,autoLayout=false}
\begin{document}
  A document which, except for this line, is completely empty.
\end{document}

This results in a document, which only consists of the main matter of the thesis (see Figure 3.1). You can now manually insert the preamble and the postamble of the document as follows:

\documentclass{fithesis3}
\thesissetup{
  faculty=fss,
  autoLayout=false
}\begin{document}
  \makeatletter
  \thesis@preamble
  A document which once again contains all the mandatory parts of a thesis.
  \thesis@postamble
  \makeatother
\end{document}

This alone would be a useless exercise, as we’re now back to the original document. However, instead of inserting the \thesis@preamble and \thesis@postamble commands into the document, we can insert only certain sections of the document preamble and postamble to which these commands expand. \thesis@preamble expands to the following commands:
3. Advanced usage

To create a document, which only contains the thesis cover prior to the text, we would use the following:

\documentclass{fithesis3}
\thesissetup{
  faculty=fss,
  autoLayout=false}
\begin{document}
\makeatletter
  \thesis@blocks@cover
  \thesis@blocks@mainMatter
\makeatother
A document which contains only the cover of the thesis and the main matter.
\end{document}

The available blocks are documented in the technical documentation of the class [1, chapter Style files] distributed along with the package.
Bibliography


A fitthesis3 user guide
for the Faculty of Law

Bachelor’s Thesis

Vít Novotný

Brno, Spring 2015
1 Introduction

Fitthesis3 is a \LaTeX{} document class, which aims to streamline the typesetting of mandatory parts of theses and dissertations, so that the author can focus on content alone. Unlike its predecessors, fithesis3 can be used to write theses across the faculties of the Masaryk University. To this end, the class comprises:

- **Style files**, which are unique for each faculty and which encapsulate the look and the arrangement of the final documents
- **Locale files**, which define the strings for the given locale
- **The base class**, which serves as a glue between style files, locale files and the input document

The overarching design and the interactions between the style files, locale files and the base class are described in the technical documentation of the class \cite{technical_documentation} distributed along with the class. This guide, on the other hand, only aims to document the selected parts of the public API of the fithesis3 class that bear relevance to the style file of the Faculty of Law. Note that this guide is typeset using the said style file.

1.1 Required packages and fonts

In order to be able to use the fitthesis3 class, your \TeX{} installation needs to include the rapport3 class\textsuperscript{1} and the following packages:

- keyval, etoolbox, ifxetex, ifluatex
- inputenc – only when typesetting with \TeX{} or pdf\TeX{}

In order to be able to use the fitthesis3 class with the style files of the Faculty of Law, your \TeX{} installation needs to also include the following packages:

- xcolor, graphix, pdfpages, hyperref, keyval

\textsuperscript{1} See \url{https://www.ctan.org/pkg/ntgclass}
1. Introduction

- fontspec, unicode-math – only when typesetting with X\textsc{e}\TeX{} or Lua\textsc{e}\TeX{}
- mathpazo, tgpagella, lmodern, cmap, fontenc – only when typesetting with \textsc{e}\TeX{} or pdf\textsc{e}\TeX{}
- tabularx, booktabs – only when the \texttt{table} option is specified (see Section 2.3)

The \textsc{e}\TeX{} Gyre Pagella\textsuperscript{2} and \textsc{e}\TeX{} Gyre Pagella Math\textsuperscript{3} OpenType fonts are also required, when typesetting with X\textsc{e}\TeX{} or Lua\textsc{e}\TeX{}. All these are likely to be a part of any reasonably modern \textsc{e}\TeX{} distribution.

1.2 Installation

This section covers the installation of the \texttt{fithesis3} class. Please note that the installation of the class is fully optional. You can typeset your thesis by either directly editing either the \texttt{pdflatex.tex}, \texttt{xelatex.tex} or \texttt{lualatex.tex} example files distributed along with the class or by pointing your source document to the class as follows:

\begin{verbatim}
documentclass{path/fithesis3}
\thesissetup{basepath=path}
\% The rest of the document
\end{verbatim}

where \texttt{path} corresponds to the path of the directory containing the \texttt{fithesis3.cls} file.

When installing, first make sure that the \texttt{fithesis3} class is not a part of your \textsc{e}\TeX{} distribution already. This can be easily verified by creating the minimal document described in the next section and typesetting it using either the X\textsc{e}\TeX{}, Lua\textsc{e}\TeX{} or the pdf\textsc{e}\TeX{} engine, respectively. In case \texttt{fithesis3} is not a part of your \textsc{e}\TeX{} distribution, the typesetting will prematurely terminate with the following error:

\begin{verbatim}
! \LaTeX{} Error: File `fithesis3/fithesis3.cls’ not found.
\end{verbatim}

\textsuperscript{2} See https://www.ctan.org/pkg/tex-gyre-pagella
\textsuperscript{3} See https://www.ctan.org/pkg/tex-gyre-math-pagella
1. Introduction

If the fithesis3 class is not a part of your distribution, you can proceed to the installation. This can be achieved by extracting the fithesis3.tds.zip archive distributed along with the class into one of the \TeX{} directory structure trees within your \TeX{} distribution. If you are using \TeX{}Live\(^4\), this can be achieved by creating a texmf directory within your user home directory and by extracting the fithesis3.tds.zip archive into it. For MiK\TeX{}, see the online documentation\(^5\).

1.3 A minimal document

Before using the fithesis3 class, you should be familiar with the \LaTeX\ typesetting system. A good way to get started is to read one of the introductory texts in English [2–5] or in Czech [6, 7]. We will start by creating a plain text document named \texttt{helloworld.tex} in the UTF-8 encoding with the following content:

\begin{verbatim}
\documentclass{fithesis3}
\thesissetup{faculty=law}
\begin{document}
Hello world
\end{document}
\end{verbatim}

Now, typeset the document using either the \Xe\TeX{}, Lua\TeX{} or the \Xe\TeX{} engine with the \LaTeX\ format. If everything is set up correctly, you should end up with a document containing all the mandatory parts of a thesis and one page of the main matter containing a \texttt{Hello world} paragraph. You should notice that the document is implicitly typeset in English and that it contains lots of placeholder strings for missing metadata (see Figure 1.1). In the next chapter, we are going to address that.

\footnotesize
\begin{itemize}
  \item[4.] See https://www.tug.org/texlive/doc.html, Chapter 2.3
  \item[5.] See http://docs.miktex.org/manual/localadditions.html
\end{itemize}
1. Introduction

Figure 1.1: The placeholder strings in the minimal document
2 Configuring the class

In this chapter, we will configure the class to use the correct locale, to insert the correct metadata into the output document and to be laid out in a meaningful way.

2.1 Setting the locale

First, we are going to set the locale of the document class. This affects the locale of the mandatory parts of thesis. To see what locales are available, list the contents of the \fithesis3/locale/ directory. It should contain several locale.dtx files. Each of these locales can be leaded by inserting the \thesissetup{locale=locale} command into the preamble of the document.

If you use the babel or the polyglossia package to load the hyphenation patterns for your locale, you don’t need to set the locale at all, fithesis3 will use the main language of babel or polyglossia.

\documentclass{fithesis3}
\thesissetup{faculty=law}
% Using the babel package:
\usepackage[czech]{babel}
\begin{document}
  The mandatory parts of the thesis are going to be typeset in Czech.
\end{document}

\documentclass{fithesis3}
\thesissetup{faculty=law}
% Using the polyglossia package:
\usepackage{polyglossia}
\setmainlanguage{czech}
\begin{document}
  The mandatory parts of the thesis are going to be typeset in Czech.
\end{document}

At the time of writing this text, polyglossia can only be used with \texttt{Xe\TeX},
2. Configuring the class

whereas babel can be used with pdf\TeX, \XeTeX and Lua\TeX. On the other hand, the babel package can only be used with Latin scripts, while the polyglossia package supports non-Latin scripts as well. You are advised to use one of them, depending on your choice of \TeX engine and requirements.

2.2 Inserting metadata

Next, we are going to insert some metadata into the document using the \thesissetup command. This command accepts a comma-delimited \texttt{key=value} list. The placeholder strings in our minimal document map directly into the keys, so to change the «author» placeholder into \textit{Jane Doe}, simply insert the \thesissetup\{author=Jane Doe\} command into the preamble of your document.

Note, however, that some keys can not be deduced directly from the output document. The \texttt{thanks} key, for example, is invisible by default, since the acknowledgement is not a mandatory part of the thesis and it only gets inserted into the document, when the \texttt{thanks} key is defined. Some other keys, like the \texttt{abstract} key, can also span multiple paragraphs, in which case they need to be set using the \thesislong\{key\}\{value\} command as follows:

\begin{verbatim}
\documentclass{fitthesis3}
\thesissetup{
  faculty=law,
  author=Jane Doe}
\thesislong{abstract}{
  In this document, I am going to explore the craft of creating abstracts \ldots
  \ldots
  that span multiple paragraphs.}
\begin{document}
  Hello world!
\end{document}
\end{verbatim}

If the \texttt{value} of a \texttt{key} contains a comma, the \thesissetup\{key=value\}
command would erroneously interpret it as a delimiter. To prevent this behaviour, enclose the value in curly braces as follows:

\documentclass{fithesis3}
\thesissetup{
    faculty=law,
    author=Jane Doe,
    advisor={RNDr.\ John Doe, Ph.D.},
    keywords={keyword1, keyword2}}
\begin{document}
    Hello world!
\end{document}

The complete list of keys and their effects can be found in the technical documentation of the class [1, chapter Public API] distributed along with the class.

2.3 Style options

The look of the resulting document can be affected by options passed to the style file using the \documentclass[options]{fithesis3} syntax. The complete list of options for the style files of the Masaryk University can be found in the technical documentation of the class [1, chapter Style files] distributed along with the package. Some of the more important options are listed in Table 2.1 for your convenience.
### Table 2.1: A non-exhaustive list of basic options accepted by the styles of the Masaryk University

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>oneside</td>
<td>Enables one-sided typesetting. This is generally discouraged. Use only if you don’t have access to a double-sided printer, or if one-sided typesetting is a formal requirement.</td>
</tr>
<tr>
<td>twoside</td>
<td>Enables double-sided typesetting. Double-sided typesetting consumes less paper, is generally regarded as more visually pleasing and is enabled by default. Use at least 120 grams per square meter paper to prevent show-through.</td>
</tr>
<tr>
<td>color</td>
<td>Enables colors. A colorful version of the document is more visually pleasing, but shouldn’t be used in a printed version, if you don’t have access to a color printer. Unless you have a compelling reason not to, always use this option in the e-version.</td>
</tr>
<tr>
<td>monochrome</td>
<td>Disables colors. Disabling colors is generally discouraged, unless you don’t have access to a color printer.</td>
</tr>
<tr>
<td>cover</td>
<td>Typesets the cover of the thesis. Should be generally used in the e-version.</td>
</tr>
<tr>
<td>nocover</td>
<td>Forbids the typesetting of the thesis cover. Use, if you’re typesetting the printed version and have no desire to have a cover made for your thesis. This option is the default.</td>
</tr>
<tr>
<td>table</td>
<td>Redefines the <code>tabular</code> and <code>tabularx</code> environments to use alternating colors for odd and even rows like this table does.</td>
</tr>
<tr>
<td>oldtable</td>
<td>Instructs the style not to redefine the <code>tabular</code> and <code>tabularx</code> environments. This option is the default.</td>
</tr>
</tbody>
</table>
3 Advanced usage

This chapter is dedicated to those users, who wish to customize the class to better suit their needs.

3.1 Troubleshooting option clashes

When a package is required twice, each time with different options, an option clash error occurs:

```
! LaTeX Error: Option clash for package hyperref
```

If you need to load a `package` with a specific set of `options` and the `package` happens to be required by the `fitthesis3` class, as specified in Section 1.1, prepend the `\PassOptionsToPackage{options}{package}` command before the `\documentclass{...}` statement. If you need to configure the `package`, you can do that anywhere within the document preamble.

If you need to load a `package` with a specific set of `options` and the `package` happens to be required by the style files of the Masaryk University, as specified in Section 1.1, insert the `\PassOptionsToPackage{options}{package}` command anywhere within the document preamble. If you need to configure the `package`, you can do that anywhere after the document preamble. If you need to configure the `package` within the preamble, you can load the style files prematurely using the `\thesis@load` command as follows:

```
\documentclass{fitthesis3}
% Preamble
\makeatletter\thesis@load\makeatother
% The package configuration goes here
\begin{document}
\end{document}
```

Note that only a small portion of the packages required by the style files needs to be loaded with a specific set of options, so clashes should be relatively rare.
3. ADVANCED USAGE

A document which, except for this line, is completely empty.

Figure 3.1: A document with disabled autoLayout

3.2 Changing the layout

If you are unsatisfied with the automatic arrangement of the mandatory parts of the thesis, you can disable it using the autoLayout metadata key:

\documentclass{fithesis3}
\thesissetup{faculty=law,autoLayout=false}
\begin{document}
A document which, except for this line, is completely empty.
\end{document}

This results in a document, which only consists of the main matter of the thesis (see Figure 3.1). You can now manually insert the preamble and the postamble of the document as follows:

\documentclass{fithesis3}
\thesissetup{
  faculty=law,
  autoLayout=false}
\begin{document}
\makeatletter\thesis@preamble\makeatother
A document which once again contains all the mandatory parts of a thesis.
\makeatletter\thesis@postamble\makeatother
\end{document}

This alone would be a useless excercise, as we’re now back to the original document. However, instead of inserting the \thesis@preamble and \thesis@postamble commands into the document, we can insert only certain sections of the document preamble and postamble to which these commands expand. \thesis@preamble expands to the following commands:

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To create a document, which only contains the thesis cover prior to the text, we would use the following:

\documentclass{fithesis3}
\thesissetup{
  faculty=law,
  autoLayout=false}
\begin{document}
\makeatletter
\thesis@blocks@cover
\thesis@blocks@mainMatter
\makeatother
A document which contains only the cover of the thesis and the main matter.
\end{document}

The available blocks are documented in the technical documentation of the class [1, chapter Style files] distributed along with the package.
Bibliography


A **thesis3** user guide
for the Faculty of Medicine

**Bachelor’s Thesis**

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**Advisor:**
Doc. RNDr. Petr Sojka, Ph.D.

**Author:**
Vít Novotný

**Field of study:**
Typesetting

Brno, Spring 2015
1 Introduction

Fithesis3 is a \LaTeX{} document class, which aims to streamline the typesetting of mandatory parts of theses and dissertations, so that the author can focus at content alone. Unlike its predecessors, fithesis3 can be used to write theses across the faculties of the Masaryk University. To this end, the class comprises:

- **Style files**, which are unique for each faculty and which encapsulate the look and the arrangement of the final documents
- **Locale files**, which define the strings for the given locale
- **The base class**, which serves as a glue between style files, locale files and the input document

The overarching design and the interactions between the style files, locale files and the base class are described in the technical documentation of the class [1] distributed along with the class. This guide, on the other hand, only aims to document the selected parts of the public API of the fithesis3 class that bear relevance to the style file of the Faculty of Medicine. Note that this guide is typeset using the said style file.

1.1 Required packages and fonts

In order to be able to use the fithesis3 class, your \TeX{} installation needs to include the rapport3 class\(^1\) and the following packages:

- keyval, etoolbox, ifxetex, ifluatex
- inputenc – only when typesetting with \TeX{} or pdf\TeX{}

In order to be able to use the fithesis3 class with the style files of the Faculty of Medicine, your \TeX{} installation needs to also include the following packages:

- xcolor, graphix, pdfpages, hyperref, keyval, tikz, setspace, geometry
- fontspec, unicode-math – only when typesetting with \Xe\TeX{} or \Lua\TeX{}
- mathpazo, tgpagella, lmodern, cmap, fontenc – only when typesetting with \TeX{} or pdf\TeX{}
- tabularx, booktabs – only when the `table` option is specified (see Section 2.3)

The \TeX{} Gyre Pagella\(^2\) and \TeX{} Gyre Pagella Math\(^3\) OpenType fonts are also required, when typesetting with \Xe\TeX{} or \Lua\TeX{}. All these are likely to be a part of any reasonably modern \TeX{} distribution.

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1. See https://www.ctan.org/pkg/ntgclass
2. See https://www.ctan.org/pkg/tex-gyre-pagella
3. See https://www.ctan.org/pkg/tex-gyre-math-pagella
1. Introduction

1.2 Installation

This section covers the installation of the fithesis3 class. Please note that the installation of the class is fully optional. You can typeset your thesis by either directly editing either the pdf\LaTeX\ .tex, xel\LaTeX\ .tex or lual\LaTeX\ .tex example files distributed along with the class or by pointing your source document to the class as follows:

\begin{verbatim}
\documentclass{path/fithesis3}
\thesissetup{basePath=path}
% The rest of the document
\end{verbatim}

where path corresponds to the path of the directory containing the fithesis3.cls file.

When installing, first make sure that the fithesis3 class is not a part of your \TeX\ distribution already. This can be easily verified by creating the minimal document described in the next section and typesetting it using either the Xe\TeX, Lua\TeX\ or the pdf\TeX\ engine, respectively. In case fithesis3 is not a part of your \TeX\ distribution, the typesetting will prematurely terminate with the following error:

\begin{verbatim}
! \LaTeX\ Error: File ‘fithesis3/fithesis3.cls’ not found.
\end{verbatim}

If the fithesis3 class is not a part of your distribution, you can proceed to the installation. This can be achieved by extracting the fithesis3.tds.zip archive distributed along with the class into one of the \TeX\ directory structure trees within your \TeX\ distribution. If you are using \TeX\Live\, this can be achieved by creating a texmf directory within your user home directory and by extracting the fithesis3.tds.zip archive into it. For Mi\TeX\, see the online documentation\[5\].

1.3 A minimal document

Before using the fithesis3 class, you should be familiar with the \LaTeX\ typesetting system. A good way to get started is to read one of the introductory texts in English \[2–5\] or in Czech \[6,7\]. We will start by creating a plain text document named helloworld.tex in the UTF-8 encoding with the following content:

\begin{verbatim}
\documentclass{fithesis3}
\thesissetup{faculty=med}
\begin{document}
Hello world
\end{document}
\end{verbatim}

Now, typeset the document using either the Xe\TeX, Lua\TeX\ or the Xe\TeX\ engine with the \LaTeX\ format. If everything is set up correctly, you should end up with a document containing all the mandatory parts of a thesis and one page of the main matter containing a Hello world paragraph. You should notice that the document is implicitly typeset in English and that it contains lots of placeholder strings for missing metadata (see Figure 1.1). In the next chapter, we are going to address that.

\[4.\] See https://www.tug.org/texlive/doc.html, Chapter 2.3
\[5.\] See http://docs.miktex.org/manual/localadditions.html
Figure 1.1: The placeholder strings in the minimal document
2 Configuring the class

In this chapter, we will configure the class to use the correct locale, to insert the correct metadata into the output document and to be laid out in a meaningful way.

2.1 Setting the locale

First, we are going to set the locale of the document class. This affects the locale of the mandatory parts of thesis. To see what locales are available, list the contents of the fithesis3/locale/ directory. It should contain several locale.dtx files. Each of these locales can be leaded by inserting the \thesissetup{locale=locale} command into the preamble of the document.

If you use the babel or the polyglossia package to load the hyphenation patterns for your locale, you don’t need to set the locale at all, fithesis3 will use the main language of babel or polyglossia.

\documentclass{fithesis3}
\thesissetup{faculty=med}
% Using the babel package:
\usepackage[czech]{babel}
\begin{document}
The mandatory parts of the thesis are going to be typeset in Czech.
\end{document}

\documentclass{fithesis3}
\thesissetup{faculty=med}
% Using the polyglossia package:
\usepackage{polyglossia}
\setmainlanguage{czech}
\begin{document}
The mandatory parts of the thesis are going to be typeset in Czech.
\end{document}

At the time of writing this text, polyglossia can only be used with Xe\TeX, whereas babel can be used with pdf\TeX, Xe\TeX and Lua\TeX. On the other hand, the babel package can only be used with Latin scripts, while the polyglossia package supports non-Latin scripts as well. You are advised to use one of them, depending on your choice of \TeX engine and requirements.

2.2 Inserting metadata

Next, we are going to insert some metadata into the document using the \thesissetup command. This command accepts a comma-delimited key=value list. The place-
2. Configuring the class

holder strings in our minimal document map directly into the keys, so to change the «author» placeholder into Jane Doe, simply insert the \thesissetup{author=Jane Doe} command into the preamble of your document.

Note, however, that some keys cannot be deduced directly from the output document. The thanks key, for example, is invisible by default, since the acknowledgement is not a mandatory part of the thesis and it only gets inserted into the document, when the thanks key is defined. Some other keys, like the abstract key, can also span multiple paragraphs, in which case they need to be set using the \thesislong{key}{value} command as follows:

\documentclass{fithesis3}
\thesissetup{
    faculty=med,
    author=Jane Doe
}\thesislong{abstract}{
    In this document, I am going to explore the craft of creating abstracts \ldots \ldots \ldots
    \ldots\ldots\ldots
\}
\begin{document}
    Hello world!
\end{document}

If the value of a key contains a comma, the \thesissetup{key=value} command would erroneously interpret it as a delimiter. To prevent this behaviour, enclose the value in curly braces as follows:

\documentclass{fithesis3}
\thesissetup{
    faculty=med,
    author=Jane Doe,
    advisor={RNDr. John Doe, Ph.D.},
    keywords={keyword1, keyword2}
}\begin{document}
    Hello world!
\end{document}

The complete list of keys and their effects can be found in the technical documentation of the class [1, chapter Public API] distributed along with the class.

2.3 Style options

The look of the resulting document can be affected by options passed to the style file using the \documentclass[options]{fithesis3} syntax. The complete list of options for the style files of the Masaryk University can be found in the technical documentation
<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>oneside</td>
<td>Enables one-sided typesetting. This is generally discouraged. Use only if you don’t have access to a double-sided printer, or if one-sided typesetting is a formal requirement.</td>
</tr>
<tr>
<td>twoside</td>
<td>Enables double-sided typesetting. Double-sided typesetting consumes less paper, is generally regarded as more visually pleasing and is enabled by default. Use at least 120 grams per square meter paper to prevent show-through.</td>
</tr>
<tr>
<td>color</td>
<td>Enables colors. A colorful version of the document is more visually pleasing, but shouldn’t be used in a printed version, if you don’t have access to a color printer. Unless you have a compelling reason not to, always use this option in the e-version.</td>
</tr>
<tr>
<td>monochrome</td>
<td>Disables colors. Disabling colors is generally discouraged, unless you don’t have access to a color printer.</td>
</tr>
<tr>
<td>cover</td>
<td>Typesets the cover of the thesis. Should be generally used in the e-version.</td>
</tr>
<tr>
<td>nocover</td>
<td>Forbids the typesetting of the thesis cover. Use, if you’re typesetting the printed version and have no desire to have a cover made for your thesis. This option is the default.</td>
</tr>
<tr>
<td>table</td>
<td>Redefines the \texttt{tabular} and \texttt{tabularx} environments to use alternating colors for odd and even rows like this table does.</td>
</tr>
<tr>
<td>oldtable</td>
<td>Instructs the style not to redefine the \texttt{tabular} and \texttt{tabularx} environments. This option is the default.</td>
</tr>
</tbody>
</table>

Table 2.1: A non-exhaustive list of basic options accepted by the styles of the Masaryk University of the class [1, chapter Style files] distributed along with the package. Some of the more important options are listed in Table 2.1 for your convenience.
3 Advanced usage

This chapter is dedicated to those users, who wish to customize the class to better suit their needs.

3.1 Troubleshooting option clashes

When a package is required twice, each time with different options, an option clash error occurs:

![LaTeX Error: Option clash for package hyperref]

If you need to load a package with a specific set of options and the package happens to be required by the fithesis3 class, as specified in Section 1.1, prepend the \PassOptionsToPackage\{options\}\{package\} command before the \documentclass\{\ldots\} statement. If you need to configure the package, you can do that anywhere within the document preamble.

If you need to load a package with a specific set of options and the package happens to be required by the style files of the Masaryk University, as specified in Section 1.1, insert the \PassOptionsToPackage\{options\}\{package\} command anywhere within the document preamble. If you need to configure the package, you can do that anywhere after the document preamble. If you need to configure the package within the preamble, you can load the style files prematurely using the \thesis@load command as follows:

```
\documentclass{fithesis3}
% Preamble
\makeatletter
\thesis@load\makeatother
% The package configuration goes here
\begin{document}
\end{document}
```

Note that only a small portion of the packages required by the style files needs to be loaded with a specific set of options, so clashes should be relatively rare.

3.2 Changing the layout

If you are unsatisfied with the automatic arrangement of the mandatory parts of the thesis, you can disable it using the autoLayout metadata key:

```
\documentclass{fithesis3}
\thesissetup{faculty=med,autoLayout=false}
\begin{document}
A document which, except for this line, is completely empty.
\end{document}
```
A document which, except for this line, is completely empty.

Figure 3.1: A document with disabled autoLayout

This results in a document, which only consists of the main matter of the thesis (see Figure 3.1). You can now manually insert the preamble and the postamble of the document as follows:

```latex
\documentclass{fithesis3}
\thesissetup{
  faculty=med,
  autoLayout=false}
\begin{document}
  \makeatletter
  \thesis@preamble\makeatother
  A document which once again contains all the mandatory parts of a thesis.
  \makeatletter
  \thesis@postamble\makeatother
\end{document}
```

This alone would be a useless excercise, as we’re now back to the original document. However, instead of inserting the `\thesis@preamble` and `\thesis@postamble` commands into the document, we can insert only certain sections of the document preamble and postamble to which these commands expand. `\thesis@preamble` expands to the following commands:

- `\thesis@blocks@cover`
- `\thesis@blocks@frontMatter`
- `\thesis@blocks@titlePage`
- `\onehalfspacing`
- `\thesis@blocks@clearRight`
- `\thesis@blocks@abstract`
- `\thesis@blocks@abstractEn`
- `\thesis@blocks@keywords`
- `\thesis@blocks@keywordsEn`
- `\thesis@blocks@bibEntry`
- `\thesis@blocks@declaration`
- `\thesis@blocks@thanks`
- `\thesis@blocks@tables`
- `\thesis@blocks@mainMatter`

and `\thesis@postamble` expands to the following commands:

- `(empty)`

To create a document, which only contains the thesis cover prior to the text, we would use the following:
3. Advanced usage

\documentclass{fithesis3}
\thesissetups{
  faculty=med,
  autoLayout=false}
\begin{document}
  \makeatletter
  \thesis@blocks@cover
  \thesis@blocks@mainMatter
  \makeatother
  A document which contains only the cover of the thesis and the main matter.
\end{document}

The available blocks are documented in the technical documentation of the class [1, chapter Style files] distributed along with the package.
Bibliography


A *fithe\textsuperscript{sis}3* user guide
for the Faculty of Education

Bachelor’s Thesis

Vít Novotný

Advisor: Doc. RNDr. Petr Sojka, Ph.D.

Brno, Spring 2015
1 Introduction

Fithesis3 is a \LaTeX{} document class, which aims to streamline the typesetting of mandatory parts of theses and dissertations, so that the author can focus at content alone. Unlike its predecessors, fithesis3 can be used to write theses across the faculties of the Masaryk University. To this end, the class comprises:

- **Style files**, which are unique for each faculty and which encapsulate the look and the arrangement of the final documents
- **Locale files**, which define the strings for the given locale
- **The base class**, which serves as a glue between style files, locale files and the input document

The overarching design and the interactions between the style files, locale files and the base class are described in the technical documentation of the class [1] distributed along with the class. This guide, on the other hand, only aims to document the selected parts of the public API of the fithesis3 class that bear relevance to the style file of the Faculty of Education. Note that this guide is typeset using the said style file.

1.1 Required packages and fonts

In order to be able to use the fithesis3 class, your \LaTeX{} installation needs to include the rapport3 class\(^1\) and the following packages:

- keyval, etoolbox, ifxetex, ifluatex
- inputenc – only when typesetting with \TeX{} or pdf\TeX{}

In order to be able to use the fithesis3 class with the style files of the Faculty of Education, your \LaTeX{} installation needs to also include the following packages:

- xcolor, graphix, pdffonts, hyperref, keyval

---

1. See https://www.ctan.org/pkg/ntgclass
1. Introduction

- **fontspec, unicode-math** – only when typesetting with X\LaTeX\ or Lua\LaTeX
- **mathpazo, tgpagella, lmodern, cmap, fontenc** – only when typesetting with \TeX\ or pdf\TeX
- **tabularx, booktabs** – only when the `table` option is specified (see Section 2.3)

The \TeX\ Gyre Pagella\(^2\) and \TeX\ Gyre Pagella Math\(^3\) OpenType fonts are also required, when typesetting with X\LaTeX\ or Lua\LaTeX. All these are likely to be a part of any reasonably modern \TeX\ distribution.

### 1.2 Installation

This section covers the installation of the `fithesis3` class. Please note that the installation of the class is fully optional. You can typeset your thesis by either directly editing either the `pdflatex.tex`, `xelatex.tex` or `lualatex.tex` example files distributed along with the class or by pointing your source document to the class as follows:

```
\documentclass{path/fithesis3}
\thesissetup{basepath=path}
% The rest of the document
```

where `path` corresponds to the path of the directory containing the `fithesis3.cls` file.

When installing, first make sure that the `fithesis3` class is not a part of your \TeX\ distribution already. This can be easily verified by creating the minimal document described in the next section and typesetting it using either the X\LaTeX, Lua\LaTeX\ or the pdf\LaTeX\ engine, respectively. In case `fithesis3` is not a part of your \TeX\ distribution, the typesetting will prematurely terminate with the following error:

```
! LaTeX Error: File `fithesis3/fithesis3.cls' not found.
```

2. See https://www.ctan.org/pkg/tex-gyre-pagella
3. See https://www.ctan.org/pkg/tex-gyre-math-pagella

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If the fithesis3 class is not a part of your distribution, you can proceed to the installation. This can be achieved by extracting the fithesis3.tds.zip archive distributed along with the class into one of the \TeX{} directory structure trees within your \TeX{} distribution. If you are using \TeX{}Live\textsuperscript{4}, this can be achieved by creating a texmf directory within your user home directory and by extracting the fithesis3.tds.zip archive into it. For MiK\TeX{}, see the online documentation\textsuperscript{5}.

### 1.3 A minimal document

Before using the fithesis3 class, you should be familiar with the \LaTeX{} typesetting system. A good way to get started is to read one of the introductory texts in English [2–5] or in Czech [6, 7]. We will start by creating a plain text document named helloworld.tex in the UTF-8 encoding with the following content:

\begin{verbatim}
\documentclass{fithesis3}
\thesissetup{faculty=ped}
\begin{document}
  Hello world
\end{document}
\end{verbatim}

Now, typeset the document using either the Xe\TeX, Lua\TeX{} or the Xe\TeX{} engine with the \LaTeX{} format. If everything is set up correctly, you should end up with a document containing all the mandatory parts of a thesis and one page of the main matter containing a Hello world paragraph. You should notice that the document is implicitly typeset in English and that it contains lots of placeholder strings for missing metadata (see Figure 1.1). In the next chapter, we are going to address that.

\begin{footnotes}
4. See https://www.tug.org/texlive/doc.html, Chapter 2.3
5. See http://docs.miktex.org/manual/localadditions.html
\end{footnotes}
1. Introduction

Figure 1.1: The placeholder strings in the minimal document
2 Configuring the class

In this chapter, we will configure the class to use the correct locale, to insert the correct metadata into the output document and to be laid out in a meaningful way.

2.1 Setting the locale

First, we are going to set the locale of the document class. This affects the locale of the mandatory parts of thesis. To see what locales are available, list the contents of the fithesis3/locale/ directory. It should contain several locale.dtx files. Each of these locales can be leaded by inserting the \thesissetup{locale=locale} command into the preamble of the document.

If you use the babel or the polyglossia package to load the hyphenation patterns for your locale, you don’t need to set the locale at all, fithesis3 will use the main language of babel or polyglossia.

\documentclass{fithesis3}
\thesissetup{faculty=ped}
% Using the babel package:
\usepackage[czech]{babel}
\begin{document}
  The mandatory parts of the thesis are going to be typeset in Czech.
\end{document}

\documentclass{fithesis3}
\thesissetup{faculty=ped}
% Using the polyglossia package:
\usepackage{polyglossia}
\setmainlanguage{czech}
\begin{document}
  The mandatory parts of the thesis are going to be typeset in Czech.
\end{document}

At the time of writing this text, polyglossia can only be used with Xe\LaTeX.
2. Configuring the class

whereas babel can be used with pdf\TeX, \texttt{Xe\TeX} and Lua\TeX. On the other hand, the babel package can only be used with Latin scripts, while the polyglossia package supports non-Latin scripts as well. You are advised to use one of them, depending on your choice of \TeX engine and requirements.

2.2 Inserting metadata

Next, we are going to insert some metadata into the document using the \texttt{\thesissetup} command. This command accepts a comma-delimited \texttt{key=value} list. The placeholder strings in our minimal document map directly into the keys, so to change the «author» placeholder into Jane Doe, simply insert the \texttt{\thesissetup\{author=Jane Doe\}} command into the preamble of your document.

Note, however, that some keys can not be deduced directly from the output document. The \texttt{thanks} key, for example, is invisible by default, since the acknowledgement is not a mandatory part of the thesis and it only gets inserted into the document, when the \texttt{thanks} key is defined. Some other keys, like the \texttt{abstract} key, can also span multiple paragraphs, in which case they need to be set using the \texttt{\thesislong\{key\}\{value\}} command as follows:

\begin{verbatim}
\documentclass{fitthesis3}
\thesissetup{
  faculty=ped,
  author=Jane Doe}
\thesislong{abstract}{
  In this document, I am going to explore the craft of creating abstracts \ldots
  \ldots
  that span multiple paragraphs.}
\begin{document}
Hello world!
\end{document}
\end{verbatim}

If the \texttt{value} of a \texttt{key} contains a comma, the \texttt{\thesissetup\{key=value\}}
command would erroneously interpret it as a delimiter. To prevent this behaviour, enclose the \textit{value} in curly braces as follows:

\documentclass{fithesis3}
\thesissetup{
    faculty=ped,
    author=Jane Doe,
    advisor={RNDr. John Doe, Ph.D.},
    keywords={keyword1, keyword2}}
\begin{document}
Hello world!
\end{document}

The complete list of \textit{keys} and their effects can be found in the technical documentation of the class [1, chapter \textit{Public API}] distributed along with the class.

\section{2.3 Style options}

The look of the resulting document can be affected by \textit{options} passed to the style file using the \texttt{\documentclass[options]{fithesis3}} syntax. The complete list of options for the style files of the Masaryk University can be found in the technical documentation of the class [1, chapter \textit{Style files}] distributed along with the package. Some of the more important options are listed in Table 2.1 for your convenience.
## 2. Configuring the class

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>oneside</td>
<td>Enables one-sided typesetting. This is generally discouraged. Use only if you don’t have access to a double-sided printer, or if one-sided typesetting is a formal requirement.</td>
</tr>
<tr>
<td>twoside</td>
<td>Enables double-sided typesetting. Double-sided typesetting consumes less paper, is generally regarded as more visually pleasing and is enabled by default. Use at least 120 grams per square meter paper to prevent show-through.</td>
</tr>
<tr>
<td>color</td>
<td>Enables colors. A colorful version of the document is more visually pleasing, but shouldn’t be used in a printed version, if you don’t have access to a color printer. Unless you have a compelling reason not to, always use this option in the e-version.</td>
</tr>
<tr>
<td>monochrome</td>
<td>Disables colors. Disabling colors is generally discouraged, unless you don’t have access to a color printer.</td>
</tr>
<tr>
<td>cover</td>
<td>Typesets the cover of the thesis. Should be generally used in the e-version.</td>
</tr>
<tr>
<td>nocover</td>
<td>Forbids the typesetting of the thesis cover. Use, if you’re typesetting the printed version and have no desire to have a cover made for your thesis. This option is the default.</td>
</tr>
<tr>
<td>table</td>
<td>Redefines the tabular and tabularx environments to use alternating colors for odd and even rows like this table does.</td>
</tr>
<tr>
<td>oldtable</td>
<td>Instructs the style not to redefine the tabular and tabularx environments. This option is the default.</td>
</tr>
</tbody>
</table>

Table 2.1: A non-exhaustive list of basic options accepted by the styles of the Masaryk University
3 Advanced usage

This chapter is dedicated to those users, who wish to customize the class to better suit their needs.

3.1 Troubleshooting option clashes

When a package is required twice, each time with different options, an option clash error occurs:

```latex
! LaTeX Error: Option clash for package hyperref
```

If you need to load a package with a specific set of options and the package happens to be required by the fithesis3 class, as specified in Section 1.1, prepend the \PassOptionsToPackage{options}{package} command before the \documentclass{...} statement. If you need to configure the package, you can do that anywhere within the document preamble.

If you need to load a package with a specific set of options and the package happens to be required by the style files of the Masaryk University, as specified in Section 1.1, insert the \PassOptionsToPackage{options}{package} command anywhere within the document preamble. If you need to configure the package, you can do that anywhere after the document preamble. If you need to configure the package within the preamble, you can load the style files prematurely using the \thesis@load command as follows:

```latex
\documentclass{fithesis3}
\begin{document}
\makeatletter\thesis@load\makeatother
% The package configuration goes here
\end{document}
```

Note that only a small portion of the packages required by the style files needs to be loaded with a specific set of options, so clashes should be relatively rare.
3. Advanced usage

A document which, except for this line, is completely empty.

Figure 3.1: A document with disabled autoLayout

3.2 Changing the layout

If you are unsatisfied with the automatic arrangement of the mandatory parts of the thesis, you can disable it using the autoLayout metadata key:

```latex
\documentclass{fithesis3}
\thesissetup{faculty=ped,autoLayout=false}
\begin{document}
  A document which, except for this line, is completely empty.
\end{document}
```

This results in a document, which only consists of the main matter of the thesis (see Figure 3.1). You can now manually insert the preamble and the postamble of the document as follows:

```latex
\documentclass{fithesis3}
\thesissetup{
  faculty=ped,
  autoLayout=false
}
\begin{document}
  \makeatletter
  \thesis@preamble\makeatother
  A document which once again contains all the mandatory parts of a thesis.
  \makeatletter
  \thesis@postamble\makeatother
\end{document}
```

This alone would be a useless excercise, as we’re now back to the original document. However, instead of inserting the \thesis@preamble and \thesis@postamble commands into the document, we can insert only certain sections of the document preamble and postamble to which these commands expand. \thesis@preamble expands to the following commands:

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\thesis@blocks@cover
\thesis@blocks@titlePage
\thesis@blocks@frontMatter
\thesis@blocks@bibEntry
\thesis@blocks@clearRight
\thesis@blocks@abstract
\thesis@blocks@abstractEn
\thesis@blocks@keywords
\thesis@blocks@keywordsEn
\thesis@blocks@declaration
\thesis@blocks@thanks
\thesis@blocks@tables
\thesis@blocks@mainMatter

and \thesis@postamble expands to the following commands:

\langle empty\rangle

To create a document, which only contains the thesis cover prior to the text, we would use the following:

\documentclass{fithesis3}
\thesissetup{
  faculty=ped,
  autoLayout=false}
\begin{document}
\makeatletter
\thesis@blocks@cover
\thesis@blocks@mainMatter
\makeatother
A document which contains only the cover of the thesis and the main matter.
\end{document}

The available blocks are documented in the technical documentation of the class [1, chapter Style files] distributed along with the package.
Bibliography


[5] \LaTeX. Wikibooks.org, Match 2013. URL: https://en.wikibooks.org/wiki/LaTeX (visited on 05/03/2015).


A \texttt{fitthesis3} user guide
for the Faculty of Arts

Bachelor’s Thesis

Vít Novotný

Brno, Spring 2015
1 Introduction

Fithesis3 is a \LaTeX{} document class, which aims to streamline the typesetting of mandatory parts of theses and dissertations, so that the author can focus on content alone. Unlike its predecessors, fithesis3 can be used to write theses across the faculties of the Masaryk University. To this end, the class comprises:

- **Style files**, which are unique for each faculty and which encapsulate the look and the arrangement of the final documents
- **Locale files**, which define the strings for the given locale
- **The base class**, which serves as a glue between style files, locale files and the input document

The overarching design and the interactions between the style files, locale files and the base class are described in the technical documentation of the class [1] distributed along with the class. This guide, on the other hand, only aims to document the selected parts of the public API of the fithesis3 class that bear relevance to the style file of the Faculty of Arts. Note that this guide is typeset using the said style file.

1.1 Required packages and fonts

In order to be able to use the fithesis3 class, your \TeX{} installation needs to include the rapport3 class\(^1\) and the following packages:

- keyval, etoolbox, ifxetex, ifluatex
- inputenc – only when typesetting with \TeX{} or pdf\TeX{}

In order to be able to use the fithesis3 class with the style files of the Faculty of Arts, your \TeX{} installation needs to also include the following packages:

- xcolor, graphix, pdfpages, hyperref, keyval

\footnote{1. See https://www.ctan.org/pkg/ntgclass}
1. Introduction

- fontspec, unicode-math – only when typesetting with X\LaTeX or Lua\LaTeX
- mathpazo, tgpagella, lmodern, cmap, fontenc – only when typesetting with \TeX or pdf\TeX
- tabularx, booktabs – only when the table option is specified (see Section 2.3)

The \TeX Gyre Pagella\textsuperscript{2} and \TeX Gyre Pagella Math\textsuperscript{3} OpenType fonts are also required, when typesetting with X\LaTeX or Lua\LaTeX. All these are likely to be a part of any reasonably modern \TeX distribution.

1.2 Installation

This section covers the installation of the fithesis3 class. Please note that the installation of the class is fully optional. You can typeset your thesis by either directly editing either the pdflatex.tex, xelatex.tex or lualatex.tex example files distributed along with the class or by pointing your source document to the class as follows:

\begin{verbatim}
\documentclass{path/fithesis3}
\thesissetup{basepath=path}
% The rest of the document
\end{verbatim}

where path corresponds to the path of the directory containing the fithesis3.cls file.

When installing, first make sure that the fithesis3 class is not a part of your \TeX distribution already. This can be easily verified by creating the minimal document described in the next section and typesetting it using either the X\LaTeX, Lua\LaTeX or the pdf\TeX engine, respectively. In case fithesis3 is not a part of your \TeX distribution, the typesetting will prematurely terminate with the following error:

! \LaTeX Error: File ‘fithesis3/fithesis3.cls’ not found.

---

2. See https://www.ctan.org/pkg/tex-gyre-pagella
3. See https://www.ctan.org/pkg/tex-gyre-math-pagella

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If the fithesis3 class is not a part of your distribution, you can proceed to the installation. This can be achieved by extracting the fithesis3.tds.zip archive distributed along with the class into one of the \TeX directory structure trees within your \TeX distribution. If you are using \TeX Live\textsuperscript{4}, this can be achieved by creating a \texttt{texmf} directory within your user home directory and by extracting the fithesis3.tds.zip archive into it. For MiK\TeX, see the online documentation\textsuperscript{5}.

1.3 A minimal document

Before using the fithesis3 class, you should be familiar with the \La\TeX typesetting system. A good way to get started is to read one of the introductory texts in English [2–5] or in Czech [6, 7]. We will start by creating a plain text document named \texttt{helloworld.tex} in the UTF-8 encoding with the following content:

\begin{verbatim}
\documentclass{fithesis3}
\thesissetup{faculty=phil}
\begin{document}
  Hello world
\end{document}
\end{verbatim}

Now, typeset the document using either the \Xe\TeX, Lua\TeX or the \Xe\TeX engine with the \La\TeX format. If everything is set up correctly, you should end up with a document containing all the mandatory parts of a thesis and one page of the main matter containing a \texttt{Hello world} paragraph. You should notice that the document is implicitly typeset in English and that it contains lots of placeholder strings for missing metadata (see Figure 1.1). In the next chapter, we are going to address that.

\textsuperscript{4} See https://www.tug.org/texlive/doc.html, Chapter 2.3
\textsuperscript{5} See http://docs.miktex.org/manual/localadditions.html
1. Introduction

Figure 1.1: The placeholder strings in the minimal document
2 Configuring the class

In this chapter, we will configure the class to use the correct locale, to insert the correct metadata into the output document and to be laid out in a meaningful way.

2.1 Setting the locale

First, we are going to set the locale of the document class. This affects the locale of the mandatory parts of thesis. To see what locales are available, list the contents of the fithesis3/locale/ directory. It should contain several locale.dtx files. Each of these locales can be leaded by inserting the \thesissetup{locale=locale} command into the preamble of the document.

If you use the babel or the polyglossia package to load the hyphenation patterns for your locale, you don’t need to set the locale at all, fithesis3 will use the main language of babel or polyglossia.

\documentclass[fithesis3]{fithesis3}
\thesissetup{faculty=phil}
% Using the babel package:
\usepackage[czech]{babel}
\begin{document}
The mandatory parts of the thesis are going to be typeset in Czech.
\end{document}

\documentclass[fithesis3]{fithesis3}
\thesissetup{faculty=phil}
% Using the polyglossia package:
\usepackage{polyglossia}
\setmainlanguage{czech}
\begin{document}
The mandatory parts of the thesis are going to be typeset in Czech.
\end{document}

At the time of writing this text, polyglossia can only be used with Xe\LaTeX,
2. Configuring the class

whereas babel can be used with pdf\TeX{}, X\TeX{} and Lua\TeX{}. On the other hand, the babel package can only be used with Latin scripts, while the polyglossia package supports non-Latin scripts as well. You are advised to use one of them, depending on your choice of \TeX{} engine and requirements.

2.2 Inserting metadata

Next, we are going to insert some metadata into the document using the \thesissetup command. This command accepts a comma-delimited key=value list. The placeholder strings in our minimal document map directly into the keys, so to change the «author» placeholder into Jane Doe, simply insert the \thesissetup{author=Jane Doe} command into the preamble of your document.

Note, however, that some keys can not be deduced directly from the output document. The thanks key, for example, is invisible by default, since the acknowledgement is not a mandatory part of the thesis and it only gets inserted into the document, when the thanks key is defined. Some other keys, like the abstract key, can also span multiple paragraphs, in which case they need to be set using the \thesislong{key}{value} command as follows:

\documentclass{fithesis3}
\thesissetup{
  faculty=phil,
  author=Jane Doe}
\thesislong{abstract}{
  In this document, I am going to
  explore the craft of creating
  abstracts \ldots
  \ldots
  that span multiple
  paragraphs.}
\begin{document}
  Hello world!
\end{document}

If the value of a key contains a comma, the \thesissetup{key=value}
command would erroneously interpret it as a delimiter. To prevent this behaviour, enclose the value in curly braces as follows:

\documentclass{fithesis3}
\thesissetup{
  faculty=phil,
  author=Jane Doe,
  advisor={RNDr. \ John Doe, Ph.D.},
  keywords={keyword1, keyword2}}
\begin{document}
Hello world!
\end{document}

The complete list of keys and their effects can be found in the technical documentation of the class [1, chapter Public API] distributed along with the class.

### 2.3 Style options

The look of the resulting document can be affected by options passed to the style file using the \documentclass[options]{fithesis3} syntax. The complete list of options for the style files of the Masaryk University can be found in the technical documentation of the class [1, chapter Style files] distributed along with the package. Some of the more important options are listed in Table 2.1 for your convenience.
### 2. Configuring the class

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>oneside</td>
<td>Enables one-sided typesetting. This is generally discouraged. Use only if you don’t have access to a double-sided printer, or if one-sided typesetting is a formal requirement.</td>
</tr>
<tr>
<td>twoside</td>
<td>Enables double-sided typesetting. Double-sided typesetting consumes less paper, is generally regarded as more visually pleasing and is enabled by default. Use at least 120 grams per square meter paper to prevent show-through.</td>
</tr>
<tr>
<td>color</td>
<td>Enables colors. A colorful version of the document is more visually pleasing, but shouldn’t be used in a printed version, if you don’t have access to a color printer. Unless you have a compelling reason not to, always use this option in the e-version.</td>
</tr>
<tr>
<td>monochrome</td>
<td>Disables colors. Disabling colors is generally discouraged, unless you don’t have access to a color printer.</td>
</tr>
<tr>
<td>cover</td>
<td>Typesets the cover of the thesis. Should be generally used in the e-version.</td>
</tr>
<tr>
<td>nocover</td>
<td>Forbids the typesetting of the thesis cover. Use, if you’re typesetting the printed version and have no desire to have a cover made for your thesis. This option is the default.</td>
</tr>
<tr>
<td>table</td>
<td>Redefines the <code>tabular</code> and <code>tabularx</code> environments to use alternating colors for odd and even rows like this table does.</td>
</tr>
<tr>
<td>oldtable</td>
<td>Instructs the style not to redefine the <code>tabular</code> and <code>tabularx</code> environments. This option is the default.</td>
</tr>
</tbody>
</table>

Table 2.1: A non-exhaustive list of basic options accepted by the styles of the Masaryk University
3 Advanced usage

This chapter is dedicated to those users, who wish to customize the class to better suit their needs.

3.1 Troubleshooting option clashes

When a package is required twice, each time with different options, an option clash error occurs:

```
! LaTeX Error: Option clash for package hyperref
```

If you need to load a package with a specific set of options and the package happens to be required by the fithesis3 class, as specified in Section 1.1, prepend the \PassOptionsToPackage{options}{package} command before the \documentclass{...} statement. If you need to configure the package, you can do that anywhere within the document preamble.

If you need to load a package with a specific set of options and the package happens to be required by the style files of the Masaryk University, as specified in Section 1.1, insert the \PassOptionsToPackage{options}{package} command anywhere within the document preamble. If you need to configure the package, you can do that anywhere after the document preamble. If you need to configure the package within the preamble, you can load the style files prematurely using the \thesis@load command as follows:

```
\documentclass{fithesis3}
% Preamble
\makeatletter\thesis@load\makeatother
% The package configuration goes here
\begin{document}
\end{document}
```

Note that only a small portion of the packages required by the style files needs to be loaded with a specific set of options, so clashes should be relatively rare.
3. Advanced usage

A document which, except for this line, is completely empty.

Figure 3.1: A document with disabled autoLayout

3.2 Changing the layout

If you are unsatisfied with the automatic arrangement of the mandatory parts of the thesis, you can disable it using the autoLayout metadata key:

\documentclass{fithesis3}
\thesissetup{faculty=phil,autoLayout=false}
\begin{document}
\begin{document}
\begin{document}
A document which, except for this line, is completely empty.
\end{document}
\end{document}
\end{document}

This results in a document, which only consists of the main matter of the thesis (see Figure 3.1). You can now manually insert the preamble and the postamble of the document as follows:

\documentclass{fithesis3}
\thesissetup{
  faculty=phil,
  autoLayout=false}
\begin{document}
\begin{document}
\begin{document}
\makeatletter\thesis@preamble\makeatother
A document which once again contains all the mandatory parts of a thesis.
\makeatletter\thesis@postamble\makeatother
\end{document}
\end{document}
\end{document}

This alone would be a useless excercise, as we’re now back to the original document. However, instead of inserting the \thesis@preamble and \thesis@postamble commands into the document, we can insert only certain sections of the document preamble and postamble to which these commands expand. \thesis@preamble expands to the following commands:
\thesis@blocks@cover
\thesis@blocks@titlePage
\thesis@blocks@frontMatter
\thesis@blocks@declaration
\thesis@blocks@thanks
\thesis@blocks@tables
\thesis@blocks@mainMatter

and \thesis@postamble expands to the following commands:

\langle empty \rangle

To create a document, which only contains the thesis cover prior to the text, we would use the following:

\documentclass{fithesis3}
\thesissetup{
  faculty=phil,
  autoLayout=false}
\begin{document}
  \maketitle
  \thesis@blocks@cover
  \thesis@blocks@mainMatter
  \maketitle
  A document which contains only the cover of the thesis and the main matter.
\end{document}

The available blocks are documented in the technical documentation of the class [1, chapter Style files] distributed along with the package.
Bibliography


A \textit{fitthesis}3 user guide
for the Faculty of Sports Studies

Bachelor’s Thesis

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1 Introduction

Fithesis3 is a \LaTeX{} document class, which aims to streamline the typesetting of mandatory parts of theses and dissertations, so that the author can focus on content alone. Unlike its predecessors, fithesis3 can be used to write theses across the faculties of the Masaryk University. To this end, the class comprises:

- *Style files*, which are unique for each faculty and which encapsulate the look and the arrangement of the final documents
- *Locale files*, which define the strings for the given locale
- *The base class*, which serves as a glue between style files, locale files and the input document

The overarching design and the interactions between the style files, locale files and the base class are described in the technical documentation of the class [1] distributed along with the class. This guide, on the other hand, only aims to document the selected parts of the public API of the fithesis3 class that bear relevance to the style file of the Faculty of Sports Studies. Note that this guide is typeset using the said style file.

1.1 Required packages and fonts

In order to be able to use the fithesis3 class, your \LaTeX{} installation needs to include the rapport3 class\(^1\) and the following packages:

- keyval, etoolbox, ifxetex, ifluatex
- inputenc – only when typesetting with \TeX{} or pdf\TeX{}

In order to be able to use the fithesis3 class with the style files of the Faculty of Sports Studies, your \LaTeX{} installation needs to also include the following packages:

- xcolor, graphix, pdfpages, hyperref, keyval

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1. See https://www.ctan.org/pkg/ntgclass
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- `fontspec`, `unicode-math` – only when typesetting with `XeLaTeX` or `LuaLaTeX`
- `mathpazo`, `tgpagella`, `lmodern`, `cmap`, `fontenc` – only when typesetting with `TeX` or `pdflatex`
- `tabularx`, `booktabs` – only when the `table` option is specified (see Section 2.3)

The `TeX Gyre Pagella` and `TeX Gyre Pagella Math` OpenType fonts are also required, when typesetting with `XeLaTeX` or `LuaLaTeX`. All these are likely to be a part of any reasonably modern `TeX` distribution.

1.2 Installation

This section covers the installation of the `fithesis3` class. Please note that the installation of the class is fully optional. You can typeset your thesis by either directly editing either the `pdflatex.tex`, `xelatex.tex` or `lualatex.tex` example files distributed along with the class or by pointing your source document to the class as follows:

```
\documentclass{path/fithesis3}
\thesissetup{basepath=path}
% The rest of the document
```

where `path` corresponds to the path of the directory containing the `fithesis3.cls` file.

When installing, first make sure that the `fithesis3` class is not a part of your `TeX` distribution already. This can be easily verified by creating the minimal document described in the next section and typesetting it using either the `XeLaTeX`, `LuaLaTeX` or the `pdflatex` engine, respectively. In case `fithesis3` is not a part of your `TeX` distribution, the typesetting will prematurely terminate with the following error:

```
! LaTeX Error: File `fithesis3/fithesis3.cls` not found.
```

2. See https://www.ctan.org/pkg/tex-gyre-pagella
3. See https://www.ctan.org/pkg/tex-gyre-math-pagella
If the fithesis3 class is not a part of your distribution, you can proceed to the installation. This can be achieved by extracting the fithesis3.tds.zip archive distributed along with the class into one of the \TeX\ directory structure trees within your \TeX\ distribution. If you are using \TeX\Live, this can be achieved by creating a texmf directory within your user home directory and by extracting the fithesis3.tds.zip archive into it. For MiK\TeX, see the online documentation.

1.3 A minimal document

Before using the fithesis3 class, you should be familiar with the \La\TeX\ typesetting system. A good way to get started is to read one of the introductory texts in English [2–5] or in Czech [6, 7]. We will start by creating a plain text document named helloworld.tex in the UTF-8 encoding with the following content:

\documentclass{fithesis3}
\thesissetup{faculty=fsps}
\begin{document}
Hello world
\end{document}

Now, typeset the document using either the X\La\TeX, Lua\La\TeX or the X\La\TeX engine with the \La\TeX format. If everything is set up correctly, you should end up with a document containing all the mandatory parts of a thesis and one page of the main matter containing a Hello world paragraph. You should notice that the document is implicitly typeset in English and that it contains lots of placeholder strings for missing metadata (see Figure 1.1). In the next chapter, we are going to address that.

4. See https://www.tug.org/texlive/doc.html, Chapter 2.3
5. See http://docs.miktex.org/manual/localadditions.html
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Figure 1.1: The placeholder strings in the minimal document
2 Configuring the class

In this chapter, we will configure the class to use the correct locale, to insert the correct metadata into the output document and to be laid out in a meaningful way.

2.1 Setting the locale

First, we are going to set the locale of the document class. This affects the locale of the mandatory parts of thesis. To see what locales are available, list the contents of the \texttt{fithesis3/locale/} directory. It should contain several \texttt{locale.dtx} files. Each of these \texttt{locales} can be leaded by inserting the \texttt{\thesissetup{locale=locale}} command into the preamble of the document.

If you use the \texttt{babel} or the \texttt{polyglossia} package to load the hyphenation patterns for your locale, you don’t need to set the locale at all, \texttt{fithesis3} will use the main language of \texttt{babel} or \texttt{polyglossia}.

\begin{verbatim}
\documentclass{fithesis3}
\thesissetup{faculty=fsp}
% Using the babel package:
\usepackage[czech]{babel}
\begin{document}
  The mandatory parts of the thesis are going to be typeset in Czech.
\end{document}
\end{verbatim}

\begin{verbatim}
\documentclass{fithesis3}
\thesissetup{faculty=fsp}
% Using the polyglossia package:
\usepackage{polyglossia}
\setmainlanguage{czech}
\begin{document}
  The mandatory parts of the thesis are going to be typeset in Czech.
\end{document}
\end{verbatim}

At the time of writing this text, \texttt{polyglossia} can only be used with \texttt{XeLaTeX},
whereas babel can be used with pdf\TeX{}, \LaTeX{} and Lua\TeX{}. On the other hand, the babel package can only be used with Latin scripts, while the polyglossia package supports non-Latin scripts as well. You are advised to use one of them, depending on your choice of \TeX{} engine and requirements.

2.2 Inserting metadata

Next, we are going to insert some metadata into the document using the \thesissetup command. This command accepts a comma-delimited key=value list. The placeholder strings in our minimal document map directly into the keys, so to change the «author» placeholder into Jane Doe, simply insert the \thesissetup{author=Jane Doe} command into the preamble of your document.

Note, however, that some keys can not be deduced directly from the output document. The thanks key, for example, is invisible by default, since the acknowledgement is not a mandatory part of the thesis and it only gets inserted into the document, when the thanks key is defined. Some other keys, like the abstract key, can also span multiple paragraphs, in which case they need to be set using the \thesislong{key}{value} command as follows:

```
\documentclass{fithesis3}
\thesissetup{
  faculty=fsps,
  author=Jane Doe}
\thesislong{abstract}{
  In this document, I am going to
  explore the craft of creating
  abstracts \ldots

  \ldots

  abstracts \ldots}

\begin{document}
Hello world!
\end{document}
```

If the value of a key contains a comma, the \thesissetup{key=value}
command would erroneously interpret it as a delimiter. To prevent this behaviour, enclose the value in curly braces as follows:

```latex
\documentclass{fithesis3}
\thesissetup{
    faculty=fsps,
    author=Jane Doe,
    advisor={RNDr. John Doe, Ph.D.},
    keywords={keyword1, keyword2}}
\begin{document}
Hello world!
\end{document}
```

The complete list of keys and their effects can be found in the technical documentation of the class [1, chapter Public API] distributed along with the class.

### 2.3 Style options

The look of the resulting document can be affected by options passed to the style file using the `\documentclass[options]{fithesis3}` syntax. The complete list of options for the style files of the Masaryk University can be found in the technical documentation of the class [1, chapter Style files] distributed along with the package. Some of the more important options are listed in Table 2.1 for your convenience.
### 2. Configuring the class

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>oneside</td>
<td>Enables one-sided typesetting. This is generally discouraged. Use only if you don’t have access to a double-sided printer, or if one-sided typesetting is a formal requirement.</td>
</tr>
<tr>
<td>twoside</td>
<td>Enables double-sided typesetting. Double-sided typesetting consumes less paper, is generally regarded as more visually pleasing and is enabled by default. Use at least 120 grams per square meter paper to prevent show-through.</td>
</tr>
<tr>
<td>color</td>
<td>Enables colors. A colorful version of the document is more visually pleasing, but shouldn’t be used in a printed version, if you don’t have access to a color printer. Unless you have a compelling reason not to, always use this option in the e-version.</td>
</tr>
<tr>
<td>monochrome</td>
<td>Disables colors. Disabling colors is generally discouraged, unless you don’t have access to a color printer.</td>
</tr>
<tr>
<td>cover</td>
<td>Typesets the cover of the thesis. Should be generally used in the e-version.</td>
</tr>
<tr>
<td>nocover</td>
<td>Forbids the typesetting of the thesis cover. Use, if you’re typesetting the printed version and have no desire to have a cover made for your thesis. This option is the default.</td>
</tr>
<tr>
<td>table</td>
<td>Redefines the <code>tabular</code> and <code>tabularx</code> environments to use alternating colors for odd and even rows like this table does.</td>
</tr>
<tr>
<td>oldtable</td>
<td>Instructs the style not to redefine the <code>tabular</code> and <code>tabularx</code> environments. This option is the default.</td>
</tr>
</tbody>
</table>

Table 2.1: A non-exhaustive list of basic options accepted by the styles of the Masaryk University

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3 Advanced usage

This chapter is dedicated to those users, who wish to customize the class to better suit their needs.

3.1 Troubleshooting option clashes

When a package is required twice, each time with different options, an option clash error occurs:

```
! LaTeX Error: Option clash for package hyperref
```

If you need to load a package with a specific set of options and the package happens to be required by the fithesis3 class, as specified in Section 1.1, prepend the \PassOptionsToPackage{options}{package} command before the \documentclass{...} statement. If you need to configure the package, you can do that anywhere within the document preamble.

If you need to load a package with a specific set of options and the package happens to be required by the style files of the Masaryk University, as specified in Section 1.1, insert the \PassOptionsToPackage{options}{package} command anywhere within the document preamble. If you need to configure the package, you can do that anywhere after the document preamble. If you need to configure the package within the preamble, you can load the style files prematurely using the \thesis@load command as follows:

```
\documentclass{fithesis3}
\makeatletter\thesis@load\makeatother
% The package configuration goes here
\begin{document}
\end{document}
```

Note that only a small portion of the packages required by the style files needs to be loaded with a specific set of options, so clashes should be relatively rare.
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A document which, except for this line, is completely empty.

Figure 3.1: A document with disabled autoLayout

3.2 Changing the layout

If you are unsatisfied with the automatic arrangement of the mandatory parts of the thesis, you can disable it using the autoLayout metadata key:

\documentclass{fithesis3}
\thesissetup{faculty=fsps,autoLayout=false}
\begin{document}
\makeatletter
thesis@preamble
\makeatother
A document which, except for this line, is completely empty.
\end{document}

This results in a document, which only consists of the main matter of the thesis (see Figure 3.1). You can now manually insert the preamble and the postamble of the document as follows:

\documentclass{fithesis3}
\thesissetup{
  faculty=fsps,
  autoLayout=false}
\begin{document}
\makeatletter
thesis@preamble
\makeatother
\begin{document}

A document which once again contains all the mandatory parts of a thesis.
\makeatletter
thesis@postamble

\makeatother
\end{document}

This alone would be a useless exercise, as we’re now back to the original document. However, instead of inserting the \thesis@preamble and \thesis@postamble commands into the document, we can insert only certain sections of the document preamble and postamble to which these commands expand. \thesis@preamble expands to the following commands:

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\thesis@blocks@cover
\thesis@blocks@titlePage
\thesis@blocks@frontMatter
\thesis@blocks@declaration
\thesis@blocks@thanks
\thesis@blocks@tables
\thesis@blocks@mainMatter

and \thesis@postamble expands to the following commands:

\textlangle empty \textrangle

To create a document, which only contains the thesis cover prior to the text, we would use the following:

\documentclass{fitthesis3}
\thesissetup{
    faculty=fsps,
    autoLayout=false}
\begin{document}
\makeatletter
\thesis@blocks@cover
\thesis@blocks@mainMatter
\makeatother
A document which contains only the cover of the thesis and the main matter.
\end{document}

The available blocks are documented in the technical documentation of the class [1, chapter Style files] distributed along with the package.
Bibliography


Abstract
This document details the design and the implementation of the fithesis3 document class. It contains technical information for anyone who wishes to extend the class with their locale or style files. Users who only wish to use the class are advised to consult the guides distributed along with the class, which only document the parts of the public API relevant to the given style files.

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1 Required classes and packages

The class loads the \texttt{rapport3} base class and the following packages:

- \texttt{keyval} – Adds support for parsing comma-delimited lists of key-value pairs.
- \texttt{etoolbox} – Adds support for expanding code after the preamble using the \texttt{\AtPreamble} hook.
- \texttt{ifxetex} – Used to detect the \texttt{Xe\LaTeX} engine.
- \texttt{ifluatex} – Used to detect the \texttt{Lua\LaTeX} engine.
- \texttt{inputenc} – Used to enable the input UTF-8 encoding. This package does not get loaded under the \texttt{Xe\LaTeX} and \texttt{Lua\LaTeX} engines.

The \texttt{hyperref} package is also conditionally loaded during the expansion of the \texttt{\thesis@load} macro (see Section 3.1). Other packages may be required by the style files (see Section 3.6) you are using.

\begin{verbatim}
\ProvidesClass{fithesis3}[\thesis@version]
\LoadClass[a4paper]{rapport3}
\RequirePackage{keyval}
\RequirePackage{etoolbox}
\RequirePackage{ifxetex}
\RequirePackage{ifluatex}
\ifxetex \else \ifluatex \else \RequirePackage[utf8]{inputenc} \fi \fi
\end{verbatim}

2 Public API

2.1 Options

Any \texttt{[\langle options\rangle]} passed to the class will be handed down to the loaded style files. The supported options are therefore documented in the subsections of Section 3.6 dedicated to the respective style files.

2.2 The \texttt{\thesissetup} macro

\begin{verbatim}
\thesissetup
\end{verbatim}

The main public macro is the \texttt{\thesissetup(\texttt{keyvals})} command, where \texttt{keyvals} is a comma-delimited list of key-value pairs as defined by the \texttt{keyval} package. This macro needs to be included prior to the beginning of a \LaTeX document. When used, the \texttt{keyvals} are processed.

Note that the values passed to the \texttt{\thesissetup} public macro may only contain one paragraph of text. If you wish to set multiple paragraphs of text as the value, you need to use the \texttt{\thesislong} public macro (see Section 2.3).
2.2.1 The basepath key

\thesis@basepath

The \{⟨basepath=path⟩\} pair sets the \textit{path} containing the class files. The \textit{path} is prepended to every other path (\thesis@logopath, \thesis@stylepath and \thesis@localepath) used by the class. If non-empty, the \textit{path} gets normalized to \textit{path/}. The normalized \textit{path} is stored within the private \thesis@basepath macro, whose implicit value is fithesis3/.

\thesis@logopath

2.2.2 The logopath key

The \{⟨logopath=path⟩\} pair sets the \textit{path} containing the logo files, which is used by the style files loading the logo. The \textit{path} is normalized using the private \thesis@subdir macro and stored within the private \thesis@logopath macro, whose implicit value is \thesis@basepath followed by logo/\thesis@university/. By default, this expands to fithesis3/logo/mu/.

\thesis@subdir

The \thesis@subdir private macro returns / unchanged, coerces ../,../,/path, ../path and .../path to ./,./,/path/,../path/ and .../path/, respectively, and coerces any other \textit{path} into \thesis@basepath \textit{path}/.

10 \def\thesissetup#1{%
11 \setkeys{thesis}{#1}}

12 \def\thesis@basepath{fithesis3/}
13 \define@key{thesis}{basepath}{%
14 ~\thesis@empty#1\thesis@empty%
15 \thesis@basepath()%
16 \else%
17 \thesis@basepath[#1]/%
18 \fi}

19 \def\thesis@logopath{\thesis@basepath logo/\thesis@university/}
20 \define@key{thesis}{logopath}{%
21 \thesis@logopath{\thesis@subdir#1%}
22 ~\empty\empty\empty\empty}}

23 \def\thesis@subdir#1#2#3#4\empty{%
24 ~\thesis@empty#1/~\thesis@empty-><basepath>
25 \thesis@basepath%
26 ~\else%
27 ~\if#1/%
28 ~\thesis@empty% / -> /
29 ~/%
30 ~\else%/ <path> -> <path>/
31 ~#1#/#2#/#3#/#4/
32 \fi
33 \else%
34 ~\if#1.%
35 ~\thesis@empty% . -> ./
36 ./%
\thesis@stylepath

2.2.3 The stylepath key

The {\langle stylepath=\textit{path} \rangle} pair sets the \textit{path} containing the style files. The \textit{path} is normalized using the private \thesis@subdir macro and stored within the private \thesis@stylepath macro, whose implicit value is \thesis@basepath style/. By default, this expands to fithesis3/style/.

\begin{verbatim}
61 \def\thesis@stylepath{\thesis@basepath style/}
62 \define@key{thesis}{stylepath}{% 
63 \def\thesis@stylepath{\thesis@subdir#1\empty\empty\empty\empty}}
\end{verbatim}

\thesis@localepath

2.2.4 The localepath key

The \{\langle localepath=\textit{path} \rangle\} pair sets the \textit{path} containing the locale files. The \textit{path} is normalized using the private \thesis@subdir macro and stored within the private \thesis@localepath macro, whose implicit value is \thesis@basepath followed by locale/. By default, this expands to fithesis3/locale/.

\begin{verbatim}
65 \def\thesis@localepath{\thesis@basepath locale/}
66 \define@key{thesis}{localepath}{% 
67 \def\thesis@localepath{\thesis@subdir#1\empty\empty\empty\empty}}
\end{verbatim}
The \thesis@def\[\langle key\rangle\]{\langle name\rangle} private macro defines the private \thesis@name macro to expand to either \code{\langle key\rangle}, if specified, or to \code{\langle name\rangle}. The macro serves to provide the placeholder string for user-defined macros with no default value.

\begin{verbatim}
\newcommand{\thesis@def}[2]{% 
\expandafter\def\csname thesis@#2\endcsname{\<<\ifx thesis@empty#1 thesis@empty#2\else#1\fi>>}}
\end{verbatim}

\thesis@declaration

\subsection*{2.2.5 The declaration key}

The \code{\langle declaration=text\rangle} pair sets the declaration text to be included into the document. \thesis@basepath followed by \code{path}. The text is stored within the private \thesis@declaration macro, whose implicit value is \code{\thesis@@{declaration}}.

\begin{verbatim}
\def\thesis@declaration{\thesis@@{declaration}}
\end{verbatim}

\subsection*{2.2.6 The gender key}

The \code{\langle gender=char\rangle} pair sets the author’s gender to either a male, if \code{char} is the character \code{m}, or to a female. The gender can be tested using the \code{\ifthesis@woman ... \else ... \fi} conditional. The implicit gender is male.

\begin{verbatim}
\newif\ifthesis@woman\thesis@womanfalse
\define@key{thesis}{gender}{% 
\def\thesis@male{m}% 
\def\thesis@arg{#1}% 
\ifx\thesis@male\thesis@arg% 
\thesis@womanfalse% 
\else% 
\thesis@womantrue% 
\fi}
\end{verbatim}

\subsection*{2.2.7 The author key}

The \code{\langle author=name\rangle} pair sets the author’s full name to \code{name}. The \code{name} is parsed using the private macro and stored within the following private macros:

\thesis@author
\thesis@parseAuthor

\thesis@author
\
\thesis@parseAuthor

\thesis@author

• \thesis@author – The full name of the author.

• \thesis@author@head – The first space-delimited part of the name. This corresponds to the author’s first name.

• \thesis@author@tail – The full name without the first space-delimited part of the name. This corresponds to the author’s surname.
2.2.8 The id key

The \((\text{id}=\text{identifier})\) pair sets the identifier of the thesis author to \(\text{identifier}\). This usually corresponds to a unique identifier of the author within the information system of the given university.

```latex
\thesis{id}
\define@key{thesis}{id}{\def\thesis@id{#1}}
```

2.2.9 The type key

The \((\text{type}=\text{type})\) pair sets the type of the thesis to \(\text{type}\). The following types of theses are recognized:

<table>
<thead>
<tr>
<th>The thesis type</th>
<th>The value of type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bachelor’s thesis</td>
<td>(bc)</td>
</tr>
<tr>
<td>Master’s thesis</td>
<td>(mgr)</td>
</tr>
<tr>
<td>Doctoral thesis</td>
<td>(d)</td>
</tr>
<tr>
<td>Rigorous thesis</td>
<td>(r)</td>
</tr>
</tbody>
</table>

The \(\text{type}\) is stored within the private \thesis{type} macro, whose implicit value is \(bc\). For the ease of testing of the thesis type via \(\text{if}\) \(\text{false}\) conditions within style and locale files, the \thesis{bachelors}, \thesis{masters}, \thesis{doctoral} and \thesis{rigorous} macros containing the corresponding \(\text{type}\) values are available as a part of the private API.

```latex
\thesis{bachelors}
\thesis{masters}
\thesis{doctoral}
\thesis{rigorous}
\def\thesis{bachelors}{bc}
\def\thesis{masters}{mgr}
\def\thesis{doctoral}{d}
\def\thesis{rigorous}{r}
\let\thesis{type}\thesis{bachelors}
\define@key{thesis}{type}{\def\thesis@type{#1}}
```

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\thesis@university 2.2.10 The university key

The \{(university=id)\} pair sets the identifier of the university, at which the thesis is being written, to \textit{id}. The \textit{id} is stored within the private \thesis@university macro, whose implicit value is \textit{mu}. The \thesis@university macro is used by the \thesis@logopath macro and when loading the style and locale files using the \thesis@load macro. It allows for the usage of the class at universities other than the Masaryk University in Brno without the need to alter the code.

\begin{verbatim}
\def\thesis@university{mu}
\define@key{thesis}{university}{\thesis@university{#1}}
\end{verbatim}

\thesis@faculty 2.2.11 The faculty key

The \{(faculty=domain)\} pair sets the faculty, at which the thesis is being written, to \textit{domain}. The following \textit{domain} names are recognized:

<table>
<thead>
<tr>
<th>The Faculty</th>
<th>The domain name</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Faculty of Informatics</td>
<td>fi</td>
</tr>
<tr>
<td>The Faculty of Science</td>
<td>sci</td>
</tr>
<tr>
<td>The Faculty of Law</td>
<td>law</td>
</tr>
<tr>
<td>The Faculty of Economics and Administration</td>
<td>econ</td>
</tr>
<tr>
<td>The Faculty of Social Studies</td>
<td>fss</td>
</tr>
<tr>
<td>The Faculty of Medicine</td>
<td>med</td>
</tr>
<tr>
<td>The Faculty of Education</td>
<td>ped</td>
</tr>
<tr>
<td>The Faculty of Arts</td>
<td>phil</td>
</tr>
<tr>
<td>The Faculty of Sports Studies</td>
<td>fmps</td>
</tr>
</tbody>
</table>

The \textit{domain} name is stored within the private \thesis@faculty macro, whose implicit value is \textit{fi}.

\begin{verbatim}
\def\thesis@faculty{fi}
\define@key{thesis}{faculty}{\thesis@faculty{#1}}
\end{verbatim}

\thesis@department 2.2.12 The department key

The \{(department=name)\} pair sets the name of the department, at which the thesis is being written, to \textit{name}. The \textit{name} is stored within the private \thesis@department macro.

\begin{verbatim}
\thesis@def{department}
\define@key{thesis}{department}{\thesis@department{#1}}
\end{verbatim}
2.2.13 The \texttt{departmentEn} key

The \{\texttt{departmentEn=\textit{name}}\} pair sets the English name of the department, at which the thesis is being written, to \textit{name}. The \textit{name} is stored within the private \texttt{\thesis@departmentEn} macro.

\begin{verbatim}
\thesis@def{departmentEn}
\define@key{thesis}{departmentEn}{% 
  \def\thesis@departmentEn{#1}}
\end{verbatim}

2.2.14 The \texttt{programme} key

The \{\texttt{programme=\textit{name}}\} pair sets the name of the author's study programme to \textit{name}. The \textit{name} is stored within the private \texttt{\thesis@programme} macro.

\begin{verbatim}
\thesis@def{programme}
\define@key{thesis}{programme}{% 
  \def\thesis@programme{#1}}
\end{verbatim}

2.2.15 The \texttt{programmeEn} key

The \{\texttt{programmeEn=\textit{name}}\} pair sets the English name of the author's study programme to \textit{name}. The \textit{name} is stored within the private \texttt{\thesis@programmeEn} macro.

\begin{verbatim}
\thesis@def{programmeEn}
\define@key{thesis}{programmeEn}{% 
  \def\thesis@programmeEn{#1}}
\end{verbatim}

2.2.16 The \texttt{field} key

The \{\texttt{field=\textit{name}}\} pair sets the name of the author's field of study to \textit{name}. The \textit{name} is stored within the private \texttt{\thesis@field} macro.

\begin{verbatim}
\thesis@def{field}
\define@key{thesis}{field}{% 
  \def\thesis@field{#1}}
\end{verbatim}

2.2.17 The \texttt{fieldEn} key

The \{\texttt{fieldEn=\textit{name}}\} pair sets the English name of the author's field of study to \textit{name}. The \textit{name} is stored within the private \texttt{\thesis@fieldEn} macro.

\begin{verbatim}
\thesis@def{fieldEn}
\define@key{thesis}{fieldEn}{% 
  \def\thesis@fieldEn{#1}}
\end{verbatim}
2.2.18 The universityLogo key

The \{universityLogo=filename\} pair sets the filename of the logo file to be used to filename. The filename is stored within the private \thesis@universityLogo macro, whose implicit value is base. The logo file is loaded from the \thesis@logopath/thesis@logo path.

\begin{verbatim}
128 \def\thesis@universityLogo{base}
129 \define@key{thesis}{universityLogo}{%  
130 \def\thesis@universityLogo{#1}}
\end{verbatim}

2.2.19 The facultyLogo key

The \{facultyLogo=filename\} pair sets the filename of the logo file to be used to filename. The filename is stored within the private \thesis@facultyLogo macro, whose implicit value is \thesis@faculty. The logo file is loaded from the \thesis@logopath/thesis@logo path.

\begin{verbatim}
131 \def\thesis@facultyLogo{thesis@faculty}
132 \define@key{thesis}{facultyLogo}{%  
133 \def\thesis@facultyLogo{#1}}
\end{verbatim}

2.2.20 The style key

The \{style=filename\} pair sets the filename of the style file to be used to filename. The filename is stored within the private \thesis@style macro, whose implicit value is \thesis@university/fithesis3-thesis@faculty. The style file is loaded from the \thesis@stylepath/thesis@style path.

\begin{verbatim}
134 \def\thesis@style{thesis@university/fithesis3-thesis@faculty}
135 \define@key{thesis}{style}{%  
136 \def\thesis@style{#1}}
\end{verbatim}

2.2.21 The styleInheritance key

The \{styleInheritance=bool\} pair either enables, if bool is true or unspecified, or disables the inheritance for style files. The effects of the inheritance are documented within the subsection documenting the \thesis@load macro. The setting can be tested using the \ift\thesis@style@inheritance\else\fi conditional. Inheritance is enabled for style files by default.

\begin{verbatim}
137 \newif\thesis@style@inheritance\thesis@style@inheritancetrue
138 \define@key{thesis}{styleInheritance}{true}{%  
139 \def\@true{true}%
140 \def\@arg{#1}%
141 \ifx\@true\@arg%
142 \thesis@style@inheritancetrue%
143 \else%
144 \thesis@style@inheritancefalse%
145 \fi}
\end{verbatim}
The `⟨locale=filename⟩` pair sets the filename of the locale file(s) to be used to *filename*. The *filename* is stored within the private `\thesis@locale` macro, whose implicit value is the main language of either the *babel* or the *polyglossia* package, or *english*, when undefined. If the inheritance is disabled for locale files, the locale file is loaded from the `\thesis@localepath` path.

```latex
\def\thesis@locale{% 
  % Babel detection
  \ifx\languagename\undefined% 
    english\else\languagename\fi}
\define@key{thesis}{locale}{% 
  \def\thesis@locale{#1}}
\ifthesis@english
  The English locale is special. Several parts of the document will typically be typeset in both the current locale and English. However, if the current locale is English, this would result in duplicity. To avoid this, the `\ifthesis@english ... \else ... \fi` conditional is made available for testing, whether or not the current locale is English.
\def\ifthesis@english{
  \expandafter\def\expandafter\@english\expandafter{
    \english}
  \expandafter\expandafter\expandafter\def\expandafter\expandafter\@locale\expandafter\expandafter{
    \expandafter\csname\thesis@locale\endcsname}
  \if\expandafter\expandafter\expandafter\ifx\expandafter\@locale\expandafter\@english\true\else\false\fi\endcsname}
\thesis@locale@inheritance
```

The `⟨localeInheritance=bool⟩` pair either enables, if *bool* is true or unspecified, or disables the inheritance. The effects of the inheritance are documented within the subsection documenting the `\thesis@load` macro. The setting can be tested using the `\ifthesis@locale@inheritance ... \else ... \fi` conditional. Inheritance is enabled for locale files by default.

```latex
\newif\thesis@locale@inheritance\thesis@locale@inheritancetrue
\define@key{thesis}{localeInheritance}{true}{% 
  \thesis@locale@inheritancetrue%
  \if\@true\@arg
    \thesis@locale@inheritancetrue%
  \else
    \thesis@locale@inheritancetruefalse%
  \fi}
```

```latex
\thesis@locale 2.2.22 The locale key
```

The `⟨locale=filename⟩` pair sets the filename of the locale file(s) to be used to *filename*. The *filename* is stored within the private `\thesis@locale` macro, whose implicit value is the main language of either the *babel* or the *polyglossia* package, or *english*, when undefined. If the inheritance is disabled for locale files, the locale file is loaded from the `\thesis@localepath` path.

```latex
\def\thesis@locale{% 
  % Babel detection
  \ifx\languagename\undefined% 
    english\else\languagename\fi}
\define@key{thesis}{locale}{% 
  \def\thesis@locale{#1}}
\ifthesis@english
  The English locale is special. Several parts of the document will typically be typeset in both the current locale and English. However, if the current locale is English, this would result in duplicity. To avoid this, the `\ifthesis@english ... \else ... \fi` conditional is made available for testing, whether or not the current locale is English.
\def\ifthesis@english{
  \expandafter\def\expandafter\@english\expandafter{
    \english}
  \expandafter\expandafter\expandafter\def\expandafter\expandafter\@locale\expandafter\expandafter{
    \expandafter\csname\thesis@locale\endcsname}
  \expandafter\csname\if\expandafter\expandafter\expandafter\ifx\expandafter\@locale\expandafter\@english\true\else\false\fi\endcsname}
\thesis@locale@inheritance
```

The `⟨localeInheritance=bool⟩` pair either enables, if *bool* is true or unspecified, or disables the inheritance. The effects of the inheritance are documented within the subsection documenting the `\thesis@load` macro. The setting can be tested using the `\ifthesis@locale@inheritance ... \else ... \fi` conditional. Inheritance is enabled for locale files by default.

```latex
\newif\thesis@locale@inheritance\thesis@locale@inheritancetrue
\define@key{thesis}{localeInheritance}{true}{% 
  \thesis@locale@inheritancetrue%
  \if\@true\@arg
    \thesis@locale@inheritancetrue%
  \else
    \thesis@locale@inheritancetruefalse%
  \fi}
```
2.2.24 The date key

The \{⟨date=date⟩\} pair sets the date of the thesis defence to \textit{date}, where \textit{date} is a string in the YYYY/MM/DD format, where YYYY stands for full year, MM stands for month and DD stands for day. The \textit{date} is parsed and stored using the \thesis@parseDate private macro within the following private macros:

\thesis@parseDate

\thesis@date
- \thesis@date – The whole date
\thesis@year
- \thesis@year – The year
\thesis@month
- \thesis@month – The month
\thesis@day
- \thesis@day – The day of month
\thesis@season
- \thesis@season – Expands to either:
  - winter if MM < 7.
  - summer if MM ≥ 7.
\thesis@academicYear
- \thesis@academicYear – The academic year of the given semester:
  - YYYY/YYYY+1 in case of a summer semester
  - YYYY−1/YYYY in case of a winter semester

To set up the default values, the \thesis@parseDate macro is called with the fully expanded \texttt{\thesis\@year/\thesis\@month/\thesis\@day} string.

173 \def\thesis@parseDate{\#1/#2/#3|{
174 \% Basic info
175 \gdef\thesis@date{\#1/#2/#3}\
176 \gdef\thesis@year{\#1}\
177 \gdef\thesis@month{\#2}\
178 \gdef\thesis@day{\#3}\
179
180 \% Season and academic year
181 \newcount\@year \expandafter\@year\thesis@year \relax\
182 \newcount\@month \expandafter\@month\thesis@month \relax\
183 \ifnum\@month<7\%
184 \gdef\thesis@season{winter}\
185 \advance\@year-1 \edef\@yearA{\the\@year}\
186 \advance\@year 1 \edef\@yearB{\the\@year}\
187 \else\%
188 \gdef\thesis@season{summer}\
189 \edef\@yearA{\the\@year}\
190 \advance\@year 1 \edef\@yearB{\the\@year}\
191 \fi\%
192 \global\edef\thesis@academicYear{\@yearA/\@yearB}}\
193 \expandafter\thesis@parseDate\thesis@date|%
\thesis@place 2.2.25 The place key

The \{\textit{place}=\textit{place}\} pair sets the location of the faculty, at which the thesis is being prepared, to \textit{place}. The \textit{place} is stored within the private \thesis@place macro, whose implicit value is \textit{Brno}.

\thesis@title 2.2.26 The title key

The \{\textit{title}=\textit{title}\} pair sets the title of the thesis to \textit{title}. The \textit{title} is stored within the private \thesis@title macro.

\thesis@TeXtitle 2.2.27 The TeXtitle key

The \{\textit{TeXtitle}=\textit{title}\} pair sets the \TeX title of the thesis to \textit{title}. The \textit{title} is used, when typesetting the title, whereas \thesis@title is a plain text, which gets included in the PDF header of the resulting document as well as in the \LaTeX file containing the bibliographical entry for the thesis. The \textit{title} is stored within the private \thesis@TeXtitle macro, whose implicit value is \thesis@title.

\thesis@titleEn 2.2.28 The titleEn key

The \{\textit{titleEn}=\textit{title}\} pair sets the English title of the thesis to \textit{title}. The \textit{title} is stored within the private \thesis@titleEn macro.
The \langle \text{TeXtitleEn=title} \rangle pair sets the English \TeX title of the thesis to \textit{title}. The \textit{title} is used, when typesetting the title, whereas \texttt{\thesis@titleEn} is a plain text. The \textit{title} is stored within the private \texttt{\thesis@TeXtitleEn} macro, whose implicit value is \texttt{\thesis@titleEn}.

\begin{verbatim}
\def\thesis@TeXtitleEn{\thesis@titleEn}
\define@key{thesis}{TeXtitleEn}{\def\thesis@TeXtitleEn{#1}}
\end{verbatim}

\subsection*{The \texttt{\thesis@keywords} key}

The \langle \text{keywords=list} \rangle pair sets the keywords of the thesis to the comma-delimited \textit{list}. The \textit{list} is stored within the private \texttt{\thesis@keywords} macro.

\begin{verbatim}
\def\thesis@def{keywords}
\define@key{thesis}{keywords}{\def\thesis@keywords{#1}}
\end{verbatim}

\subsection*{The \texttt{\thesis@TeXkeywords} key}

The \langle \text{TeXkeywords=list} \rangle pair sets the \TeX keywords of the thesis to the comma-delimited \textit{list}. The \textit{list} is used, when typesetting the keywords, whereas \texttt{\thesis@keywords} is a plain text. The \textit{list} is stored within the private \texttt{\thesis@TeXkeywords} macro.

\begin{verbatim}
\def\thesis@TeXkeywords{\thesis@keywords}
\define@key{thesis}{TeXkeywords}{\def\thesis@TeXkeywords{#1}}
\end{verbatim}

\subsection*{The \texttt{\thesis@keywordsEn} key}

The \langle \text{keywordsEn=list} \rangle pair sets the English keywords of the thesis to the comma-delimited \textit{list}. The \textit{list} is stored within the private \texttt{\thesis@keywordsEn} macro.

\begin{verbatim}
\def\thesis@def{keywordsEn}
\define@key{thesis}{keywordsEn}{\def\thesis@keywordsEn{#1}}
\end{verbatim}

\subsection*{The \texttt{\thesis@TeXkeywordsEn} key}

The \langle \text{TeXkeywordsEn=list} \rangle pair sets the English \TeX keywords of the thesis to the comma-delimited \textit{list}. The \textit{list} is used, when typesetting the keywords, whereas \texttt{\thesis@keywordsEn} is a plain text. The \textit{list} is stored within the private \texttt{\thesis@TeXkeywordsEn} macro.

\begin{verbatim}
\def\thesis@TeXkeywordsEn{\thesis@keywordsEn}
\define@key{thesis}{TeXkeywordsEn}{\def\thesis@TeXkeywordsEn{#1}}
\end{verbatim}
\thesis@abstract 2.2.34 The abstract key

The {⟨abstract=text⟩} pair sets the abstract of the thesis to text. The text is stored within the private \thesis@abstract macro.

\thesis@def{abstract}
\long\def\KV@thesis@abstract#1{\%\thesis@abstract{#1}}

\thesis@abstractEn 2.2.35 The abstractEn key

The {⟨abstractEn=text⟩} pair sets the English abstract of the thesis to text. The text is stored within the private \thesis@abstractEn macro.

\thesis@def{abstractEn}
\long\def\KV@thesis@abstractEn#1{\%\thesis@abstractEn{#1}}

\thesis@advisor 2.2.36 The advisor key

The {⟨advisor=name⟩} pair sets the thesis advisor's full name to name. The name is stored within the private \thesis@advisor macro.

\thesis@def{advisor}
\define@key{thesis}{advisor}{\def\thesis@advisor{#1}}

\thesis@thanks 2.2.37 The thanks key

The {⟨thanks=text⟩} pair sets the acknowledgement text to text. The text is stored within the private \thesis@thanks macro.

\long\def\KV@thesis@thanks#1{\%\thesis@thanks{#1}}

\thesis@assignmentFiles 2.2.38 The assignment key

The {⟨assignment=list⟩} pair sets the comma-separated list of paths (and optional page specifiers, see the pdfpages package \includepdfmerge command documentation) to the pdf files containing the thesis assignment to list. The list is stored within the \thesis@assignmentFiles private macro. When defined, the PDF files are injected into the resulting document instead of the placeholder \thesis@@{assignment} string.

\define@key{thesis}{assignment}{\def\thesis@assignmentFiles{#1}}
2.2.39 The autoLayout key

The \{⟨autoLayout=bool⟩\} pair either enables, if bool is true or unspecified, or disables autolayout. Autolayout injects the \thesis@preamble and \thesis@postamble private macros at the beginning and the end of the document, respectively. The setting can be tested using the \ifthesis@auto...\else...\fi conditional. The autolayout is enabled by default.

\newif\ifthesis@auto\thesis@autotrue\newif\ifthesis@loaded\thesis@loaded\newif\ifthesis@loaded

The \thesis@preamble and \thesis@postamble private macros are defined as empty strings by default and are subject to redefinition by the style files.

2.3 The \thesislong macro

The public macro \thesislong{⟨key⟩}{⟨value⟩}, where value may contain multiple paragraphs of text, can be used for the following keys as an alternative to the \thesissetup public macro, which only permits a single paragraph as the value:

- abstract
- abstractEn
- thanks
- declaration

3 Private API

3.1 Main routine

The \thesis@load macro is responsible for preparing the environment for, and consequently loading, the necessary locale and style files. By default, the \thesis@load macro gets expanded at the end of the preamble, but it can be inserted manually prior to that, if necessary to prevent package clashes. The \ifthesis@loaded semaphore ensures that the expansion is only performed once.
First, the main locale file is loaded using the \thesis@requireLocale macro.

Consequently, the style files are loaded with the class options passed onto them. If inheritance is enabled for style files, then each of the following files is loaded in sequence, if they exist:

1. \thesis@stylepath fithesis3-base.sty
2. \thesis@stylepath\thesis@university/fithesis3-base.sty
3. \thesis@stylepath\thesis@style.sty

If inheritance is disabled for style files, then only the \thesis@stylepath\thesis@style.sty file is loaded. The fithesis3- prefix serves to prevent package clashes with other similarly named package files within the \TeX directory structure.

With the placeholder strings loaded from the locale files, we can now inject metadata into the resulting PDF file. To this end, the hyperref package is conditionally included with the unicode option. Consequently, the following values are assigned to the PDF headers:

- Title is set to \thesis@title.
- Author is set to \thesis@author.
- Keywords is set to \thesis@keywords.
- Creator is set to 2015/05/09 v0.3.10 fithesis3 MU thesis class.
If autolayout is enabled, the \thesis@preamble and \thesis@postamble macros are scheduled for expansion at the beginning and at the end of the document, respectively.

\begin{verbatim}
ifthesis@auto%
\AtBeginDocument{\thesis@preamble}\
\AtEndDocument{\thesis@postamble}\
\fi%
\end{verbatim}

Lastly, a BibTeX file named \jobname.bib containing the bibliographical entry for the thesis is scheduled to be generated at the end of the document in the working directory using the \thesis@bibgen macro and the \thesis@pages private macro definition containing the length of the document is scheduled to be included in the auxiliary file.

\begin{verbatim}
\AtEndDocument{\
% Define \thesis@pages for the next run
\write\@auxout{\noexpand\gdef\noexpand\thesis@pages{\thepage}}}
\makeatother\
\fi}
\end{verbatim}

### 3.2 File manipulation macros

**\thesis@exists**

The \thesis@exists{⟨file⟩}{⟨tokens⟩} private macro is used to test for the existence of a given file. If the file exists, the macro expands to tokens. Otherwise, a class warning is written to the output.

\begin{verbatim}
def\thesis@exists#1#2{\
\IfFileExists{#1}{#2}{\
ClassWarning{fithesis3}{File #1 doesn't exist}}}
\end{verbatim}

**\thesis@input**

The \thesis@input{⟨file⟩} private macro inputs the given file, if it exists.

\begin{verbatim}
def\thesis@input#1{\
\thesis@exists{#1}{\input{#1}}}
\end{verbatim}

**\thesis@require**

The \thesis@require{⟨package⟩} expands to \RequirePackage{⟨package⟩}, if the specified package has not yet been loaded. This generally serves to prevent options clashes, when the options with which the package had been loaded are of no consequence.

\begin{verbatim}
def\thesis@require#1{\
@ifpackageloaded{#1}{}{\RequirePackage{#1}}}
\end{verbatim}

**\thesis@requireStyle**

The \thesis@requireStyle{⟨package⟩} expands to \RequirePackageWithOptions{⟨package⟩}, if the specified package exists and has not yet been loaded. This generally serves to load style files.

\begin{verbatim}
def\thesis@requireStyle#1{\
@ifpackageloaded{#1}{}{\RequirePackageWithOptions{#1}}}
\end{verbatim}

**\thesis@requireLocale**

The \thesis@requireLocale{⟨locale⟩} private macro loads locale files of the specified locale, if they haven’t been loaded before. If inheritance is enabled for locale files, then the following directories are used:

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1. \thesis@localepath
2. \thesis@localepath\thesis@university/
3. \thesis@localepath\thesis@university/\thesis@faculty/
If inheritance is disabled for locale files, then only the \thesis@localepath directory is used. The macro can be used within both locale and style files, although the
usage within locale files is strongly discouraged to prevent circular dependencies.
292 \def\thesis@requireLocale#1{%
293
294
295
296
297
298
299
300
301
302

3.3
\thesis@

% Prevent redundant entries
\expandafter\ifx\csname thesis@#1@required\endcsname\relax%
\expandafter\def\csname thesis@#1@required\endcsname{}%
\thesis@input{\thesis@localepath#1.def}
\ifthesis@locale@inheritance%
\thesis@input{\thesis@localepath\thesis@university/#1.def}%
\thesis@input{\thesis@localepath\thesis@university/%
\thesis@faculty/#1.def}%
\fi%
\fi}

String manipulation macros

The \thesis@{⟨name⟩} macro expands to \thesis@ name, where name gets fully
expanded and can therefore contain active characters and command sequences.
303 \def\thesis@#1{\csname

\thesis@@

thesis@#1\endcsname}

The \thesis@@{⟨name⟩} macro expands to \thesis@ locale@name, where locale corresponds to the name of the current locale. name gets fully expanded and can
therefore contain active characters and command sequences.
304 \def\thesis@@#1{\thesis@{\thesis@locale

\thesis@lower
\thesis@upper

@#1}}

The \thesis@lower and \thesis@upper private macros are used for upper- and
lowercasing within locale files. To cast the \thesis@name macro to the lower- or
uppercase, \thesis@lower{name} or \thesis@upper{name} would be used, respectively. name gets fully expanded and can therefore contain active characters
and command sequences.
305 \def\thesis@lower#1{{%

\let\ea\expandafter%
\ea\ea\ea\ea\ea\ea\ea\ea\ea\ea\ea\ea\ea\ea\ea\lowercase\ea\ea\ea
308
\ea\ea\ea\ea\ea\ea\ea\ea\ea\ea\ea\ea{\ea\ea\ea\ea\ea\ea\ea\ea\ea
309
\ea\ea\ea\ea\ea\ea\@gobble\ea\ea\ea\string\ea\csname\csname the%
310
sis@#1\endcsname\endcsname}}}
311 \def\thesis@upper#1{{%
312
\let\ea\expandafter%
313
\ea\ea\ea\ea\ea\ea\ea\ea\ea\ea\ea\ea\ea\ea\ea\uppercase\ea\ea\ea
314
\ea\ea\ea\ea\ea\ea\ea\ea\ea\ea\ea\ea{\ea\ea\ea\ea\ea\ea\ea\ea\ea
315
\ea\ea\ea\ea\ea\ea\@gobble\ea\ea\ea\string\ea\csname\csname the%
316
sis@#1\endcsname\endcsname}}}
306
307

194


The `\thesis@@lower` and `\thesis@@upper` private macros are used for upper- and lowercasing current locale strings within style files. To cast the `\thesis@locale@name` macro to the lower- or uppercase, `\thesis@lower{name}` or `\thesis@upper{name}` would be used, respectively. *name* gets fully expanded and can therefore contain active characters and command sequences.

```latex
317 \def\thesis@@lower#1{\thesis@lower{\thesis@locale@#1}}
318 \def\thesis@@upper#1{\thesis@upper{\thesis@locale@#1}}
```

The `\thesis@head` and `\thesis@tail` private macros are used for retrieving a head or a tail of space-separated token sequences, which end with `\relax`.

```latex
319 \def\thesis@head#1 #2{%  
320 \ifx\relax#2%  
321 \expandafter\@gobbletwo%  
322 \else%  
323 \ #1%  
324 \fi%  
325 \thesis@head#2}%  
326 \def\thesis@tail#1 #2{%  
327 \ifx\relax#2%  
328 \ #1%  
329 \expandafter\@gobbletwo%  
330 \fi%  
331 \thesis@tail#2}%
```

### 3.4 General purpose macros

The `\thesis@pages` macro is defined at the beginning of the second LaTeX run as a part of the main routine (see Section 3.1). During the first run, the macro expands to `??`.

```latex
332 \ifx\thesis@pages\undefined\def\thesis@pages{??}\fi
```

### 3.5 Locale files

Locale files contain macro definitions for various locales. They live in the `locale/` subtree and they are loaded during the main routine (see Section 3.1).

When creating a new locale file, it is advisable to create one self-contained `.dtx` file, which is then partitioned into locale files via the `docstrip` tool based on the respective `.ins` file. A macro `\file{<filename>}` is available for sectioning the documentation of various files within the `.dtx` file, `filename`. For more information about `.dtx` files and the `docstrip` tool, consult the `dtxut`, `docstrip`, `doc` and `ltxdoc` manuals.

#### 3.5.1 Interface

The union of locale files named `locale.def`, where `locale` is the result of the expansion of `\thesis@locale`, loaded via main routine’s inheritance scheme (see Section 3.1) needs to define the following private macros:
3.5.2 English locale files

3.5.2.1 The locale/english.def file

This is the base file of the English locale. It defines all the private macros mandated by the locale file interface.
3.5.2.2 The \texttt{locale/mu/english.def} file

This is the English locale file specific to the Masaryk University in Brno. It replaces the \texttt{universityName} placeholder with the correct value and defines the \texttt{declaration} and \texttt{idTitle} strings.

\providefile{fithesis3/locale/mu/english.def}[2015/04/18]
\def\thesis@english@universityName{Masaryk University}
\def\thesis@english@declaration{Hereby I declare that this paper is my original authorial work, which I have worked out by my own. All sources, references and literature used or excerpted during elaboration of this work are properly cited and listed in complete reference to the due source.}
\def\thesis@english@idTitle{UČO}

3.5.2.3 The \texttt{locale/mu/law/english.def} file

This is the English locale file specific to the Faculty of Law at the Masaryk University in Brno. It replaces the \texttt{facultyName} placeholder with the correct value and defines the \texttt{facultyLongName} required by the \texttt{thesis@blocks@cover} and the \texttt{thesis@blocks@titlePage} blocks.

\providefile{fithesis3/locale/mu/law/english.def}[2015/04/18]
\def\thesis@english@facultyName{The Faculty of Law}
\def\thesis@english@facultyLongName{The Faculty of Law of the Masaryk University}
3.5.2.4 The `locale/mu/fsps/english.def` file

This is the English locale file specific to the Faculty of Sports Studies at the Masaryk University in Brno. It replaces the `facultyName` placeholder with the correct value.

\ProvidesFile{fithesis3/locale/mu/fsps/english.def}[2015/04/18]
\def\thesis@english@facultyName{Faculty of Sports Studies}
\def\thesis@english@fieldTitle{Specialization}

3.5.2.5 The `locale/mu/fss/english.def` file

This is the English locale file specific to the Faculty of Social Studies at the Masaryk University in Brno. It replaces the `facultyName` string with the correct value.

\ProvidesFile{fithesis3/locale/mu/fss/english.def}[2015/04/18]
\def\thesis@english@facultyName{Faculty of Social Studies}
\def\thesis@english@assignment{Replace this page with a copy of the official signed thesis assignment or the copy of the Statement of an Author or both, depending on the requirements of the respective department.}

3.5.2.6 The `locale/mu/econ/english.def` file

This is the English locale file specific to the Faculty of Economics and Administration at the Masaryk University in Brno. It replaces the `facultyName` placeholder with the correct value.

\ProvidesFile{fithesis3/locale/mu/econ/english.def}[2015/04/18]
\def\thesis@english@facultyName{Faculty of Economics and Administration}

3.5.2.7 The `locale/mu/med/english.def` file

This is the English locale file specific to the Faculty of Medicine at the Masaryk University in Brno. It replaces the `facultyName` placeholder with the correct value and redefines the `abstractTitle` string with the common usage at the faculty. The file also defines the `bib@title` and `bib@pages` strings required by the `\thesis@blocks@bibEntry` block defined within the `style/mu/fithesis3-med.sty` style file.

\ProvidesFile{fithesis3/locale/mu/med/english.def}[2015/04/18]
\def\thesis@english@abstractTitle{Annotation}
\def\thesis@english@bib@title{Annotation}
\def\thesis@english@bib@pages{Annotation}
3.5.2.8 The locale/mu/fi/english.def file

This is the English locale file specific to the Faculty of Informatics at the Masaryk University in Brno. It replaces the facultyName placeholder with the correct value and updates the string in accordance with the requirements of the faculty. The file also defines the advisorSignature string required by the \thesis@blocks@titlePage block defined within the style/mu/fithesis3-fi.sty style file.

\ProvidesFile{fithesis3/locale/mu/fi/english.def}[2015/04/26]

3.5.2.9 The locale/mu/phi/english.def file

This is the English locale file specific to the Faculty of Arts at the Masaryk University in Brno. It replaces the facultyName placeholder with the correct value.

\ProvidesFile{fithesis3/locale/mu/phi/english.def}[2015/04/18]

3.5.2.10 The locale/mu/ped/english.def file

This is the Slovak locale file specific to the Faculty of Education at the Masaryk University in Brno. It replaces the facultyName placeholder with the correct value. The file also defines the bib@title and bib@pages strings required by the \thesis@blocks@bibEntry block defined within the style/mu/fithesis3-ped.sty style file.

\ProvidesFile{fithesis3/locale/mu/ped/english.def}[2015/04/26]
3.5.2.11 The `locale/mu/sci/english.def` file

This is the English locale file specific to the Faculty of Science at the Masaryk University in Brno. It defines the private macros required by the `\thesis@blocks@bibEntryEn` block defined within the `style/mu/fithesis3-sci.sty` style file. It also replaces the `facultyName` placeholder with the correct value and redefines the `advisorTitle` string in accordance with the formal requirements of the faculty.

\ProvidesFile{fithesis3/locale/mu/sci/english.def}[2015/04/18]
% Placeholders
\def\thesis@english@facultyName{Faculty of Science}
% Miscellaneous
\let\thesis@english@advisorTitleEn=\thesis@english@bib@advisor
% Bibliographic entry
\def\thesis@english@bib@title{Bibliographic entry}
\let\thesis@english@bib@author=\thesis@english@authorTitle
\def\thesis@english@bib@thesisTitle{Title of Thesis}
\def\thesis@english@bib@programme{Degree Programme}
\let\thesis@english@bib@advisor=\thesis@english@bib@advisor(Supervisor)
\def\thesis@english@bib@academicYear{Academic Year}
\def\thesis@english@bib@pages{Number of Pages}
\let\thesis@english@bib@keywords=\thesis@english@keywordsTitle

3.5.3 Czech locale files

3.5.3.1 The `locale/czech.def` file

This is the base file of the Czech locale. It defines all the private macros mandated by the locale file interface.

\thesis@czech@gender@koncovka

The locale file also defines the `\thesis@czech@gender@koncovka` macro, which expands to the correct verb ending based on the value of the `\thesis@ifwoman` macro and the `\thesis@typeName@akuzativ` containing the accusative case of the thesis type name.

\ProvidesFile{fithesis3/locale/czech.def}[2015/04/18]
% Pomocná makra
\def\thesis@czech@gender@koncovka{%
  \ifthesis@woman a\fi}
% Zástupné texty
\def\thesis@czech@universityName{Název univerzity}
\def\thesis@czech@facultyName{Název fakulty}
\def\thesis@czech@assignment{Místo tohoto listu vložte kopii
  oficiálního podepsaného zadání práce.}
\def\thesis@czech@declaration{Text prohlášení ...}
3.5.3.2 The locale/mu/czech.def file

This is the Czech locale file specific to the Masaryk University in Brno. It replaces the universityName placeholder with the correct value and defines the declaration and idTitle strings.
3.5.3.3 The locale/mu/law/czech.def file
This is the Czech locale file specific to the Faculty of Law at the Masaryk University in Brno. It replaces the \thesis@blocks@cover and \thesis@blocks@titlePage blocks and replaces the abstractTitle string in accordance with the requirements of the faculty.

3.5.3.4 The locale/mu/fsps/czech.def file
This is the Czech locale file specific to the Faculty of Sports Studies at the Masaryk University in Brno. It replaces the facultyLongName placeholder with the correct value, and the fieldTitle string in accordance with the common usage at the faculty.

3.5.3.5 The locale/mu/fss/czech.def file
This is the Czech locale file specific to the Faculty of Social Studies at the Masaryk University in Brno. It replaces the FacultyName string with the correct value.
3.5.3.6  The locale/mu/econ/czech.def file

This is the Czech locale file specific to the Faculty of Economics and Administration at the Masaryk University in Brno. It replaces the facultyName placeholder with the correct value.

\ProvidesFile{fithesis3/locale/mu/econ/czech.def}[2015/04/18]
\def\thesis@czech@facultyName{Ekonomicko-správní fakulta}

3.5.3.7  The locale/mu/med/czech.def file

This is the Czech locale file specific to the Faculty of Medicine at the Masaryk University in Brno. It replaces the facultyName placeholder with the correct value and redefines the abstractTitle string in accordance with the common usage at the faculty. The file also defines the bib@title and bib@pages strings required by the \thesis@blocks@bibEntry block defined within the style/mu/fithesis3-med.sty style file.

\ProvidesFile{fithesis3/locale/mu/med/czech.def}[2015/04/26]
\def\thesis@czech@facultyName{Lékařská fakulta}
\def\thesis@czech@abstractTitle{Anotace}
\def\thesis@czech@bib@title{Bibliografický záznam}
\def\thesis@czech@bib@pages{str}

3.5.3.8  The locale/mu/fi/czech.def file

This is the Czech locale file specific to the Faculty of Informatics at the Masaryk University in Brno. It replaces the facultyName placeholder with the correct value and updates the declaration string in accordance with the requirements of the faculty. The file also defines the advisorSignature string required by the \thesis@blocks@titlePage block defined within the style/mu/fithesis3-fi.sty style file.

\ProvidesFile{fithesis3/locale/mu/fi/czech.def}[2015/04/18]
\def\thesis@czech@facultyName{Fakulta informatiky}
\def\thesis@czech@assignment{Místo tohoto listu vložte kopie oficiálního podepsaného zadání práce a prohlášení autora školního díla.)}
\def\thesis@czech@declaration{\%
Prohlašuji, že tato \thesis@lower{czech@typeName} je mým původním autorským dílem, které jsem vypracoval\%
\thesis@czech@gender\koncovka\ samostatně. Všechny zdroje, prameny a literaturu, které jsem při vypracování použival\thesis@czech@gender\koncovka\ nebo z\-nich
3.5.3.9 The locale/mu/phil/czech.def file

This is the Czech locale file specific to the Faculty of Arts at the Masaryk University in Brno. It replaces the facultyName placeholder with the correct value. It also defines the declaration string and redefines the typeName and typeName@akuzativ strings in accordance with the requirements of the faculty.

\ProvidesFile{fithesis3/locale/mu/phil/czech.def}[2015/04/26]

\def\thesis@czech@advisorSignature{Podpis vedoucího}

3.5.3.10 The locale/mu/ped/czech.def file

This is the Czech locale file specific to the Faculty of Education at the Masaryk University in Brno. It replaces the facultyName placeholder with the correct value. The file also defines the bib@title and bib@pages strings required by the \thesis@blocks@bibEntry block defined within the style/mu/fithesis3-ped.sty
style file.
597 \ProvidesFile{fithesis3/locale/mu/ped/czech.def}[2015/04/26]
598
599 % Zástupné texty
600 \def\thesis@czech@facultyName{Pedagogická fakulta}
601
602 % Bibliografický záznam
603 \def\thesis@czech@bib@title{Bibliografický záznam}
604 \def\thesis@czech@bib@pages{str}

3.5.3.11 The locale/mu/sci/czech.def file

This is the Czech locale file specific to the Faculty of Science at the Masaryk University in Brno. It defines the private macros required by the \thesis@blocks@bibEntry block defined within the style/mu/fithesis3-sci.sty style file. It also replaces the facultyName placeholder with the correct value and redefines the abstractTitle and declaration strings in accordance with the formal requirements of the faculty.

605 \ProvidesFile{fithesis3/locale/mu/sci/czech.def}[2015/04/18]
606
607 % Zástupné texty
608 \def\thesis@czech@facultyName{Přírodovědecká fakulta}
609
610 % Ostatní
611 \def\thesis@czech@abstractTitle{Abstrakt}
612 \def\thesis@czech@declaration{%
613 Prohlašuji, že jsem svoji \thesis@lower{czech@typeName@% akuzaativ) vypracoval\thesis@czech@gender@koncovka\ samo% statně s-využitím informačních zdrojů, které jsou v-práci citovány.}
614 % Bibliografický záznam
615 \def\thesis@czech@bib@title{Bibliografický záznam}
616 \let\thesis@czech@bib@author\thesis@czech@authorTitle
617 \def\thesis@czech@bib@thesisTitle{Název práce}
618 \let\thesis@czech@bib@programme\thesis@czech@programme(Studijní program)
619 \let\thesis@czech@bib@field\thesis@czech@fieldTitle
620 \let\thesis@czech@bib@advisor\thesis@czech@advisorTitle
621 \def\thesis@czech@bib@academicYear{Akademický rok}
622 \def\thesis@czech@bib@pages{Počet stran}
623 \let\thesis@czech@bib@keywords\thesis@czech@keywordsTitle

3.5.4 Slovak locale files
3.5.4.1 The locale/slovak.def file

This is the base file of the Slovak locale. It defines all the private macros mandated by the locale file interface.

205
The locale file defines the `\thesis@slovak@gender@koncovka` macro, which expands to the correct verb ending based on the value of the `\thesis@ifwoman` macro.

\ProvidesFile{fithesis3/locale/slovak.def}[2015/04/18]
\% Pomocná makrá
\def\thesis@slovak@gender@koncovka{\ifthesis@woman a\fi}
\% Zástupné texty
\def\thesis@slovak@universityName{Názov univerzity}
\def\thesis@slovak@facultyName{Názov fakulty}
\def\thesis@slovak@assignment{(Namiesto tejto stránky vložte kópiu oficiálneho podpísaného zadania práce.)}
\def\thesis@slovak@declaration{Text prehlásenie ...}
\% Rôzne
\def\thesis@slovak@fieldTitle{Odbor}
\def\thesis@slovak@advisorTitle{Vedúci práce}
\def\thesis@slovak@abstractTitle{Zhrnutie}
\def\thesis@slovak@keywordsTitle{Kľúčové slová}
\def\thesis@slovak@thanksTitle{Poďakovanie}
\def\thesis@slovak@declarationTitle{Prehlásenie}
\def\thesis@slovak@idTitle{ID}
\def\thesis@slovak@winter{Jar}
\def\thesis@slovak@summer{Jeseň}
\def\thesis@slovak@semester{\thesis@{slovak@	hesis@season} \thesis@year}
\def\thesis@slovak@typeName{\ifx\thesis@type\thesis@bachelors%
Bakalárska práca%
\else\ifx\thesis@type\thesis@masters%
Diplomová práca%
\else\ifx\thesis@type\thesis@doctoral%
Dizertačná práca%
\else\ifx\thesis@type\thesis@rigorous%
Rigorózna práca%
\else\
<<Neznámy typ práce (\thesis@type)>>
\fi\fi\fi\fi}
\def\thesis@slovak@typeName@akuzativ{\ifx\thesis@type\thesis@bachelors%
Bakalársku prácu%
\else\ifx\thesis@type\thesis@masters%
Diplomovú prácu%
\else\ifx\thesis@type\thesis@doctoral%
Dizertačnú prácu%
\else\ifx\thesis@type\thesis@rigorous%
Rigoróznú prácu%
\else\
<<Neznámy typ práce (\thesis@type)>>
\fi\fi\fi\fi}
3.5.4.2 The locale/mu/slovak.def file

This is the Slovak locale file specific to the Masaryk University in Brno. It replaces the `universityName` placeholder with the correct value and defines the `declaration` and `idTitle` strings.

```
\ProvidesFile{fithesis3/locale/mu/slovak.def}[2015/04/26]
\def\thesis@slovak@universityName{Masarykova Univerzita}
\def\thesis@slovak@declaration{Prehlašujem, že som predloženú \thesis@lower{\thesis@typeName@akuzativ} vypracoval\thesis@slovak@gender@koncovka samostatne len s-použitím uvedenej literatúry a prameňov.}
\def\thesis@slovak@idTitle{UČO}
```

3.5.4.3 The locale/mu/law/slovak.def file

This is the Slovak locale file specific to the Faculty of Law at the Masaryk University in Brno. It replaces the `facultyName` placeholder with the correct value, defines the `facultyLongName` required by the `\thesis@blocks@cover` and the `\thesis@blocks@titlePage` blocks and replaces the `abstractTitle` string in accordance with the requirements of the faculty.

```
\ProvidesFile{fithesis3/locale/mu/law/slovak.def}[2015/04/26]
\def\thesis@slovak@abstractTitle{Abstrakt}
\def\thesis@slovak@facultyName{Právnická fakulta}
\def\thesis@slovak@facultyLongName{Právnická fakulta Masarykovej univerzity}
```

3.5.4.4 The locale/mu/fsps/slovak.def file

This is the Slovak locale file specific to the Faculty of Sports Studies at the Masaryk University in Brno. It replaces the `facultyName` placeholder with the correct value and the `fieldTitle` string in accordance with the common usage at the faculty.

```
\ProvidesFile{fithesis3/locale/mu/fsps/slovak.def}[2015/04/18]
\def\thesis@slovak@facultyName{Fakulta športových štúdií}
```
3.5.4.5 The locale/mu/fss/slovak.def file

This is the Slovak locale file specific to the Faculty of Social Studies at the Masaryk University in Brno. It replaces the \texttt{facultyName} string with the correct value.

\ProvidesFile{fithesis3/locale/mu/fss/slovak.def}[2015/04/26]

3.5.4.6 The locale/mu/econ/slovak.def file

This is the Slovak locale file specific to the Faculty of Economics and Administration at the Masaryk University in Brno. It replaces the \texttt{facultyName} placeholder with the correct value.

\ProvidesFile{fithesis3/locale/mu/econ/slovak.def}[2015/04/18]

3.5.4.7 The locale/mu/med/slovak.def file

This is the Slovak locale file specific to the Faculty of Medicine at the Masaryk University in Brno. It replaces the \texttt{facultyName} placeholder with the correct value and redefines the \texttt{abstractTitle} string in accordance with the common usage at the faculty. The file also defines the \texttt{bib@title} and \texttt{bib@pages} strings required by the \texttt{thesis@blocks@bibEntry} block defined within the \texttt{style/mu/fithesis3-med.sty} style file.

\ProvidesFile{fithesis3/locale/mu/med/slovak.def}[2015/04/26]

3.5.4.8 The locale/mu/fin/slovak.def file

This is the Slovak locale file specific to the Faculty of Informatics at the Masaryk University in Brno. It replaces the \texttt{facultyName} placeholder with the correct value and redefines the \texttt{abstractTitle} string in accordance with the common usage at the faculty. The file also defines the \texttt{bib@title} and \texttt{bib@pages} strings required by the \texttt{thesis@blocks@bibEntry} block defined within the \texttt{style/mu/fithesis3-med.sty} style file.
value and updates the declaration string in accordance with the requirements of the faculty. The file also defines the advisorSignature string required by the thesis@blocks@titlePage block defined within the style/mu/fithesis3-fi.sty style file.

727 \ProvidesFile{fithesis3/locale/mu/fi/slovak.def}[2015/04/18]
728
729 % Zástupné texty
730 \def\thesis@slovak@facultyName{Fakulta informatiky}
731 \def\thesis@slovak@assignment{(Namiesto tejto stránky vložte kópiu oficiálneho podpísaného zadania práce a prehlasenie autora školského diela.)}
732 \def\thesis@slovak@declaration{\thesis@slovak@gender@koncovka
Prehlasujem, že táto \thesis@lower{slovak@typeName} je mojím pôvodným autorským dielom, ktoré som vypracoval/
thesis@slovak@gender@koncovka \ lower{consequent}\ samostatné. Všetky zdroje, pramene a literatúru, ktoré som pri vypracovani používal\thesis@slovak@gender@koncovka\ alebo z\thesis@slovak@gender@koncovka, v-práci riadne citujem s-uvedením úplného odkazu na príslušný zdroj.}
742
743 % Rôzne
744 \def\thesis@slovak@advisorSignature{Podpis vedúceho} 3.5.4.9 The locale/mu/phil/slovak.def file

This is the Slovak locale file specific to the Faculty of Arts at the Masaryk University in Brno. It replaces the facultyName placeholder with the correct value. It also defines the declaration string and redefines the typeName and typeName@akuzativ strings in accordance with the requirements of the faculty.

745 \ProvidesFile{fithesis3/locale/mu/phil/slovak.def}[2015/04/26]
746
747 % Zástupné texty
748 \def\thesis@slovak@facultyName{Filozofická fakulta}
749 \def\thesis@slovak@declaration{\thesis@slovak@gender@koncovka
Prehlašujem, že som predloženú \thesis@lower{slovak@typeName@akuzativ} vypracoval/
thesis@slovak@gender@koncovka\ akuzativ} vypracoval/
thesis@slovak@gender@koncovka \ samostatné na základe vlastných zistení a len s-použitím uvedenej literatúry a prameňov.}
754
755
756 % Rôzne
757 \def\thesis@slovak@typeName{%
758 \ifx\thesis@type\thesis@bachelors%
Bakalárska diplomová práca%
759 \else\ifx\thesis@type\thesis@masters%
Magisterská diplomová práca%
760 \else\ifx\thesis@type\thesis@doctoral%
Dizertačná práca%
763 \else%
764 \else%
209
3.5.4.10 The locale/mu/ped/slovak.def file

This is the Slovak locale file specific to the Faculty of Education at the Masaryk University in Brno. It replaces the $\text{facultyName}$ placeholder with the correct value. The file also defines the $\text{bib@title}$ and $\text{bib@pages}$ strings required by the $\text{thesis@blocks@bibEntry}$ block defined within the style/mu/fithesis3-ped.sty style file.

\ProvidesFile{fithesis3/locale/mu/ped/slovak.def}[2015/04/18]
\def\thesis@slovak@facultyName{Pedagogická fakulta}
\def\thesis@slovak@bib@title{Bibliografický záznam}
\def\thesis@slovak@bib@pages{str}

3.5.4.11 The locale/mu/sci/slovak.def file

This is the Slovak locale file specific to the Faculty of Science at the Masaryk University in Brno. It replaces the $\text{facultyName}$ placeholder with the correct value.

\ProvidesFile{fithesis3/locale/mu/sci/slovak.def}[2015/04/18]
\def\thesis@slovak@facultyName{Prirodovedecká fakulta}

3.6 Style files

Style files define the structure and the look of the resulting document. They live in the style/ subtree and they are loaded during the main routine (see Section 3.1).

When creating a new style file, it is advisable to create one self-contained \texttt{dtx} file, which can contain several files to be extracted via the \texttt{docstrip} tool based on the respective \texttt{ins} file. A macro \texttt{\file{filename}} is available for sectioning the documentation of various files within the \texttt{dtx} file. For more information about \texttt{dtx} files and the \texttt{docstrip} tool, consult the \texttt{dtxtut}, \texttt{docstrip}, \texttt{doc} and \texttt{ltxdoc} manuals.
3.6.1 Interface

The union of style files loaded via main routine’s inheritance scheme (see Section 3.1) should define at least one of the following private macros:

- \thesis@preamble – If autolayout is enabled, then this macro is expanded at the very beginning of the document.
- \thesis@postamble – If autolayout is enabled, then this macro is expanded at the very end of the document.

3.6.2 Base style files

3.6.2.1 The style/fithesis3-base.sty file

If inheritance is enabled for style files, then this file is always the first style file to be loaded, regardless of the value of the \thesis@style macro. This style file is currently a dummy file.

\texttt{\NeedsTeXFormat{LaTeX2e}}

\texttt{\ProvidesPackage{fithesis3/style/fithesis3-base}[2015/04/08]}

3.6.2.2 The style/mu/fithesis3-base.sty file

This is the base style file for theses written at the Masaryk University in Brno. If inheritance is enabled for style files, then this file is always the second style file to be loaded right after style/base.sty, regardless of the value of the \thesis@style macro.

\texttt{\NeedsTeXFormat{LaTeX2e}}

\texttt{\ProvidesPackage{fithesis3/style/mu/fithesis3-base}[2015/04/12]}

The file recognizes the following options:

- \texttt{10pt, 11pt, 12pt} – Sets the type size to 10, 11 or 12 points respectively, along with the page geometry. The default type size is 12 points.
- \texttt{oneside, twoside} – The document is going to be single- or double-sided. In a double-sided document headers, page numbering, margin notes and several other elements are rearranged based on the parity of the page. Blank pages are optionally inserted prior the beginning of the next chapter to ensure that it starts on an left-hand (even-numbered) page.
- \texttt{onecolumn, twocolumn} – The document is going to be set in a single column or in two columns, respectively.
- \texttt{draft, final} – Overful lines are or aren’t marked within the document, respectively.

\ifthesis@twoside@ The \texttt{ifthesis@twoside@} conditional is set to either false or true, respectively. This value can be tested in the subsequently loaded style files.

\texttt{\ifthesis@twoside@}

\texttt{\else}

\texttt{\fi}

\texttt{\ifthesis@draft@}

\texttt{\else}

\texttt{\fi}
- **palatino, nopalatino** – The default roman and math font family is going to be either set to Palatino or left untouched, respectively. The `\ifthesis@palatino` conditional is set to either `true` or `false`, respectively. This value can be tested in the subsequently loaded style files.

  The Palatino font is a part of the visual identity of the Faculty of Informatics, at which the document class was created.

- **color, monochrome** – Certain typographical elements either are or aren’t going to be typeset in color, respectively. The `\ifthesis@color` conditional is set to either `true` or `false`, respectively. This value can be tested in the subsequently loaded style files.

- **table, oldtable** – If the `\ifthesis@color` conditional is true, then the definition of the `tabular` and `tabularx` commands either are or aren’t going to be altered to better match the style, respectively. The `\ifthesis@newtable` conditional is set to either `true` or `false`, respectively.

  The choice of the name is deliberate – the redefinition of the table environments depends on the `xcolor` package, which needs to be loaded with the table option. Since so many other packages depend on the `xcolor` package and this style file is loaded at the very end of the preamble, there would either be a great chance of an option clash, or the option would have to be passed to the `xcolor` package before the preamble from the body of the thesis class thus breaking the encapsulation. Naming the option `table` forces the option to be processed by the `xcolor` package as well and it is therefore an elegant solution to the problem at hand.

- **lot, nolot** – `\listoftables` is or isn’t going to be included in the `\thesis@blocks@tables` block, respectively.

- **lof, nolofigures** – `\listoffigures` is or isn’t going to be included in the `\thesis@blocks@tables` block, respectively.

- **cover, nocover** – The `\thesis@blocks@cover` is or isn’t going to expand to the thesis cover.

  The `\ifthesis@cover` conditional is set to `false` or `true`, respectively. This value can be tested in the subsequently loaded style files.

```latex
\DeclareOption{10pt}{\def\thesis@ptsize{0}}
\DeclareOption{11pt}{\def\thesis@ptsize{1}}
\DeclareOption{12pt}{\def\thesis@ptsize{2}}
\newif\ifthesis@twoside
\DeclareOption{oneside}{%}
\DeclareOption{twoside}{\thesis@twoside@true \@twosidetrue \@mparswitchtrue}
\DeclareOption{onecolumn}{\@twocolumnfalse}
\DeclareOption{twocolumn}{\@twocolumntrue}
\DeclareOption{draft}{\setlength\overfullrule{5pt}}
```
These are the default options:
\ExecuteOptions{12pt,twoside,final,monochrome,palatino,oldtable,lot,lof,nocover}
\ProcessOptions

The file loads the following packages:

- \texttt{xcolor} – Adds support for color manipulation.
- \texttt{ifxetex} – Used to detect the \texttt{Xe\LaTeX} engine.
- \texttt{ifluatex} – Used to detect the \texttt{Lua\LaTeX} engine.
- \texttt{graphix} – Adds support for the inclusion of graphics files.
- \texttt{pdfpages} – Adds support for the injection of PDF documents into the resulting document, namely the thesis assignment.
- \texttt{hyperref} – Adds support for injecting metadata into the resulting PDF document.
- \texttt{keyval} – Adds support for parsing comma-delimited lists of key-value pairs.

\ifthesisxelatex Using the \texttt{ifxetex} and \texttt{ifluatex} conditionals, a compound \texttt{ifthesis@xelatex} conditional was constructed. This conditional can be used by subsequently loaded style files to test, whether either the \texttt{Xe\LaTeX} or the \texttt{Lua\LaTeX} engine is being used.
The following packages get only loaded, when the document is being typeset using the XE\TeX{} or Lua\TeX{} engine:

- \texttt{fontspec} – Allows the selection of system-installed fonts.
- \texttt{unicode-math} – Allows the selection of system-installed mathematical fonts.

Under XE\TeX{}, the TeX Gyre Pagella and TeX Gyre Pagella Math are also selected as the main text and math fonts.

The following packages get only loaded, when the document is not being typeset using the XE\TeX{} engine and the \texttt{\thesis@palatino@} conditional is true:

- \texttt{cmap} – Places an an explicit \texttt{ToUnicode} map in the resulting PDF file, allowing for extraction of the text of the document.
- \texttt{mathpazo} – The virtual \texttt{mathpazo} fonts will be used for math.
- \texttt{tgpagella} – Changes the default roman font family to TeX Gyre Pagella.
- \texttt{lmodern} – Changes the default sans-serif and monotype font faces to Latin Modern instead of the default Computer Modern font family.
- \texttt{fontenc} – The font encoding is set to Cork.

If the \texttt{\thesis@newtable@} and \texttt{\thesis@color@} conditionals are true, then the following package gets loaded:

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- `tabularx` – Provides the `tabularx` environment, which enables the typesetting of tables with variable-width columns.

Subsequently, the `tabular` and `tabularx` environments are redefined to better match the style of the given faculty.

The `\thesis@newtable@old` and `\endthesis@newtable@old` macros containing the original definition of the `tabular` environment are always defined and are available for subsequently loaded styles in case the typesetting of unaltered tables is required.

```latex
\let\thesis@newtable@old\tabular
\let\endthesis@newtable@old\endtabular
\ifthesis@newtable@old\ifthesis@color@
  \thesis@require{tabularx}
  \thesis@require{booktabs}
  % The redefinition of 'tabular'
  \renewenvironment{tabular}{}

\setlength{\aboverulesep}{0pt}
\setlength{\belowrulesep}{0pt}
\setlength{\extrarowheight}{.75ex}
\fi\fi
```

The `hyperref` package is configured to support both roman and arabic page numbering in one document and to decorate hyperlinks with an underline instead of a rectangular box.

```latex
\thesis@require{hyperref}
\hypersetup{
  pdfborderstyle=/{S/U/W 1}, % Less obtrusive borders
  plainpages=false, % Multiple page numbering support
  pdffile_labels % Generate pdf page labels
  \thesis@color@setup
```

The file defines the `\thesis@color@setup({colors})` command, where `colors` is a comma-delimited list of key-value pairs as defined by the `keyval` package. The command can be invoked either by the subsequently loaded style files or by the user to define which colors will be used, when the `color` option is specified.
The following key-value pairs are supported:

1. \{\langle \text{links} = \text{color} \rangle \} – Sets the color of hyperref links to \text{color} and stores it under the name \thesis@color@links. The default color of links is specified by the \hyperref package.

2. \{\langle \text{tableOdd} = \text{color} \rangle \} – Stores the color of the odd rows of the redefined \texttt{tabular} and \texttt{tabularx} environments under the name \thesis@color@tableOdd.

3. \{\langle \text{tableEven} = \text{color} \rangle \} – Stores the color of the even rows of the redefined \texttt{tabular} and \texttt{tabularx} environments under the name \thesis@color@tableEven.

4. \{\langle \text{tableEmph} = \text{color} \rangle \} – Stores the color of an emphasized cell in the table for usage by the user under the name \thesis@color@tableEmph.

\define@key{thesis@color}{links}{%}
\definecolor{thesis@color@links}#1
\hypersetup{linkbordercolor=thesis@color@links}
\define@key{thesis@color}{tableOdd}{%}
\definecolor{thesis@color@tableOdd}#1
\define@key{thesis@color}{tableEven}{%}
\definecolor{thesis@color@tableEven}#1
\define@key{thesis@color}{tableEmph}{%}
\definecolor{thesis@color@tableEmph}#1

The file defines several blocks to be used in the redefinitions of the \thesis@preamble and \thesis@postable private macros by the subsequently loaded style files.

\thesis@blocks@frontMatter

The \thesis@blocks@frontMatter private macro sets up the style of the front matter of the thesis.
\thesis@blocks@clear

The \thesis@blocks@clear private macro clears the current page along with the next left-handed (even-numbered) page, when double-sided typesetting is enabled.
The \thesis@blocks@leftPage private macro clears the current page along with the next right-handed (odd-numbered) page, when double-sided typesetting is enabled.

\begin{verbatim}
defthesis@blocks@clearRight{  \ifthesis@twoside%    \clearpage%    \ifodd value(page)%      \thispagestyle{empty}%    \hbox{}%    \newpage%  \else%    \newpage%  \fi}
\end{verbatim}

The \thesis@blocks@facultyLogo@monochrome[(options)] private macro typesets the \thesis@logopath\thesis@facultyLogo logo with the given options passed to \includegraphics.

\begin{verbatim}
newcommand{\thesis@blocks@facultyLogo@monochrome}{[1]{%  \edef\@path{\thesis@logopath\thesis@facultyLogo}  \includegraphics[#1]{\@path}}}
\end{verbatim}

The \thesis@blocks@facultyLogo@color[(options)] private macro typesets either the \thesis@logopath\thesis@facultyLogo logo, if the \ifthesis@color@ conditional is false or the \thesis@logopath color/\thesis@facultyLogo logo otherwise with the given options passed to \includegraphics.

\begin{verbatim}
newcommand{\thesis@blocks@facultyLogo@color}{[1]{%  \edef\@path{\thesis@logopath\ifthesis@color@\thesis@facultyLogo%  \includegraphics[#1]{\@path}}}
\end{verbatim}

The \thesis@blocks@universityLogo@monochrome[(options)] private macro typesets the \thesis@logopath\thesis@universityLogo logo with the given options passed to \includegraphics.

\begin{verbatim}
newcommand{\thesis@blocks@universityLogo@monochrome}{[1]{%  \edef\@path{\thesis@logopath\thesis@universityLogo}  \includegraphics[#1]{\@path}}}
\end{verbatim}

The \thesis@blocks@universityLogo@color[(options)] private macro typesets either the \thesis@logopath\thesis@universityLogo logo, if the \ifthesis@color@ conditional is false or the \thesis@logopath color/\thesis@universityLogo logo otherwise with the given options passed to \includegraphics.

\begin{verbatim}
newcommand{\thesis@blocks@universityLogo@color}{[1]{%  \edef\@path{\thesis@logopath\ifthesis@color@\thesis@universityLogo%  \includegraphics[#1]{\@path}}}
\end{verbatim}
The \thesis@blocks@cover private macro typesets the thesis cover. It is composed of three private macros:

- \thesis@blocks@cover@header – The header of the cover page
- \thesis@blocks@cover@content – The content of the cover page
- \thesis@blocks@cover@footer – The footer of the cover page

This allows the subsequently loaded style files to only redefine certain parts of the cover page.

The output of the \thesis@blocks@cover@header private macro is controlled by the following conditional expressions:

1. \ifthesis@blocks@cover@university@ – This conditional expression determines, whether the university name is going to be included in the header of the cover. The default value of this conditional expression is true.

2. \ifthesis@blocks@cover@faculty@ – This conditional expression determines, whether the faculty name is going to be included in the header of the cover. The default value of this conditional expression is true.

3. \ifthesis@blocks@cover@department@ – This conditional expression determines, whether the department name is going to be included in the header of the cover. The default value of this conditional expression is false.

4. \ifthesis@blocks@cover@field@ – This conditional expression determines, whether the field of study is going to be included in the header of the cover. The default value of this conditional expression is false.
The subsequently loaded style files can alter the value of these expressions to alter the output of the `\thesis@blocks@cover@header` private macro without altering its definition.

\newif\ifthesis@blocks@cover@university@
\thesis@blocks@cover@university@true
\newif\ifthesis@blocks@cover@faculty@
\thesis@blocks@cover@faculty@true
\newif\ifthesis@blocks@cover@department@
\thesis@blocks@cover@department@false
\newif\ifthesis@blocks@cover@field@
\thesis@blocks@cover@field@false
\def\thesis@blocks@cover@header{%
{\sc\ifthesis@blocks@cover@university%@\thesis@titlePage@LARGE\thesis@@{universityName}\%}
\fi{\ifthesis@blocks@cover@faculty%@\thesis@titlePage@Large\thesis@@{facultyName}\%}
\fi{\ifthesis@blocks@cover@department%@\thesis@titlePage@large\thesis@department\%}
\fi{\thesis@titlePage@large\thesis@field}\vskip 1em\bf\thesis@@{fieldTitle}: \thesis@field}
\thesis@blocks@clear
\thesis@blocks@titlePage

The `\thesis@blocks@titlePage` private macro typesets the thesis title page. It is composed of three private macros:

- `\thesis@blocks@titlePage@header` – The header of the cover page
- `\thesis@blocks@titlePage@content` – The content of the cover page
- `\thesis@blocks@titlePage@footer` – The footer of the cover page

This allows the subsequently loaded style files to only redefine certain parts of the title page. Depending on the value of the `\ifthesis@color@` conditional, the faculty logo is loaded from either `\thesis@logopath`, if false, or from `\thesis@logopath color/`, if true.
The output of the \thesis@blocks@titlePage@header private macro is controlled by the following conditional expressions:

1. \ifthesis@blocks@titlePage@university@ – This conditional expression determines, whether the university name is going to be included in the header of the title page. The default value of this conditional expression is true.

2. \ifthesis@blocks@titlePage@faculty@ – This conditional expression determines, whether the faculty of study is going to be included in the header of the title page. The default value of this conditional expression is true.

3. \ifthesis@blocks@titlePage@department@ – This conditional expression determines, whether the department name is going to be included in the header of the title page. The default value of this conditional expression is false.

4. \ifthesis@blocks@titlePage@field@ – This conditional expression determines, whether the field of study is going to be included in the header of the title page. The default value of this conditional expression is false.

The subsequently loaded style files can alter the value of these expressions to alter the output of the \thesis@blocks@titlePage@header private macro without altering its definition.

\newif\ifthesis@blocks@titlePage@university@
\thesis@blocks@titlePage@university@true
\newif\ifthesis@blocks@titlePage@faculty@
\thesis@blocks@titlePage@faculty@true
\newif\ifthesis@blocks@titlePage@department@
\thesis@blocks@titlePage@department@false
\newif\ifthesis@blocks@titlePage@field@
\thesis@blocks@titlePage@field@false
\def\thesis@blocks@titlePage@header{%
{\sc\ifthesis@blocks@titlePage@university%
\thesis@titlePage@LARGE\thesis@@{universityName}\%
\fi\ifthesis@blocks@titlePage@faculty%
\thesis@titlePage@Large\thesis@@{facultyName}\%
\fi\thesis@titlePage@Large\thesis@@{department}\%
\fi\thesis@titlePage@Large\thesis@@{field}\%
end(center)}
end{alwayssingle})
The \thesis@blocks@tables private macro typesets the table of contents and optionally the \listoftables and the \listoffigures.

The \thesis@blocks@declaration private macro typesets the declaration text.

The \thesis@blocks@thanks private macro typesets the acknowledgement, if the \thesis@blocks@thanks private macro is defined.

The \thesis@blocks@abstract private macro typesets the abstract.

The \thesis@blocks@abstractEn private macro typesets the abstract in English. If the current locale is English, the macro produces no output. A style file that uses this block needs to require the English locale.
\thesis@blocks@abstractEn The \thesis@blocks@abstractEn private macro typesets the abstract in English. If the current locale is English, the macro produces no output. A style file that uses this block needs to require the English locale.

\thesis@blocks@keywords The \thesis@blocks@keywords private macro typesets the keywords.

\thesis@blocks@keywordsEn The \thesis@blocks@keywordsEn private macro typesets the keywords in English. If the current locale is English, the macro produces no output. A style file that uses this block needs to require the English locale.

\thesis@blocks@assignment The \thesis@blocks@assignment private macro either typesets a blank page to be replaced with the official thesis assignment or injects the file located at the \thesis@assignmentPDF path, if defined. In case of a rigorous thesis, the macro expands to an empty token string.
The \thesis@blocks@mainMatter private macro sets up the style of the main matter of the thesis.

The rest of the file comprises redefinitions of LATEX commands and private rapport3 class macros altering the layout of the resulting document. Depending on the type size of 10, 11 or 12 points, either the fithesis3-10.clo, fithesis3-11.clo or fithesis3-12.clo file is loaded from the \thesis@stylepath \mu directory, respectively.

% Table of contents will contain sectioning commands up to % \subsubsection
% \setcounter{tocdepth}{4}
% Load the 'fithesis3-1*.clo' size option
% \input\thesis@stylepath mu/fithesis3-1\thesis@ptsize.clo\relax

% \def\ps@thesisheadings{%
% \def\chaptermark##1{%
% \markright{%
% \ifnum\c@secnumdepth >\m@ne
% \thechapter. %
% \fi
% ##1}}%
% \markright{%
% \ifnum\c@secnumdepth >\m@ne
% \thechapter. %
% \fi
% #1})%
% \let@oddfoot@empty
% \let@oddhead@empty
% \def@oddhead{\vbox{\hbox to \textwidth{%
% \hfil{\sc\rightmark}\vskip 4pt\hrule}}%
% \if@twoside
% \def@evenhead{\vbox{\hbox to \textwidth{%
% \vfil{\sc\rightmark}\vskip 4pt\hrule}}%
% \else
% \let@evenhead@oddhead
% \fi
% \let@evenfoot@empty
% \def@evenfoot{\vfil\PageFont\thepage}
% \if@twoside
% \def@oddfoot{\vfil\PageFont\thepage}
% \else
% \let@oddfoot@empty
% \fi
\fi
\let\@mkboth\markboth
}

% Redefines the style of the chapter headings
\renewcommand*{\chapter}{
\if@twoside
\clearpage
\thispagestyle{empty}
cleardoublepage
\else
\clearpage
\fi\thispagestyle{plain}
\global\@topnum\z@
@afterindentfalse
secdef\@chapter\@schapter

% Redefines the style of part headings
\renewcommand*{\part}{
\clearpage
\thispagestyle{empty}
cleardoublepage
\thispagestyle{empty}
\if@twocolumn%
onecolumn
@tempswatrue
\else
@tempswafalse
\fi
hbox{}vfil

\newif\if@restonecol
\def\alwayssingle{\@restonecolfalse\if@twocolumn\@restonecoltrue\onecolumn\fi}
\def\endalwayssingle{\if@restonecol\twocolumn\fi}

\renewcommand*{\l@part}[2]{
\ifnum\c@tocdepth>-2\relax
\addpenalty{-\@highpenalty}
\addvspace{0.5em \@plus\p@}
\begingroup
\setlength\@tempdima{3em}
\parindent \z@\rightskip \@pnumwidth
{\leavevmode\normalfont \bfseries #1\hfil \hb@xt\@pnumwidth{\hss #2}}\par
\global\@nobreaktrue
\fi\fi
\let\@mkboth\markboth

\global@nobreaktrue
3.6.2.3 The style/mu/fit10.clo file

This file is conditionally loaded by the style/mu/base.sty file to redefine the page geometry to match the type size of 10 points.
3.6.2.4 The style/mu/fit11.clo file

This file is conditionally loaded by the style/mu/base.sty file to redefine the page geometry to match the type size of 11 points.
3.6.2.5 The style/mu/fit12.clo file

This file is conditionally loaded by the style/mu/base.sty file to redefine the page geometry to match the type size of 12 points. The type dimensions defined by the file are stored in the following private macros as well:

- \thesis@titlePage@normalsize – Equivalent to \normalsize
- \thesis@titlePage@small – Equivalent to \small
- \thesis@titlePage@footnotesize – Equivalent to \footnotesize
- \thesis@titlePage@scriptsize – Equivalent to \scriptsize
- \thesis@titlePage@tiny – Equivalent to \tiny
- \thesis@titlePage@large – Equivalent to \large
- \thesis@titlePage@Large – Equivalent to \LARGE
- \thesis@titlePage@huge – Equivalent to \huge
- \thesis@titlePage@Huge – Equivalent to \Huge

These private macros can be used to typeset elements, whose size should remain constant regardless of the font size setting.
3.6.3 The style files of the Faculty of Informatics

3.6.3.1 The style/mu/fithesis3-fi.sty file

This is the style file for the theses written at the Faculty of Informatics at the Masaryk University in Brno. It has been prepared in accordance with the formal requirements published at the website of the faculty\(^1\).

\NeedsTeXFormat{LaTeX2e}
\ProvidesPackage{fithesis3/style/mu/fithesis3-fi}[2015/05/02]

The file defines the color used with the hyperlinks.

\thesis@color@setup{
  \linkstyle{HTML}{FFD451},
  \tableEmph{HTML}{FFD451},
  \tableOdd{HTML}{FFF9E5},
  \tableEven{HTML}{FFECB3}}

\(^1\)See https://www.fi.muni.cz/docs/BP_DP_na_FI.pdf
The style file redefines the cover and title page footers to include the thesis advisor's name and signature in case of a rigorous thesis. Along with the macros required by the locale file interface, the locale files need to define the following private macros:

\thesis@advisorSignature – The label of the advisor signature field typed in case of a rigorous thesis

\thesis@blocks@declaration The \thesis@blocks@declaration private macro typesets the declaration text. Compared to the definition within the style/mu/base.sty file, this private macro also typesets the advisor's name at the bottom of the page.

The style file defines the autolayout preamble as the cover and the title page followed by the assignment, declaration, acknowledgement, abstract, keywords, tab-
ble of contents and list of tables and figures as a part of the front matter. All blocks beside \thesis@titlePage are defined in the style/mu/base.sty file.

\def\thesis@preamble{\
\thesis@blocks@cover\
\thesis@blocks@titlePage\
\thesis@blocks@frontMatter\
\thesis@blocks@assignment\
\thesis@blocks@declaration\
\thesis@blocks@thanks\
\thesis@blocks@clearRight\
\thesis@blocks@abstract\
\thesis@blocks@keywords\
\thesis@blocks@tables\
\thesis@blocks@mainMatter}

3.6.4 The style files of the Faculty of Science

3.6.4.1 The style/mu/fithesis3-sci.sty file

This is the style file for the theses written at the Faculty of Science at the Masaryk University in Brno. It has been prepared in accordance with the formal requirements published at the website of the faculty\(^2\).

\NeedsTeXFormat{LaTeX2e}
\ProvidesPackage{fithesis3/style/mu/fithesis3-sci}[2015/05/02]

The file defines the color used with the hyperlinks.
\thesis@color@setup{
links={HTML}{00AF3F},
tableEmph={HTML}{00AF3F},
tableOdd={HTML}{8ED2CC},
tableEven={HTML}{B8E8C9}}

In addition to the main locale, the file also requires the Czech and English locales.
\thesis@requireLocale{czech}
\thesis@requireLocale{english}

The file loads the following packages:

- tikz – Used for dimension arithmetic.
- geometry – Used for the modifications of the type area dimensions.

The \thesis@blocks@bibEntry private macro typesets a bibliographical entry. Along with the macros required by the locale file interface, the locale files need to define the following private macros:

\thesis@blocks@bibEntry

\thesis@czech@bib@title

---

\thesis@blocks@bibEntryEn

The \thesis@blocks@bibEntryEn private macro typesets a bibliographical entry in English. Along with the macros required by the locale file interface, the locale files need to define the following private macros:

\thesis@english@bib@title – The title of the \thesis@blocks@bibEntryEn block
\thesis@english@bib@author – The label of the author name entry
\thesis@english@bib@title – The label of the title name entry
\thesis@english@bib@programme – The label of the programme name entry
\thesis@english@bib@field – The label of the field name entry
\thesis@english@bib@advisor – The label of the advisor name entry
\thesis@english@bib@academicYear – The label of the academic year entry
\thesis@english@bib@pages – The label of the number of pages entry
\thesis@english@bib@keywords – The label of the keywords entry
If the current locale is English, the macro produces no output.
\def\thesis@blocks@bibEntryEn{% 
  \begin{alwaysingle}
    % Start the new chapter without clearing the right page
    \chapter*{\thesis@english@bib@title}
    % Calculate the width of the columns
    \let\@A\relax\newlength{\@A}\settowidth{\@A}{{\bf\thesis@english@bib@author:}}
    \let\@B\relax\newlength{\@B}\settowidth{\@B}{{\bf\thesis@english@bib@thesisTitle:}}
    \let\@C\relax\newlength{\@C}\settowidth{\@C}{{\bf\thesis@english@bib@programme:}}
    \let\@D\relax\newlength{\@D}\settowidth{\@D}{{\bf\thesis@english@bib@field:}}
    % Unless this is a rigorous thesis, we will be typesetting
    % the name of the thesis advisor.
    \let\@E\relax\newlength{\@E}\settowidth{\@E}{{\bf\thesis@english@bib@advisor:}}
    \let\@F\relax\newlength{\@F}\settowidth{\@F}{{\bf\thesis@english@bib@academicYear:}}
    \let\@G\relax\newlength{\@G}\settowidth{\@G}{{\bf\thesis@english@bib@pages:}}
    \let\@H\relax\newlength{\@H}\settowidth{\@H}{{\bf\thesis@english@bib@keywords:}}
    \let\@skip\relax\newlength{\@skip}\setlength{\@skip}{16pt}
    \let\@left\relax\newlength{\@left}\pgfmathsetlength{\@left}{\max(\@A,\@B,\@C,\@D,\@E,\@F,\@G,\@H)}
    \let\@right\relax\newlength{\@right}\setlength{\@right}{\textwidth-\@left-\@skip}
    % Typeset the table
    \renewcommand{\arraystretch}{2}
    \begin{thesis@newtable@old}{@{}p{\@left}@{\hskip\@skip}p{\@right}@{}}
      \textbf{\thesis@english@bib@author:} & \thesis@author\thesis@english@facultyName, \thesis@english@universityName\thesis@departmentEn
      \textbf{\thesis@english@bib@thesisTitle:} & \thesis@titleEn \\
    \end{thesis@newtable@old}
\thesis@blocks@frontMatter

The \thesis@blocks@frontMatter private macro sets up the style of the front matter of the thesis. The front matter is typeset without any visible numbering, as mandated by the formal requirements of the faculty.

\thesis@blocks@cover

The \thesis@blocks@cover private macro typesets the thesis cover.
The \thesis@blocks@titlePage private macro typesets the thesis title page. Depending on the value of the \ifthesis@color@ conditional, the faculty logo is loaded from either \thesis@logopath, if false, or from \thesis@logopath color/, if true.

\def\thesis@blocks@titlePage{{%  
  \edef\thesis@logopath@color{\thesis@logopath\ifthesis@color@ color/\fi}
  \thesis@blocks@clear
  \ifthesis@twoside@\@twosidefalse\fi % Temporarily disable twoside
  \begin{alwayssingle}
    \thispagestyle{empty}
    \begin{adjustwidth}{-12mm}{}\end{adjustwidth}
    \thesis@blocks@universityLogo@color[width=30mm]
    \thesis@blocks@facultyLogo@color[width=30mm]
    \begin{minipage}{30mm}
      \thesis@blocks@universityLogo@color[width=30mm]
    \end{minipage}
    \thesis@blocks@facultyLogo@color[width=30mm]
    \begin{minipage}{89mm}
      \begin{center}
        \thesis@titlePage@LARGE\thesis@czech@universityName\%
        \thesis@titlePage@Large\thesis@czech@facultyName\%
        \thesis@titlePage@normalsize\thesis@department
        \rule{\textwidth}{2pt}\vspace*{2mm}
      \end{center}
    \end{minipage}
    \begin{minipage}{30mm}
      \thesis@blocks@facultyLogo@color[width=30mm]
    \end{minipage}
  \end{adjustwidth}
  % The middle of the page
  \vfill
  \thesis@titlePage@Huge\thesis@TeXtitle\%
  \thesis@titlePage@large\thesis@czech@typeName\%
  \thesis@titlePage@normalsize\thesis@author
  \vfill
  \thesis@blocks@facultyLogo@color[width=30mm]
  % Unless this is a rigorous thesis, typeset the name of the
  % thesis advisor.
  \thesis@czech@advisorTitle: \thesis@advisor\hfill%
  \thesis@blocks@universityLogo@color[width=30mm]
  \thesis@blocks@facultyLogo@color[width=30mm]
  % Re-enable twoside
  \ifthesis@twoside@\@twosidetrue\fi}} % Re-enable twoside

The style file defines the autolayout preamble as the cover and the title page followed by the bibliographic entry, the abstract assignment, acknowledgement, table of contents and list of tables and figures as a part of the front matter. All the blocks beside \thesis@blocks@bibEntry and \thesis@blocks@bibEntryEn are defined in the style/mu/base.sty file. The entire front matter is typeset as though the locale were Czech in accordance with the formal requirements of the faculty.
3.6.5 The style files of the Faculty of Arts

3.6.5.1 The style/mu/fithesis3-phil.sty file

This is the style file for the theses written at the Faculty of Arts at the Masaryk University in Brno. It has been prepared in accordance with the formal requirements published at the website of the faculty\(^3\).

\NeedsTeXFormat{LaTeX2e}
\ProvidesPackage{fithesis3/style/mu/fithesis3-phil}[2015/04/26]

The file defines the color used with the hyperlinks.

\thesis@color@setup{
  links={HTML}{00A1DE},
  tableEmph={HTML}{00A1DE},
  tableOdd={HTML}{E0F3FA},
  tableEven={HTML}{B8E4F5})

The style file configures the title page header to include the department and the field name.

\thesis@blocks@titlePage@department@true
\thesis@blocks@titlePage@field@true

The style file defines the autolayout preamble as the cover and the title page followed by the declaration, acknowledgement, table of contents and the optional list of tables and figures as a part of the front matter. All blocks are defined in the style/mu/base.sty file.

\def\thesis@preamble{%
  \thesis@blocks@cover%
  \thesis@blocks@titlePage%
  \thesis@blocks@frontMatter%
  \thesis@blocks@declaration%
  \thesis@blocks@thanks%
  \thesis@blocks@tables%}

\(^3\)See \url{https://is.muni.cz/auth/do/1421/4581421/Vzor_bakalarske_prace.pdf}
3.6.6 The style files of the Faculty of Education

3.6.6.1 The style/mu/fithesis3-ped.sty file

This is the style file for the theses written at the Faculty of Education at the Masaryk University in Brno. It has been prepared in accordance with the formal requirements published at the website of the faculty.

The file defines the color used with the hyperlinks.

\begin{verbatim}
\thesis@color@setup{
  links={(HTML){FFA02F}},
  tableEmph={(HTML){FFA02F}},
  tableOdd={(HTML){FFF1E0}},
  tableEven={(HTML){FFDEB7}}
}
\end{verbatim}

In addition to the main locale, the file also requires the English locale.

\begin{verbatim}
\thesis@requireLocale{english}
\end{verbatim}

The style file configures the title page header to include the department name and the title page content to include advisor’s name.

\begin{verbatim}
\thesis@blocks@titlePage@department@true
\def\thesis@blocks@titlePage@content{%
  \thesis@titlePage@Huge\bf\thesis@TeXtitle\par\vfil\vskip 0.8in
  \thesis@titlePage@large\sc\thesis@@{typeName}\[0.3in\]
  \thesis@titlePage@Large\bf\thesis@author
  % Typeset the name of the thesis advisor.
  \thesis@titlePage@large\[0.3in]
  \bf\thesis@@{advisorTitle}: \thesis@advisor}
\end{verbatim}

The \thesis@blocks@bibEntry private macro typesets a bibliographical entry. Along with the macros required by the locale file interface, the locale files need to define the following private macros:

- \thesis@locale@bib@title – The title of the \thesis@blocks@bib@title block
- \thesis@locale@bib@pages – The abbreviation of pages used in the bibliographical entry

\begin{verbatim}
\thesis@blocks@bibEntry{

  \thesis@blocks@titlePage@department@true
  \def\thesis@blocks@titlePage@content{%
    \thesis@titlePage@Huge\bf\thesis@TeXtitle\par\vfil\vskip 0.8in
    \thesis@titlePage@large\sc\thesis@@{typeName}\[0.3in\]
    \thesis@titlePage@Large\bf\thesis@author
    % Typeset the name of the thesis advisor.
    \thesis@titlePage@large\[0.3in]
    \bf\thesis@@{advisorTitle}: \thesis@advisor}
\end{verbatim}

*See https://is.muni.cz/do/ped/VPAN/pokdek/Pokyn_dekana_c._1-2010__2_.pdf
The style file defines the autolayout preamble as the cover and the title page followed by the bibliographical entry, abstracts, keywords, declaration, acknowledgement, table of contents and list of tables and figures as a part of the front matter. All blocks beside \thesis@blocks@bibEntry are defined in the style/mu/base.sty file.

3.6.7 The style files of the Faculty of Social Studies

3.6.7.1 The style/mu/fithesis3-fss.sty file

This is the style file for the theses written at the Faculty of Social Studies at the Masaryk University in Brno. Because of the inexistence of faculty-wide formal requirements and recommendations with each department defining their own with varying degrees of rigour, this style is a mere skeleton, which is unlikely to satisfy the exact requirements of any department and will require modification by the user.

The file defines the color used with the hyperlinks.

In addition to the main locale, the file also requires the English locale.

The style file defines the autolayout preamble as the cover and the title page followed by the abstracts, keywords, assignment, declaration, acknowledgement, table of contents and list of tables and figures as a part of the front matter. All blocks are defined in the style/mu/base.sty file.

\begin{Verbatim}
\def\thesis@preamble{%
\thesis@blocks@cover%
\thesis@blocks@titlePage%
\thesis@blocks@frontMatter%
\thesis@blocks@clearRight%
\thesis@blocks@abstract%
\thesis@blocks@abstractEn%
\thesis@blocks@keywords%
\thesis@blocks@keywordsEn%
\thesis@blocks@assignment%
\thesis@blocks@declaration%
\thesis@blocks@thanks%
\thesis@blocks@tables%
\thesis@blocks@mainMatter}
\end{Verbatim}

3.6.8 The style files of the Faculty of Law

3.6.8.1 The style/mu/fithesis3-law.sty file

This is the style file for the theses written at the Faculty of Law at the Masaryk University in Brno. It has been prepared in accordance with the formal requirements published at the website of the faculty\textsuperscript{6}.

\begin{Verbatim}
\NeedsTeXFormat{LaTeX2e}
\ProvidesPackage{fithesis3/style/mu/fithesis3-law}[2015/04/26]
\end{Verbatim}

The file defines the color used with the hyperlinks.

\begin{Verbatim}
\thesis@color@setup{
  links={HTML}{80379B},
  tableEmph={HTML}{80379B},
  tableOdd={HTML}{F0E7F3},
  tableEven={HTML}{D3BADC}}
\end{Verbatim}

In addition to the main locale, the file also requires the English locale.

\begin{Verbatim}
\thesis@requireLocale{english}
\end{Verbatim}

The style file configures the cover and title page headers to include only the faculty name and the department name. Along with the macros required by the locale file interface, the locale files need to define the following private macros:

- \texttt{\thesis@locale@facultyLongName} – The name of the faculty combined with the name of the university.

\begin{Verbatim}
\def\thesis@blocks@cover@header{%
  \{sc\thesis@titlePage@Large\thesis@\{facultyLongName\}\%
  \thesis@titlePage@large\thesis@department\vskip 2em\}}
\end{Verbatim}

\textsuperscript{6}See https://is.muni.cz/do/law/ud/predp/smer/S-07-2012.pdf
The \thesis@blocks@frontMatter private macro sets up the style of the front matter of the thesis. The page numbering is Arabic as per the formal requirements.
\begin{verbatim}
1980 \def\thesis@blocks@frontMatter{%
1981   \thesis@blocks@clear
1982   \pagestyle{plain}
1983   \parindent 1.5em
1984   \setcounter{page}{1}
1985   \pagenumbering{arabic}}
\end{verbatim}

The \thesis@blocks@mainMatter private macro sets up the style of the main matter of the thesis. The page numbering doesn’t reset at the beginning of the main thesis as per the formal requirements.
\begin{verbatim}
1986 \def\thesis@blocks@mainMatter{%
1987   \thesis@blocks@clear
1988   \pagestyle{thesisheadings}
1989   \parindent 1.5em\relax}
\end{verbatim}

The style file defines the autolayout preamble as the cover and the title page followed by the declaration, abstracts, keywords, acknowledgement, table of contents and list of tables and figures as a part of the front matter. All blocks are defined in the style/mu/base.sty file.
\begin{verbatim}
1990 \def\thesis@preamble{%
1991   \thesis@blocks@cover%
1992   \thesis@blocks@titlePage%
1993   \thesis@blocks@frontMatter%
1994   \thesis@blocks@declaration%
1995   \thesis@blocks@clearRight%
1996   \thesis@blocks@abstract%
1997   \thesis@blocks@abstractEn%
1998   \thesis@blocks@keywords%
1999   \thesis@blocks@keywordsEn%
2000   \thesis@blocks@thanks%
2001   \thesis@blocks@tables%
2002   \thesis@blocks@mainMatter}
\end{verbatim}

The style file defines the autolayout postamble as the assignment. This block is defined in the style/mu/base.sty file.
\begin{verbatim}
2003 \def\thesis@postamble{%
2004   \thesis@blocks@assignment}
\end{verbatim}

3.6.9 The style files of the Faculty of Economics and Administration

3.6.9.1 The style/mu/fithesis3-econ.sty file

This is the style file for the theses written at the Faculty of Economics and Administration at the Masaryk University in Brno. It has been prepared in accordance with the formal requirements published at the website of the faculty7.

\footnote{7See https://is.muni.cz/auth/do/econ/predpisy/smernice/prehled/45931363/
Smernice2014-9.pdf}
The file defines the color used with the hyperlinks.

\thesis@color@setup{
\thesis@color{links}{HTML}{7C211E},
\thesis@color{tableEmph}{HTML}{7C211E},
\thesis@color{tableOdd}{HTML}{EFE4E3},
\thesis@color{tableEven}{HTML}{DAC1BF}}

In addition to the main locale, the file also requires the English locale.

\thesis@requireLocale{english}

The file loads the following packages:

- \texttt{tikz} – Used for dimension arithmetic.
- \texttt{geometry} – Allows for modifications of the type area dimensions.

In addition to this, the type area width is set to 16\,cm in accordance with the formal requirements of the faculty. This leads to overfull lines and is against the good conscience of the author of this style.

\thesis@require{tikz}
\thesis@require{geometry}
\geometry{top=25mm,bottom=20mm,left=25mm,right=25mm,includeheadfoot}

The thesis@blocks@cover private macro typesets the thesis cover.

\thesis@blocks@cover{\ifthesis@cover@
\thesis@blocks@clear
\begin{alwayssingle}
\thispagestyle{empty}
\begin{center}
\textsc{\thesis@titlePage@LARGE\thesis@@{universityName}}\%
\thesis@titlePage@Large\thesis@@{facultyName}\
\vfill
\textbf{\thesis@titlePage@Huge\thesis@TeXtitle}
\vfill
\thesis@titlePage@large\thesis@place
\ 	hesis@year\hfill\thesis@author
\end{center}
\end{alwayssingle}
\fi}

The style file configures the title page header to include the name of the field of study and redefines the title page content not to include the author’s name and the title page footer to include both the author’s and advisor’s name, the year and place of the thesis defense as per the requirements of the faculty.

\thesis@blocks@titlePage@field@true
\thesis@blocks@titlePage@content{% \	hesis@titlePage@Huge\bf\thesis@TeXtitle}
\thesis@blocks@frontMatter The \thesis@blocks@frontMatter private macro sets up the style of the front matter of the thesis. The page numbering is arabic as per the formal requirements and it is hidden. In case of double-sided typesetting, the geometry is altered according to the requirements of the faculty.

\thesis@blocks@mainMatter The \thesis@blocks@mainMatter private macro sets up the style of the main matter of the thesis. The page numbering doesn’t reset at the beginning of the main thesis as per the formal requirements.

\thesis@blocks@toc The \thesis@blocks@toc private macro typesets the table of contents.
\tableofcontents
\begin{macro}{\thesis@blocks@tables}
\begin{macrocode}
def\thesis@blocks@tables{\thesis@blocks@clear\thesis@blocks@lot\thesis@blocks@lof}

The style file defines the autolayout preamble as the cover and the title page followed by the abstracts, keywords, declaration, acknowledgement and table of contents. All blocks are defined in the style/mu/base.sty file, although some are redefined in this file.
\begin{macrocode}
def\thesis@preamble{\thesis@blocks@cover\thesis@blocks@frontMatter\thesis@blocks@titlePage\thesis@blocks@assignment\thesis@blocks@clearRight\thesis@blocks@abstract\thesis@blocks@abstractEn\thesis@blocks@keywords\thesis@blocks@keywordsEn\thesis@blocks@declaration\thesis@blocks@thanks\thesis@blocks@toc\thesis@blocks@mainMatter}

The style file defines the autolayout postamble as the list of tables and the list of figures. All blocks are defined in the style/mu/base.sty file, although some are redefined in this file.
\begin{macrocode}
def\thesis@postamble{\thesis@blocks@tables}

3.6.10 The style files of the Faculty of Medicine

3.6.10.1 The style/mu/fithesis3-med.sty file

This is the style file for the theses written at the Faculty of Medicine at the Masaryk University in Brno. It has been prepared in accordance with the formal requirements published at the website of the Department of Optometry and Orthoptics\footnote{See https://is.muni.cz/do/med/zpravyprac/Optometrie/NALEZITOSTI_ZAVERECNE_PRACE.doc}.

The file defines the color used with the hyperlinks.
\begin{macrocode}
\thesis@color@setup{links={HTML}{F2532D},}
\end{macrocode}
In addition to the main locale, the file also requires the English locale.
\thesis@requireLocale{english}

The file loads the following packages:

- \texttt{tikz} – Used for dimension arithmetic.
- \texttt{geometry} – Allows for modifications of the type area dimensions.
- \texttt{setspace} – Allows for line height modifications.

In addition to this, the type area width is set to 16 cm in accordance with the formal requirements of the faculty. This leads to overfull lines and is against the good conscience of the author of this style.
\thesis@require{tikz}
\thesis@require{geometry}
\thesis@require{setspace}
\geometry{top=25mm,bottom=20mm,left=25mm,right=25mm,includeheadfoot}

\thesis@blocks@cover The \texttt{\thesis@blocks@cover} private macro typesets the thesis cover.
\begin{macrocode}
\def\thesis@blocks@cover{%
  \ifthesis@cover@
    \thesis@blocks@clear
    \begin{alwayssingle}
    \thispagestyle{empty}
    \begin{center}
    \thesis@titlePage@LARGE\thesis@title\%
    \thesis@titlePage@Large\thesis@facultyName\%
    \vfill
    \thesis@titlePage@Huge\thesis@typeName
    \vfill
    \thesis@titlePage@large\thesis@author
    \end{center}
    \end{alwayssingle}
  \fi
}\end{macrocode}

The style file redefines the title page content
\thesis@blocks@titlePage@content{%
\thesis@blocks@titlePage@footer{%
\end{macrocode}
\thesis@blocks@frontMatter

The \thesis@blocks@frontMatter private macro sets up the style of the front matter of the thesis. The page numbering is arabic as per the formal requirements and it is hidden. In case of double-sided typesetting, the geometry is altered according to the requirements of the faculty.

\thesis@blocks@bibEntry

The \thesis@blocks@bibEntry private macro typesets a bibliographical entry. Along with the macros required by the locale file interface, the locale files need to define the following private macros:

- \thesis@locale@bib@title – The title of the \thesis@blocks@bib@title block
- \thesis@locale@bib@pages – The abbreviation of pages used in the bibliographical entry
The style file defines the autolayout preamble as the cover and the title page followed by the annotation, bibliographical entry, declaration, acknowledgement table of contents and the optional list of tables and figures as a part of the front matter. All blocks are defined in the style/mu/base.sty file, although some are redefined in this file.

\def\thesis@preamble{\
\thesis@blocks@cover\
\thesis@blocks@frontMatter\
\thesis@blocks@titlePage\onehalfspacing
\thesis@blocks@clearRight\thesis@blocks@abstract\thesis@blocks@abstractEn\thesis@blocks@keywords\thesis@blocks@keywordsEn\thesis@blocks@bibEntry\thesis@blocks@declaration\thesis@blocks@thanks\thesis@blocks@tables\thesis@blocks@mainMatter}

3.6.11 The style files of the Faculty of Sports Studies

3.6.11.1 The style/mu/fithesis3-fss.sty file

This is the style file for the theses written at the Faculty of Sports Studies at the Masaryk University in Brno. It has been prepared in accordance with the formal requirements published at the website of the faculty\textsuperscript{9}.

\NeedsTeXFormat{LaTeX2e}
\ProvidesPackage{fithesis3/style/mu/fithesis3-fss}[2015/04/26]

The file defines the color used with the hyperlinks.

\thesis@color@setup{
  links={HTML}{BBC7DD},
  tableEmph={HTML}{0042BA},
  tableOdd={HTML}{E4E9F1},
  tableEven={HTML}{BBC7DD}}

The style file configures the title page header to include the field name.

\thesis@blocks@titlePage@field@true

The style file defines the autolayout preamble as the cover and the title page followed by the declaration, acknowledgement table of contents and the optional list of tables and figures.

\textsuperscript{9}See http://www.fsps.muni.cz/~korvas/pokyny_k_zaverecne_praci.doc
list of tables and figures as a part of the front matter. All blocks are defined in the style/mu/base.sty file.

\def\thesis@preamble{%
\thesis@blocks@cover%
\thesis@blocks@titlePage%
\thesis@blocks@frontMatter%
\thesis@blocks@declaration%
\thesis@blocks@thanks%
\thesis@blocks@tables%
\thesis@blocks@mainMatter}

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Numbers written in italic refer to the page where the corresponding entry is described; numbers underlined refer to the code line of the definition; numbers in roman refer to the code lines where the entry is used.

Symbols

\@A .................. 1644, 1645, 1646, 1647, 1649, 1691, 1715, 1757, 1781, 2041, 2048, 2139, 2149
\@B .................. 1693, 1715, 1759, 1781, 2043, 2048, 2141, 2149
\@C .................. 1695, 1715, 1761, 1781, 2044, 2050, 2142, 2151
\@D .................. 1697, 1715, 1763, 1781, 2046, 2050, 2144, 2151
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\@G .................. 1709, 1715, 1775, 1781
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@afterindentfalse ........ 1143, 1468
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@beginparpenalty .......... 1435
@chapapp ................. 1476, 1518
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@dblfpbot ........ 1369, 1397, 1425
@dblfsep ........ 1368, 1396, 1424
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@endparpenalty .......... 1436
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@evenfoot ............ 1125, 1127
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@highpenalty ... 1168, 1183, 1195, 1434
@ifpackageloaded ...... 289, 291
@itempenalty ........ 1437
@ixpt ............... 1214, 1260
@left ..... 1714, 1717, 1721, 1780, 1783, 1787, 2047, 2052, 2148, 2153
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Change History

v0.0
  General: bachelor project of Daniel Marek under supervision of Petr Sojka 175

v0.0a
  General: changes by Jan Pavlovič to allow fithesis being backend of docbook based system for thesis writing 175

v0.1
  General: new release, documentation editing (CZ only, sorry) [PS] 175

v0.1a
  General: minor documentation changes (CZ only, sorry) [PS] 175

v0.1b
  General: change of default size (11pt→12pt) [JP] 175

v0.1c
  General: default values of \facultyname and \@thesissubtitle set for backward compatibility [PS] 175

v0.1d
  General: removed def chapter from fit1*.clo [JP] 175

v0.1e
  General: add Brno to MU title [JP] 175

v0.1f
  General: add documentation for hyperref [JP] 175

v0.1g
  General: change of default size (12pt→11pt) [JP] 175

v0.2.00
  General: add sk lang [JP, Peter Cerensky] set default cls class to rapport3 [JP] 175

v0.2.01
  General: add subsubsection to toc [JP] 175

v0.2.02
  General: fix encoding bug [JP] 175

v0.2.03
  General: fix title spacing [PS, JP] 175

v0.2.04
  General: fix SK declaration [Peter Cerensky, JP] 175

v0.2.05
  General: add English abstract [JP] 175
v0.2.06
  General: fix : behind Advisor [JP] . 175
v0.2.07
  General: escape all Czech letters [JP] babel is used instead of stupid package czech [JP] \MainMatter should be placed after \tablesofcontents [PS] 175
v0.2.08
  General: add change of University name [JP] . 175
v0.2.09
  General: add EN version of University name [JP] . 175
v0.2.10
  General: fix EN name of Acknowledgement [JP] . 175
v0.2.11
  General: fix missing fi-logo.mf [JP,PS] . 175
v0.2.12
  General: Licence change to the LPPL [JP] . 175
v0.2.12a
  General: fork fithesis2 by Mr. Filipčík and Janoušek; cf. https://github.com/liskin/fithesis 175
v0.3.00
  General: fi logo is no longer special-cased (added eps and pdf), \thesislogopath added to set the logo directory path, \thesiscolor added to enable colorful typo elements [VN] . 175
v0.3.01
  General: documentation now uses babel and cmap packages. the entire file was transcoded into utf8, \thesiscolor was replaced by color class option, added pdf metadata stamping support [VN] . 175
v0.3.02
  General: pdf metadata stamping added for \thesistitle and \thesisstudent [VN] . 175
v0.3.03
  General: Small fixes (added \relax at \MainMatter), generating both fithesis.cls (obsolete, loading fithesis2.cls) and fithesis2.cls, minor doc edits, version numbering of .clo fixed, switch to utf8 and ensuring that .dtx compiles. Documentation adjusted to the status quo, added link to discussion forum (backport of v0.2.14) [PS] 175
v0.3.04
  General: Import the url package to allow for the use of \url1 within the documentation. (backport of v0.2.15@r13) [VN] . 175
v0.3.05
  General: Added support for change typesetting. Restructured the code to make it more amenable to literal programming. Added support for \CodelineIndex typesetting. Added information about the usage of fitthesis1 and fithesis2 on the FI unix machines. (backport of v0.2.16) [VN] Minor changes throughout the text, added a link to the the fthesis forums [PS] (backport of v0.2.15@r14:15) . 175
v0.3.06
  General: Added the colorx package and the base colors for each faculty. If the color option is specified, the tabular environment gets redefined and uses the faculty colors to color alternating table rows to improve readability. The hyperref links in the e-version are now likewise colored according to the chosen faculty, in this case regardless of the presence of the color option. Dropped the support for typesetting theses outside MU. [VN] 175
v0.3.07
  General: Replaced the \thesisthesiswoman command with \thesisgender. [VN] . 175
v0.3.08
  General: Fixed a non-terminated \if condition. [VN] (backport of
Fixed mostly documentation errors reported at the new fithesis discussion forum (-ti, eco→econ, implicit twocolumn, example extended (font setup), etc.). [PS] (backport of v0.2.17) 175

v0.3.09
General: A complete refactoring of the class. The class was decomposed into a base class, locale files and style files. [VN] . . . . 175

v0.3.10
General: Fixed a typo in the technical documentation. Updated the Advanced usage chapter of the user guide. The required packages listed in Section 2.2 of the user guide are now always correct. Adjusted the footer spacing in the styles of econ and fi. Added Advanced usage chapter to the user guide. Added the description of basic options into the user guide. Added the table and oldtable options. Added the type field to the guide for completeness. [VN] . . . . . . 175
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[12] Carl Pearson. “On the criterion that a given system of deviations from the probable in the case of a correlated system of variables is such that it can be reasonably supposed to have arisen from
random sampling”. In: *Philosophical Magazine* (1900), pp. 157–175.


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Glossary

B

beamer

A \LaTeX document class for the typesetting of presentations. 17, 27

\BibTeX

A package for the automated typesetting of bibliography stored in a separate database file. 14, 17

C

class character encoding

Specifies how characters are going to be represented on the bit level. The first character encoding in use was American Standard Code for Information Interchange [62] (ASCII), which was standardized in 1963 and which encodes lowercase and uppercase letters of English alphabet, digits, punctuation, a space and several teletype control codes. ASCII encodes each character as a 7bit string.

As time went on, a plethora of 8-bit encodings, which remained backwards compatible with ASCII, but used the additional bit to support the encoding of various non-English alphabet characters, became increasingly popular. In the Central Europe, the encodings of choice were ISO 8859-2 [63] and Windows-1250. Character encodings enabled easy text processing, as each character was exactly one byte long, but also introduced additional complexity when dealing with documents, which contained characters from several non-English alphabets at once.

Nowadays, the most commonly used encoding is UTF-8 [64], which can encode any character present in the Unicode character table [65]. This comes at the cost of producing variable-length
characters, which introduces additional overhead to the text processing, although this overhead is generally regarded as trivial. 3, 24, 268

**comma-separated values**

A plain text file format for the storage of tabular data. Individual cells are separated by commas and rows are separated by line breaks [66]. 5, 273

**Computer Modern fonts**

A collection of typefaces, which was designed by Prof. Donald Ervin Knuth and which is used in \TeX. 268, 273

**ČS fonts**

An extension of Computer Modern fonts (CM fonts), which adds support for the typesetting of Czech and Slovak documents. Although preferable over European Computer fonts (EC fonts), ČS fonts have been obsoleted by the LM fonts due to the low typographic quality of their Type 1 version [25]. 14, 15, 17, 270

**ČS\LaTeX**

A set of configuration files, which simplifies the task of typesetting Czech and Slovak documents in \LaTeX. ČS\LaTeX has been obsoleted in favour of the babel package [25]. 14, 17

**ČSplain**

A software package, which simplifies the task of typesetting Czech and Slovak documents in \TeX using multibyte character encodings [67]. 13, 14

**CTAN**

A website, where \TeX-related material and software can be found for download [68]. 27

D

276
Device independent file format

The output of the \TeX{} typesetting program, which describes the layout of the document and which is both hardware and software-independent. The format lacks any font or graphics embedding facilities and therefore needs to be transcoded into another format like PostScript prior to printing. 273

DocBook

A Extensible Markup Language (XML) language for writing documentation. The documentation can be published in a number of formats including web pages, PDF documents and electronic books. 3, 4

DocStrip installer file

A \TeX{} document, which loads the DocStrip macro package and instructs it to decompose specified input files marked up with DocStrip-specific delimiter strings into specified output files. All comments are stripped in the output files [69]. 21, 274

Documented \TeX{} file

A \TeX{} document, whose comments form a separate \TeX{} document, which can be typeset [70]. 21, 273

E

Encapsulated PostScript

A subset of the PostScript language, which imposes a set of formal restrictions with the intent to decrease the complexity of the resulting document [71]. Encapsulated PostScript is primarily used as a vector graphics format. 20, 274

European Computer fonts

An extension of CM fonts, which adds support for European languages using Latin script. Due to their low typographic quality [25], EC fonts have been obsoleted by LM fonts. 268, 274
Extensible Markup Language

A text-based markup language, which is primarily used for the exchange of structured textual data over the Internet. 268, 277

H

hypothesis

With significance testing, we have two orthogonal hypotheses: the null hypothesis \( \theta = c \) and the alternative hypothesis \( \theta \neq c \), where \( \theta \) is a function of given characteristics of the random variables under scrutiny and \( c \in \mathbb{R} \). The hypotheses can then be tested at various significance levels. The higher the significance level, the higher the probability of refusing the null hypothesis in favour of the alternative hypothesis, but the higher is also the risk of error. 10, 12, 271

L

\LaTeX{} document class

A set of \LaTeX{} macros, which define the layout of the resulting document. 1, 16, 267, 273

\LaTeX{} environment

A pair of macros in the form of \texttt{\begin{name}} and \texttt{\end{name}}, where \texttt{name} is the name of the environment. They are used to insert macros before and after content that can not be reliably passed as an argument to a macro. 14, 274

\LaTeX{} package

A set of \LaTeX{} macros and commands, which can be loaded in the preamble of a \LaTeX{} document to add new or alter existing functionality. 275

\LaTeX{} 2ε

A \TeX{} format, which is built around the idea of separation of design and contents of a document. 1, 275
Latin Modern fonts

An extension of CM fonts, which adds support for European languages using Latin script. Due to their high typographic quality [25], LM fonts have obsoleted both EC fonts and ĆŚ fonts. 14, 275

M

macro package

A set of \TeX macros and commands, which can be included in the preamble of a \TeX document to add new or alter existing functionality. 13, 14, 16, 22, 269

magic number

A pattern of bytes located typically in the header of a file, which are used to determine the type of a file at UNIX systems. 9

makefile

A file, which specifies the files and commands necessary to create one or more target files. The makefile is read by the \texttt{make} utility, when the creation of one or more target files is requested. 14, 21, 22, 24, 25

METAFONT

A language developed by Prof. Donald Ervin Knuth alongside \TeX, which allows the definition of vector fonts. xi, 23, 24

Multipurpose Internet Mail Extensions Type

One of the several ways to identify the type of content inside a file. As its name suggest, it was originally designed as an extension to the e-mail protocol [72–77] that would allow the transfer of kinds of data other than ASCII, such as multimedia and binary files. 9, 275

O
Glossary

**OPmac**
A lightweight \TeX\ format, which extends plain \TeX\ to include some basic functionality offered by \LaTeX\ \[78\]. 13

**P**

**plain TeX**
A \TeX\ format created by the author of \TeX, Prof. Donald Ervin Knuth. Plain \TeX\ forms the basis of other \TeX\ formats. 7, 268, 271

**Portable Document Format**
A page-description format tailored specifically to allow the creation of documents, whose appearance is independent on the underlying hardware and software \[79\]. 9, 271, 276

**PostScript**
A page-description language, which allows the creation of documents, whose appearance is independent on the underlying hardware and software \[80\]. Unlike the Portable Document Format, Postscript is a Turing-complete programming language, which enables procedural vector graphics generation.. 9, 20, 269, 274, 276

**p-value**
The least significance level $p$ at which we can refuse the given null hypothesis. 11

**T**

**\TeX**
A typesetting language and its interpreter, which serve to produce complex documents of high typographical quality. The language comprises primitive commands, which can be stored within macros. iv, ix, xi, 1, 3, 5–13, 18, 19, 22, 24, 27, 29, 268, 270–272, 274, 276
Glossary

**TEX Directory Structure**
A set of rules and recommendations describing a unified directory structure containing distribution files such as fonts, formats, packages and classes. The TEX directory structure is used by all major TEX distributions.

**TEX engine**
An interpreter of (usually a superset of) the TEX language. The baseline TEX engine, whose language extensions are supported by virtually all modern TEX engines like pdfTeX, XeTeX or LuaTeX, is εTEX.

**TEX format**
A set of macros on top of the language constructs of TEX. The macro definitions are processed by the iniTEX utility, which dumps the state of TEX into a format file afterwards. The TEX format file is used to speed up future initializations of the given format.

**text width**
The part of the page surrounded by page margins into which text or graphics can be placed. The text width of this thesis is 361.34999pt \(\approx 127\) mm.

**XML language**
A set of all XML documents compliant with a given XML schema.

**ZIP**
An archive file format that allows the user to include the contents of a directory tree into a single file. The contents can be optionally compressed using one of the several supported compression algorithms.
Acronyms

A

ASCII

B

BUT
the Brno University of Technology. 15

C

class
\LaTeX{} document class. ix, 1, 3–7, 13–20, 24, 25, 27, 29, 267, 272, 273, Glossary: \LaTeX{} document class

CM fonts
Computer Modern fonts. 268, 270, 273, Glossary: Computer Modern fonts

CSV
comma-separated values. 5, 29, 273, Glossary: comma-separated values

CTU FEL
the Faculty of Electrical Engineering of the Czech Technical University in Prague. 13, 14

CUNI
the Charles University in Prague. 13, 14

D
Acronyms

DTX
Documented \TeX \file. 21, 22, 24, 273, Glossary: Documented \TeX \file

DVI
Device independent file format. 9, 273, Glossary: Device independent file format

E

EC fonts
European Computer fonts. 268, 270, 274, Glossary: European Computer fonts

engine
\TeX \ engine. 1, 9, 14, 17, 19, 20, 22, 274, Glossary: \TeX \ engine

environment
\LaTeX \ environment. 14–17, 274, Glossary: \LaTeX \ environment

EPS
Encapsulated PostScript. 20, 23, 24, 274, Glossary: Encapsulated PostScript

F

FI
the Faculty of Informatics of the Masaryk University in Brno. xi, 1, 3, 4, 7, 9, 11, 13, 18, 19, 23, 24, 27

FPF SU
the Faculty of Philosophy and Science in Opava of the Silesian University in Opava. 16

FS UP
the Faculty of Science of UP. 17

284
FSS
the Faculty of Social Studies of the Masaryk University in Brno. 22

INS
DocStrip installer file. 21, 22, 24, 274, Glossary: DocStrip installer file

L

\LaTeX
\LaTeX\ 2\varepsilon. 1, 4, 6, 14–17, 27, 29, 267, 269–271, 273–275, Glossary: \LaTeX\ 2\varepsilon

LM fonts
Latin Modern fonts. 14, 17, 268, 275, Glossary: Latin Modern fonts

M

Med
the Faculty of Medicine of the Masaryk University in Brno. 22

MENDELU
the Mendel University in Brno. 14

MIME type
Multipurpose Internet Mail Extensions Type. 9, 275, Glossary: Multipurpose Internet Mail Extensions Type

MU
the Masaryk University in Brno. iv, ix, xi, 1, 3, 5, 7, 8, 11, 18–20, 22, 23, 27, 29, 274–276

O


**Acronyms**

**OPF SU**
the School of Business Administration in Karviná of the Silesian University in Opava. 16

**P**
package
\LaTeX{} package. 1, 4, 14–18, 22, 267, 268, 272, 275, *Glossary: \LaTeX{} package*

**PDF**
Portable Document Format. 9, 14, 15, 19, 20, 23, 24, 269, 271, 276, *Glossary: Portable Document Format*

**PS**
PostScript. 9, 20, 269, 274, 276, *Glossary: PostScript*

**S**
Sci
the Faculty of Science of the Masaryk University in Brno. xi, 7, 9–11, 18, 22

**SU**
the Silesian University in Opava. 16, 274, 275

**T**
TDS
\TeX{} Directory Structure. 22, 276, *Glossary: \TeX{} Directory Structure*

**TUL**
the Technical University in Liberec. 15

**U**
286
UP
the Palacký University in Olomouc. 17, 27, 274

V

VŠB-TU
the Technical University of Ostrava. 16

X

XML
Extensible Markup Language. 268, 277, Glossary: Extensible Markup Language
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CUStyle, 13, 22

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