

HEUTHESIS：哈尔滨工程大学学位论文模板

[李文辉]lwh@hrbeu.edu.cn

v1.0.5 (2026/03/01)

摘要

该宏包为哈尔滨工程大学本、硕、博中英文毕业论文、开题和中期报告以及博后出站报告模板。

免责声明

1. 本模板的发布遵守 L^AT_EX Project Public License，使用前请认真阅读协议内容。
2. 本模板为作者根据哈尔滨工程大学本科生院颁发的《哈尔滨工程大学本科生毕业论文撰写规范》，哈尔滨工程大学研究生院颁发的《哈尔滨工程大学研究生学位论文撰写规范》编写而成，为哈尔滨工程大学学生撰写毕业论文使用。
3. 哈尔滨工程大学教务处和研究生院只提供毕业论文写作指南，不提供官方模板，也未授权第三方模板为官方模板，所以此模板仅为写作指南的参考实现，不保证格式审查老师不提意见。任何由于使用本模板而引起的论文格式审查问题均与本模板作者无关。
4. 任何个人或组织以本模板为基础进行修改、扩展而生成的新的专用模板，请严格遵守 L^AT_EX Project Public License 协议。由于违犯协议而引起的任何纠纷争端均与本模板作者无关。

目录

1 模板介绍	3	3.5.3 数学环境	17
2 安装	3	3.5.4 算法	18
2.1 模板的组成	3	3.5.5 引用参考文献	18
2.2 生成模板	4	3.5.6 列表环境	19
2.3 生成论文	4	3.6 后文	19
2.3.1 X _E T _E X	4	3.6.1 结论	19
2.3.2 latexmk	5	3.6.2 参考文献	19
2.3.3 make	5	3.6.3 附录	19
2.3.4 buidl.bat	5	3.6.4 所发表文章	19
2.4 生成封面	5	3.6.5 索引	20
3 使用说明	6	3.6.6 致谢声明	20
3.1 示例文件	6	3.6.7 简历	21
3.2 论文选项	11	3.6.8 授权	21
3.3 中文字体	11	3.7 其它	21
3.4 前文	11	4 实现细节	22
3.4.1 密级	11	4.1 基本信息	22
3.4.2 论文标题	12	4.2 定义选项	70
3.4.3 作者姓名	12	4.3 装载宏包	74
3.4.4 申请学位名称	12	4.4 页面设置	77
3.4.5 院系名称	12	4.5 主文档格式	78
3.4.6 专业名称	12	4.5.1 页面选项	78
3.4.7 导师	13	4.5.2 字体	79
3.4.8 日期	13	4.5.3 页眉页脚	81
3.4.9 学生类型	13	4.5.4 段落	84
3.4.10 学号	14	4.5.5 脚注	84
3.4.11 摘要	14	4.5.6 数学相关	84
3.4.12 符号对照表	14	4.5.7 浮动对象以及表格	89
3.4.13 目录	14	4.5.8 章节标题	92
3.5 正文	15	4.5.9 定义封面	100
3.5.1 图和表	15	4.5.10 目录	118
3.5.2 公式	17	4.6 其它	124
5 修改记录		5 修改记录	124
6 索引		6 索引	125

1 模板介绍

HEUTHESIS (Harbin Engineering University L^AT_EX Thesis Template) 是为了帮助哈尔滨工程大学毕业生撰写毕业论文而编写的 L^AT_EX 论文模板。

本模板是基于哈尔滨工业大学学位论文模板 HI^ITHESIS 修改而来。

本文档将尽量完整的介绍模板的使用方法，如有不清楚之处可以参考示例文档，有兴趣者都可以参与完善此手册，也非常欢迎对代码的贡献。

文档记号的说明

本文采用不同字体表示不同内容。无衬线字体表示宏包名称，如 xeCJK 宏包、heuhesis-book 文档类等；等宽字体表示代码或文件名，如 \heustep 命令、thesis.tex 等；带有尖括号的楷体（或西文斜体）表示命令参数，如 模板选项、English title 等。在使用时，参数两侧的尖括号不必输入。示例代码进行了语法高亮处理，以方便阅读。在用户手册中，带有紫色侧边线的为 L^AT_EX 代码，而带有红色侧边线的则为命令行代码，请注意区分。

注意：模板的作用在于减少论文写作过程中格式调整的时间。前提是遵守模板的用法，否则即使用了 HEUTHESIS 也难以保证输出的论文符合学校规范。

2 安装

HEUTHESIS 一般不需要进行安装，直接将压缩包解压后就可以使用。

2.1 模板的组成

下表列出了 HEUTHESIS 的主要文件及其功能介绍：

文件（夹）	功能描述
heuthesis.ins	DOCSTRIP 驱动文件（开发用）
heuthesis.dtx	DOCSTRIP 源文件（开发用）
heuthesisbook.cls	模板类文件
heuthesisbook.cfg	模板配置文件
heuthesis.bst	参考文献样式文件
heuthesis.ist	索引样式文件
reference.bib	文档参考文献
main.tex	示例文档主文件
front/	正文之前内容
body/	正文内容
back/	正文之后内容
data/	TiZk 绘图数据文件
figures/	插图图片路径
heuthesis.sty	为示例文档加载其它宏包
Makefile	Makefile

文件（夹）	功能描述
latexmkrc	latexmk 配置文件
README.md	Readme
heuthesis.pdf	用户手册（本文档）

几点说明：

- `heuthesisbook.cls` 和 `heuthesisbook.cfg` 可由 `heuthesis.ins` 和 `heuthesis.dtx` 生成。
- 使用前阅读文档：`heuthesis.pdf`。
- 默认的生成的论文中含有丰富的格式示例，使用前请仔细阅读 `main.pdf`。

2.2 生成模板

将模板解压缩到文件夹，其中包括：模板源文件 (`heuthesis.ins` 和 `heuthesis.dtx`)，参考文献样式 `heuthesis.bst` 和示例文档。在使用之前需要先生成模板文件和配置文件（具体命令细节请参考 `README.md` 和 `Makefile`）：

如果是直接使用编译后的模板文件，可以忽略下述操作。

```
$ cd heuthesis
# 生成 heuthesisbook.cls 和 heuthesisbook.cfg
$ xelatex heuthesis.ins

# 下面的命令用来生成用户手册，可以不执行
$ xelatex heuthesis.dtx
$ makeindex -s gind.ist -o heuthesis.ind heuthesis.idx
$ makeindex -s gglo.ist -o heuthesis.gls heuthesis.glo
$ xelatex heuthesis.dtx
$ xelatex heuthesis.dtx % 生成说明文档 heuthesis.pdf
```

2.3 生成论文

本节介绍几种常见的生成论文的方法。用户可根据自己的情况选择。

2.3.1 X_ET_EX

很多用户对 L_AT_EX 命令执行的次数不太清楚。一个基本的原则是多次运行 L_AT_EX 命令直至不再出现警告。下面给出生成示例文档的详细过程（# 开头的行为注释），首先来看推荐的 `xelatex` 方式：

```
# 1. 发现里面的引用关系，文件后缀 .tex 可以省略
$ xelatex main

# 2. 编译参考文件源文件，生成 bbl 文件
$ bibtex main

# 3. 下面解决引用
$ xelatex main
```

```
$ xelatex main    # 如果不需要生成索引此时生成完整的 pdf 文件
$ splitindex main -- -s heuthesis.ist  # 自动生成索引
$ xelatex main.tex
```

2.3.2 latexmk

`latexmk` 命令支持全自动生成 L^AT_EX 编写的文档，并且支持使用不同的工具链来进行生成，它会自动运行多次工具直到交叉引用都被解决。下面给出了一个用 `latexmk` 调用 `xelatex` 生成最终文档的示例：

```
# 一句话就够了!
$ latexmk -xelatex main
```

2.3.3 make

上面的方法虽然不复杂，但是每次都输入还是非常罗嗦，所以 HEUThESIS 提供了一个 `Makefile`：

```
$ make clean
$ make cls          # 生成 heuthesisbook.cls 和 heuthesisbook.cfg
$ make doc          # 生成说明文档 heuthesis.pdf
$ make main         # 生成示例文档 main.pdf
```

HEUThESIS 的 `Makefile` 默认用 `latexmk` 调用 `xelatex` 编译，此外还支持直接用 `xelatex` 编译。如有需要可修改 `Makefile` 开头的参数或通过命令行传递参数（请参看 `README.md`），进一步还可以修改 `latexmkrc` 进行定制。

生成新的类文件和配置文件即可。也可以直接拷贝 `heuthesisbook.cls`, `heuthesisbook.cfg` 和 `heuthesis.ist`，免去上面命令的执行。

2.3.4 build.bat

示例文件夹中也包含了 `build.bat` 批处理文件，在 Windows 环境下可以直接使用改批处理文件生成最终 PDF 格式的论文 `main.pdf`。

2.4 生成封面

模板还提供了用于生成论文 A3 页面的封面定义文档。用户可根据自己的情况选择。

A3 封面的生成是利用上述论文的首页封面和书脊拼合而成，因此在生成 A3 封面前需要先生成论文 `main.pdf` 并在 `spine.tex` 定义论文标题和作者姓名信息，然后使用 `xelatex` 依次编译 `spine.tex` 和 `a3cover.tex`:

```
# 1. 使用 xelatex
$ xelatex spine
$ xelatex a3cover

# 2. 或者使用 latexmk
$ latexmk spine
$ latexmk a3cover
```

在 Windows 系统下也可以直接使用 `make_cover.bat` 批处理生成 A3 封面。

3 使用说明

本手册假定用户已经能处理一般的 L^AT_EX 文档，并对 B_IB^ET_EX 有一定了解。如果从来没有接触过 T_EX 和 L^AT_EX，建议先学习相关的基础知识。

3.1 示例文件

模板核心文件有三个：`heuthesisbook.cls`, `heuthesisbook.cfg` 和 `heuthesis.bst`, 但是如果没有示例文档用户会发现很难下手。所以推荐新用户从模板自带的示例文档入手, 里面包括了论文写作用到的所有命令及其使用方法, 只需要用自己的内容进行相应替换就可以。对于不清楚的命令可以查阅本手册。下面的例子描述了模板中章节的组织形式, 来自于示例文档, 具体内容可以参考模板附带的 `main.tex`。

```
% !Mode::: "TeX:UTF-8"
%
%          大工至善，大学至臻
%
%          哈尔滨工程大学论文模板
%
%          Email: lwh@hrbeu.edu.cn
%          https://www.hrbeu.edu.cn
%
%          https://gitee.com/liwenhui/heuthesis
%
%
\documentclass[fontset=fandol,type=master,language=english]{heuthesisbook}
% No space between options
%
%
% Mandatory option
% type=doctor|master|bachelor|postdoc
%
%
% Optional option (with default value)
% campus=qingdao|yantai|harbin
% Default: harbin
% glue=true|false
% Line spacing: true means [3,4]mm, false means 3mm.
% tocfour=true|false
% TOC level four or three
% fontset=windows|mac|ubuntu|fandol|adobe|founder
% Normally, TeX could detect your OS font automatically. If not, explicitly
```



```
\documentclass[type=master, fontset=windows]{heuthesisbook}
% 此处选项中不要有空格
%
%%%%%%%%%%%%%
%
% 必填选项
%
% type=doctor|master|bachelor|postdoc
%
%
%%%%%%%%%%%%%
%
% 选填选项（选填选项的缺省值已经尽可能满足了大多数需求，除非明确知道自己有什么
% 需求）
%
% campus=qingdao|yantai|harbin
% 含义：校区选项，默认harbin
%
% profdegree=true|false
% 含义：是否为专业学位，缺省值为false。专业学位和同等学力等，要在cover中设置类
% 型，封面中不同格式
%
% 注意：当当 profdegree=true 需设置下面的 research 选项
%
% researchtype=productdevelopment|projectdplanning|projectdesign|
applicationResearch
% 含义：专业学位论文研究类型，产品设计|工程规划|工程设计|应用研究
%
% 注意：当 profdegree=true 时需设置此选项，不设置的话默认为applicationResearch
%
% tocfour=true|false
%
% 含义：是否添加第四级目录，只对本科文科个别要求四级目录有效，缺省值为
% false
%
% fontset=windows|mac|ubuntu|fandol|adobe
%
% 含义：设置字体，默认情况会自动识别系统，然后设置字体。后两个是开源字体，自行
% 下载安装后设置使用。
%
% chapterhang=true|false
%
% 含义：目录的章标题是否悬挂居中，规范中要求章标题少于15字，所以这个选项
% 有无没什么用，除了特殊需求。缺省值为true。
%
% subtitle=true|false
%
% 含义：论文题目是否含有副标题，缺省值为false，如果有要在cover中设置副标
% 题内容，封面中显示。
%
% openright=true|false
%
% 含义：博士论文是否要求章节首页必须在奇数页，此选项不在规范要求中，按个
% 人喜好自行决定。默认否。注意，我校的默认情况是打印版博士论文要求右翻页
% ，电子版要求非右翻页且无空白页。如果想DIY（或身不由己DIY）在什么地方右
% 翻页，将这个选项设置为false，然后在目标位置添加`\cleardoublepage`命令即
% 可。
%
% pageempty=true|false
%
% 含义：空白页是否无页眉页脚（默认否）。
%
% library=true|false
%
% 含义：是否为提交到图书馆的电子版。默认否。注意：如果设置成true，那么
% openright选项将被强制转换为false。
%
% capcenterlast=true|false
%
% 含义：图题、表题最后一行是否居中对齐（我校规范要求居中，但不要求居中对
% 齐），此选项不在规范要求中，按个人喜好自行决定。默认否。
%
% subcapcenterlast=true|false
%
% 含义：子图图题最后一行是否居中对齐（我校规范要求居中，但不要求居中对齐
```

```

    ), 此选项不在规范要求中, 按个人喜好自行决定。默认否。
    % absupper=true|false
    % 含义: 中文目录中的英文摘要在中文目录中的大小写样式歧义, 在规范中要求首
    % 字母大写, 在work样例中是全大写。该选项控制是否全大写。默认否。
    % bsmainpagenumberline=true|false
    % 含义: 是否在正文中显示页码横线, 默认否。
    % bsfrontpagenumberline=true|false
    % 含义: 是否在前文中显示页码横线, 默认否。
    % bsheadrule=true|false
    % 含义: 由于本科生论文官方模板的页码和页眉格式混乱, 提供这个选项自定义设
    % 置是否显示页眉横线, 默认显示。
    % splitbibitem=true|false
    % 含义: 参考文献每一个条目内能不能断页, 默认否。
    % newtxmath=true|false
    % 含义: 数学字体是否使用新罗马。默认是。
    % chapterbold=true|false
    % 含义: 章标题在目录和正文中是否加粗
    % engtoc=true|false
    % 含义: 是否需要添加英文目录
    %

\usepackage{heuthesis}

\graphicspath{{figures/}}


\begin{document}
\frontmatter
\input{front/cover} % 封面和扉页
\makecover

\authorization % 使用模板生成的原始原创性与授权声明页
\% \authorization[auscan.pdf] % 使用签字扫描版的原创性与授权声明页

\cleardoublepage % 控制右开页, 与前文连续开页时注释掉
\makeabstract % 封面和摘要

\cleardoublepage % 控制右开页, 与前文连续开页时注释掉
\tableofcontents % 论文目录

\% \cleardoublepage % 控制右开页, 与前文连续开页时注释掉
\listoffigures % 插图目录, 如不需要可用 % 注释掉下面两行

\% \cleardoublepage % 控制右开页, 与前文连续开页时注释掉
\listoftables % 表格目录, 如不需要可用 % 注释掉下面两行

%----- 论文主体, 可以根据需要添加章节 -----
\cleardoublepage % 控制右开页, 后续论文正文一般采用此格式
\mainmatter
\include{body/chap01}

```

```

\include{body/chap02}
\include{body/chap03}
\include{body/chap04}
\include{body/chap05}
\include{body/chap06}
\include{body/chap07}

%----- 论文结论、参考文献、附录等部分 -----
\backmatter
\include{back/conclusion} % 结论

\bibliographystyle{heuthesis}
\bibliography{reference}
%
```

% 硕博书序

%

```
% \include{back/publications} % 所发文章
\include{back/acknowledgements} %致谢
\include{back/resume} % 个人简介

\include{back/AppendixA.tex}
\include{back/AppendixB.tex}

% \include{back/ceindex} % 索引，根据自己的情况添加或者不添加，选择自动添加或者手工添加。
%
```

% 本科书序为：

%

```
% \include{back/acknowledgements} %致谢
% \include{back/appendix01} %本科生翻译论文
%
```

% 博后书序

%

```
% \include{back/acknowledgements} %致谢
% \include{back/doctorpublications} % 所发文章
% \include{back/publications} % 所发文章
% \include{back/resume} % 个人简介
% \include{back/correspondingaddr} %通信地址

```

```
%  
%  
\end{document}
```

3.2 论文选项

论文选项，就是在 `main.tex` 文件的开头，非注释的第一行的方括号中填写的选项，示例见上节。各个选项的含义说明已经在上节中说明，所以这里就不重复了。

3.3 中文字体

正确配置中文字体是使用模板的第一步。模板调用 CTeX 宏包，只提供基于 xeCJK 包，使用 XeLaTeX 编译的方式。关于如何使用字体命令、字号等等，属于模板格式范畴，在实现细节中讨论。关于中文字体安装、配置的所有问题不在本模板讨论范围。

3.4 前文

前文内容是正文之前，含封面、摘要、目录、符号表。封面信息提供两种配置方法：一是通过统一设置命令 `\heusetup` 通过 *key=value* 形式完成；二是每个信息利用命令独立设置，其中命令的名字跟 *key* 相同。两种方式可以交叉使用，并按顺序执行（即后来的设置会覆盖前面的）。以 `c` 开头的命令跟中文相关，`e` 开头则为对应的英文。

`\heusetup` `\heusetup` 用法与常见 *key=value* 命令相同，如下：

```
\heusetup{  
    key1 = value1,  
    key2 = {a value, with comma},  
}  
% 可以多次调用  
\heusetup{  
    key3 = value3,  
    key1 = value11, % 覆盖 value1  
}
```

注意：`\heusetup` 使用 *kvoptions* 机制，所以配置项之间不能有空行，否则会报错。

大多数命令的使用方法都是：`\command{\langle arg \rangle}`，例外者将具体指出。这些命令都在示例文档的 `front/cover.tex` 中。

3.4.1 密级

`statesecrets` 定义秘密级别、编号和国内国际索引号。

```
cnumber \heusetup{  
statesecrets={公开},  
cnumber={no9527},  
natclassifiedindex={TM301.2},  
intclassifiedindex={62-5},  
}
```

3.4.2 论文标题

论文标题 中英文标题。如果有副标题，需要在封面选项中设置 subtitle=true，否则不显示副标题。博后研究报告封面研究内容标题采用两行格式，需要对 ctitleone 和 ctitledtwo 分别定义。

```
etitle \heusetup{
ctitleone   ctitlecover={封面中文题目（可使用 \cs\cs 断行）} ,
ctitledtwo  ctitle={论文中文题目（页眉等不断行处使用）} ,
csubtitle   etitle={Thesis English Title},
esubtitle   csubtitle={论文中文副题目（如果有）} ,
               esubtitle={Thesis English Sub-Title (if necessary)} ,
               ctitleone={博后中文题目上部分} ,
               ctitledtwo={博后中文题目下部分} ,
}
```

3.4.3 作者姓名

作者姓名 作者姓名。

```
cauthor \heusetup{
eauthor   cauthor={中文姓名} ,
               eauthor={Name in Pinyin}
}
```

3.4.4 申请学位名称

学科名称 按照入学的培养计划中学科自行填写，具体学科名称不是本文档范畴。

```
cxueke \heusetup{
exueke   cxueke={工学} ,
               exueke={Engineering},
}
```

3.4.5 院系名称

院系名称 院系名称，同上，按照入学的培养计划中学科自行填写，具体院系名称不是本文档范畴。

```
caffil \heusetup{
eaffil   caffil={动力与能源工程学院} ,
               eaffil={\emultiline[t]{School of Power and Energy Engineering}},
}
```

注意：个别学院英文名过长，使用以上方法自动换行。

3.4.6 专业名称

专业名称 专业名称，同上，按照入学的培养计划中学科自行填写，具体名称不是本文档范畴。

```
csubject \heusetup{
esubject  csubject={动力工程} ,
               esubject={Engineering of Power Energy},
}
```

3.4.7 导师

导师

直接导师。

```
csupervisor \heusetup{  

esupervisor   csupervisor={导师~教授},  

cprofessional esupervisor={Supervisor},  

creviewer     cprofessional={职称(本科)},  

                 creviewer={论文主审人}  

}
```

副导师

副指导教师。

```
cassosupervisor \heusetup{  

eassosupervisor   cassosupervisor={副导师~副教授},  

                      eassosupervisor={2nd Boss}  

}
```

联合导师

硕士生联合指导教师，博士生联合导师。

```
ccosupervisor \heusetup{  

ecosupervisor   ccosupervisor={联合导师~教授},  

                      ecosupervisor={3rd Boss}  

}
```

3.4.8 日期

日期

日期内容包括封面日期、论文提交日期和论文答辩日期等。其中论文封面日期默认为当前时间，也可以自己指定。论文提交日期和论文答辩日期需要手工设置。

```
csubmitdate \heusetup{  

coralexdate   cdate={中文日期},  

edate         csubmitdate={论文提交日期},  

                  coralexdate={论文答辩日期},  

                  edate={English Date}  

}
```

3.4.9 学生类型

学生类型

非全日制或专业学位申请者 (`profdegree=true`)，如：同等学力人员、工程硕士、工商管理硕

`profdegree` 士、高级管理人员工商管理硕士、公共管理硕士、中职教师、高校教师等，具体要求按照入学的

`researchtype` 培养计划中学科自行填写，具体名称不是本文档范畴。同时根据专业学位论文扉页格式要求，

`cstudenttype` 还需要通过 `researchtype` 参数设置论文研究类型。`profdegree` 和 `researchtype` 通过模板选项设

`estudenttype` 置。`cstudenttype` 和 `estudenttype` 在封面定义文件 `back/cover.tex` 文件中通过 `\heusetup` 设置。

```
\heusetup{  

  cstudenttype={工程硕士},  

  estudenttype={Master of Art},  

}
```

3.4.10 学号

cstudentid

学号，具体要求按照入学的培养计划中学科自行填写。

```
\heusetup{
    cstudentid={9527},
}
```

3.4.11 摘要

摘要正文

说明：摘要正文只能用环境命令的形式，不支持 \heusetup。

cabstract (env.)

eabstract (env.)

```
\begin{cabstract}
    摘要请写在这里...
\end{cabstract}

\begin{eabstract}
    Here comes the abstract in English...
\end{eabstract}
```

关键词

关键词用英文逗号分割写入相应的命令中，模板会解析各关键词并生成符合不同论文格

ckeywords 式要求的关键词格式。

ekeywords

```
\heusetup{
    ckeywords={关键词 1, 关键词 2},
    ekeywords={keyword 1, keyword 2}
}
```

3.4.12 符号对照表

denotation (env.)

主要符号表环境，单独在文件 front/denotation.tex 中。根据《哈尔滨工程大学研究生学位论文撰写规范》示例中要求，我校符号表是 table 环境，示例文件如下，由于我校要求博士论文图表标题是双语，所以任何对单个标题的全局格式调整都会影响到双语标题，所以这里使用 \vspace，具体见实现细节中的描述。

```
\begin{denotation}
\begin{table}[h] %此处最好是h
\caption{国际单位制中具有专门名称的导出单位}
\vspace{0.5em}\centering\wuhao
\begin{tabular}{ccccc}
\toprule
量的名称&单位名称&单位符号&其它表示实例\\
\midrule
频率&赫[兹]&Hz&s-1\\
\bottomrule
\end{tabular}
\end{table}
\end{denotation}
```

3.4.13 目录

目录不需要用户干预，自动生成，具体命令已经写在 main.tex 中。

3.5 正文

3.5.1 图和表

哈尔滨工程大学博士毕业论文要求使用中英双语图题、表题，这增加了维护难度。因为现有唯一的方法是在已有的图题或表题的基础上再添加一行英语图题或表题。两个题之间的距离具体多少不在《哈尔滨工程大学研究生学位论文撰写规范》中要求。目前的方法是用户手动调节该距离。关于图题《哈尔滨工程大学研究生学位论文撰写规范》和《哈尔滨工程大学本科生毕业论文撰写规范》只规定了居中，并没有规定居中对其。然而评审老师很多喜欢居中且居中对齐。模板默认选项是居中且居中对齐，如果不希望居中对齐，那么需要在 `main.tex` 的文档类选项中设置选项 `capcenterlast=false`。详细方法见前文的介绍。《哈尔滨工程大学研究生学位论文撰写规范》，《哈尔滨工程大学本科生毕业论文撰写规范》规定：“每个图均应有图题（由图序和图名组成），图题不宜有标点符号，图名在图序之后空1个半角字符排写。图序按章编排，如第1章第一个插图的图号为“图1.1”。图题置于图下，硕士论文只用中文，博士论文用中、英两种文字，居中书写，中文在上，要求中文用宋体5号字，英文用Times New Roman 5号字。有图注或其它说明时应置于图题之上。引用图应注明出处，在图题右上角加引用文献号。图中若有分图时，分图题置于分图之下或图题之下，可以只用中文书写，分图号用(a)、(b)等表示。图中各部分说明应采用中文（引用的外文图除外）或数字符号，各项文字说明置于图题之上（有分图时，置于分图题之上）。图中文字用宋体、Times New Roman字体，字号尽量采用5号字（当字数较多时可用小5号字，以清晰表达为原则，但在一个插图内字号要统一）。同一图内使用文字应统一。图表中物理量、符号用斜体。”单双语图题的方法如下，注释中说明。

```
\begin{figure}[htpb]
\centering
\includegraphics[width = 0.4\textwidth]{golfer}
\caption[golfer1]{}{注意图中文字尽量用五号字
}{Fig.\!$!$}{The person playing golf}
\end{figure}
```

单张单图题的格式如下，

```
\begin{figure}[h]
\centering
\includegraphics[width = 0.4\textwidth]{golfer}
\caption{注意图中文字字号尽量用五号字}
\end{figure}
```

并排图例。

```
\begin{figure}[htbp]
\centering
\begin{minipage}{0.4\textwidth}
\centering
\includegraphics[width=\textwidth]{golfer}
\caption[golfer2]{}{打高尔夫球的人}{Fig.\!$!$}{The person playing golf}
\end{minipage}
\begin{minipage}{0.4\textwidth}
\centering
\includegraphics[width=\textwidth]{golfer}
\end{minipage}

```

```
\bicaption[golfer3]{}{打高尔夫球的人}{Fig.$\!$}{The person playing golf}
\end{minipage}
\end{figure}
```

子图图例。

```
\begin{figure}[htbp]
\centering
\subfigure{\label{golfer41}}\addtocounter{subfigure}{-2}
\subfigure[The person playing golf]{\subfigure[打高尔夫球的人~1]{\includegraphics[width=0.4\textwidth]{golfer}}}
\subfigure{\label{golfer42}}\addtocounter{subfigure}{-2}
\subfigure[The person playing golf]{\subfigure[打高尔夫球的人~2]{\includegraphics[width=0.4\textwidth]{golfer}}}
\bicaption[golfer4]{}{打高尔夫球的人}{Fig.$\!$}{The person playing golf}
\end{figure}
```

表格示例，表格中的字体是可以自行调整的。

```
\begin{table}[htbp]
\bicaption[table1]{}{符合研究生院绘图规范的表格}{Table$\!$}{Table in agreement of
the standard from graduate school}
\vspace{0.5em}\centering\wuhao
\begin{tabular}{ccccc}
\toprule[1.5pt]
$D$(in) & $P_u$(lbs) & $u_u$(in) & $\beta$ & $G_f$(psi.in) \\
\midrule[1pt]
5 & 269.8 & 0.000674 & 1.79 & 0.04089 \\
10 & 421.0 & 0.001035 & 3.59 & 0.04089 \\
20 & 640.2 & 0.001565 & 7.18 & 0.04089 \\
\bottomrule[1.5pt]
\end{tabular}
\end{table}
```

因为长表格不是浮动体，不会自动调整位置、也不会自动调整字体大小，一切都要手动设置。设置起来特别繁琐，建议尽量不要使用长表格。

```
\ltfontsize{\dawu[1.667]} %设置表格内字体行间距
\dawu[1.667]\begin{longtable}{ccc} % 注意此处设置的是表格线距离
\longbionenumcaption{}{\wuhao 中国省级行政单位一览} %此处要添加字体设置
\label{table2}{Table$\!$}{}{\wuhao Overview of the provincial
administrative
unit of China}{-0.5em}{3.15bp}\\ %注意后两个参数分别是中英标题间距、标题和表格的间距。
% \caption{\wuhao 中国省级行政单位一览}\ [1em] %注意此处是标题和表格间距，这行
% 是单语标题
\toprule[1.5pt] 名称 & 简称 & 省会或首府 \\ \midrule[1pt]
\endfirsthead
\multicolumn{3}{r}{表~\thetable (续表)}\vspace{0.5em}\\
\toprule[1.5pt] 名称 & 简称 & 省会或首府 \\ \midrule[1pt]
\endhead
\bottomrule[1.5pt]
\endfoot
```

```

北京市 & 京 & 北京\\
天津市 & 津 & 天津\\
河北省 & 冀 & 石家庄市\\
山西省 & 晋 & 太原市\\
内蒙古自治区 & 蒙 & 呼和浩特市\\
辽宁省 & 辽 & 沈阳市\\
吉林省 & 吉 & 长春市\\
黑龙江省 & 黑 & 哈尔滨市\\
上海市 & 沪/申 & 上海\\
江苏省 & 苏 & 南京市\\
浙江省 & 浙 & 杭州市\\
安徽省 & 皖 & 合肥市\\
福建省 & 闽 & 福州市\\
江西省 & 赣 & 南昌市\\
山东省 & 鲁 & 济南市\\
河南省 & 豫 & 郑州市\\
湖北省 & 鄂 & 武汉市\\
湖南省 & 湘 & 长沙市\\
广东省 & 粤 & 广州市\\
广西壮族自治区 & 桂 & 南宁市\\
海南省 & 琼 & 海口市\\
重庆市 & 渝 & 重庆\\
四川省 & 川/蜀 & 成都市\\
贵州省 & 黔/贵 & 贵阳市\\
云南省 & 云/滇 & 昆明市\\
西藏自治区 & 藏 & 拉萨市\\
陕西省 & 陕/秦 & 西安市\\
甘肃省 & 甘/陇 & 兰州市\\
青海省 & 青 & 西宁市\\
宁夏回族自治区 & 宁 & 银川市\\
新疆维吾尔自治区 & 新 & 乌鲁木齐市\\
香港特别行政区 & 港 & 香港\\
澳门特别行政区 & 澳 & 澳门\\
台湾省 & 台 & 台北市\\
\end{longtable}\normalsize %注意这里要恢复正常字体

```

3.5.2 公式

公式不做介绍，与正常用法一致。

3.5.3 数学环境

HEUTHESIS 定义了常用的数学环境：

axiom	theorem	definition	proposition	lemma	conjecture
公理	定理	定义	命题	引理	猜想
proof	corollary	example	exercise	assumption	remark
证明	推论	例子	练习	假设	注释

比如:

```
\begin{definition}
道千乘之国，敬事而信，节用而爱人，使民以时。
\end{definition}
```

产生（自动编号）:

定义 1.1 道千乘之国，敬事而信，节用而爱人，使民以时。

列举出来的数学环境毕竟是有限的，如果想用胡说这样的数学环境，那么可以定义：

```
\newtheorem{nonsense}{胡说}[chapter]
```

然后这样使用：

```
\begin{nonsense}
契丹武士要来中原夺武林秘笈。——慕容博
\end{nonsense}
```

产生（自动编号）:

胡说 1.1 契丹武士要来中原夺武林秘笈。——慕容博

3.5.4 算法

我校算法不在规范中要求，且每个人都有自己的算法格式喜好，大家最好采用大家普遍接收的方式，做到美观、协调就可以。

3.5.5 引用参考文献

`\inlineref` 学校要求的参考文献引用有两种模式：(1) 上标模式。比如“同样的工作有很多^{[1,2]...}”。(2) 正文模式。比如“文[3]中详细说明了...”。其中上标模式使用远比正文模式频繁，所以为了符合使用习惯，上标模式仍然用常规的`\cite{<key>}`，而`\inlineref{<key>}`则用来生成正文模式。

关于参考文献模板推荐使用 BibTeX，关于中文参考文献需要额外增加一个 Entry: language，将其设置为 zh 用来指示此参考文献为中文，以便 `heuthesis.bst` 处理。如：

```
@INPROCEEDINGS{cnproceed,
author      = {王重阳 and 黄药师 and 欧阳峰 and 洪七公 and 段皇帝},
title       = {武林高手从入门到精通},
booktitle   = {第~$N$~次华山论剑},
year        = 2006,
address     = {西安, 中国},
month       = sep,
language    = "zh",
}

@ARTICLE{cnarticle,
AUTHOR     = "贾宝玉 and 林黛玉 and 薛宝钗 and 贾探春",
TITLE      = "论刘姥姥食量大如牛之现实意义",
JOURNAL    = "红楼梦杂谈",
PAGES      = "260--266",
VOLUME    = "224",
```

```

YEAR      = "1800",
LANGUAGE= "zh",
}

```

注意如果不引用参考文献，请删除 `main.tex` 中 `\bibliography` 开头的两行，以避免可能的编译错误。

3.5.6 列表环境

itemize (env.) 为了适合中文习惯，模板将这三个常用的列表环境用 `enumitem` 进行了纵向间距压缩。

enumerate (env.) 一方面清除了多余空间，另一方面用户可以自己指定列表环境的样式（如标签符号，缩进等）。

description (env.) 细节请参看 `enumitem` 文档，此处不再赘述。

3.6 后文

3.6.1 结论

conclusion (env.) 结论之后为后文内容。

```
\begin{conclusions}
```

学位论文的结论作为论文正文的最后一章单独排写，但不加章标题序号。

结论应是作者在学位论文研究过程中所取得的创新性成果的概要总结，不能与摘要混为一谈。博士学位论文结论应包括论文的主要结果、创新点、展望三部分，在结论中应概括论文的核心观点，明确、客观地指出本研究内容的创新性成果（含新见解、新观点、方法创新、技术创新、理论创新），并指出今后进一步在本研究方向进行研究工作的展望与设想。对所取得的创新性成果应注意从定性和定量两方面给出科学、准确的评价，分（1）、（2）、（3）…条列出，宜用“提出了”、“建立了”等词叙述。

```
\end{conclusions}
```

3.6.2 参考文献

在后文中的参考文献是自动生成的，不需要用户干预，具体命令在 `main.tex` 中有示例。

3.6.3 附录

appendix (env.) 所有的附录都插到这里来。因为附录会更改默认的 `chapter` 属性，而后面的个人简历又需要恢复，所以实现为环境可以保证全局的属性不受影响。

```

\begin{appendix}
\input{back/appA.tex}
\end{appendix}

```

3.6.4 所发表文章

publication (env.) 虽然在《哈尔滨工程大学研究生学位论文撰写规范》《哈尔滨工程大学本科生毕业论文撰写规范》中都没有明确规定此处的格式，此处基本按照参考文献的要求进行设置。

```

\begin{publication}
\noindent\textbf{(一) 发表的学术论文}

\begin{publist}
\item XXX, XXX. Static Oxidation Model of Al-Mg/C Dissipation Thermal Protection Materials[J]. Rare Metal Materials and Engineering, 2010, 39(Suppl. 1): 520-524. (SCI~收录, IDS号为~669JS, IF=0.16)
\item XXX, XXX. 精密超声振动切削单晶铜的计算机仿真研究[J]. 系统仿真学报, 2007, 19 (4) : 738-741, 753. (EI~收录号: 20071310514841)
\item XXX, XXX. 局部多孔质气体静压轴向轴承静态特性的数值求解[J]. 摩擦学学报, 2007 (1) : 68-72. (EI~收录号: 20071510544816)
\item XXX, XXX. 硬脆光学晶体材料超精密切削理论研究综述[J]. 机械工程学报, 2003, 39 (8) : 15-22. (EI~收录号: 2004088028875)
\item XXX, XXX. 基于遗传算法的超精密切削加工表面粗糙度预测模型的参数辨识以及切削参数优化[J]. 机械工程学报, 2005, 41 (11) : 158-162. (EI~收录号: 2006039650087)
\item XXX, XXX. Discrete Sliding Mode Cintrok with Fuzzy Adaptive Reaching Law on 6-PEES Parallel Robot[C]. Intelligent System Design and Applications, Jinan, 2006: 649-652. (EI~收录号: 20073210746529)
\end{publist}

\noindent\textbf{(二) 申请及已获得的专利(无专利时此项不必列出) }

\begin{publist}
\item XXX, XXX. 一种温热外敷药制备方案: 中国, 88105607.3[P]. 1989-07-26.
\end{publist}

\noindent\textbf{(三) 参与的科研项目及获奖情况}

\begin{publist}
\item XXX, XXX. XX~气体静压轴承技术研究, XX~省自然科学基金项目. 课题编号: XXXX.
\item XXX, XXX. XX~静载下预应力混凝土房屋结构设计统一理论. 黑龙江省科学技术二等奖, 2007.
\end{publist}
% \vfill
% \hangafter=1 \hangindent=2em \noindent
% \setlength{\parindent}{2em}
\end{publication}

```

3.6.5 索引

ceindex (env.) 我校要求中英文双语索引。后文中的自动索引实际上不需要用户干预。

```

\begin{ceindex}
%如果想要手动加索引, 注释掉以下这一样, 用wordlist环境
\printsubindex*
\end{ceindex}

```

手工添加索引的方法不推荐, 模板中将去除该功能。

3.6.6 致谢声明

acknowledgement (env.) 把致谢做成一个环境更好一些, 直接往里面写感谢的话就可以啦!

```

\begin{acknowledgement}
...

```

```
感谢\heu\LaTeX\ 论文模板\heuthesis\ !  
\end{acknowledgement}
```

3.6.7 简历

resume (env.) 个人简历。实际上，致谢和个人简历是自由发挥的地区，字体，文体，格式，内容，完全自己决定。

```
\begin{resume}  
XXXX~年~XX~月~XX~日出生于~XXXX。  
  
XXXX~年~XX~月考入~XX~大学~XX~院（系）XX~专业，XXXX~年~XX~月本科毕业并获得~XX~学学士学位。  
  
XXXX~年~XX~月-----XXXX~年~XX~月在~XX~大学~XX~院（系）XX~学科学习并获得~XX~学硕士学位。  
  
获奖情况：如获三好学生、优秀团干部、X~奖学金等（不含科研学术获奖）。  
  
工作经历：  
\end{resume}
```

3.6.8 授权

authorization 授权页中的签名和日期是需要手写，不需要人工干预。模板中提供了未签名的空白论文原创性声明和授权页 `authorization.pdf`，可以使用签字后的扫描版文件进行替换。

```
\authorization[authorization.pdf]
```

3.7 其它

模板的配置文件 `heuthesisbook.cfg` 中定义了很多固定词汇，一般无须修改。如果有特殊需求，推荐在导言区使用 `\renewcommand`。

4 实现细节

4.1 基本信息

```

1 /*bst*/
2 ENTRY
3 {
4   author
5   editor
6   translator
7   title
8   edition
9   address
10  publisher
11  pages
12  year
13  date
14  modifydate
15  citedate
16  url
17  doi
18  language
19  booktitle
20  journal
21  chapter
22  series
23  volume
24  number
25  version
26  month
27  school
28  institution
29  organization
30  type
31  howpublished
32  eid
33  key
34  country
35  patentid
36  media
37 } {
38   required
39 } {
40   label
41   mark
42
43
44 }
45
46 %%%%%%

```

```

% class Entry {
% public:
%   String author;
%   String editor;
%   String translator;
%   String title;
%   String edition;
%   String address;
%   String publisher;
%   String pages;
%   String year;
%   String date;
%   String modifydate;
%   String citedate;
%   String url;
%   String doi;
%   String language;
%   String booktitle;
%   String journal;
%   String chapter;
%   String series;
%   String volume;
%   String number;
%   String version;
%   String month;
%   String school;
%   String institution;
%   String organization;
%   String type;
%   String howpublished;
%   String eid;
%   String key;
%   String country;
%   String patentid;
%   String media;
%   // declare integer variables
%   int required; // withther the bi
%   // declare String variables
%   String label;           // label
%   String mark;            // mark
%   // there is ahidden entry variab
%   String sort_key;
% }

%
```

```

47 % %
48 INTEGERS { % // declare global int variables
49   entry.count % static int entry_count;
50   longest.label.width % static int longest_label_width; //
51   i % static int i;
52   j % static int j;
53   k % static int k;
54 } %
55 %

56 %%%%%%%%%%%%%%
57 %
58 STRINGS { % // declare global String variables
59   longest.label % static String longest_label; //
60   s % static String s;
61   t % static String t;
62 } %
63 %

64 %%%%%%%%%%%%%%
65 %

66 % define global static constants
67 FUNCTION {true} {#1}
68 FUNCTION {false} {#0}
69 FUNCTION {debug.enabled} {true}
70 FUNCTION {cap.volume.en} {"Vol~"}
71 FUNCTION {cap.volume.zh} {"卷"}
72 FUNCTION {cap.edition.en} {"~ed"}
73 FUNCTION {cap.edition.zh} {"版"}
74 FUNCTION {cap.anonymous.en} {"Anon"}
75 FUNCTION {cap.anonymous.zh} {"佚名"}
76 FUNCTION {cap.no.address.en} {"[s.l.]"}
77 FUNCTION {cap.no.address.zh} {"[出版地不详]"}
78 FUNCTION {cap.no.publisher.en} {"[s.n.]"}
79 FUNCTION {cap.no.publisher.zh} {"[出版者不详]"}
80 FUNCTION {cap.et.al.en} {"et~al"}
81 FUNCTION {cap.et.al.zh} {"等"}
82 FUNCTION {cap.translate.en} {"~trans"}
83 FUNCTION {cap.translate.zh} {"译"}
84 FUNCTION {cap.doi.url} {"http://dx.doi.org/"}
85 FUNCTION {cap.st.en} {"st"}
86 FUNCTION {cap.nd.en} {"nd"}
87 FUNCTION {cap.rd.en} {"rd"}
88 FUNCTION {cap.th.en} {"th"}

89 %

90 FUNCTION {cap.space} {" "}
91 FUNCTION {cap.period} {"@\_. "}
92 FUNCTION {cap.comma} {"@\_, "}
93 FUNCTION {cap.colon} {"\textnormal{:\ }}"}
94 FUNCTION {cap.double.slash} {"//\thinspace{}"}}
95 FUNCTION {cap.dash} {"\textnormal{-}}"}}

96

```



```

147     } if$                                     %
148 }                                         %
149                                         %
150 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
151                                         %
152 FUNCTION {not} {                           %
153   {                                         %
154     false                                    %
155   } {                                         %
156     true                                     %
157   } if$                                     %
158 }                                         %
159                                         %
160 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
161                                         %
162 FUNCTION {and} {                          %
163   {                                         %
164     skip$                                    %
165   } {                                         %
166     pop$ false                                %
167   } if$                                     %
168 }                                         %
169                                         %
170 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
171                                         %
172 FUNCTION {or} {                           %
173   {                                         %
174     pop$ true                                %
175   } {                                         %
176     skip$                                    %
177   } if$                                     %
178 }                                         %
179                                         %
180 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
181                                         %
182                                         %
183                                         %
184 INTEGERS {length.i}
185 FUNCTION {length} {
186   duplicate$ empty$ {
187     pop$ #0
188   } {
189     #1 'length.i := %
190     false
191     {not} {
192       duplicate$ length.i #1 substrings$ %
193       "" = {
194         true
195       } {
196         length.i #1 + 'length.i := %
197       } %
198     } %
199   } %
200 } %
201                                         %
202                                         %
203                                         %
204                                         %
205                                         %
206                                         %
207                                         %
208                                         %
209                                         %
210                                         %
211                                         %
212                                         %
213                                         %
214                                         %
215                                         %
216                                         %
217                                         %
218                                         %
219                                         %
220                                         %
221                                         %
222                                         %
223                                         %
224                                         %
225                                         %
226                                         %
227                                         %
228                                         %
229                                         %
230                                         %
231                                         %
232                                         %
233                                         %
234                                         %
235                                         %
236                                         %
237                                         %
238                                         %
239                                         %
240                                         %
241                                         %
242                                         %
243                                         %
244                                         %
245                                         %
246                                         %
247                                         %
248                                         %
249                                         %
250                                         %
251                                         %
252                                         %
253                                         %
254                                         %
255                                         %
256                                         %
257                                         %
258                                         %
259                                         %
260                                         %
261                                         %
262                                         %
263                                         %
264                                         %
265                                         %
266                                         %
267                                         %
268                                         %
269                                         %
270                                         %
271                                         %
272                                         %
273                                         %
274                                         %
275                                         %
276                                         %
277                                         %
278                                         %
279                                         %
280                                         %
281                                         %
282                                         %
283                                         %
284                                         %
285                                         %
286                                         %
287                                         %
288                                         %
289                                         %
290                                         %
291                                         %
292                                         %
293                                         %
294                                         %
295                                         %
296                                         %
297                                         %
298                                         %
299                                         %
299 %

```

```

197         false
198     } if$
199   } while$
200   pop$ length.i #1 -
201 } if$
202 }
203
204 %%%%%%%%%%%%%%
205
206 FUNCTION {is.digit} {
207   chr.to.int$
208   duplicate$ "0" chr.to.int$ < {
209     pop$ false
210   } {
211     "9" chr.to.int$ > {
212       false
213     } {
214       true
215     } if$
216   } if$
217 }
218
219 %%%%%%%%%%%%%%
220
221 FUNCTION {is.number} {
222   duplicate$ empty$ not swap$
223   { duplicate$ empty$ not } {
224     duplicate$ #1 #1 substring$ is.digit {
225       #2 global.max$ substring$
226     } {
227       pop$ pop$ false
228       ""
229     } if$
230   } while$
231   pop$
232 }
233
234 %%%%%%%%%%%%%%
235
236 FUNCTION {extract.number} {
237   duplicate$
238   duplicate$ length swap$
239   duplicate$ empty$
240   { not } {
241     duplicate$ #1 #1 substring$ is.digit {
242       #2 global.max$ substring$
243       duplicate$ empty$
244     } {
245       true
246     } if$ % stop = false;
%           }
%           return length_i - 1;
%       }
%   }
% }
%
% int Entry::is_digit(String ch) {
%   int ascii = chr_to_int(ch);
%   if (ascii < chr_to_int("0")) {
%     return false;
%   } else {
%     if (ascii > chr_to_int("9")) {
%       return false;
%     } else {
%       return true;
%     }
%   }
% }
%
% // test if str is a number
% int Entry::is_number(String str) {
%   int result = (! empty(str));
%   while (! empty(str)) {
%     if (is_digit(substring(str, 1,
%                           str = substring(str, 2, global.
%                           } else {
%     result = false;
%     str = "";
%   }
%   return result;
% }
%
% // extract the number prefix of str
% String Entry::extract_number(String str) {
%   String suffix = str;
%   int n = length(str);
%   int stop = empty(suffix);
%   while (! stop) {
%     if (is_digit(substring(suffix,
%                           suffix = substring(suffix, 2,
%                           stop = empty(suffix);
%     } else {
%       stop = true;
%     }
%
```

```

247     } while$                                %
248     length -                                %
249     #1 swap$ substring$                      %
250 }                                         %
251                                         %
252 %%%%%%%%%%%%%% %
253                                         %
254 FUNCTION {get.last.chr} {                  %
255     duplicate$ length                      %
256     duplicate$ #0 = {                      %
257         pop$                                %
258     } {                                    %
259         #1 substring$                      %
260     } if$                                 %
261 }                                         %
262                                         %
263 %%%%%%%%%%%%%% %
264                                         %
265 FUNCTION {get.ordinal.suffix.en} {        %
266     duplicate$ "1" = {                      %
267         pop$ cap.st.en                     %
268     } {                                    %
269         duplicate$ "2" = {                  %
270             pop$ cap.nd.en                   %
271     } {                                    %
272         duplicate$ "3" = {                  %
273             pop$ cap.rd.en                   %
274     } {                                    %
275         pop$ cap.th.en                     %
276     } if$                                %
277 } if$                                  %
278 } if$                                  %
279 }                                         %
280                                         %
281 %%%%%%%%%%%%%% %
282                                         %
283 FUNCTION {num.to.ordinal.en} {            %
284     duplicate$ empty$ {                   %
285         skip$                            %
286     } {                                    %
287         duplicate$ get.last.chr          %
288         get.ordinal.suffix.en          %
289         *                               %
290     } if$                                %
291 }                                         %
292                                         %
293 %%%%%%%%%%%%%% %
294                                         %
295 STRINGS {remove.dots.result}             %
296                                         %

```

```

297 FUNCTION {remove.dots} {
298   """ 'remove.dots.result := %
299   { duplicate$ empty$ not } {
300     duplicate$ #1 #2 substring$ %
301     "\." = {
302       #3 global.max$ substring$ %
303     } {
304       duplicate$ #1 #1 substring$ %
305       duplicate$ "." = {
306         pop$ #2 global.max$ substring$ %
307       } {
308         remove.dots.result swap$ *
309         'remove.dots.result := %
310         #2 global.max$ substring$ %
311       } if$ %
312     } if$ %
313   } while$ %
314   pop$ remove.dots.result %
315 }
316 %

317 %%%%%%%%%%%%%%
318 %
319 FUNCTION {add.brace} {
320   "(" swap$ * ")" *
321 }
322 %

323 %%%%%%%%%%%%%%
324 %
325 FUNCTION {add.bracket} {
326   "(" swap$ * ")" *
327 }
328 %

329 %%%%%%%%%%%%%%
330 %
331 FUNCTION {add.squarebracket} {
332   "[" swap$ * "]" *
333 }
334 %

335 %%%%%%%%%%%%%%
336 %
337 FUNCTION {add.textit} {
338   "\textit{" swap$ * "}" *
339 }
340 %

341 %%%%%%%%%%%%%%
342 %
343 FUNCTION {add.textbf} {
344   "\textbf{" swap$ * "}" *
345 }
346 %

```

```

% String Entry::remove_dots(String str)
%   remove_dots_result = "";
%   while (! empty(str)) {
%     String tmp = substring(str, 1, 1);
%     if (tmp == ".") {
%       str = substring(str, 3, global.max);
%     } else {
%       tmp = substring(str, 1, 1);
%       if (tmp == ".") {
%         str = substring(str, 2, global.max);
%       } else {
%         tmp = remove_dots_result + tmp;
%         remove_dots_result = tmp;
%         str = substring(str, 2, global.max);
%       }
%     }
%   }
%   return remove_dots_result;
% }

% String Entry::add_brace(String str)
%   return "{" + str + "}";
% }

% String Entry::bracket(String str)
%   return "(" + str + ")";
% }

% String Entry::add_squarebracket(String str)
%   return "[" + str + "]";
% }

% String Entry::add_textit(String str)
%   return "\textit{" + str + "}";
% }

% String Entry::add_textbf(String str)
%   return "\textbf{" + str + "}";
% }

```

```

347 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
348
349 FUNCTION {contain.dash} {
350   false swap$                                % // test if str contains a dash '-'
351   { duplicate$ empty$ not} {                  % int Entry::contain_dash(String str)
352     duplicate$ #1 #1 substring$ "-" = {      %   int result = false;
353       pop$ pop$ true                         %     while (! empty(str)) {
354       ""                                     %       if (substring(str, 1, 1) == "-")
355     } {                                     %         result = true;
356       #2 global.max$ substring$             %         str = "";
357     } if$                                    %     } else {
358   } while$                                  %       str = substring(str, 2, global.
359   pop$                                      %     }
360 }
361
362 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
363
364
365 FUNCTION {extract.before.first.dash} {
366   duplicate$                                % // extract the substring before the
367   duplicate$ length swap$                   % // returns the string itself if no
368   duplicate$ empty$                         % String Entry::extract_before_first_
369   { not } {                                 %   String suffix = str;
370     duplicate$ #1 #1 substring$ "-" = {      %   int n = length(str);
371       true                                    %   int stop = empty(suffix);
372     } {                                     %     while (! stop) {
373       #2 global.max$ substring$             %       if (substring(suffix, 1, 1) ==
374       duplicate$ empty$                   %         stop = true;
375     } if$                                    %     } else {4r
376   } while$                                  %       suffix = substring(suffix, 2,
377   length -                                %       stop = empty(suffix);
378   #1 swap$ substring$                      %     }
379 }
380
381 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
382
383
384 FUNCTION {extract.after.first.dash} {
385   duplicate$                                % // extract the substring after the
386   duplicate$ empty$                         % // returns the string itself if no
387   { not } {                                 % String Entry::extract_after_first_
388     duplicate$ #1 #1 substring$ "-" = {      %   String suffix = str;
389       true                                    %   int stop = empty(suffix);
390     } {                                     %     while (! stop) {
391       #2 global.max$ substring$             %       if (substring(suffix, 1, 1) ==
392       duplicate$ empty$                   %         stop = true;
393     } if$                                    %     } else {4r
394   } while$                                  %       suffix = substring(suffix, 2,
395   duplicate$ empty$ {                      %       stop = empty(suffix);
396     pop$                                     %     }
397   if (empty(suffix)) {                      %   }
398     return str;                            % }

```

```

397 } {
398     swap$ pop$ #2 global.max$ substring$
399 } if$
400 }
401
402 %%%%%%
403
404
405 FUNCTION {extract.after.last.dash} {
406     duplicate$ contain.dash not {
407         pop$ ""
408     } {
409         {duplicate$ contain.dash} {
410             extract.after.first.dash
411         } while$
412
413     } if$
414 }
415
416 %%%%%%
417
418 FUNCTION {trim.start} {
419     {duplicate$ #1 #1 substring$ " " =} {
420         #2 global.max$ substring$
421     } while$
422
423 }
424
425 %%%%%%
426
427 FUNCTION {trim.end} {
428     {duplicate$ get.last.chr " " =} {
429         duplicate$ length #1 -
430         #1 swap$ substring$
431     } while$
432
433 }
434
435 %%%%%%
436
437 FUNCTION {trim} {
438     trim.start
439     trim.end
440 }
441
442 %%%%%%
443
444 FUNCTION {start.bibitem} {
445     newline$
446     "\bibitem{" cite$ * "}" * write$ %
        } else {
        return substring(suffix, 2, global.max$);
    }
}
% // extract the substring after the last dash
% // returns the empty string if no dash was found
% String Entry::extract_after_last_dash()
% if (!contain_dash(str)) {
%     return "";
% } else {
%     while (contain_dash(str)) {
%         str = extract_after_first_dash(str);
%     }
%     return str;
% }
%
% String Entry::trim_start(String str)
% while (substring(str, 1, 1) == " ")
%     str = substring(str, 2, global.max$);
% return str;
%
% String Entry::trim_end(String str)
% while (get_last_chr(str) == " ")
%     int n = length(str) - 1;
%     str = substring(str, 1, n);
% return str;
%
% String Entry::trim(String str)
% str = trim_start(str);
% return trim_end(str);
%
% void Entry::start_bibitem()
% writeln();
% write("\bibitem{" + this.cite +
%
```

```

447 newline$                                % writeln();
448 }                                         %
449                                         %
450 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
451                                         %
452 FUNCTION {end.bibitem} {
453   cap.period write$                      % void Entry::end_bibitem() {
454   newline$                                %   write(cap_period);
455 }                                         %   writeln();
456                                         %
457 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
458                                         %
459 FUNCTION {is.in.chinese} {                % int Entry::is_in_chinese() {
460   language empty$ {                      %   if (empty(this.language)) {
461     false                                  %     return false;
462   } {                                     %   } else {
463     language "zh" = {                    %     if (this.language == "zh") {
464       true                                 %       return true;
465     } {                                     %     } else {
466       false                                %       return false;
467     } if$                                 %     }
468   } if$                                 %   }
469 }                                         % }
470                                         %
471 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
472                                         %
473 FUNCTION {is.online} {                   % int Entry::is_online() {
474   url empty$ not {                     %   if (! empty(this.url)) {
475     true                                 %     return true;
476   } {                                     %   } else {
477     doi empty$ not {                   %     if (! empty(this.doi)) {
478       true                                %       return true;
479     } {                                     %     } else {
480       false                                %       return false;
481     } if$                                 %     }
482   } if$                                 %   }
483 }                                         % }
484                                         %
485 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
486                                         %
487 FUNCTION {set.mark} {                   % void Entry::set_mark(String mark)
488   'mark :=                                %   this.mark = mark;
489   is.online {                            %   if (is_online()) {
490     mark "/OL" * 'mark :=                %     this.mark = this.mark + "/OL";
491   } {                                     %   } else {
492     media empty$ not {                  %     if (! empty(this.media)) {
493       mark "/" * media * 'mark :=    %       this.mark = this.mark + "/";
494     } 'skip$ if$                      %     }
495   } if$                                 %   }
496 }                                         % }

```

```
497 %
498 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
499 %
500 FUNCTION {cap.volume} {
501   is.in.chinese {
502     cap.volume.zh
503   } {
504     cap.volume.en
505   } if$
506 }
507 %
508 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
509 %
510 FUNCTION {cap.edition} {
511   is.in.chinese {
512     cap.edition.zh
513   } {
514     cap.edition.en
515   } if$
516 }
517 %
518 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
519 %
520 FUNCTION {cap.anonymous} {
521   is.in.chinese {
522     cap.anonymous.zh
523   } {
524     cap.anonymous.en
525   } if$
526 }
527 %
528 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
529 %
530 FUNCTION {cap.no.address} {
531   is.in.chinese {
532     cap.no.address.zh
533   } {
534     cap.no.address.en
535   } if$
536 }
537 %
538 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
539 %
540 FUNCTION {cap.no.publisher} {
541   is.in.chinese {
542     cap.no.publisher.zh
543   } {
544     cap.no.publisher.en
545   } if$
546 }
```

```

547 %
548 %
549 %
550 FUNCTION {cap.et.al} {
551   is.in.chinese {
552     cap.et.al.zh
553   } {
554     cap.et.al.en
555   } if$
556 }
557 %
558 %
559 %
560 FUNCTION {cap.translate} {
561   is.in.chinese {
562     cap.translate.zh
563   } {
564     cap.translate.en
565   } if$
566 }
567 %
568 %
569 %
570 FUNCTION {format.bibinfo} {
571   swap$ add.brace swap$ *
572   "\bib" swap$ * swap$ *
573 }
574 %
575 %
576 INTEGERS { nameindex namecount } %
577 STRINGS { namelist nameformat } %
578 STRINGS { firstname lastname jrname vonname} %
579 %

580 FUNCTION {format.names} {
581   'namelist :=
582   namelist num.names$ 'namecount :=
583   ""
584   #0 'nameindex :=
585   {nameindex namecount < nameindex #3 < and} {
586     nameindex #1 + 'nameindex :=
587     nameindex #1 > {
588       cap.comma *
589     } 'skip$ if$
590     namelist nameindex "{vv}" format.name$ %
591     'vonname :=
592     namelist nameindex "{jj}" format.name$ %
593     remove.dots 'jrname :=
594     namelist nameindex "{f}" format.name$ %
595     remove.dots %
596     'firstname :=
%
% String Entry::cap_et_al() {
%   if (is_in_chinese()) {
%     return cap_et_al_zh;
%   } else {
%     return cap_et_al_en;
%   }
%
% String Entry::cap_translate() {
%   if (is_in_chinese()) {
%     return cap_translate_zh;
%   } else {
%     return cap_translate_en;
%   }
%
% String Entry::format_bibinfo(String type) {
%   info = add_brace(info);
%   return "\bib" + type + info;
% }

% static int nameindex, namecount;
% static String namelist, nameformat;
% static String firstname, lastname;
%
% String Entry::format_names(String names) {
%   namelist = names;
%   namecount = num_names(namelist);
%   String result = "";
%   nameindex = 0;
%   while ((nameindex < namecount) &&
%          (nameindex < nameindex + 1)) {
%     if (nameindex > 1) {
%       result = result + cap_comma;
%     }
%     String tmp = format_name(namelist,
%                               nameindex);
%     vonname = tmp;
%     tmp = format_name(namelist,
%                       nameindex + 1);
%     jrname = remove_dots(tmp);
%     tmp = format_name(namelist,
%                       nameindex + 1);
%     tmp = remove_dots(tmp);
%     firstname = change_case(tmp,
%                            "f");
%   }
% }

```

```

597 namelist nameindex "{ll}" format.name$ % tmp = format_name(namelist, na
598 'lastname := % lastname = change_case(tmp, "u"
599 jrnname empty$ not { % if (! empty(jrnname)) {
600   jrnname * " " * %   result = result + jrnname + "
601 } 'skip$ if$ % }
602 vonname empty$ not { % if (! empty(vonname)) {
603   vonname * " " * %   result = result + vonname +
604 } 'skip$ if$ % }
605 lastname empty$ not { % if (! empty(lastname)) {
606   lastname * " " * %   result = result + lastname +
607 } 'skip$ if$ % }
608 firstname empty$ not { % if (! empty(firstname)) {
609   firstname * " " * %   result = result + firstname +
610 } 'skip$ if$ % }
611 trim.end % result = trim_end(result);
612 } while$ % }
613 nameindex namecount < { % if (nameindex < namecount) {
614   cap.et.al * %   result = result + cap_et_al();
615 } 'skip$ if$ % }
616 } % }

617 %

618 %

619 %%%%%%%%%%%%%%%%
620 % // format English names
621 FUNCTION {format.names.en} {
622   format.names % String Entry::format_names_en(String
623 } % format_names(names);
624 %

625 %%%%%%%%%%%%%%%%
626 % // format Chinese names
627 FUNCTION {format.names.zh} {
628   format.names % String Entry::format_names_zh(String
629 } % format_names(names);
630 %

631 %%%%%%%%%%%%%%%%
632 % String Emtry::format_author(String
633 FUNCTION {format.author} {
634   is.in.chinese { % if (is_in_chinese) {
635     format.names.zh %   authors = format_names_zh(autho
636   } { % } else {
637     format.names.en %   authors = format_names_en(autho
638   } if$ % }
639   "author" format.bibinfo %   return format_bibinfo(authors, "a
640 } % }

641 %

642 %%%%%%%%%%%%%%%%
643 %

644 FUNCTION {format.editor} {
645   is.in.chinese { % String Emtry::format_author(String
646     format.names.zh %   if (is_in_chinese) {

```

```

647 } {
648     format.names.en
649 } if$
650 "editor" format.bibinfo
651 }
652
653 %%%%%%%%%%%%%%
654
655 FUNCTION {format.translator} {
656   is.in.chinese {
657     duplicate$ 
658     format.names.zh
659     swap$ num.names$ #3 > {
660       cap.translate.zh *
661     } {
662       cap.comma * cap.translate.zh *
663     } if$
664   } {
665     duplicate$ 
666     format.names.en
667     swap$ num.names$ #3 > {
668       cap.translate.en *
669     } {
670       cap.comma * cap.translate.en *
671     } if$
672   } if$
673   "translator" format.bibinfo
674 }
675
676 %%%%%%%%%%%%%%
677
678 FUNCTION {format.title} {
679   "title" format.bibinfo
680 }
681
682 %%%%%%%%%%%%%%
683
684 FUNCTION {format.booktitle} {
685   "booktitle" format.bibinfo
686 }
687
688 %%%%%%%%%%%%%%
689
690 FUNCTION {format.mark} {
691   "[" swap$ * "]" *
692   "mark" format.bibinfo
693 }
694
695 %%%%%%%%%%%%%%
696
%
```

```

697 FUNCTION {format.country} {
698   "country" format.bibinfo
699 }
700
701 %%%%%%%%%%%%%%
702
703 FUNCTION {format.patentid} {
704   "patentid" format.bibinfo
705 }
706
707 %%%%%%%%%%%%%%
708
709 FUNCTION {format.edition} {
710   duplicate$ is.number {
711     is.in.chinese {
712       cap.edition.zh *
713     } {
714       num.to.ordinal.en cap.edition.en *
715     } if$
716   } 'skip$ if$
717
718   "\mbox{" swap$ * "}" *
719   "edition" format.bibinfo
720 }
721
722 %%%%%%%%%%%%%%
723
724 FUNCTION {format.organization} {
725   "organization" format.bibinfo
726 }
727
728 %%%%%%%%%%%%%%
729
730 FUNCTION {format.address} {
731   "address" format.bibinfo
732 }
733
734 %%%%%%%%%%%%%%
735
736 FUNCTION {format.publisher} {
737   "publisher" format.bibinfo
738 }
739
740 %%%%%%%%%%%%%%
741
742 FUNCTION {format.institution} {
743   "institution" format.bibinfo
744 }
745
746 %%%%%%%%%%%%%%
% String Emtry::format_country(String)
%   return format_bibinfo(country, "country")
%
%
% String Emtry::format_patentid(String)
%   return format_bibinfo(patentid, "patentid")
%
%
% String Emtry::format_edition(String)
%   if (is_number(edition)) {
%     if (is_in_chinese()) {
%       edition = edition + cap_edition(edition)
%     } else {
%       edition = num_to_ordinal_en(edition)
%     }
%   }
%   // use a \mbox{} to prevent linebreaks
%   edition = "\mbox{" + edition + "}"
%   return format_bibinfo(edition, "edition")
%
%
% String Emtry::format_organization(String)
%   return format_bibinfo(organization, "organization")
%
%
% String Emtry::format_address(String)
%   return format_bibinfo(address, "address")
%
%
% String Emtry::format_publisher(String)
%   return format_bibinfo(publisher, "publisher")
%
%
% String Emtry::format_institution(String)
%   return format_bibinfo(institution, "institution")
%
%
```

```

747 %
748 FUNCTION {format.school} {
749   "school" format.bibinfo
750 }
751 %
752 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
753 %
754 FUNCTION {format.year} {
755   "year" format.bibinfo
756 }
757 %
758 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
759 %
760 FUNCTION {format.date} {
761   "date" format.bibinfo
762 }
763 %
764 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
765 %
766 FUNCTION {format.journal} {
767   "journal" format.bibinfo
768 }
769 %
770 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
771 %
772 FUNCTION {format.volume} {
773   "volume" format.bibinfo
774 }
775 %
776 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
777 %
778 FUNCTION {format.number} {
779   add.bracket
780   "number" format.bibinfo
781 }
782 %
783 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
784 %
785 FUNCTION {format.report.number} {
786   "number" format.bibinfo
787 }
788 %
789 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
790 %
791 FUNCTION {format.version} {
792   "version" format.bibinfo
793 }
794 %
795 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
796 %

```

```

797 FUNCTION {format.pages} {
798   "pages" format.bibinfo
799 }
800
801 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
802 %
803 FUNCTION {format.modifydate} {
804   add.bracket
805   "modifydate" format.bibinfo
806 }
807 %
808 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
809 %
810 FUNCTION {format.citedate} {
811   add.squarebracket
812   "citedate" format.bibinfo
813 }
814 %
815 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
816 %
817 %
818 %
819 %
820 FUNCTION {format.url} {
821   "\url{" swap$ * "}" *
822 }
823 %
824 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
825 %
826 FUNCTION {get.full.title} {
827   series empty$ {
828     volume empty$ {
829       title
830     } {
831       title cap.colon * cap.volume * volume *
832     } if$
833   } {
834     volume empty$ {
835       series cap.colon * title *
836     } {
837       series cap.comma * cap.volume * volume *
838       cap.colon * title *
839     } if$
840   } if$
841 }
842 %
843 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
844 %
845 FUNCTION {get.full.booktitle} {
846   series empty$ {

```

```

847     volume empty$ {
848         booktitle
849     } {
850         booktitle cap.colon * cap.volume * volume * %
851     } if$
852 } {
853     volume empty$ {
854         series cap.colon * booktitle *
855     } {
856         series cap.comma * cap.volume * volume *
857         cap.colon * booktitle *
858     } if$
859 } if$
860 }
861 %

862 %%%%%%%%%%%%%%
863
864 FUNCTION {get.pages} {
865     pages contain.dash {
866         pages extract.before.first.dash
867         pages extract.after.last.dash
868         cap.dash swap$ * *
869     } {
870         pages
871     } if$
872 }
873 %

874 %%%%%%%%%%%%%%
875
876 FUNCTION {output.author.or.editor} {
877     'required :=
878     author empty$ not {
879         author format.author write$%
880         cap.period write$%
881     } {
882         editor empty$ not {
883             editor format.editor write$%
884             cap.period write$%
885         } {
886             required {
887                 "Require author/editor: " cites$ * warning$%
888                 cap.anonymous format.author write$%
889                 cap.period write$%
890             } 'skip$ if$
891         } if$
892     } if$
893 }
894 %

895 %%%%%%%%%%%%%%
896 }

```

```

897 FUNCTION {output.author} {
898   'required :=
899   author empty$ not {
900     author format.author write$
901     cap.period write$
902   } {
903     required {
904       "Require author: " cite$ * warning$
905       cap.anonymous format.author write$
906       cap.period write$
907     } 'skip$ if$
908   } if$
909 }
910

911 %%%%%%%%%%%%%%
912

913 FUNCTION {output.editor} {
914   'required :=
915   editor empty$ not {
916     editor format.editor write$
917     cap.period write$
918   } {
919     required {
920       "Require editor: " cite$ * warning$
921       cap.anonymous format.editor write$
922       cap.period write$
923     } 'skip$ if$
924   } if$
925 }
926

927 %%%%%%%%%%%%%%
928

929 FUNCTION {output.title} {
930   'required :=
931   title empty$ not {
932     title format.title write$
933   } {
934     required {
935       "Require title: " cite$ * warning$
936     } 'skip$ if$
937   } if$
938 }

940 %%%%%%%%%%%%%%
941

942 FUNCTION {output.series.volume.title} {
943   'required :=
944   title empty$ not {
945     get.full.title format.booktitle write$
946   } {
%
```

```

947     required {
948         "Require title: " cite$ * warning$
949     } 'skip$ if$
950 } if$
951 }
952 }

953 %%%%%%%%%%%%%%
954
955 FUNCTION {output.series.volume.booktitle} {
956     'required :=
957     booktitle empty$ not {
958         get.full.booktitle format.booktitle write$}
959     } {
960     required {
961         "Require booktitle: " cite$ * warning$
962     } 'skip$ if$
963     } if$
964 }
965 }

966 %%%%%%%%%%%%%%
967
968 FUNCTION {output.journal} {
969     'required :=
970     journal empty$ not {
971         cap.period write$}
972     journal format.journal write$}
973     } {
974     required {
975         "Require journal: " cite$ * warning$}
976     } 'skip$ if$
977     } if$
978 }
979 }

980 %%%%%%%%%%%%%%
981
982 FUNCTION {output.mark} {
983     'required :=
984     mark empty$ not {
985         mark format.mark write$}
986     } {
987     required {
988         "Require mark: " cite$ * warning$}
989     } 'skip$ if$
990     } if$
991 }
992 }

993 %%%%%%%%%%%%%%
994
995 FUNCTION {output.translator} {
996     'required :=
%
```

```

997   translator empty$ not {
998     cap.period write$ %
999     translator format.translator write$ %
1000   } { %
1001     required {
1002       "Require translator: " cite$ * warning$ %
1003     } 'skip$ if$ %
1004   } if$ %
1005 } %
1006 %
1007 %%%%%%%%%%%%%%
1008 %
1009 FUNCTION {output.edition} {
1010   'required :=
1011   edition empty$ not {
1012     cap.period write$ %
1013     edition format.edition write$ %
1014   } { %
1015     required {
1016       "Require edition: " cite$ * warning$ %
1017     } 'skip$ if$ %
1018   } if$ %
1019 } %
1020 %
1021 %%%%%%%%%%%%%%
1022 %
1023 FUNCTION {output.address} {
1024   'required :=
1025   address empty$ not {
1026     cap.period write$ %
1027     address format.address write$ %
1028   } { %
1029     required {
1030       "Require address: " cite$ * warning$ %
1031       cap.period write$ %
1032       cap.no.address format.address write$ %
1033     } 'skip$ if$ %
1034   } if$ %
1035 } %
1036 %
1037 %%%%%%%%%%%%%%
1038 %
1039 FUNCTION {output.publisher} {
1040   'required :=
1041   publisher empty$ not {
1042     cap.colon write$ %
1043     publisher format.publisher write$ %
1044   } { %
1045     required {
1046       "Require publisher: " cite$ * warning$ %
1047     } 'skip$ if$ %
1048   } if$ %
1049 } %
1050 %
1051 %%%%%%%%%%%%%%
1052 %
1053 FUNCTION {output.date} {
1054   'required :=
1055   date empty$ not {
1056     cap.period write$ %
1057     date format.date write$ %
1058   } { %
1059     required {
1060       "Require date: " cite$ * warning$ %
1061     } 'skip$ if$ %
1062   } if$ %
1063 } %
1064 %
1065 %%%%%%%%%%%%%%
1066 %
1067 FUNCTION {output.location} {
1068   'required :=
1069   location empty$ not {
1070     cap.period write$ %
1071     location format.location write$ %
1072   } { %
1073     required {
1074       "Require location: " cite$ * warning$ %
1075     } 'skip$ if$ %
1076   } if$ %
1077 } %
1078 %
1079 %%%%%%%%%%%%%%
1080 %
1081 FUNCTION {output.note} {
1082   'required :=
1083   note empty$ not {
1084     cap.period write$ %
1085     note format.note write$ %
1086   } { %
1087     required {
1088       "Require note: " cite$ * warning$ %
1089     } 'skip$ if$ %
1090   } if$ %
1091 } %
1092 %
1093 %%%%%%%%%%%%%%
1094 %
1095 FUNCTION {output.conference} {
1096   'required :=
1097   conference empty$ not {
1098     cap.period write$ %
1099     conference format.conference write$ %
1100   } { %
1101     required {
1102       "Require conference: " cite$ * warning$ %
1103     } 'skip$ if$ %
1104   } if$ %
1105 } %
1106 %
1107 %%%%%%%%%%%%%%
1108 %
1109 FUNCTION {output.journal} {
1110   'required :=
1111   journal empty$ not {
1112     cap.period write$ %
1113     journal format.journal write$ %
1114   } { %
1115     required {
1116       "Require journal: " cite$ * warning$ %
1117     } 'skip$ if$ %
1118   } if$ %
1119 } %
1120 %
1121 %%%%%%%%%%%%%%
1122 %
1123 FUNCTION {output.series} {
1124   'required :=
1125   series empty$ not {
1126     cap.period write$ %
1127     series format.series write$ %
1128   } { %
1129     required {
1130       "Require series: " cite$ * warning$ %
1131     } 'skip$ if$ %
1132   } if$ %
1133 } %
1134 %
1135 %%%%%%%%%%%%%%
1136 %
1137 FUNCTION {output.event} {
1138   'required :=
1139   event empty$ not {
1140     cap.period write$ %
1141     event format.event write$ %
1142   } { %
1143     required {
1144       "Require event: " cite$ * warning$ %
1145     } 'skip$ if$ %
1146   } if$ %
1147 } %
1148 %
1149 %%%%%%%%%%%%%%
1150 %
1151 FUNCTION {output.venue} {
1152   'required :=
1153   venue empty$ not {
1154     cap.period write$ %
1155     venue format.venue write$ %
1156   } { %
1157     required {
1158       "Require venue: " cite$ * warning$ %
1159     } 'skip$ if$ %
1160   } if$ %
1161 } %
1162 %
1163 %%%%%%%%%%%%%%
1164 %
1165 FUNCTION {output.edition} {
1166   'required :=
1167   edition empty$ not {
1168     cap.period write$ %
1169     edition format.edition write$ %
1170   } { %
1171     required {
1172       "Require edition: " cite$ * warning$ %
1173     } 'skip$ if$ %
1174   } if$ %
1175 } %
1176 %
1177 %%%%%%%%%%%%%%
1178 %
1179 FUNCTION {output.address} {
1180   'required :=
1181   address empty$ not {
1182     cap.period write$ %
1183     address format.address write$ %
1184   } { %
1185     required {
1186       "Require address: " cite$ * warning$ %
1187     } 'skip$ if$ %
1188   } if$ %
1189 } %
1190 %
1191 %%%%%%%%%%%%%%
1192 %
1193 FUNCTION {output.publisher} {
1194   'required :=
1195   publisher empty$ not {
1196     cap.colon write$ %
1197     publisher format.publisher write$ %
1198   } { %
1199     required {
1200       "Require publisher: " cite$ * warning$ %
1201     } 'skip$ if$ %
1202   } if$ %
1203 } %
1204 %
1205 %%%%%%%%%%%%%%
1206 %
1207 FUNCTION {output.date} {
1208   'required :=
1209   date empty$ not {
1210     cap.period write$ %
1211     date format.date write$ %
1212   } { %
1213     required {
1214       "Require date: " cite$ * warning$ %
1215     } 'skip$ if$ %
1216   } if$ %
1217 } %
1218 %
1219 %%%%%%%%%%%%%%
1220 %
1221 FUNCTION {output.location} {
1222   'required :=
1223   location empty$ not {
1224     cap.period write$ %
1225     location format.location write$ %
1226   } { %
1227     required {
1228       "Require location: " cite$ * warning$ %
1229     } 'skip$ if$ %
1230   } if$ %
1231 } %
1232 %
1233 %%%%%%%%%%%%%%
1234 %
1235 FUNCTION {output.note} {
1236   'required :=
1237   note empty$ not {
1238     cap.period write$ %
1239     note format.note write$ %
1240   } { %
1241     required {
1242       "Require note: " cite$ * warning$ %
1243     } 'skip$ if$ %
1244   } if$ %
1245 } %
1246 %
1247 %%%%%%%%%%%%%%
1248 %
1249 FUNCTION {output.conference} {
1250   'required :=
1251   conference empty$ not {
1252     cap.period write$ %
1253     conference format.conference write$ %
1254   } { %
1255     required {
1256       "Require conference: " cite$ * warning$ %
1257     } 'skip$ if$ %
1258   } if$ %
1259 } %
1260 %
1261 %%%%%%%%%%%%%%
1262 %
1263 FUNCTION {output.series} {
1264   'required :=
1265   series empty$ not {
1266     cap.period write$ %
1267     series format.series write$ %
1268   } { %
1269     required {
1270       "Require series: " cite$ * warning$ %
1271     } 'skip$ if$ %
1272   } if$ %
1273 } %
1274 %
1275 %%%%%%%%%%%%%%
1276 %
1277 FUNCTION {output.event} {
1278   'required :=
1279   event empty$ not {
1280     cap.period write$ %
1281     event format.event write$ %
1282   } { %
1283     required {
1284       "Require event: " cite$ * warning$ %
1285     } 'skip$ if$ %
1286   } if$ %
1287 } %
1288 %
1289 %%%%%%%%%%%%%%
1290 %
1291 FUNCTION {output.venue} {
1292   'required :=
1293   venue empty$ not {
1294     cap.period write$ %
1295     venue format.venue write$ %
1296   } { %
1297     required {
1298       "Require venue: " cite$ * warning$ %
1299     } 'skip$ if$ %
1300   } if$ %
1301 } %
1302 %
1303 %%%%%%%%%%%%%%
1304 %
1305 FUNCTION {output.edition} {
1306   'required :=
1307   edition empty$ not {
1308     cap.period write$ %
1309     edition format.edition write$ %
1310   } { %
1311     required {
1312       "Require edition: " cite$ * warning$ %
1313     } 'skip$ if$ %
1314   } if$ %
1315 } %
1316 %
1317 %%%%%%%%%%%%%%
1318 %
1319 FUNCTION {output.address} {
1320   'required :=
1321   address empty$ not {
1322     cap.period write$ %
1323     address format.address write$ %
1324   } { %
1325     required {
1326       "Require address: " cite$ * warning$ %
1327     } 'skip$ if$ %
1328   } if$ %
1329 } %
1330 %
1331 %%%%%%%%%%%%%%
1332 %
1333 FUNCTION {output.publisher} {
1334   'required :=
1335   publisher empty$ not {
1336     cap.colon write$ %
1337     publisher format.publisher write$ %
1338   } { %
1339     required {
1340       "Require publisher: " cite$ * warning$ %
1341     } 'skip$ if$ %
1342   } if$ %
1343 } %
1344 %
1345 %%%%%%%%%%%%%%
1346 %
1347 FUNCTION {output.date} {
1348   'required :=
1349   date empty$ not {
1350     cap.period write$ %
1351     date format.date write$ %
1352   } { %
1353     required {
1354       "Require date: " cite$ * warning$ %
1355     } 'skip$ if$ %
1356   } if$ %
1357 } %
1358 %
1359 %%%%%%%%%%%%%%
1360 %
1361 FUNCTION {output.location} {
1362   'required :=
1363   location empty$ not {
1364     cap.period write$ %
1365     location format.location write$ %
1366   } { %
1367     required {
1368       "Require location: " cite$ * warning$ %
1369     } 'skip$ if$ %
1370   } if$ %
1371 } %
1372 %
1373 %%%%%%%%%%%%%%
1374 %
1375 FUNCTION {output.note} {
1376   'required :=
1377   note empty$ not {
1378     cap.period write$ %
1379     note format.note write$ %
1380   } { %
1381     required {
1382       "Require note: " cite$ * warning$ %
1383     } 'skip$ if$ %
1384   } if$ %
1385 } %
1386 %
1387 %%%%%%%%%%%%%%
1388 %
1389 FUNCTION {output.conference} {
1390   'required :=
1391   conference empty$ not {
1392     cap.period write$ %
1393     conference format.conference write$ %
1394   } { %
1395     required {
1396       "Require conference: " cite$ * warning$ %
1397     } 'skip$ if$ %
1398   } if$ %
1399 } %
1400 %
1401 %%%%%%%%%%%%%%
1402 %
1403 FUNCTION {output.series} {
1404   'required :=
1405   series empty$ not {
1406     cap.period write$ %
1407     series format.series write$ %
1408   } { %
1409     required {
1410       "Require series: " cite$ * warning$ %
1411     } 'skip$ if$ %
1412   } if$ %
1413 } %
1414 %
1415 %%%%%%%%%%%%%%
1416 %
1417 FUNCTION {output.event} {
1418   'required :=
1419   event empty$ not {
1420     cap.period write$ %
1421     event format.event write$ %
1422   } { %
1423     required {
1424       "Require event: " cite$ * warning$ %
1425     } 'skip$ if$ %
1426   } if$ %
1427 } %
1428 %
1429 %%%%%%%%%%%%%%
1430 %
1431 FUNCTION {output.venue} {
1432   'required :=
1433   venue empty$ not {
1434     cap.period write$ %
1435     venue format.venue write$ %
1436   } { %
1437     required {
1438       "Require venue: " cite$ * warning$ %
1439     } 'skip$ if$ %
1440   } if$ %
1441 } %
1442 %
1443 %%%%%%%%%%%%%%
1444 %
1445 FUNCTION {output.edition} {
1446   'required :=
1447   edition empty$ not {
1448     cap.period write$ %
1449     edition format.edition write$ %
1450   } { %
1451     required {
1452       "Require edition: " cite$ * warning$ %
1453     } 'skip$ if$ %
1454   } if$ %
1455 } %
1456 %
1457 %%%%%%%%%%%%%%
1458 %
1459 FUNCTION {output.address} {
1460   'required :=
1461   address empty$ not {
1462     cap.period write$ %
1463     address format.address write$ %
1464   } { %
1465     required {
1466       "Require address: " cite$ * warning$ %
1467     } 'skip$ if$ %
1468   } if$ %
1469 } %
1470 %
1471 %%%%%%%%%%%%%%
1472 %
1473 FUNCTION {output.publisher} {
1474   'required :=
1475   publisher empty$ not {
1476     cap.colon write$ %
1477     publisher format.publisher write$ %
1478   } { %
1479     required {
1480       "Require publisher: " cite$ * warning$ %
1481     } 'skip$ if$ %
1482   } if$ %
1483 } %
1484 %
1485 %%%%%%%%%%%%%%
1486 %
1487 FUNCTION {output.date} {
1488   'required :=
1489   date empty$ not {
1490     cap.period write$ %
1491     date format.date write$ %
1492   } { %
1493     required {
1494       "Require date: " cite$ * warning$ %
1495     } 'skip$ if$ %
1496   } if$ %
1497 } %
1498 %
1499 %%%%%%%%%%%%%%
1500 %
1501 FUNCTION {output.location} {
1502   'required :=
1503   location empty$ not {
1504     cap.period write$ %
1505     location format.location write$ %
1506   } { %
1507     required {
1508       "Require location: " cite$ * warning$ %
1509     } 'skip$ if$ %
1510   } if$ %
1511 } %
1512 %
1513 %%%%%%%%%%%%%%
1514 %
1515 FUNCTION {output.note} {
1516   'required :=
1517   note empty$ not {
1518     cap.period write$ %
1519     note format.note write$ %
1520   } { %
1521     required {
1522       "Require note: " cite$ * warning$ %
1523     } 'skip$ if$ %
1524   } if$ %
1525 } %
1526 %
1527 %%%%%%%%%%%%%%
1528 %
1529 FUNCTION {output.conference} {
1530   'required :=
1531   conference empty$ not {
1532     cap.period write$ %
1533     conference format.conference write$ %
1534   } { %
1535     required {
1536       "Require conference: " cite$ * warning$ %
1537     } 'skip$ if$ %
1538   } if$ %
1539 } %
1540 %
1541 %%%%%%%%%%%%%%
1542 %
1543 FUNCTION {output.series} {
1544   'required :=
1545   series empty$ not {
1546     cap.period write$ %
1547     series format.series write$ %
1548   } { %
1549     required {
1550       "Require series: " cite$ * warning$ %
1551     } 'skip$ if$ %
1552   } if$ %
1553 } %
1554 %
1555 %%%%%%%%%%%%%%
1556 %
1557 FUNCTION {output.event} {
1558   'required :=
1559   event empty$ not {
1560     cap.period write$ %
1561     event format.event write$ %
1562   } { %
1563     required {
1564       "Require event: " cite$ * warning$ %
1565     } 'skip$ if$ %
1566   } if$ %
1567 } %
1568 %
1569 %%%%%%%%%%%%%%
1570 %
1571 FUNCTION {output.venue} {
1572   'required :=
1573   venue empty$ not {
1574     cap.period write$ %
1575     venue format.venue write$ %
1576   } { %
1577     required {
1578       "Require venue: " cite$ * warning$ %
1579     } 'skip$ if$ %
1580   } if$ %
1581 } %
1582 %
1583 %%%%%%%%%%%%%%
1584 %
1585 FUNCTION {output.edition} {
1586   'required :=
1587   edition empty$ not {
1588     cap.period write$ %
1589     edition format.edition write$ %
1590   } { %
1591     required {
1592       "Require edition: " cite$ * warning$ %
1593     } 'skip$ if$ %
1594   } if$ %
1595 } %
1596 %
1597 %%%%%%%%%%%%%%
1598 %
1599 FUNCTION {output.address} {
1600   'required :=
1601   address empty$ not {
1602     cap.period write$ %
1603     address format.address write$ %
1604   } { %
1605     required {
1606       "Require address: " cite$ * warning$ %
1607     } 'skip$ if$ %
1608   } if$ %
1609 } %
1610 %
1611 %%%%%%%%%%%%%%
1612 %
1613 FUNCTION {output.publisher} {
1614   'required :=
1615   publisher empty$ not {
1616     cap.colon write$ %
1617     publisher format.publisher write$ %
1618   } { %
1619     required {
1620       "Require publisher: " cite$ * warning$ %
1621     } 'skip$ if$ %
1622   } if$ %
1623 } %
1624 %
1625 %%%%%%%%%%%%%%
1626 %
1627 FUNCTION {output.date} {
1628   'required :=
1629   date empty$ not {
1630     cap.period write$ %
1631     date format.date write$ %
1632   } { %
1633     required {
1634       "Require date: " cite$ * warning$ %
1635     } 'skip$ if$ %
1636   } if$ %
1637 } %
1638 %
1639 %%%%%%%%%%%%%%
1640 %
1641 FUNCTION {output.location} {
1642   'required :=
1643   location empty$ not {
1644     cap.period write$ %
1645     location format.location write$ %
1646   } { %
1647     required {
1648       "Require location: " cite$ * warning$ %
1649     } 'skip$ if$ %
1650   } if$ %
1651 } %
1652 %
1653 %%%%%%%%%%%%%%
1654 %
1655 FUNCTION {output.note} {
1656   'required :=
1657   note empty$ not {
1658     cap.period write$ %
1659     note format.note write$ %
1660   } { %
1661     required {
1662       "Require note: " cite$ * warning$ %
1663     } 'skip$ if$ %
1664   } if$ %
1665 } %
1666 %
1667 %%%%%%%%%%%%%%
1668 %
1669 FUNCTION {output.conference} {
1670   'required :=
1671   conference empty$ not {
1672     cap.period write$ %
1673     conference format.conference write$ %
1674   } { %
1675     required {
1676       "Require conference: " cite$ * warning$ %
1677     } 'skip$ if$ %
1678   } if$ %
1679 } %
1680 %
1681 %%%%%%%%%%%%%%
1682 %
1683 FUNCTION {output.series} {
1684   'required :=
1685   series empty$ not {
1686     cap.period write$ %
1687     series format.series write$ %
1688   } { %
1689     required {
1690       "Require series: " cite$ * warning$ %
1691     } 'skip$ if$ %
1692   } if$ %
1693 } %
1694 %
1695 %%%%%%%%%%%%%%
1696 %
1697 FUNCTION {output.event} {
1698   'required :=
1699   event empty$ not {
1700     cap.period write$ %
1701     event format.event write$ %
1702   } { %
1703     required {
1704       "Require event: " cite$ * warning$ %
1705     } 'skip$ if$ %
1706   } if$ %
1707 } %
1708 %
1709 %%%%%%%%%%%%%%
1710 %
1711 FUNCTION {output.venue} {
1712   'required :=
1713   venue empty$ not {
1714     cap.period write$ %
1715     venue format.venue write$ %
1716   } { %
1717     required {
1718       "Require venue: " cite$ * warning$ %
1719     } 'skip$ if$ %
1720   } if$ %
1721 } %
1722 %
1723 %%%%%%%%%%%%%%
1724 %
1725 FUNCTION {output.edition} {
1726   'required :=
1727   edition empty$ not {
1728     cap.period write$ %
1729     edition format.edition write$ %
1730   } { %
1731     required {
1732       "Require edition: " cite$ * warning$ %
1733     } 'skip$ if$ %
1734   } if$ %
1735 } %
1736 %
1737 %%%%%%%%%%%%%%
1738 %
1739 FUNCTION {output.address} {
1740   'required :=
1741   address empty$ not {
1742     cap.period write$ %
1743     address format.address write$ %
1744   } { %
1745     required {
1746       "Require address: " cite$ * warning$ %
1747     } 'skip$ if$ %
1748   } if$ %
1749 } %
1750 %
1751 %%%%%%%%%%%%%%
1752 %
1753 FUNCTION {output.publisher} {
1754   'required :=
1755   publisher empty$ not {
1756     cap.colon write$ %
1757     publisher format.publisher write$ %
1758   } { %
1759     required {
1760       "Require publisher: " cite$ * warning$ %
1761     } 'skip$ if$ %
1762   } if$ %
1763 } %
1764 %
1765 %%%%%%%%%%%%%%
1766 %
1767 FUNCTION {output.date} {
1768   'required :=
1769   date empty$ not {
1770     cap.period write$ %
1771     date format.date write$ %
1772   } { %
1773     required {
1774       "Require date: " cite$ * warning$ %
1775     } 'skip$ if$ %
1776   } if$ %
1777 } %
1778 %
1779 %%%%%%%%%%%%%%
1780 %
1781 FUNCTION {output.location} {
1782   'required :=
1783   location empty$ not {
1784     cap.period write$ %
1785     location format.location write$ %
1786   } { %
1787     required {
1788       "Require location: " cite$ * warning$ %
1789     } 'skip$ if$ %
1790   } if$ %
1791 } %
1792 %
1793 %%%%%%%%%%%%%%
1794 %
1795 FUNCTION {output.note} {
1796   'required :=
1797   note empty$ not {
1798     cap.period write$ %
1799     note format.note write$ %
1800   } { %
1801     required {
1802       "Require note: " cite$ * warning$ %
1803     } 'skip$ if$ %
1804   } if$ %
1805 } %
1806 %
1807 %%%%%%%%%%%%%%
1808 %
1809 FUNCTION {output.conference} {
1810   'required :=
1811   conference empty$ not {
1812     cap.period write$ %
1813     conference format.conference write$ %
1814   } { %
1815     required {
1816       "Require conference: " cite$ * warning$ %
1817     } 'skip$ if$ %
1818   } if$ %
1819 } %
1820 %
1821 %%%%%%%%%%%%%%
1822 %
1823 FUNCTION {output.series} {
1824   'required :=
1825   series empty$ not {
1826     cap.period write$ %
1827     series format.series write$ %
1828   } { %
1829     required {
1830       "Require series: " cite$ * warning$ %
1831     } 'skip$ if$ %
1832   } if$ %
1833 } %
1834 %
1835 %%%%%%%%%%%%%%
1836 %
1837 FUNCTION {output.event} {
1838   'required :=
1839   event empty$ not {
1840     cap.period write$ %
1841     event format.event write$ %
1842   } { %
1843     required {
1844       "Require event: " cite$ * warning$ %
1845     } 'skip$ if$ %
1846   } if$ %
1847 } %
1848 %
1849 %%%%%%%%%%%%%%
1850 %
1851 FUNCTION {output.venue} {
1852   'required :=
1853   venue empty$ not {
1854     cap.period write$ %
1855     venue format.venue write$ %
1856   } { %
1857     required {
1858       "Require venue: " cite$ * warning$ %
1859     } 'skip$ if$ %
1860   } if$ %
1861 } %
1862 %
1863 %%%%%%%%%%%%%%
1864 %
1865 FUNCTION {output.edition} {
1866   'required :=
1867   edition empty$ not {
1868     cap.period write$ %
1869     edition format.edition write$ %
1870   } { %
1871     required {
1872       "Require edition: " cite$ * warning$ %
1873     } 'skip$ if$ %
1874   } if$ %
1875 } %
1876 %
1877 %%%%%%%%%%%%%%
1878 %
1879 FUNCTION {output.address} {
1880   'required :=
1881   address empty$ not {
1882     cap.period write$ %
1883     address format.address write$ %
1884   } { %
1885     required {
1886       "Require address: " cite$ * warning$ %
1887     } 'skip$ if$ %
1888   } if$ %
1889 } %
1890 %
1891 %%%%%%%%%%%%%%
1892 %
1893 FUNCTION {output.publisher} {
1894   'required :=
1895   publisher empty$ not {
1896     cap.colon write$ %
1897     publisher format.publisher write$ %
1898   } { %
1899     required {
1900       "Require publisher: " cite$ * warning$ %
1901     } 'skip$ if$ %
1902   } if$ %
1903 } %
1904 %
1905 %%%%%%%%%%%%%%
1906 %
1907 FUNCTION {output.date} {
1908   'required :=
1909   date empty$ not {
1910     cap.period write$ %
1911     date format.date write$ %
1912   } { %
1913     required {
1914       "Require date: " cite$ * warning$ %
1915     } 'skip$ if$ %
1916   } if$ %
1917 } %
1918 %
1919 %%%%%%%%%%%%%%
1920 %
1921 FUNCTION {output.location} {
1922   'required :=
1923   location empty$ not {
1924     cap.period write$ %
1925     location format.location write$ %
1926   } { %
1927     required {
1928       "Require location: " cite$ * warning$ %
1929     } 'skip$ if$ %
1930   } if$ %
1931 } %
1932 %
1933 %%%%%%%%%%%%%%
1934 %
1935 FUNCTION {output.note} {
1936   'required :=
1937   note empty$ not {
1938     cap.period write$ %
1939     note format.note write$ %
1940   } { %
1941     required {
1942       "Require note: " cite$ * warning$ %
1943     } 'skip$ if$ %
1944   } if$ %
1945 } %
1946 %
1947 %%%%%%%%%%%%%%
1948 %
1949 FUNCTION {output.conference} {
1950   'required :=
1951   conference empty$ not {
1952     cap.period write$ %
1953     conference format.conference write$ %
1954   } { %
1955     required {
1956       "Require conference: " cite$ * warning$ %
1957     } 'skip$ if$ %
1958   } if$ %
1959 } %
1960 %
1961 %%%%%%%%%%%%%%
1962 %
1963 FUNCTION {output.series} {
1964   'required :=
1965   series empty$ not {
1966     cap.period write$ %
1967     series format.series write$ %
1968   } { %
1969     required {
1970       "Require series: " cite$ * warning$ %
1971     } 'skip$ if$ %
1972   } if$ %
1973 } %
1974 %
1975 %%%%%%%%%%%%%%
1976 %
1977 FUNCTION {output.event} {
1978   'required :=
1979   event empty$ not {
1980     cap.period write$ %
1981     event format.event write$ %
1982   } { %
1983     required {
1984       "Require event: " cite$ * warning$ %
1985     } 'skip$ if$ %
1986   } if$ %
1987 } %
1988 %
1989 %%%%%%%%%%%%%%
1990 %
1991 FUNCTION {output.venue} {
1992   'required :=
1993   venue empty$ not {
1994     cap.period write$ %
1995     venue format.venue write$ %
1996   } { %
1997     required {
1998       "Require venue: " cite$ * warning$ %
1999     } 'skip$ if$ %
2000   } if$ %
2001 } %
2002 %
2003 %%%%%%%%%%%%%%
2004 %
2005 FUNCTION {output.edition} {
2006   'required :=
2007   edition empty$ not {
2008     cap.period write$ %
2009     edition format.edition write$ %
2010   } { %
2011     required {
2012       "Require edition: " cite$ * warning$ %
2013     } 'skip$ if$ %
2014   } if$ %
2015 } %
2016 %
2017 %%%%%%%%%%%%%%
2018 %
2019 FUNCTION {output.address} {
2020   'required :=
2021   address empty$ not {
2022     cap.period write$ %
2023     address format.address write$ %
2024   } { %
2025     required {
2026       "Require address: " cite$ * warning$ %
2027     } 'skip$ if$ %
2028   } if$ %
2029 } %
2030 %
2031 %%%%%%%%%%%%%%
2032 %
2033 FUNCTION {output.publisher} {
2034   'required :=
2035   publisher empty$ not {
2036     cap.colon write$ %
2037     publisher format.publisher write$ %
2038   } { %
2039     required {
2040       "Require publisher: " cite$ * warning$ %
2041     } 'skip$ if$ %
2042   } if$ %
2043 } %
2044 %
2045 %%%%%%%%%%%%%%
2046 %
2047 FUNCTION {output.date} {
2048   'required :=
2049   date empty$ not {
2050     cap.period write$ %
2051     date format.date write$ %
2052   } { %
2053     required {
2054       "Require date: " cite$ * warning$ %
2055     } 'skip$ if$ %
2056   } if$ %
2057 } %
2058 %
2059 %%%%%%%%%%%%%%
2060 %
2061 FUNCTION {output.location} {
2062   'required :=
2063   location empty$ not {
2064     cap.period write$ %
2065     location format.location write$ %
2066   } { %
2067     required {
2068       "Require location: " cite$ * warning$ %
2069     } 'skip$ if$ %
2070   } if$ %
2071 } %
2072 %
2073 %%%%%%%%%%%%%%
2074 %
2075 FUNCTION {output.note} {
2076   'required :=
2077   note empty$ not {
2078     cap.period write$ %
2079     note format.note write$ %
2080   } { %
2081     required {
2082       "Require note: " cite$ * warning$ %
2083     } 'skip$ if$ %
2084   } if$ %
2085 } %
2086 %
2087 %%%%%%%%%%%%%%
2088 %
2089 FUNCTION {output.conference} {
2090   'required :=
2091   conference empty$ not {
2092     cap.period write$ %
2093     conference format.conference write$ %
2094   } { %
2095     required {
2096       "Require conference: " cite$ * warning$ %
2097     } 'skip$ if$ %
2098   } if$ %
2099 } %
2100 %
2101 %%%%%%%%%%%%%%
2102 %
2103 FUNCTION {output.series} {
2104   'required :=
2105   series empty$ not {
2106     cap.period write$ %
2107     series format.series write$ %
2108   } { %
2109     required {
2110       "Require series: " cite$ * warning$ %
2111     } 'skip$ if$ %
2112   } if$ %
2113 } %
2114 %
2115 %%%%%%%%%%%%%%
2116 %
2117 FUNCTION {output.event} {
2118   'required :=
2119   event empty$ not {
2120     cap.period write$ %
2121     event format.event write$ %
2122   } { %
2123     required {
2124       "Require event: " cite$ * warning$ %
2125     } 'skip$ if$ %
2126   } if$ %
2127 } %
2128 %
2129 %%%%%%%%%%%%%%
2130 %
2131 FUNCTION {output.venue} {
2132   'required :=
2133   venue empty$ not {
2134     cap.period write$ %
2135     venue format.venue write$ %
2136   } { %
2137     required {
2138       "Require venue: " cite$ * warning$ %
2139     } 'skip$ if$ %
2140   } if$ %
2141 } %
2142 %
2143 %%%%%%%%%%%%%%
2144 %
2145 FUNCTION {output.edition} {
2146   'required :=
2147   edition empty$ not {
2148     cap.period write$ %
2149     edition format.edition write$ %
2150   } { %
2151     required {
2152       "Require edition: " cite$ * warning$ %
2153     } 'skip$ if$ %
2154   } if$ %
2155 } %
2156 %
2157 %%%%%%%%%%%%%%
2158 %
2159 FUNCTION {output.address} {
2160   'required :=
2161   address empty$ not {
2162     cap.period write$ %
2163     address format.address write$ %
2164   } { %
2165     required {
2166       "Require address: " cite$ * warning$ %
2167     } 'skip$ if$ %
2168   } if$ %
2169 } %
2170 %
2171 %%%%%%%%%%%%%%
2172 %
2173 FUNCTION {output.publisher} {
2174   'required :=
2175   publisher empty$ not {
2176     cap.colon write$ %
2177     publisher format.publisher write$ %
2178   } { %
2179     required {
2180       "Require publisher: " cite$ * warning$ %
2181     } 'skip$ if$ %
2182   } if$ %
2183 } %
2184 %
2185 %%%%%%%%%%%%%%
2186 %
2187 FUNCTION {output.date} {
2188   'required :=
2189   date empty$ not {
2190     cap.period write$ %
2191     date format.date write$ %
2192   } { %
2193     required {
2194       "Require date: " cite$ * warning$ %
2195     } 'skip$ if$ %
2196   } if$ %
2197 } %
2198 %
2199 %%%%%%%%%%%%%%
2200 %
2201 FUNCTION {output.location} {
2202   'required :=
2203   location empty$ not {
2204     cap.period write$ %
2205     location format.location write$ %
2206   } { %
2207     required {
2208       "Require location: " cite$ * warning$ %
2209     } 'skip$ if$ %
2210   } if$ %
2211 } %
2212 %
2213 %%%%%%%%%%%%%%
2214 %
2215 FUNCTION {output.note} {
2216   'required :=
2217   note empty$ not {
2218     cap.period write$ %
2219     note format.note write$ %
2220   } { %
2221     required {
2222       "Require note: " cite$ * warning$ %
2223     } 'skip$ if$ %
2224   } if$ %
2225 } %
2226 %
2227 %%%%%%%%%%%%%%
2228 %
2229 FUNCTION {output.conference} {
2230   'required :=
2
```

```

1047     cap.colon write$ % write(cap_colon);
1048     cap.no.publisher format.publisher write$ % write(format_publisher(cap_no_
1049 } 'skip$ if$ % }
1050 } if$ % }
1051 } % }
1052 % }

1053 %%%%%%%%%%%%%%
1054
1055 FUNCTION {output.publisher.no.address} { % void Entry::output_publisher_no_adde
1056   'required := % this.required = required;
1057   publisher empty$ not { % if (! empty(this.publisher)) {
1058     cap.period write$ % write(cap_period);
1059     publisher format.publisher write$ % write(format_publisher(this.pub
1060   } { % } else {
1061     required { % if (required == 1) {
1062       "Require publisher: " cite$ * warning$ % warning("Require publisher: "
1063       cap.period write$ % write(cap_period);
1064       cap.no.publisher format.publisher write$ % write(format_publisher(cap_no_
1065     } 'skip$ if$ % }
1066   } if$ % }
1067 } % }
1068 % }

1069 %%%%%%%%%%%%%%
1070
1071 FUNCTION {output.school} { % void Entry::output_school(int require
1072   'required := % this.required = required;
1073   school empty$ not { % if (! empty(this.school)) {
1074     cap.colon write$ % write(cap_colon);
1075     school format.school write$ % write(format_school(this.school));
1076   } { % } else {
1077     required { % if (required == 1) {
1078       "Require school: " cite$ * warning$ % warning("Require publisher: "
1079       cap.colon write$ % write(cap_colon);
1080       cap.no.publisher format.school write$ % write(format_school(cap_no_
1081     } 'skip$ if$ % }
1082   } if$ % }
1083 } % }

1084 % %

1085 %%%%%%%%%%%%%%
1086
1087 FUNCTION {output.institution} { % void Entry::output_institution(int require
1088   'required := % this.required = required;
1089   institution empty$ not { % if (! empty(this.institution)) {
1090     cap.colon write$ % write(cap_colon);
1091     institution format.institution write$ % write(format_publisher(this.in
1092   } { % } else {
1093     required { % if (required == 1) {
1094       "Require institution: " cite$ * warning$ % warning("Require institution: "
1095       cap.colon write$ % write(cap_colon);
1096       cap.no.publisher format.institution write$ % write(format_institution(cap_no_

```

```

1097     } 'skip$ if$                                %      }
1098   } if$                                         %      }
1099 }                                              %  }
1100                                              %  }
1101 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
1102                                              %
1103 FUNCTION {output.year} {                         % void Entry::output_year(int required)
1104   'required :=                                     %   this.required = required;
1105   year empty$ not {                            %   if (!empty(this.year)) {
1106     year format.year write$                   %     write(format_year(this.year));
1107   } {                                           %   } else {
1108     required {                                 %     if (required == 1) {
1109       "Require year: " cite$ * warning$    %       warning("Require year: " + th
1110     } 'skip$ if$                           %     }
1111   } if$                                         %   }
1112 }                                              %  }
1113                                              %
1114 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
1115                                              %
1116 FUNCTION {output.pages} {                       % void Entry::output_pages(int required)
1117   'required :=                                     %   this.required = required;
1118   pages empty$ not {                            %   if (!empty(this.pages)) {
1119     cap.colon write$                          %     write(cap_colon);
1120     get.pages format.pages write$           %     write(format_pages(get_pages()));
1121   } {                                           %   } else {
1122     required {                                 %     if (required == 1) {
1123       "Require pages: " cite$ * warning$  %       warning("Require pages: " + t
1124     } 'skip$ if$                           %     }
1125   } if$                                         %   }
1126 }                                              %
1127                                              %
1128 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
1129                                              %
1130 FUNCTION {output.modifydate} {                  % void Entry::output_modifydate(int required)
1131   'required :=                                     %   this.required = required;
1132   modifydate empty$ not {                        %   if (!empty(this.modifydate)) {
1133     cap.space write$                          %     write(cap_space);
1134     modifydate format.modifydate write$        %     write(format_modifydate(this.m
1135   } {                                           %   } else {
1136     required {                                 %     if (required == 1) {
1137       "Require modifydate: " cite$ * warning$ %       warning("Require modifydate:
1138     } 'skip$ if$                           %     }
1139   } if$                                         %   }
1140 }                                              %
1141                                              %
1142 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
1143                                              %
1144 FUNCTION {output.citedate} {                  % void Entry::output_citedate(int required)
1145   'required :=                                     %   this.required = required;
1146   citedate empty$ not {                        %   if (!empty(this.citedate)) {

```

```

1147     cap.space write$                                % write(cap_space);
1148     citedate format.citedate write$               % write(format_citedate(this.cite
1149 } {                                              % } else {
1150     required is.online or {                         % if ((required == 1) || (is_onli
1151         "Require citedate: " cite$ * warning$    %     warning("Require citedate: "
1152     } 'skip$ if$                                 %     }
1153 } if$                                           % }
1154 }                                                 %
1155 %
1156 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
1157 %
1158 FUNCTION {output.date} {
1159     'required :=
1160     date empty$ not {
1161         date format.date write$                  % void Entry::output_date(int require
1162     } {
1163         required {                               %     this.required = required;
1164             "Require date: " cite$ * warning$   %     if (! empty(this.date)) {
1165             } 'skip$ if$                      %         write(format_date(this.date));
1166     } if$                                         %     } else {
1167 }                                                 %         if (required == 1) {
1168 %
1169 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
1170 %
1171 FUNCTION {output.volume} {
1172     'required :=
1173     volume empty$ not {
1174         cap.comma write$                     % void Entry::output_volume(int require
1175         volume format.volume write$          %     this.required = required;
1176     } {
1177         required {                           %     if (! empty(this.volume)) {
1178             "Require volume: " cite$ * warning$ %         write(cap_comma);
1179             } 'skip$ if$                   %         write(format_volume(this.vol
1180     } if$                                         %     } else {
1181 }                                                 %         if (required == 1) {
1182 %
1183 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
1184 %
1185 FUNCTION {output.number} {
1186     'required :=
1187     number empty$ not {
1188         number format.number write$          % void Entry::output_number(int require
1189     } {
1190         required {                           %     this.required = required;
1191             "Require number: " cite$ * warning$ %     if (! empty(this.number)) {
1192             } 'skip$ if$                   %         write(format_number(this.number
1193     } if$                                         %     } else {
1194 }                                                 %         if (required == 1) {
1195 %
1196 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

```

```

1197 %
1198 FUNCTION {output.report.number} {
1199   'required :=
1200   number empty$ not {
1201     cap.colon write$
1202     number format.report.number write$
1203   } {
1204     required {
1205       "Require number: " cite$ * warning$
1206     } 'skip$ if$
1207   } if$
1208 }
1209 %

1210 %%%%%%%%%%%%%%
1211 %
1212 FUNCTION {output.country} {
1213   'required :=
1214   country empty$ not {
1215     cap.colon write$
1216     country format.country write$
1217   } {
1218     required {
1219       "Require country: " cite$ * warning$
1220     } 'skip$ if$
1221   } if$
1222 }
1223 %

1224 %%%%%%%%%%%%%%
1225 %
1226 FUNCTION {output.patentid} {
1227   'required :=
1228   patentid empty$ not {
1229     cap.comma write$
1230     patentid format.patentid write$
1231   } {
1232     required {
1233       "Require patentid: " cite$ * warning$
1234     } 'skip$ if$
1235   } if$
1236 }
1237 %

1238 %%%%%%%%%%%%%%
1239 %
1240 FUNCTION {output.start.year} {
1241   'required :=
1242   year empty$ not {
1243     year extract.before.first.dash
1244     format.year write$
1245   } {
1246     required {
%
% void Entry::output_report_number(int required)
%   this.required = required;
%   if (!empty(this.number)) {
%     write(cap_colon);
%     write(format_report_number(this.number));
%   } else {
%     if (required == 1) {
%       warning("Require number: " + this.number);
%     }
%   }
%
% void Entry::output_country(int required)
%   this.required = required;
%   if (!empty(this.country)) {
%     write(cap_colon);
%     write(format_country(this.country));
%   } else {
%     if (required == 1) {
%       warning("Require country: " + this.country);
%     }
%   }
%
% void Entry::output_patentid(int required)
%   this.required = required;
%   if (!empty(this.patentid)) {
%     write(cap_comma);
%     write(format_patentid(this.patentid));
%   } else {
%     if (required == 1) {
%       warning("Require patentid: " + this.patentid);
%     }
%   }
%
% void Entry::output_start_year(int required)
%   this.required = required;
%   if (!empty(this.year)) {
%     String str = extract_before_first_dash(this.year);
%     write(format_year(str));
%   } else {
%     if (required == 1) {
%       warning("Require start year: " + this.year);
%     }
%   }
%
```

```

1247     "Require year: " cite$ * warning$           % warning("Require year: " + th
1248   } 'skip$ if$                                %   }
1249 } if$                                         %   }
1250 }                                              %
1251                                              %
1252 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
1253                                              %
1254 FUNCTION {output.start.volume} {
1255   'required :=
1256   volume empty$ not {
1257     cap.comma write$
1258     volume extract.before.first.dash
1259     format.volume write$
1260   } {
1261     required {
1262       "Require volume: " cite$ * warning$      %
1263     } 'skip$ if$                            %
1264   } if$                                     %
1265 }                                              %
1266                                              %
1267 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
1268                                              %
1269 FUNCTION {output.start.number} {
1270   'required :=
1271   number empty$ not {
1272     number extract.before.first.dash
1273     format.number write$
1274   } {
1275     required {
1276       "Require number: " cite$ * warning$    %
1277     } 'skip$ if$                           %
1278   } if$                                     %
1279 }                                              %
1280                                              %
1281 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
1282                                              %
1283 FUNCTION {output.end.year} {
1284   'required :=
1285   year empty$ not {
1286     year extract.after.last.dash
1287     format.year write$
1288   } {
1289     required {
1290       "Require year: " cite$ * warning$      %
1291     } 'skip$ if$                           %
1292   } if$                                     %
1293 }                                              %
1294                                              %
1295 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
1296                                              %

```

```

1297 FUNCTION {output.end.volume} {
1298   'required :=
1299   volume empty$ not {
1300     cap.comma write$%
1301     volume extract.after.last.dash%
1302     format.volume write$%
1303   }%
1304   required {
1305     "Require volume: " cite$ * warning$%
1306   } 'skip$ if$%
1307 } if$%
1308 }%
1309 %
1310 %%%%%%%%%%%%%%
1311 %
1312 FUNCTION {output.end.number} {
1313   'required :=
1314   number empty$ not {
1315     number extract.after.last.dash%
1316     format.number write$%
1317   }%
1318   required {
1319     "Require number: " cite$ * warning$%
1320   } 'skip$ if$%
1321 } if$%
1322 }%
1323 %
1324 %%%%%%%%%%%%%%
1325 %
1326 FUNCTION {output.url.or.doi} {
1327   'required :=
1328   url empty$ not {
1329     cap.period write$%
1330     url format.url write$%
1331   }%
1332   doi empty$ not {
1333     cap.period write$%
1334     cap.doi.url doi * format.url write$%
1335   }%
1336   required {
1337     "Require URL or DOI: " cite$ * warning$%
1338   } 'skip$ if$%
1339 } if$%
1340 } if$%
1341 }%
1342 %
1343 %%%%%%%%%%%%%%
1344 %
1345 FUNCTION {output.url} {
1346   'required :=
% void Entry::output_end_volume(int required)
%   this.required = required;
%   if (! empty(this.volume)) {
%     write(cap_comma);
%     String str = extract_after_last_dash(this.volume);
%     write(format_volume(str));
%   } else {
%     if (required == 1) {
%       warning("Require volume: " + this.volume);
%     }
%   }
%
% void Entry::output_end_number(int required)
%   this.required = required;
%   if (! empty(this.number)) {
%     String str = extract_after_last_dash(this.number);
%     write(format_number(str));
%   } else {
%     if (required == 1) {
%       warning("Require number: " + this.number);
%     }
%   }
%
% void Entry::output_url_or_doi(int required)
%   this.required = required;
%   if (! empty(this.url)) {
%     write(cap_period);
%     write(format_url(this.url));
%   } else {
%     if (! empty(this.doi)) {
%       write(cap_period);
%       write(format_url(cap_doi_url(this.doi)));
%     } else {
%       if (required == 1) {
%         warning("Require URL or DOI: " + this.url);
%       }
%     }
%   }
%
% void Entry::output_url(int required)
%   this.required = required;

```

```

1347 url empty$ not {
1348     cap.period write$
1349     url format.url write$
1350 } {
1351     required {
1352         "Require URL: " cite$ * warning$
1353     } 'skip$ if$
1354 } if$
1355 }
1356 %
1357 %%%%%%%%%%%%%%
1358 %
1359 FUNCTION {output.version} {
1360     'required :=
1361     version empty$ not {
1362         cap.period write$
1363         version format.version write$
1364     } {
1365         required {
1366             "Require version: " cite$ * warning$
1367         } 'skip$ if$
1368     } if$
1369 }
1370 %
1371 %%%%%%%%%%%%%%
1372 %
1373 FUNCTION {book.impl} {
1374     start.bibitem
1375     true output.author.or.editor
1376     true output.series.volume.title
1377     true output.mark
1378     false output.translator
1379     false output.edition
1380     publisher empty$ not {
1381         true output.address
1382         true output.publisher
1383         cap.comma write$
1384     } {
1385         cap.period write$
1386     } if$
1387     true output.year
1388     false output.pages
1389     false output.citedate
1390     false output.url.or.doi
1391     end.bibitem
1392 }
1393 %
1394 %%%%%%%%%%%%%%
1395 %
1396 FUNCTION {book} {
% void Entry::output_version(int requ
% this.required = required;
% if (! empty(this.version)) {
% write(cap_period);
% write(format_version(this.versi
% } else {
% if (required == 1) {
% warning("Require version: " +
% }
% }
% }
%
% void Entry::book_impl() {
% start_bibitem();
% output_author_or_editor(true);
% output_series_volume_title(true);
% output_mark(true);
% output_translator(false);
% output_edition(false);
% if (! empty(this.publisher)) {
% output_address(true);
% output_publisher(true);
% write(cap_comma);
% } else {
% write(cap_period);
% }
% output_year(true);
% output_pages(false);
% output_citedate(false);
% output_url_or_doi(false);
% end_bibitem();
% }
%
% void Entry::book() {

```

```

1397 "M" set.mark                                % set_mark("M");
1398 book.impl                                     % book_impl();
1399 }                                              %
1400                                               %
1401 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
1402                                               %
1403 FUNCTION {collection} {                         % void Entry::collection() {
1404   "G" set.mark                                 %   set_mark("G");
1405   book.impl                                     %   book_impl();
1406 }                                              %
1407                                               %
1408 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
1409                                               %
1410 FUNCTION {proceedings} {                        % void Entry::proceedings() {
1411   "C" set.mark                                 %   set_mark("C");
1412   start.bibitem                                %   start_bibitem();
1413   true output.editor                           %   output_editor(true);
1414   true output.series.volume.title             %   output_series_volume_title(true);
1415   true output.mark                            %   output_mark(true);
1416   false output.translator                      %   output_translator(false);
1417   false output.edition                        %   output_edition(false);
1418   publisher empty$ not {                     % if (!empty(this.publisher)) {
1419     true output.address                        %   output_address(true);
1420     true output.publisher                     %   output_publisher(true);
1421     cap.comma write$                        %   write(cap_comma);
1422   } {                                         %
1423     cap.period write$                        %   write(cap_period);
1424   } if$                                       %
1425   true output.year                           %   output_year(true);
1426   false output.pages                         %   output_pages(false);
1427   false output.citedate                      %   output_citedate(false);
1428   false output.url.or.doi                  %   output_url_or_doi(false);
1429   end.bibitem                                %   end_bibitem();
1430 }                                              %
1431                                               %
1432 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
1433                                               %
1434 FUNCTION {conference} {                       % void Entry::conference() {
1435   proceedings                                %   proceedings();
1436 }                                              %
1437                                               %
1438 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
1439                                               %
1440 FUNCTION {thesis.impl} {                      % void Entry::thesis_impl() {
1441   start.bibitem                                %   start_bibitem();
1442   true output.author                           %   output_author(true);
1443   true output.title                            %   output_title(true);
1444   true output.mark                            %   output_mark(true);
1445   false output.translator                     %   output_translator(false);
1446   true output.address                        %   output_address(true);

```

```

1447 true output.school % output_school(true);
1448 cap.comma write$ % write(cap_comma);
1449 true output.year % output_year(true);
1450 false output.pages % output_pages(false);
1451 false output.citedate % output_citedate(false);
1452 false output.url.or.doi % output_url_or_doi(false);
1453 end.bibitem % end_bibitem();
1454 } %
1455 %
1456 %%%%%%%%%%%%%%
1457 %
1458 FUNCTION {phdthesis} {
1459   "D" set.mark % void Entry::phdthesis() {
1460   thesis.impl %   set_mark("D");
1461 } %   thesis_impl();
1462 %
1463 %%%%%%%%%%%%%%
1464 %
1465 FUNCTION {masterthesis} {
1466   "D" set.mark % void Entry::masterthesis() {
1467   thesis.impl %   set_mark("D");
1468 } %   thesis_impl();
1469 %
1470 %%%%%%%%%%%%%%
1471 %
1472 FUNCTION {mastersthesis} {
1473   "D" set.mark % void Entry::mastersthesis() {
1474   thesis.impl %   set_mark("D");
1475 } %   thesis_impl();
1476 %
1477 %%%%%%%%%%%%%%
1478 %
1479 FUNCTION {bachelorthesis} {
1480   "D" set.mark % void Entry::bachelorthesis() {
1481   thesis.impl %   set_mark("D");
1482 } %   thesis_impl();
1483 %
1484 %%%%%%%%%%%%%%
1485 %
1486 FUNCTION {techreport} {
1487   "R" set.mark % void Entry::techreport() {
1488   start.bibitem %   set_mark("R");
1489   true output.author %   start_bibitem();
1490   true output.title %   output_author(true);
1491   false output.report.number %   output_title(true);
1492   true output.mark %   output_report_number(false);
1493   false output.translator %   output_mark(true);
1494   false output.edition %   output_translator(false);
1495   false output.version %   output_edition(false);
1496   institution empty$ not { %   output_version(false);
1497     if (!empty(this.institution)) {
1498       %
1499       %
1500       %
1501       %
1502       %
1503       %
1504       %
1505       %
1506       %
1507       %
1508       %
1509       %
1510       %
1511       %
1512       %
1513       %
1514       %
1515       %
1516       %
1517       %
1518       %
1519       %
1520       %
1521       %
1522       %
1523       %
1524       %
1525       %
1526       %
1527       %
1528       %
1529       %
1530       %
1531       %
1532       %
1533       %
1534       %
1535       %
1536       %
1537       %
1538       %
1539       %
1540       %
1541       %
1542       %
1543       %
1544       %
1545       %
1546       %
1547       %
1548       %
1549       %
1550       %
1551       %
1552       %
1553       %
1554       %
1555       %
1556       %
1557       %
1558       %
1559       %
1560       %
1561       %
1562       %
1563       %
1564       %
1565       %
1566       %
1567       %
1568       %
1569       %
1570       %
1571       %
1572       %
1573       %
1574       %
1575       %
1576       %
1577       %
1578       %
1579       %
1580       %
1581       %
1582       %
1583       %
1584       %
1585       %
1586       %
1587       %
1588       %
1589       %
1590       %
1591       %
1592       %
1593       %
1594       %
1595       %
1596       %
1597       %
1598       %
1599       %
1599 }

```

```

1497     true output.address % output_address(true);
1498     true output.institution % output_institution(true);
1499     cap.comma write$ % write(cap_comma);
1500 } { % } else {
1501     cap.period write$ % write(cap_period);
1502 } if$ % }
1503 true output.year % output_year(true);
1504 false output.pages % output_pages(false);
1505 false output.citedate % output_citedate(false);
1506 false output.url.or.doi % output_url_or_doi(false);
1507 end.bibitem % end_bibitem();
1508 } %
1509 %

1510 %%%%%%%%%%%%%%
1511 %
1512 FUNCTION {standard} { % void Entry::standard() {
1513     "S" set.mark % set_mark("S");
1514     start.bibitem % start_bibitem();
1515     true output.author % output_author(true);
1516     true output.title % output_title(true);
1517     true output.mark % output_mark(true);
1518     false output.translator % output_translator(false);
1519     false output.edition % output_edition(false);
1520     publisher empty$ not { % if (!empty(this.publisher)) {
1521         true output.address % output_address(true);
1522         true output.publisher % output_publisher(true);
1523         cap.comma write$ % write(cap_comma);
1524     } { % } else {
1525         cap.period write$ % write(cap_period);
1526     } if$ % }
1527     true output.year % output_year(true);
1528     false output.pages % output_pages(false);
1529     false output.citedate % output_citedate(false);
1530     false output.url.or.doi % output_url_or_doi(false);
1531     end.bibitem % end_bibitem();
1532 } %
1533 %

1534 %%%%%%%%%%%%%%
1535 %
1536 FUNCTION {reference} { % void Entry::reference() {
1537     "K" set.mark % set_mark("K");
1538     start.bibitem % start_bibitem();
1539     false output.author.or.editor % output_author_or_editor(false);
1540     true output.series.volume.title % output_series_volume_title(true);
1541     true output.mark % output_mark(true);
1542     false output.translator % output_translator(false);
1543     false output.edition % output_edition(false);
1544     publisher empty$ not { % if (!empty(this.publisher)) {
1545         true output.address % output_address(true);
1546         true output.publisher % output_publisher(true);

```

```

1547     cap.comma write$                                %   write(cap_comma);
1548 } {                                              % } else {
1549     cap.period write$                            %   write(cap_period);
1550 } if$                                         % }
1551 true output.year                           %   output_year(true);
1552 false output.pages                         %   output_pages(false);
1553 false output.citedate                      %   output_citedate(false);
1554 false output.url.or.doi                   %   output_url_or_doi(false);
1555 end.bibitem                                  %   end_bibitem();
1556 }                                              %
1557 %
1558 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
1559 %
1560 FUNCTION {manual} {                          % void Entry::manual() {
1561     reference                                %   reference();
1562 }                                              %
1563 %
1564 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
1565 %
1566 FUNCTION {periodical.impl} {                % void Entry::periodical_impl() {
1567     start.bibitem                            %   start_bibitem();
1568     false output.editor                     %   output_editor(false);
1569     true output.title                      %   output_title(true);
1570     true output.mark                       %   output_mark(true);
1571     cap.period write$                      %   write(cap_period);
1572     true output.start.year                 %   output_start_year(true);
1573     false output.start.volume              %   output_start_volume(false);
1574     false output.start.number              %   output_start_number(false);
1575     cap.dash write$                      %   write(cap_dash);
1576     year contain.dash {                  %   if (contain_dash(this.year)) {
1577         true output.end.year               %       output_end_year(true);
1578         false output.end.volume            %       output_end_volume(false);
1579         false output.end.number            %       output_end_number(false);
1580     } 'skip$ if$                         %   }
1581     publisher empty$ not {             %   if (!empty(this.publisher)) {
1582         true output.address                %       output_address(true);
1583         true output.publisher              %       output_publisher(true);
1584         cap.comma write$                  %       write(cap_comma);
1585     } {                                 %   } else {
1586         cap.period write$                  %       write(cap_period);
1587     } if$                               %   }
1588     true output.start.year               %   output_start_year(true);
1589     cap.dash write$                      %   write(cap_dash);
1590     year contain.dash {                  %   if (contain_dash(this.year)) {
1591         true output.end.year               %       output_end_year(true);
1592     } 'skip$ if$                         %   }
1593     false output.citedate                %   output_citedate(false);
1594     false output.url.or.doi              %   output_url_or_doi(false);
1595 end.bibitem                                  %   end_bibitem();
1596 }                                              %

```

```

1597 %
1598 %
1599 %
1600 FUNCTION {periodical} {
1601   "J" set.mark
1602   periodical.impl
1603 }
1604 %
1605 %
1606 %
1607 FUNCTION {newspaper} {
1608   "N" set.mark
1609   periodical.impl
1610 }
1611 %
1612 %
1613 %
1614 FUNCTION {patent} {
1615   "P" set.mark
1616   start.bibitem
1617   true output.author
1618   true output.title
1619   true output.country
1620   true output.patentid
1621   true output.mark
1622   cap.period write$
1623   true output.date
1624   false output.citedate
1625   false output.url.or.doi
1626   end.bibitem
1627 }
1628 %
1629 %
1630 %
1631 FUNCTION {online} {
1632   "EB" set.mark
1633   start.bibitem
1634   false output.author
1635   true output.title
1636   true output.mark
1637   publisher empty$ not {
1638     address empty$ not {
1639       true output.address
1640       true output.publisher
1641       cap.comma write$
1642     } {
1643       true output.publisher.no.address
1644       cap.comma write$
1645     } if$
1646   } {
%
% void Entry::periodical() {
%   set_mark("J");
%   periodical_impl();
%
% void Entry::newspaper() {
%   set_mark("N");
%   periodical_impl();
%
% void Entry::patent() {
%   set_mark("P");
%   start_bibitem();
%   output_author(true);
%   output_title(true);
%   output_country(true);
%   output_patentid(true);
%   output_mark(true);
%   write(cap_period);
%   output_date(true);
%   output_citedate(false);
%   output_url_or_doi(false);
%   end_bibitem();
%
% void Entry::online() {
%   set_mark("EB");
%   start_bibitem();
%   output_author(false);
%   output_title(true);
%   output_mark(true);
%   if (!empty(this.publisher)) {
%     if (!empty(this.address)) {
%       output_address(true);
%       output_publisher(true);
%       write(cap_comma);
%     } else {
%       output_publisher_no_address(t);
%       write(cap_comma);
%     }
%   } else {
%
```

```

1647     cap.period write$                                %    write(cap_period);
1648 } if$                                              %
1649 true output.year                                    %    output_year(true);
1650 false output.modifydate                           %    output_modifydate(false);
1651 true output.citedate                            %    output_citedate(true);
1652 true output.url                                 %    output_url(true);
1653 end.bibitem()                                     %    end_bibitem();
1654 }                                                 %
1655 %
1656 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
1657 %
1658 FUNCTION {webpage} {                               % void Entry::online() {
1659   online                                         %   online();
1660 }                                                 %
1661 %
1662 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
1663 %
1664 FUNCTION {program.impl} {                         % void Entry::program_impl() {
1665   start.bibitem()                                %   start_bibitem();
1666   false output.author                           %   output_author(false);
1667   true output.title                            %   output_title(true);
1668   true output.mark                            %   output_mark(true);
1669   publisher empty$ not {                      %   if (!empty(this.publisher)) {
1670     true output.address                        %     output_address(true);
1671     true output.publisher                     %     output_publisher(true);
1672     cap.comma write$                         %     write(cap_comma);
1673   } {                                           %   } else {
1674     cap.period write$                         %     write(cap_period);
1675   } if$                                         %   }
1676   true output.year                            %   output_year(true);
1677   false output.citedate                       %   output_citedate(false);
1678   false output.url.or.doi                    %   output_url_or_doi(false);
1679   end.bibitem()                                %   end_bibitem();
1680 }                                                 %
1681 %
1682 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
1683 %
1684 FUNCTION {program} {                            % void Entry::program() {
1685   "CP" set.mark                                %   set_mark("CP");
1686   program.impl()                                %   program_impl();
1687 }                                                 %
1688 %
1689 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
1690 %
1691 FUNCTION {database} {                          % void Entry::database() {
1692   "DB" set.mark                                %   set_mark("DB");
1693   program.impl()                                %   program_impl();
1694 }                                                 %
1695 %
1696 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

```

```

1697 %
1698 FUNCTION {unpublished} {
1699   "H" set_mark
1700   start.bibitem
1701   true output.author
1702   true output.title
1703   true output.mark
1704   cap.period write$
1705   true output.year
1706   false output.citedate
1707   false output.url.or.doi
1708   end.bibitem
1709 }
1710 %
1711 %%%%%%%%%%%%%%
1712 %
1713 FUNCTION {manuscript} {
1714   unpublished
1715 }
1716 %
1717 %%%%%%%%%%%%%%
1718 %
1719 FUNCTION {inbook.impl} {
1720   start.bibitem
1721   true output.author
1722   true output.title
1723   true output.mark
1724   false output.translator
1725   cap.double.slash write$
1726   false output.editor
1727   true output.series.volume.booktitle
1728   false output.edition
1729   publisher empty$ not {
1730     true output.address
1731     true output.publisher
1732     cap.comma write$
1733   } {
1734     cap.period write$
1735   } if$
1736   true output.year
1737   false output.pages
1738   false output.citedate
1739   false output.url.or.doi
1740   end.bibitem
1741 }
1742 %
1743 %%%%%%%%%%%%%%
1744 %
1745 FUNCTION {inbook} {
1746   "M" set_mark
%
```

```

1747     inbook.impl                                     % inbook_impl();
1748 }
1749
1750 %
1751
1752 FUNCTION {incollection} {
1753   "G" set.mark
1754   inbook.impl
1755 }
1756
1757 %
1758
1759 FUNCTION {inproceedings} {
1760   "C" set.mark
1761   inbook.impl
1762 }
1763
1764 %
1765
1766 FUNCTION {article} {
1767   "J" set.mark
1768   start.bibitem
1769   true output.author
1770   true output.title
1771   true output.mark
1772   true output.journal
1773   cap.comma write$
1774   true output.year
1775   false output.volume
1776   false output.number
1777   false output.pages
1778   false output.citedate
1779   false output.url.or.doi
1780   end.bibitem
1781 }
1782
1783 %
1784
1785 FUNCTION {news} {
1786   "N" set.mark
1787   start.bibitem
1788   true output.author
1789   true output.title
1790   true output.mark
1791   true output.journal
1792   cap.comma write$
1793   true output.date
1794   false output.number
1795   false output.citedate
1796   false output.url.or.doi
1797
1798
1799
1800
1801
1802
1803
1804
1805
1806
1807
1808
1809
1810
1811
1812
1813
1814
1815
1816
1817
1818
1819
1820
1821
1822
1823
1824
1825
1826
1827
1828
1829
1830
1831
1832
1833
1834
1835
1836
1837
1838
1839
1840
1841
1842
1843
1844
1845
1846
1847
1848
1849
1850
1851
1852
1853
1854
1855
1856
1857
1858
1859
1860
1861
1862
1863
1864
1865
1866
1867
1868
1869
1870
1871
1872
1873
1874
1875
1876
1877
1878
1879
1880
1881
1882
1883
1884
1885
1886
1887
1888
1889
1890
1891
1892
1893
1894
1895
1896
1897
1898
1899
1900
1901
1902
1903
1904
1905
1906
1907
1908
1909
1910
1911
1912
1913
1914
1915
1916
1917
1918
1919
1920
1921
1922
1923
1924
1925
1926
1927
1928
1929
1930
1931
1932
1933
1934
1935
1936
1937
1938
1939
1940
1941
1942
1943
1944
1945
1946
1947
1948
1949
1950
1951
1952
1953
1954
1955
1956
1957
1958
1959
1960
1961
1962
1963
1964
1965
1966
1967
1968
1969
1970
1971
1972
1973
1974
1975
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
2024
2025
2026
2027
2028
2029
2030
2031
2032
2033
2034
2035
2036
2037
2038
2039
2040
2041
2042
2043
2044
2045
2046
2047
2048
2049
2050
2051
2052
2053
2054
2055
2056
2057
2058
2059
2060
2061
2062
2063
2064
2065
2066
2067
2068
2069
2070
2071
2072
2073
2074
2075
2076
2077
2078
2079
2080
2081
2082
2083
2084
2085
2086
2087
2088
2089
2090
2091
2092
2093
2094
2095
2096
2097
2098
2099
2099
2100
2101
2102
2103
2104
2105
2106
2107
2108
2109
2110
2111
2112
2113
2114
2115
2116
2117
2118
2119
2120
2121
2122
2123
2124
2125
2126
2127
2128
2129
2130
2131
2132
2133
2134
2135
2136
2137
2138
2139
2140
2141
2142
2143
2144
2145
2146
2147
2148
2149
2150
2151
2152
2153
2154
2155
2156
2157
2158
2159
2160
2161
2162
2163
2164
2165
2166
2167
2168
2169
2170
2171
2172
2173
2174
2175
2176
2177
2178
2179
2180
2181
2182
2183
2184
2185
2186
2187
2188
2189
2190
2191
2192
2193
2194
2195
2196
2197
2198
2199
2199
2200
2201
2202
2203
2204
2205
2206
2207
2208
2209
2209
2210
2211
2212
2213
2214
2215
2216
2217
2218
2219
2219
2220
2221
2222
2223
2224
2225
2226
2227
2228
2229
2229
2230
2231
2232
2233
2234
2235
2236
2237
2238
2239
2239
2240
2241
2242
2243
2244
2245
2246
2247
2248
2249
2249
2250
2251
2252
2253
2254
2255
2256
2257
2258
2259
2259
2260
2261
2262
2263
2264
2265
2266
2267
2268
2269
2269
2270
2271
2272
2273
2274
2275
2276
2277
2278
2279
2279
2280
2281
2282
2283
2284
2285
2286
2287
2288
2289
2289
2290
2291
2292
2293
2294
2295
2296
2297
2298
2298
2299
2299
2300
2301
2302
2303
2304
2305
2306
2307
2308
2309
2309
2310
2311
2312
2313
2314
2315
2316
2317
2318
2319
2319
2320
2321
2322
2323
2324
2325
2326
2327
2328
2329
2329
2330
2331
2332
2333
2334
2335
2336
2337
2338
2339
2339
2340
2341
2342
2343
2344
2345
2346
2347
2348
2349
2349
2350
2351
2352
2353
2354
2355
2356
2357
2358
2359
2359
2360
2361
2362
2363
2364
2365
2366
2367
2368
2369
2369
2370
2371
2372
2373
2374
2375
2376
2377
2378
2379
2379
2380
2381
2382
2383
2384
2385
2386
2387
2388
2388
2389
2389
2390
2391
2392
2393
2394
2395
2396
2397
2398
2398
2399
2399
2400
2401
2402
2403
2404
2405
2406
2407
2408
2409
2409
2410
2411
2412
2413
2414
2415
2416
2417
2418
2419
2419
2420
2421
2422
2423
2424
2425
2426
2427
2428
2429
2429
2430
2431
2432
2433
2434
2435
2436
2437
2438
2439
2439
2440
2441
2442
2443
2444
2445
2446
2447
2448
2449
2449
2450
2451
2452
2453
2454
2455
2456
2457
2458
2459
2459
2460
2461
2462
2463
2464
2465
2466
2467
2468
2469
2469
2470
2471
2472
2473
2474
2475
2476
2477
2478
2479
2479
2480
2481
2482
2483
2484
2485
2486
2487
2488
2489
2489
2490
2491
2492
2493
2494
2495
2496
2497
2498
2498
2499
2499
2500
2501
2502
2503
2504
2505
2506
2507
2508
2509
2509
2510
2511
2512
2513
2514
2515
2516
2517
2518
2519
2519
2520
2521
2522
2523
2524
2525
2526
2527
2528
2529
2529
2530
2531
2532
2533
2534
2535
2536
2537
2538
2539
2539
2540
2541
2542
2543
2544
2545
2546
2547
2548
2549
2549
2550
2551
2552
2553
2554
2555
2556
2557
2558
2559
2559
2560
2561
2562
2563
2564
2565
2566
2567
2568
2569
2569
2570
2571
2572
2573
2574
2575
2576
2577
2578
2579
2579
2580
2581
2582
2583
2584
2585
2586
2587
2588
2589
2589
2590
2591
2592
2593
2594
2595
2596
2597
2598
2598
2599
2599
2600
2601
2602
2603
2604
2605
2606
2607
2608
2609
2609
2610
2611
2612
2613
2614
2615
2616
2617
2618
2619
2619
2620
2621
2622
2623
2624
2625
2626
2627
2628
2629
2629
2630
2631
2632
2633
2634
2635
2636
2637
2638
2639
2639
2640
2641
2642
2643
2644
2645
2646
2647
2648
2649
2649
2650
2651
2652
2653
2654
2655
2656
2657
2658
2659
2659
2660
2661
2662
2663
2664
2665
2666
2667
2668
2669
2669
2670
2671
2672
2673
2674
2675
2676
2677
2678
2679
2679
2680
2681
2682
2683
2684
2685
2686
2687
2688
2689
2689
2690
2691
2692
2693
2694
2695
2696
2697
2697
2698
2699
2699
2700
2701
2702
2703
2704
2705
2706
2707
2708
2709
2709
2710
2711
2712
2713
2714
2715
2716
2717
2718
2719
2719
2720
2721
2722
2723
2724
2725
2726
2727
2728
2729
2729
2730
2731
2732
2733
2734
2735
2736
2737
2738
2739
2739
2740
2741
2742
2743
2744
2745
2746
2747
2748
2749
2749
2750
2751
2752
2753
2754
2755
2756
2757
2758
2759
2759
2760
2761
2762
2763
2764
2765
2766
2767
2768
2769
2769
2770
2771
2772
2773
2774
2775
2776
2777
2778
2779
2779
2780
2781
2782
2783
2784
2785
2786
2787
2788
2789
2789
2790
2791
2792
2793
2794
2795
2796
2797
2797
2798
2799
2799
2800
2801
2802
2803
2804
2805
2806
2807
2808
2809
2809
2810
2811
2812
2813
2814
2815
2816
2817
2818
2819
2819
2820
2821
2822
2823
2824
2825
2826
2827
2828
2829
2829
2830
2831
2832
2833
2834
2835
2836
2837
2838
2839
2839
2840
2841
2842
2843
2844
2845
2846
2847
2848
2849
2849
2850
2851
2852
2853
2854
2855
2856
2857
2858
2859
2859
2860
2861
2862
2863
2864
2865
2866
2867
2868
2869
2869
2870
2871
2872
2873
2874
2875
2876
2877
2878
2879
2879
2880
2881
2882
2883
2884
2885
2886
2887
2888
2888
2889
2889
2890
2891
2892
2893
2894
2895
2896
2897
2897
2898
2899
2899
2900
2901
2902
2903
2904
2905
2906
2907
2908
2909
2909
2910
2911
2912
2913
2914
2915
2916
2917
2918
2919
2919
2920
2921
2922
2923
2924
2925
2926
2927
2928
2929
2929
2930
2931
2932
2933
2934
2935
2936
2937
2938
2939
2939
2940
2941
2942
2943
2944
2945
2946
2947
2948
2948
2949
2949
2950
2951
2952
2953
2954
2955
2956
2957
2958
2959
2959
2960
2961
2962
2963
2964
2965
2966
2967
2968
2969
2969
2970
2971
2972
2973
2974
2975
2976
2977
2978
2979
2979
2980
2981
2982
2983
2984
2985
2986
2987
2988
2988
2989
2989
2990
2991
2992
2993
2994
2995
2996
2997
2997
2998
2999
2999
3000
3001
3002
3003
3004
3005
3006
3007
3008
3009
3009
3010
3011
3012
3013
3014
3015
3016
3017
3018
3019
3019
3020
3021
3022
3023
3024
3025
3026
3027
3028
3029
3029
3030
3031
3032
3033
3034
3035
3036
3037
3038
3038
3039
3039
3040
3041
3042
3043
3044
3045
3046
3047
3048
3048
3049
3049
3050
3051
3052
3053
3054
3055
3056
3057
3058
3059
3059
3060
3061
3062
3063
3064
3065
3066
3067
3068
3069
3069
3070
3071
3072
3073
3074
3075
3076
3077
3078
3079
3079
3080
3081
3082
3083
3084
3085
3086
3087
3088
3088
3089
3089
3090
3091
3092
3093
3094
3095
3096
3097
3097
3098
3099
3099
3100
3101
3102
3103
3104
3105
3106
3107
3108
3109
3109
3110
3111
3112
3113
3114
3115
3116
3117
3118
3119
3119
3120
3121
3122
3123
3124
3125
3126
3127
3128
3129
3129
3130
3131
3132
3133
3134
3135
3136
3137
3138
3138
3139
3139
3140
3141
3142
3143
3144
3145
3146
3147
3148
3148
3149
3149
3150
3151
3152
3153
3154
3155
3156
3157
3158
3159
3159
3160
3161
3162
3163
3164
3165
3166
3167
3168
3169
3169
3170
3171
3172
3173
3174
3175
3176
3177
3178
3178
3179
3179
3180
3181
3182
3183
3184
3185
3186
3187
3188
3188
3189
3189
3190
3191
3192
3193
3194
3195
3196
3197
3197
3198
3199
3199
3200
3201
3202
3203
3204
3205
3206
3207
3208
3209
3209
3210
3211
3212
3213
3214
3215
3216
3217
3218
3219
3219
3220
3221
3222
3223
3224
3225
3226
3227
3228
3229
3229
3230
3231
3232
3233
3234
3235
3236
3237
3238
3238
3239
3239
3240
3241
3242
3243
3244
3245
3246
3247
3248
3248
3249
3249
3250
3251
3252
3253
3254
3255
3256
3257
3258
3259
3259
3260
3261
3262
3263
3264
3265
3266
3267
3268
3269
3269
3270
3271
3272
3273
3274
3275
3276
3277
3278
3279
3279
3280
3281
3282
3283
3284
3285
3286
3287
3288
3288
3289
3289
3290
3291
3292
3293
3294
3295
3296
3297
3297
3298
3299
3299
3300
3301
3302
3303
3304
3305
3306
3307
3308
3309
3309
3310
3311
3312
3313
3314
3315
3316
3317
3318
3319
3319
3320
3321
3322
3323
3324
3325
3326
3327
3328
3329
3329
3330
3331
3332
3333
3334
3335
3336
3337
3338
3338
3339
3339
3340
3341
3342
3343
3344
3345
3346
3347
3348
3348
3349
3349
3350
3351
3352
3353
3354
3355
3356
3357
3358
3359
3359
3360
3361
3362
3363
3364
3365
3366
3367
3368
3369
3369
3370
3371
3372
3373
3374
3375
3376
3377
3378
3379
3379
3380
3381
3382
3383
3384
3385
3386
3387
3388
3388
3389
3389
3390
3391
3392
3393
3394
3395
3396
3397
3398
3398
3399
3399
3400
3401
3402
3403
3404
3405
3406
3407
3408
3409
3409
3410
3411
3412
3413
3414
3415
3416
3417
3418
3419
3419
3420
3421
3422
3423
3424
3425
3426
3427
3428
3429
3429
3430
3431
3432
3433
3434
3435
3436
3437
3438
3438
3439
3439
3440
3441
3442
3443
3444
3445
3446
3447
3448
3448
3449
3449
3450
3451
3452
3453
3454
3455
3456
3457
3458
3459
3459
3460
3461
3462
3463
3464
3465
3466
3467
3468
3469
3469
3470
3471
3472
3473
3474
3475
3476
3477
3478
3479
3479
3480
3481
3482
3483
3484
3485
3486
3487
3488
3488
3489
3489
3490
3491
3492
3493
3494
3495
3496
3497
3497
3498
3499
3499
3500
3501
3502
3503
3504
3505
3506
3507
3508
3509
3509
3510
3511
3512
3513
3514
3515
3516
3517
3518
3519
3519
3520
3521
3522
3523
3524
3525
3526
3527
3528
3529
3529
3530
3531
3532
3533
3534
3535
3536
3537
3538
3538
3539
3539
3540
3541
3542
3543
3544
3545
3546
3547
3548
3548
3549
3549
3550
3551
3552
3553
3554
3555
3556
3557
3558
3559
3559
3560
3561
3562
3563
3564
3565
3566
3567
3568
3569
3569
3570
3571
3572
3573
3574
3575
3576
3577
3578
3579
3579
3580
3581
3582
3583
3584
3585
3586
3587
3588
3588
3589
3589
3590
3591
3592
3593
3594
3595
3596
3597
3598
3598
3599
3599
3600
3601
3602
3603
3604
3605
3606
3607
3608
3609
3609
3610
3611
3612
3613
3614
3615
3616
3617
3618
3619
3619
3620
3621
3622
3623
3624
3625
3626
3627
3628
3629
3629
3630
3631
3632
3633
3634
3635
3636
3637
3638
3638
3639
3639
3640
3641
3642
3643
3644
3645
3646
3647
3648
3648
3649
3649
3650
3651
3652
3653
3654
3655
3656
3657
3658
3659
3659
3660
3661
3662
3663
3664
3665
3666
3667
3668
3669
3669
3670
3671
3672
3673
3674
3675
3676
3677
3678
3679
3679
3680
3681
3682
3683
3684
3685
3686
3687
3688
3688
3689
3689
3690
3691
3692
3693
3694
3695
3696
3697
3698
3698
3699
3699
3700
3701
3702
3703
3704
3705
3706
3707
3708
3709
3709
3710
3711
3712
3713
3714
3715
3716
3717
3718
3719
3719
3720
3721
3722
3723
3724
3725
3726
3727
3728
3729
3729
3730
3731
3732
3733

```

```

1797   end.bibitem
1798 }
1799
1800 %
1801
1802 FUNCTION {default.type} {
1803   "Unsupported entry type for " cite$ * warning$ %
1804 }
1805
1806 %
1807
1808 FUNCTION {longest.label.pass} {
1809   entry.count #1 + 'entry.count :=%
1810   entry.count int.to.str$ 'label :=%
1811   label width$ longest.label.width > {
1812     label 'longest.label :=%
1813     label width$ 'longest.label.width :=%
1814   } 'skip$ if$%
1815 }
1816
1817 %
1818
1819 FUNCTION {write.style.commands} {
1820   cmd.bibauthor write$%
1821   newline$%
1822   cmd.bibeditor write$%
1823   newline$%
1824   cmd.bibtranslator write$%
1825   newline$%
1826   cmd.bibtitle write$%
1827   newline$%
1828   cmd.bibbooktitle write$%
1829   newline$%
1830   cmd.bibjournal write$%
1831   newline$%
1832   cmd.bibmark write$%
1833   newline$%
1834   cmd.bibcountry write$%
1835   newline$%
1836   cmd.bibpatentid write$%
1837   newline$%
1838   cmd.bibedition write$%
1839   newline$%
1840   cmd.biborganization write$%
1841   newline$%
1842   cmd.bibaddress write$%
1843   newline$%
1844   cmd.bibpublisher write$%
1845   newline$%
1846   cmd.bibinstitution write$%
%
%   end_bibitem();%
% }%
%
% void Entry::default_type() {%
%   warning("Unsupported entry type %");
% }%
%
% void longest_label_pass(Entry entry) {%
%   entry_count = entry_count + 1;
%   this.label = int_to_str(entry_count);
%   if (width(this.label) > longest_label_width) {
%     longest_label = this.label;
%     longest_label_width = width(this.label);
%   }
% }%
%
% void write_style_commands() {%
%   write(cmd_bibauthor);
%   writeln();
%   write(cmd_bibeditor);
%   writeln();
%   write(cmd_bibtranslator);
%   writeln();
%   write(cmd_bibtitle);
%   writeln();
%   write(cmd_bibbooktitle);
%   writeln();
%   write(cmd_bibjournal);
%   writeln();
%   write(cmd_bibmark);
%   writeln();
%   write(cmd_bibcountry);
%   writeln();
%   write(cmd_bibpatentid);
%   writeln();
%   write(cmd_bibedition);
%   writeln();
%   write(cmd_biborganization);
%   writeln();
%   write(cmd_bibaddress);
%   writeln();
%   write(cmd_bibpublisher);
%   writeln();
%   write(cmd_bibinstitution);%
%
```

```

1847 newline$ % writeln();
1848 cmd.bibschool write$ % write(cmd_bibschool);
1849 newline$ % writeln();
1850 cmd.bibvolume write$ % write(cmd_bibvolume);
1851 newline$ % writeln();
1852 cmd.bibnumber write$ % write(cmd_bibnumber);
1853 newline$ % writeln();
1854 cmd.bibversion write$ % write(cmd_bibversion);
1855 newline$ % writeln();
1856 cmd.bibpages write$ % write(cmd_bibpages);
1857 newline$ % writeln();
1858 cmd.bibmodifydate write$ % write(cmd_bibmodifydate);
1859 newline$ % writeln();
1860 cmd.bibcitedate write$ % write(cmd_bibcitedate);
1861 newline$ % writeln();
1862 cmd.bibyear write$ % write(cmd_bibyear);
1863 newline$ % writeln();
1864 cmd.bibdate write$ % write(cmd_bibdate);
1865 newline$ % writeln();
1866 cmd.biburl write$ % write(cmd_biburl);
1867 newline$ % writeln();
1868 } % }
1869 %
1870 %%%%%%%%%%%%%%
1871 %
1872 FUNCTION {begin.bib} {
1873 preamble$ empty$ not {
1874 preamble$ write$ %
1875 newline$ %
1876 } 'skip$ if$ %
1877 env.bibbegin write$ %
1878 "{" longest.label * "}" * write$ %
1879 newline$ %
1880 write.style.commands %
1881 } %
1882 %
1883 %%%%%%%%%%%%%%
1884 %
1885 FUNCTION {end.bib} {
1886 newline$ %
1887 env.bibend write$ %
1888 newline$ %
1889 } %
1890 %
1891 %%%%%%%%%%%%%%
1892 %
1893 FUNCTION {initialize} {
1894 #0 'entry.count := % void initialize() {
1895 #0 'longest.label.width := % entry_count = 0;
1896 "" 'longest.label := % longest_label_width = 0;
1897 % longest_label = "";

```

```

1897 }
1898 %
1899 %
1900 %
1901 %
1902 READ
1903 EXECUTE {initialize}
1904 ITERATE {longest.label.pass}
1905 %
1906 %
1907 EXECUTE {begin.bib}
1908 ITERATE {call.type$}
1909 %
1910 %
1911 %
1912 %
1913 %
1914 %
1915 %
1916 %
1917 %
1918 %
1919 %
1920 %
1921 %
1922 %
1923 %
1924 %
1925 %
1926 %
1927 %
1928 %
1929 EXECUTE {end.bib}
1930 %
1931 %
1932 %
1933 </bst>
1934 {bookcls | artcls}\NeedsTeXFormat{LaTeX2e} [1999/12/01]
1935 {bookcls}\ProvidesClass{heuthesisbook}
1936 {artcls}\ProvidesClass{heuthesisart}
1937 {bookcfg}\ProvidesFile{heuthesisbook.cfg}
1938 {artcfg}\ProvidesFile{heuthesisart.cfg}
1939 {heuthesis-style}\ProvidesPackage{heuthesis}
1940 {artcls | bookcls | bookcfg | artcfg | heuthesis-style} [2021/05/06 3.0.15 Harbin Engineering University T
1941 {*artcls}
1942 \RequirePackage{ifthen}
1943 \RequirePackage{kvoptions}
1944 \SetupKeyvalOptions{
1945   family=heu,
1946   prefix=heu@,

```

```
1947 setkeys=\kvsetkeys
1948
1949 \newif\ifheu@bachelor
1950 \newif\ifheu@master
1951 \newif\ifheu@doctor
1952 \define@key{heu}{type}{%
1953   \heu@bachelorfal
1954   \heu@masterfal
1955   \heu@doctorfal
1956   \expandafter\csname heu@#1true\endcsname}
1957
1958 \newif\ifheu@productdevelopment
1959 \newif\ifheu@projectdplanning
1960 \newif\ifheu@projectdesign
1961 \newif\ifheu@applicationresearch
1962 \define@key{heu}{researchtype}{%
1963   \heu@productdevelopmentfal
1964   \heu@projectdplanningfal
1965   \heu@projectdesignfal
1966   \heu@applicationresearchfal
1967   \expandafter\csname heu@#1true\endcsname}
1968 \ifheu@productdevelopment\relax\else
1969 \ifheu@projectdplanning\relax\else
1970 \ifheu@projectdesign\relax\else
1971 \heu@applicationresearchtrue
1972 \fi
1973 \fi
1974 \fi
1975
1976 \newif\ifheu@qingdao
1977 \newif\ifheu@yantai
1978 \newif\ifheu@harbin
1979 \define@key{heu}{campus}{%
1980   \heu@qingdaofal
1981   \heu@yantaifal
1982   \heu@harbinfal
1983   \expandafter\csname heu@#1true\endcsname}
1984 \ifheu@yantai\relax\else
1985 \ifheu@qingdao\relax\else
1986 \heu@harbintrue
1987 \fi
1988 \fi
1989
1990 \newif\ifheu@opening
1991 \newif\ifheu@midterm
1992 \define@key{heu}{stage}{%
1993   \heu@openingfal
1994   \heu@midtermfal
1995   \expandafter\csname heu@#1true\endcsname}
1996
```

```
1997 \DeclareBoolOption[true]{raggedbottom}
1998 \DeclareBoolOption[false]{pifootnote}
1999 \DeclareBoolOption[false]{debug}
2000 \DeclareBoolOption[true]{toc}
2001 \DeclareBoolOption[true]{newtxmath}
2002
2003 \DeclareStringOption{fontset}
2004
2005 \DeclareDefaultOption{\PassOptionsToClass{\CurrentOption}{ctexart}}
2006
2007 \ProcessKeyvalOptions*
2008 \PassOptionsToPackage{no-math}{fontspec}
2009
2010 \ifheu@bachelor\relax\else
2011 \ifheu@master\relax\else
2012 \ifheu@doctor\relax\else
2013 \ClassError{heuthesisart}%
2014 {
2015   \MessageBreak Please specify thesis type in option:
2016   \MessageBreak type=[bachelor | master | doctor]
2017 }
2018 \fi
2019 \fi
2020 \fi
2021
2022 \ifheu@productdevelopment\relax\else
2023 \ifheu@projectdplanning\relax\else
2024 \ifheu@projectdesign\relax\else
2025 \ifheu@applicationresearch\relax\else
2026 \ClassError{heuthesisartplus}%
2027 {
2028   \MessageBreak Please specify researchtype in option:
2029   \MessageBreak researchtype=[productdevelopment | projectdplanning | projectdesign | a
2030 }
2031 \fi
2032 \fi
2033 \fi
2034 \fi
2035
2036 \ifheu@opening\relax\else
2037 \ifheu@midterm\relax\else
2038 \ClassError{heuthesisart}%
2039 {
2040   \MessageBreak Please specify stage in option:
2041   \MessageBreak stage=<opening|midterm>
2042 }
2043 \fi
2044 \fi
2045
2046 \ifthenelse%
```

```
2047 {\equal{\heu@fontset}{}%  
2048 { %  
2049   \PassOptionsToPackage{AutoFakeBold=2}{xeCJK}  
2050 }%  
2051 { %  
2052   \ifthenelse%  
2053   {\equal{\heu@fontset}{siyuan}}%  
2054   {\relax}%  
2055   { %  
2056     \PassOptionsToPackage{AutoFakeBold=2}{xeCJK}  
2057   }%  
2058   \PassOptionsToClass{fontset=\heu@fontset}{ctexart}  
2059 }%  
2060 \LoadClass[a4paper,UTF8,zihao=-4,scheme=plain]{ctexart}  
2061  
2062 \RequirePackage{etoolbox}  
2063 \RequirePackage{ifxetex}  
2064 \ifxetex  
2065 \else  
2066   \ClassError{heuthesis}{%  
2067     Please use: \MessageBreak  
2068     xelatex}{}  
2069 \fi  
2070 \RequirePackage{xparse}  
2071 \RequirePackage{amsmath}  
2072 \RequirePackage[amsmath,thmmarks,hyperref]{ntheorem}  
2073 \RequirePackage{amssymb}  
2074 \ifheu@newtxmath  
2075 \RequirePackage{newtxmath}  
2076 \fi  
2077 \RequirePackage{graphicx}  
2078 \RequirePackage{pdfpages}  
2079 \includepdfset{fitpaper=true}  
2080 \RequirePackage{enumitem}      % 使用 enumitem 宏包，改变列表项的格式  
2081 \RequirePackage{environ}  
2082 \RequirePackage{microtype}      % 微调字体间距  
2083 \ifheu@raggedbottom  
2084   \RequirePackage[bottom,perpage,hang]{footmisc}  
2085   \raggedbottom  
2086 \else  
2087   \RequirePackage[perpage,hang]{footmisc}  
2088 \fi  
2089 \RequirePackage{bbding}  
2090 \ifheu@pifootnote  
2091   \RequirePackage{pifont}  
2092 \fi  
2093 \RequirePackage{xeCJKfntef}  
2094 \RequirePackage{diagbox}  
2095 \RequirePackage{longtable}  
2096 \RequirePackage{booktabs}
```

```

2097 \RequirePackage[sort&compress,numbers]{natbib}
2098 \RequirePackage{hyperref}
2099 \hypersetup{%
2100   CJKbookmarks=true,
2101   linktoc=all,
2102   bookmarksnumbered=true,
2103   bookmarksopen=true,
2104   bookmarksopenlevel=1,
2105   breaklinks=true,
2106   colorlinks=false,
2107   plainpages=false,
2108   pdfborder=0 0 0}
2109 \urlstyle{same}
2110
2111 \RequirePackage{geometry}
2112 \geometry{
2113   a4paper,
2114   hcentering,
2115   ignoreall,
2116   nomarginpar,
2117   centering,
2118   text={150true mm,236true mm},
2119   left=30true mm,
2120   head=5true mm,
2121   headsep=2true mm,
2122   footskip=0true mm,
2123   foot=5.2true mm
2124 }
2125
2126 \ifheu@debug%
2127 \RequirePackage{layout}
2128 \RequirePackage{layouts}
2129 \RequirePackage{lineno}
2130 \fi
2131
2132 \RequirePackage{fancyhdr}
2133 \RequirePackage{tabularx}
2134 \RequirePackage{varwidth}
2135 \RequirePackage{changepage}
2136 \RequirePackage{multicol}
2137 \RequirePackage[below]{placeins}%
  允许上一个 section 的浮动图形出现在下一个 section
  的开始部分, 还提供\FloatBarrier 命令, 使所有未处理的浮动图形立即被处理
2138 \RequirePackage{flafter}%
  使得所有浮动体不能被放置在其浮动环境之前, 以免浮
  体在引述它的文本之前出现.
2139 \RequirePackage{multirow}%
  使用 Multirow 宏包, 使得表格可以合并多个 row 格
2140 \RequirePackage{subfigure}%
  支持子图 %centerlast 设置最后一行是否居中
2141 \RequirePackage[subfigure]{ccaption}%
  支持双语标题
2142 \RequirePackage{xltextra}
2143
2144 \renewcommand\normalsize{%

```

```
2145 \@setfontsize\normalsize{12bp}{20.50398bp}%
2146 \abovedisplayskip=8pt
2147 \abovedisplayshortskip=8pt
2148 \belowdisplayskip=\abovedisplayskip
2149 \belowdisplayshortskip=\abovedisplayshortskip}
2150
2151 \def\heu@def@fontsize#1#2{%
2152   \expandafter\newcommand\csname #1\endcsname[1][1.3]{%
2153     \fontsize{#2}{##1\dimexpr #2}\selectfont}}
2154 \heu@def@fontsize{dachu}{58.0bp}
2155 \heu@def@fontsize{chuacao}{42.2bp}
2156 \heu@def@fontsize{xiaochu}{36.1bp}
2157 \heu@def@fontsize{yihao}{26.1bp}
2158 \heu@def@fontsize{xiaoyi}{24.1bp}
2159 \heu@def@fontsize{erhao}{22.1bp}
2160 \heu@def@fontsize{xiaoer}{18.1bp}
2161 \heu@def@fontsize{sanhao}{16.1bp}
2162 \heu@def@fontsize{xiaosan}{15.1bp}
2163 \heu@def@fontsize{sihao}{14.1bp}
2164 \heu@def@fontsize{banxiaosi}{13.0bp}
2165 \heu@def@fontsize{xiaosi}{12.1bp}
2166 \heu@def@fontsize{dawu}{11.0bp}
2167 \heu@def@fontsize{wuacao}{10.5bp}
2168 \heu@def@fontsize{xiaowu}{9.0bp}
2169 \heu@def@fontsize{liuhao}{7.5bp}
2170 \heu@def@fontsize{xiaoliu}{6.5bp}
2171 \heu@def@fontsize{qihao}{5.5bp}
2172 \heu@def@fontsize{bahao}{5.0bp}
2173
2174 %-- 设置字号 --%
2175 \ctexset{%
2176   section={
2177     afterindent=true,
2178     beforeskip={7.5bp},% 上下空 0.5 行
2179     afterskip={7.5bp},
2180     format={\heiti\xiaosan[1.25]},
2181     aftername=\enspace,
2182     fixskip=true,
2183     break={},
2184   },
2185   subsection={
2186     afterindent=true,
2187     beforeskip={7bp},
2188     afterskip={7bp},
2189     format={\heiti\sihao[1.25]},
2190     aftername=\enspace,
2191     fixskip=true,
2192     break={},
2193   },
2194   subsubsection={
```

```

2195     afterindent=true,
2196     beforeskip={3bp},
2197     afterskip={3bp},
2198     format={\heiti\normalsize},
2199     aftername=\enspace,
2200     fixskip=true,
2201     break={},
2202 },
2203 paragraph/afterindent=true,
2204 subparagraph/afterindent=true
2205 }

2206

2207 \def\heu@def@term#1{%
2208   \define@key{heu}{#1}{\csname #1\endcsname{\#1}}
2209   \expandafter\gdef\csname #1\endcsname##1{%
2210     \expandafter\gdef\csname heu@#1\endcsname{\#1}}
2211   \csname #1\endcsname{}}
2212

2213 \heu@def@term{ctitlecover} % 中文标题封面
2214 \heu@def@term{csubject}
2215 \heu@def@term{cauthor}
2216 \heu@def@term{cstudentid}
2217 \heu@def@term{cclassid}
2218 \heu@def@term{caffil}
2219 \heu@def@term{csupervisor}
2220 \heu@def@term{csubmitdate}
2221 \heu@def@term{coralexdate}
2222 \heu@def@term{cdate}
2223

2224 \def\heu@parse@keywords#1{
2225   \define@key{heu}{#1}{\csname #1\endcsname{\#1}}
2226   \expandafter\gdef\csname heu@#1\endcsname{}
2227   \expandafter\gdef\csname #1\endcsname##1{
2228     \@for\reserved@a:=##1\do{
2229       \expandafter\ifx\csname heu@#1\endcsname\empty\else
2230         \expandafter\g@addto@macro\csname heu@#1\endcsname{%
2231           \ignorespaces\csname heu@#1@separator\endcsname}
2232       \fi
2233       \expandafter\expandafter\expandafter\g@addto@macro%
2234       \expandafter\csname heu@#1\expandafter\endcsname\expandafter{\reserved@a}}}}
2235

2236 \def\heusetup{\kvsetkeys{heu}{}}

2237

```

开题报告封面

```

2238 \newcommand{\heu@report@titlepage@graduate}%
2239   \ifthenelse{%
2240     {\equal{\heu@fontset}{siyuan}}{%
2241       {\xiaosi[1]\vspace*{0.65em}}{%
2242         {\xiaosi[1]\textcolor[rgb]{1,1,1}{\songti{\heu@motto}}}}}}%

```

```
2243 \vspace*{10mm}
2244 \begin{center}
2245   \kaishu\xiaoer\textbf{\heu@cschoolname\ifheu@qingdao\heu@qingdaocampus\fi\ifheu@yan
2246 \end{center}
2247 \vspace{1mm}
2248 \begin{center}
2249   \songti\erhao\textbf{\heu@cxuewei\heu@cthesisname
2250     \ifheu@opening
2251       \heu@stage@opening
2252     \else
2253       \ifheu@midterm
2254         \heu@stage@midterm
2255       \fi
2256     \fi
2257     \heu@stage@doctype
2258   }
2259 \end{center}
2260 \vspace{10mm}
2261 \parbox[t][3cm][t]{\textwidth}{%
2262   \begin{center}
2263     \songti\xiaoer\textbf{\heu@cthesistitleprefix\heu@title@csep\heu@ctitlecover}
2264   \end{center}
2265 }
2266 \parbox[b][3cm][t]{\textwidth}{%
2267   \begin{center}\songti\sanhao
2268     \renewcommand{\arraystretch}{1.8}
2269     \begin{tabular}{l@{\vphantom{\arraystretch}}c}
2270       \textbf{\heu@graduate@caffilttitle:} & \underline{\makebox[6.1cm]{\textbf{\heu@
2271         \textbf{\heu@graduate@cmajortitle:} & \underline{\makebox[6.1cm]{\textbf{\heu@
2272           \textbf{\heu@graduate@supervisor:} & \underline{\makebox[6.1cm]{\textbf{\heu@c
2273           \textbf{\heu@graduate@studenttitle:} & \underline{\makebox[6.1cm]{\textbf{\heu@c
2274           \textbf{\heu@graduate@studentid:} & \underline{\makebox[6.1cm]{\textbf{\heu@cs
2275           \textbf{\heu@graduate@datetitle:} & \underline{\makebox[6.1cm]{\textbf{\heu@cd
2276           \end{tabular}}\renewcommand{\arraystretch}{1}
2277     \end{center}
2278   }
2279 \vfill
2280 \ifheu@harbin
2281   \heu@harbin@schoolbottommark
2282 \else
2283 \ifheu@qingdao
2284   \heu@qingdao@schoolbottommark
2285 \else
2286 \ifheu@yantai
2287   \heu@yantai@schoolbottommark
2288 \fi
2289 \fi
2290 }
2291
2292 \newcommand{\heu@report@titlepage@bachelor}{
```

```

2293 \ifthenelse%
2294 {\equal{\heu@fontset}{siyuan}}%
2295 {\xiaosi[1]\vspace*{0.65em}}%
2296 {\xiaosi[1]\textcolor[rgb]{1,1,1}{\songti{\heu@motto}}}}%
2297 \vspace*{10mm}
2298 \begin{center}
2299 \includegraphics[width=6.2cm]{heulogo}
2300 \end{center}
2301 \begin{center}
2302 \songti\xiaoyi\textbf{\heu@bachelor@cthesisname}
2303 \ifheu@opening
2304 \heu@stage@opening
2305 \else
2306 \ifheu@midterm
2307 \heu@stage@midterm
2308 \fi
2309 \fi
2310 \heu@stage@doctype
2311 }
2312 \end{center}
2313 \vspace{15mm}
2314 \parbox[t][4.0cm][t]{\textwidth}{%
2315 \begin{center}
2316 \songti\xiaoer\textbf{\heu@cthesistitleprefix\heu@title@csep\heu@ctitlecover}
2317 \end{center}
2318 }
2319 \parbox[b][6cm][t]{\textwidth}{%
2320 \begin{center}\songti\sanhao
2321 \renewcommand{\arraystretch}{2.1}
2322 \begin{tabular}{l@{\vphantom{\arraylineheight}}c}
2323 \textbf{\heu@bachelor@cmajortitle} & \underline{\makebox[6.1cm]{\textbf{\heu@bachelor@cmajortitle}}}
2324 \textbf{\heu@bachelor@cstudenttitle} & \underline{\makebox[6.1cm]{\textbf{\heu@bachelor@cstudenttitle}}}
2325 \textbf{\heu@bachelor@cstudentidtitle} & \underline{\makebox[6.1cm]{\textbf{\heu@bachelor@cstudentidtitle}}}
2326 \textbf{\heu@bachelor@csupervisortitle} & \underline{\makebox[6.1cm]{\textbf{\heu@bachelor@csupervisortitle}}}
2327 \textbf{\heu@bachelor@cdatetitle} & \underline{\makebox[6.1cm]{\textbf{\heu@bachelor@cdatetitle}}}
2328 \end{tabular}\renewcommand{\arraystretch}{1}
2329 \end{center}
2330 }
2331 \vfill
2332 \ifheu@yantai
2333 \relax
2334 \else
2335 \heu@harbin@bachelor@schoolbottommark
2336 \fi
2337 }
2338
2339 \newcommand{\heu@report@backpage@bachelor}{%
2340 \thispagestyle{empty}
2341 \noindent\parbox[t][6.5cm][t]{\textwidth}{\heu@bachelor@teachercomment}
2342 \noindent\parbox[b][6cm][t]{\textwidth}{\heu@bachelor@teachersign\underline{\makebox[6cm]{\heu@bachelor@teachercomment}}}

```

```
2343 }  
2344  
2345 \renewcommand\tableofcontents{  
2346   \thispagestyle{empty}  
2347   \normalsize\@starttoc{toc}  
2348 }  
2349  
2350 \def\makecover{  
2351   \begin{titlepage}  
2352     \ifheu@bachelor  
2353       \heu@report@titlepage@bachelor  
2354     \else  
2355       \heu@report@titlepage@graduate  
2356     \fi  
2357     \clearpage  
2358     \ifheu@toc  
2359       \tableofcontents  
2360       \clearpage  
2361     \fi  
2362   \end{titlepage}  
2363 }  
2364 \def\makebackcover{  
2365   \clearpage  
2366   \heu@report@backpage@bachelor  
2367 }  
2368  
2369 \newcommand\bibstyle@numerical{\bibpunct{}{}{}{}{}{}{\textsuperscript{}}}  
2370 \newcommand\bibstyle@inline{\bibpunct{}{}{}{}{}{}{\heu@inline@sep}}  
2371  
2372 \citetstyle{numerical}  
2373 \DeclareRobustCommand\inlinecite{\@inlinercite}  
2374 \def\@inlinercite#1{\begingroup\citetstyle{inline}\let\@cite\NAT@citenum\citetp{#1}\endgr  
2375 \let\onlinecite\inlinercite  
2376 \newcommand{\lcite}{\inlinercite}  
2377 \renewenvironment{thebibliography}[1]{%  
2378   \list{\@biblabel{\@arabic\c@enumiv}}%  
2379   {\renewcommand{\makelabel}[1]{##1\hfill}  
2380     \settowidth{\labelwidth}{\@biblabel{#1}}  
2381     \setlength{\labelsep}{0.5em}  
2382     \setlength{\itemindent}{0pt}  
2383     \setlength{\leftmargin}{\labelsep+\labelwidth}  
2384     \addtolength{\itemsep}{-0.8em}  
2385     \usecounter{enumiv}}%  
2386   \let\p@enumiv\empty  
2387   \renewcommand{\theenumiv}{\@arabic\c@enumiv}}%  
2388 \sloppy\frenchspacing  
2389 \flushbottom  
2390 \clubpenalty0  
2391 \clubpenalty \clubpenalty  
2392 \widowpenalty0%
```

```

2393 \interlinepenalty-50%
2394 \sfcode`\.\@m}
2395 {\def\@noitemerr
2396 {\@latex@warning{Empty `thebibliography' environment}}%
2397 \endlist\frenchspacing}
2398 \AtEndOfClass{\input{heuthesisart.cfg}}
2399 \AtEndOfClass{\sloppy}
2400 
```

4.2 定义选项

```
2401 {*bookcls}
```

此处添加 book 控制项，用于 cfg 中定理等控制

```

2402 \RequirePackage{ifthen}
2403 \RequirePackage{kvoptions}
2404 \SetupKeyvalOptions{
2405   family=heu,
2406   prefix=heu@,
2407   setkeys=\kvsetkeys}
2408 \newif\ifheu@bachelor
2409 \newif\ifheu@master
2410 \newif\ifheu@doctor
2411 \newif\ifheu@postdoc
2412 \define@key{heu}{type}{%
2413   \heu@bachelorfalse
2414   \heu@masterfalse
2415   \heu@doctorfalse
2416   \heu@postdocfalse
2417 }
```

此处设置专业学位论文研究类型，没有明确给出时默认为应用研究型。

```

2418 \newif\ifheu@productdevelopment
2419 \newif\ifheu@projectdplanning
2420 \newif\ifheu@projectdesign
2421 \newif\ifheu@applicationresearch
2422 \define@key{heu}{researchtype}{%
2423   \heu@productdevelopmentfalse
2424   \heu@projectdplanningfalse
2425   \heu@projectdesignfalse
2426   \heu@applicationresearchfalse
2427 }
```

此处设置校区，没有明确给出烟台或者青岛时候，默认为哈尔滨校区。

```

2435 \newif\ifheu@qingdao
2436 \newif\ifheu@yantai
```

```

2437 \newif\ifheu@harbin
2438 \define@key{heu}{campus}{%
2439   \heu@qingdaofalse
2440   \heu@yantaifalse
2441   \heu@harbinfalse
2442   \expandafter\csname heu@#1true\endcsname}
2443 \ifheu@yantai\relax\else
2444 \ifheu@qingdao\relax\else
2445 \heu@harbintrue
2446 \fi
2447 \fi

```

设置版芯。

```

2448 \newif\ifheu@english
2449 \newif\ifheu@chinese
2450 \define@key{heu}{language}{%
2451   \heu@englishfalse
2452   \heu@chinesefalse
2453   \expandafter\csname heu@#1true\endcsname}
2454 \ifheu@english\relax\else
2455 \heu@chinesetrue
2456 \fi
2457 \newif\ifheu@geometrynewone
2458 \newif\ifheu@geometrynewtwo
2459 \newif\ifheu@geometrynewno
2460 \define@key{heu}{newgeometry}{%
2461   \heu@geometrynewonefalse
2462   \heu@geometrynewtwofalse
2463   \heu@geometrynewnofalse
2464   \expandafter\csname heu@geometrynew#1true\endcsname}

```

设置字距选项，因为 word 和规范不一致

```

2465 \newif\ifheu@zijvregu
2466 \newif\ifheu@zijvword
2467 \define@key{heu}{zijv}{%
2468   \heu@zijvregufalse
2469   \heu@zijvwordfalse
2470   \expandafter\csname heu@zijv#1true\endcsname}

```

设置中文参考文献中相邻两个标号使用逗号 “,” 还是短线 “-”。

```

2471 \newif\ifheu@citetwocomma
2472 \newif\ifheu@citetwoendash
2473 \heu@citetwoendashtrue
2474 \define@key{heu}{citetwo}{%
2475   \heu@citetwocommfalse
2476   \heu@citetwoendashfalse
2477   \expandafter\csname heu@citetwo#1true\endcsname
2478 }

```

目录中英文是否用 Arial 字体（默认关闭）。

```
2479 \DeclareBoolOption[false]{arialtoc}
```

章节标题中的英文是否用 Arial 字体（默认打开）。

```
2480 \DeclareBoolOption[false]{arialtitle}
```

raggedbottom 选项（默认开启）。如果不开启这个选项，会出现一页中尽量上下对齐，段的间距大。如果开启，尽量使段间距保持一致，页面底部出现空白。

```
2481 \DeclareBoolOption[true]{raggedbottom}
```

在脚注标记中使用 pifont 的带圈数字（默认使用）。

```
2482 \DeclareBoolOption[true]{pifootnote}
```

字体间距设置（默认关闭）。

```
2483 \DeclareBoolOption[false]{glue}
```

文科生四级目录设置（默认关闭）。

```
2484 \DeclareBoolOption[false]{tocfour}
```

章标题是否悬挂居中（默认开启）

```
2485 \DeclareBoolOption[true]{chapterhang}
```

是否是专业学位（默认否）。

```
2486 \DeclareBoolOption[false]{profdegree}
```

是否有子标题（默认是）。

```
2487 \DeclareBoolOption[false]{subtitle}
```

是否开启 debug 模式（默认否）。如果开启，载入显示行号等的包，只为开发调试用。

```
2488 \DeclareBoolOption[false]{debug}
```

是否使用右开页（默认否）。

```
2489 \DeclareBoolOption[false]{openright}
```

空白页是否无页眉页脚（默认否）。

```
2490 \DeclareBoolOption[false]{pageempty}
```

是否为提交图书馆电子版。

```
2491 \DeclareBoolOption[false]{library}
```

图题和标题最后一行是否居中对其（默认是，非规范要求）。

```
2492 \DeclareBoolOption[false]{capcenterlast}
```

子图图题和标题最后一行是否居中对其（默认是，非规范要求）。

```
2493 \DeclareBoolOption[false]{subcapcenterlast}
```

中文目录中 Abstract 是否均为大写

```
2494 \DeclareBoolOption[false]{absupper}
```

此处添加控制本科论文的页码横线选项

```
2495 \DeclareBoolOption[false]{bsmainpagenumberline}
```

```
2496 \DeclareBoolOption[false]{bsfrontpagenumberline}
```

```
2497 \DeclareBoolOption[true]{bsheadrule}
```

数学字体是否使用新罗马

```
2498 \DeclareBoolOption[true]{newtxmath}
```

添加参考文献分割开关

```
2499 \DeclareBoolOption[false]{splitbibitem}
```

此处添加英文目录开关

```
2500 \DeclareBoolOption[false]{engtoc}
```

声明字体选项。

```
2501 \DeclareStringOption{fontset}
```

将其余选项默认传递给 `ctexbook`。

```
2502 \DeclareDefaultOption{\PassOptionsToClass{\CurrentOption}{ctexbook}}
```

解析用户传递过来的选项，并加载 `ctexbook`。

```
2503 \ProcessKeyvalOptions*
```

使用 `XeTeX` 引擎时，`fontspec` 宏包会被 `xeCJK` 自动调用。传递给 `fontspec` 宏包 `no-math` 选项，避免部分数学符号字体自动调整为 CMR。其他引擎下没有这个问题，这一行会被无视。

```
2504 \PassOptionsToPackage{no-math}{fontspec}
```

载入单双面打印设置，默认本、硕、博均采用双面打印。

```
2505 \ifheu@bachelor
2506 \PassOptionsToClass{twoside}{book}
2507 \fi
2508 \ifheu@master
2509 \PassOptionsToClass{twoside}{book}
2510 \fi
2511 \ifheu@doctor
2512 \PassOptionsToClass{twoside}{book}
2513 \fi
```

设置字体。由于宋体没有粗体，且我校模板的标题要求使用粗宋，于是面临 CTeX 的经典的伪粗体 bug：“首次出现伪粗体字体之后的正常字体无法复制”。但如果使用自带宋的思源字体，那么不必使用伪粗体。模板只给出了新 windows 字体的思源字体设置，且思源字体版本为 Adobe 版。

```
2514 \ifthenelse%
2515 {\equal{\heu@fontset}{}}
2516 {%
2517   \PassOptionsToPackage{AutoFakeBold=2}{xeCJK}
2518 }%
2519 {%
2520   \ifthenelse%
2521   {\equal{\heu@fontset}{siyuan}}
2522   {\relax}%
2523   {%
2524     \PassOptionsToPackage{AutoFakeBold=2}{xeCJK}
2525   }%
2526   \PassOptionsToClass{fontset=\heu@fontset}{ctexbook}
2527 }%
```

使用 `ctexbook` 类，优于调用 `ctex` 宏包。

```
2528 \LoadClass[a4paper,openany,UTF8,zihao=-4,scheme=plain]{ctexbook}
```

用户至少要提供一个选项，指定论文类型。

```
2529 \ifheu@bachelor\relax\else
2530   \ifheu@master\relax\else
2531     \ifheu@doctor\relax\else
2532       \ifheu@postdoc\relax\else
2533         \ClassError{heuthesis}%
2534         {Please specify thesis type in option: \MessageBreak
2535          type=[bachelor | master | doctor | postdoc]}{%
2536       \fi
2537     \fi
2538   \fi
2539 \fi
```

```

2538 \fi
2539 \fi

设置字距默认选项
2540 \ifheu@zijvregu\relax\else
2541 \ifheu@zijvword\relax\else
2542 \heu@zijvregutru
2543 \fi
2544 \fi

```

重新设置 geometry 的默认选项

```

2545 \ifheu@geometrynewone\relax\else
2546 \ifheu@geometrynewtwo\relax\else
2547 \ifheu@geometrynewno\relax\else
2548 \heu@geometrynewtwotru
2549 \fi
2550 \fi
2551 \fi
2552 % 设置专业学位论文类型
2553 % \begin{macrocode}
2554 \ifheu@profdegree{
2555 \ifheu@productdevelopment\relax\else
2556 \ifheu@projectdplanning\relax\else
2557 \ifheu@projectdesign\relax\else
2558 \ifheu@applicationresearch\relax\else
2559 \ClassError{heuthesisartplus}%
2560 { Please specify researchtype in option:\MessageBreak
2561 researchtype=[productdevelopment | projectdplanning | projectdesign | applica
2562 } {}
2563 \fi
2564 \fi
2565 \fi
2566 \fi }
2567 \fi

```

4.3 装载宏包

引用的宏包和相应的定义。

```

2568 \RequirePackage{etoolbox}
2569 \RequirePackage{ifxetex}
2570 \ifxetex
2571 \else
2572 \ClassError{heuthesis}%
2573 {Please use: \MessageBreak
2574 xelatex} {}
2575 \fi
2576 \RequirePackage{xparse}

```

AMS-T_EX 宏包，用来排出更加漂亮的公式。

```

2577 \RequirePackage{amsmath}
定理类环境宏包，其中 amsmath 选项用来兼容 AMS-TEX 的宏包
2578 \RequirePackage[amsmath,thmmarks,hyperref]{ntheorem}

```

```
2579 \RequirePackage{amssymb}
```

设置默认英文字体。

```
2580 \setmainfont{Times New Roman}
2581 \setsansfont{Arial}
2582 \setmonofont{Courier New}
```

单独使用 newtxmath 宏包改变数学字体时，会使 operators, \mathrm, \textit, \textbf 命令使用 CM 字体，根据 SJUThesis 的字体设置 进行调整

```
2583 \ifheu@newtxmath
2584   \let\oldencodingdefault\encodingdefault
2585   \let\oldrmdefault\rmdefault
2586   \let\oldsfdefault\sfdefault
2587   \let\oldttdefault\ttdefault
2588   \def\encodingdefault{T1}
2589   \renewcommand{\rmdefault}{ntxlf}
2590   \renewcommand{\sfdefault}{qhv}
2591   \renewcommand{\ttdefault}{ntxtt}
2592   \RequirePackage{newtxmath}
2593   \let\encodingdefault\oldencodingdefault
2594   \let\rmdefault\oldrmdefault
2595   \let\sfdefault\oldsfdefault
2596   \let\ttdefault\oldttdefault
2597 \fi
```

图形支持宏包。

```
2598 \RequirePackage{graphicx}
```

pdfpages 宏包便于我们插入扫描后的授权页和声明页 PDF 文档。

```
2599 \RequirePackage{pdfpages}
2600 \includepdfset{fitpaper=true}
```

更好的列表环境。

```
2601 \RequirePackage{enumitem}          % 使用 enumitem 宏包，改变列表项的格式
2602 \RequirePackage{environ}
```

更细微的调整文字间距。

```
2603 \RequirePackage{microtype}        % 微调字体间距
```

禁止 L^AT_EX 自动调整多余的页面底部空白，并保持脚注仍然在底部。脚注按页编号。

```
2604 \ifheu@raggedbottom
2605   \RequirePackage[bottom,perpage,hang]{footmisc}
2606   \raggedbottom
2607 \else
2608   \RequirePackage[perpage,hang]{footmisc}
2609 \fi
```

扩展符号字符宏包。

```
2610 \RequirePackage{bbding}
2611 \ifheu@pifootnote
2612   \RequirePackage{pifont}
2613 \fi
```

利用 xeCJKfntef 实现汉字的下划线和盒子内两段对齐，并可以避免 \makebox[⟨width⟩][⟨s⟩] 可能产生的 underful boxes。

```
2614 \RequirePackage{xeCJKfntef}
```

表格控制

```
2615 \RequirePackage{diagbox}
```

```
2616 \RequirePackage{longtable}
```

使用三线表：\toprule, \midrule, \bottomrule。

```
2617 \RequirePackage{booktabs}
```

重定义 booktabs 宏包的默认线宽，绘制三线表时不再需要显式设置，以实现更好的内容与格式分离

```
2618 \heavyrulewidth=1.5pt
```

```
2619 \lightrulewidth=1pt
```

```
2620 \cmidrulewidth=0.5pt
```

参考文献引用宏包。

```
2621 % \RequirePackage[sort&compress]{natbib}
```

生成有书签的 pdf 及其开关，请结合 gbk2uni 避免书签乱码。

```
2622 \RequirePackage{hyperref}
```

```
2623 \hypersetup{%
```

```
2624   CJKbookmarks=true,
```

```
2625   linktoc=all,
```

```
2626   bookmarksnumbered=true,
```

```
2627   bookmarksopen=true,
```

```
2628   bookmarksopenlevel=1,
```

```
2629   breaklinks=true,
```

```
2630   colorlinks=false,
```

```
2631   plainpages=false,
```

```
2632   pdfborder=0 0 0}
```

设置 url 样式，与上下文一致

```
2633 \urlstyle{same}
```

引用文献标准 GBT2015

```
2634 \RequirePackage[sort&compress]{gbt7714}
```

```
2635 \ifheu@citetwocomma
```

```
2636   \patchcmd{\NAT@citexnum}{\def@\NAT@last@yr{-\NAT@penalty}}{%
```

```
2637 }%
```

```
2638   \ifx\NAT@last@yr\relax
```

```
2639     \def@\NAT@last@yr{\@citea}%
```

```
2640   \else
```

```
2641     \def@\NAT@last@yr{-\NAT@penalty}%
```

```
2642   \fi
```

```
2643 }%
```

```
2644 { \typeout{Use comma between neighboring citations} }%
```

```
2645 { \ClassError{heuhesisbook}{fail to patch \NAT@citexnum} {} }%
```

```
2646 \fi
```

4.4 页面设置

这部分是根据 哈尔滨工程大学研院函〔2010〕26号《关于调整研究生学位论文版面大小的通知》的规定：“版面一律改成A4纸页边距上、下设置为28mm，左、右设置为25mm，页眉、页脚设置为20mm。装订时上、下、右各切除3mm，学位论文成品版面大小为207mm*291mm”要求设置。论文尺寸为207x291mm，版芯尺寸140x220mm，版心距左边25mm，距右边20mm，距上下边各20mm。这里只设置版心尺寸和版心距左边距尺寸，其他尺寸由装订裁切进行控制。

```
2647 \ifheu@debug\RequirePackage[showframe]{geometry}\else\RequirePackage{geometry}\fi
2648 \geometry{\% 版芯定义
2649   a4paper, % 210 * 297mm
2650   hcentering,
2651   ignoreall,
2652   nomarginpar,
2653   centering,
2654   text={160true mm,241true mm},
2655   left=25true mm,
2656   head=20true mm,
2657   headsep=2true mm,
2658   footskip=0true mm,
2659   foot=6true mm
2660 }
```

载入显示行号的包。

```
2661 \ifheu@debug%
2662 \RequirePackage{layout}
2663 \RequirePackage{layouts}
2664 \RequirePackage{lineno}
2665 \fi
```

利用 fancyhdr 设置页眉页脚。

```
2666 \RequirePackage{fancyhdr}
```

其他包，表格、数学符号包子图最后一行图题是否居中选项

```
2667 \RequirePackage{tabularx}
2668 \RequirePackage{varwidth}
```

此处 changepage 环境用来控制索引页面的左右边距，规范中给出的示例的边距要大于正文。

```
2669 \RequirePackage{changepage}
2670 \RequirePackage{multicol}
2671 \RequirePackage[below]{placeins} % 允许上一个 section 的浮动图形出现在下一个 section
                                 的开始部分，还提供\FloatBarrier 命令，使所有未处理的浮动图形立即被处理
2672 \RequirePackage{flafter}      % 使得所有浮动体不能被放置在其浮动环境之前，以免浮
                                 体在引述它的文本之前出现。
2673 \RequirePackage{multirow}     % 使用 Multirow 宏包，使得表格可以合并多个 row 格
2674 \ifheu@subcapcenterlast
2675 \PassOptionsToPackage{centerlast}{subfigure}
2676 \fi
2677 \RequirePackage{subfigure} % 支持子图 %centerlast 设置最后一行是否居中
2678 \RequirePackage[subfigure]{ccaption} % 支持双语标题
```

中英文索引包。

```
2679 \RequirePackage{makeindex} {splitidx}
2680 \newindex[] {china}
2681 \newindex[] {english}
2682 
```

索引格式。

```
2683 <*ist>
2684 headings_flag 1
2685 heading_prefix "\{\vskip -\baselineskip\centering\normalsize\textrm{\"
2686 heading_suffix "\}\par}\nopagebreak\wuhao\n"
2687 delim_0 "\hspace*{\fill}"
2688 delim_1 "\hspace*{\fill}"
2689 
```

排版 logo。

```
2690 
```

4.5 主文档格式

4.5.1 页面选项

\cleardoublepage 对于 *openright* 选项，必须保证章首页右开。如果 *library* 为真，则强制设置 *openright* 为真。

```
2691 <*bookcls>
2692 \ifheu@english
2693 \RequirePackage{xindy,order=letter}{glossaries-extra}
2694 \newglossarystyle{engstyle}{%
2695   \setglossarystyle{long}{%
2696     \renewenvironment{theglossary}{%
2697       \vspace{-\intextsep}\centering\begin{longtable}{@{\hskip 1cm}p{3.5cm}p{\glsdescwidth}}%
2698     }{\end{longtable}}%
2699 \setabbreviationstyle[acronym]{long-short}
2700 \else
2701 \RequirePackage{glossaries}
2702 \setacronymstyle{short-long}
2703 \fi
2704
2705 \renewcommand*{\genacrfullformat}[2]{%
2706   \glsentrylong{\#1}%
2707 }
2708 \ifheu@english
2709 \makenoidxglossaries
2710 \else
2711 \makeglossaries
2712 \fi
2713 \ifheu@library\heu@openrightfalse\else\relax\fi
2714 \ifheu@pageempty
2715   \let\heu@cleardoublepage\cleardoublepage
2716   \newcommand{\heu@clearemptydoublepage}{%
2717     \clearpage{\pagestyle{\heu@empty}\heu@cleardoublepage}
2718   }
```

```
2719 \let\cleardoublepage\heu@clearemptydoublepage
2720 \fi
```

\frontmatter 我们的单面和双面模式与常规的不太一样。

```
2721 \renewcommand\frontmatter{%
2722   \ifheu@openright\cleardoublepage\else\clearpage\fi
2723   \mainmatterfalse
2724   \pagenumbering{Roman}
2725   \pagestyle{heu@empty}
```

设置字距

```
2726 \ifheu@openright\cleardoublepage\else\clearpage\fi
2727 \ifheu@zijvword
2728 \ziju{0.05416667}
2729 \else
2730 \ifheu@zijvregu
2731 \ziju{0.05580808}
2732 \fi
2733 \fi
2734 }
```

\mainmatter 根据打印店操作, \mainmatter 命令的逻辑是, 双面打印时第一章必须在奇数页设置第一章必须在奇数页

```
2735 \renewcommand\mainmatter{%
```

添加英文版限制

```
2736 \ifheu@doctor%
2737   \ifheu@library\clearpage\else\cleardoublepage\fi
2738 \else%
2739   \clearpage
2740 \fi%
2741 \mainmattertrue
2742 \pagenumbering{arabic}
2743 \pagestyle{heu@headings}
2744 }
```

\backmatter 后文开页选项, 根据 *openright* 选项决定分页方式。

```
2745 \renewcommand\backmatter{%
2746   \ifheu@openright\cleardoublepage\else\clearpage\fi
2747 \mainmattertrue
2748 \fancyhf{}
2749 \pagestyle{heu@titleheadings}
2750 }
2751 </bookcls>
```

4.5.2 字体

\normalsize 根据我校规定, 正文小四号 (12bp) 字, 但对行距没有给出明确要求。

```
2752 <*bookcls>
```

$1\text{bp} = 1/72 \text{ inch}, 1 \text{ inch} = 25.4 \text{ mm}$

```
2753 \renewcommand\normalsize{%
2754   \@setfontsize\normalsize{12bp}{\ifheu@glue 20.50394bp \@plus 2.834646bp \@minus 0bp\relax
2755   \abovedisplayskip=8pt
2756   \abovedisplayshortskip=8pt
2757   \belowdisplayskip=\abovedisplayskip
2758   \belowdisplayshortskip=\abovedisplayshortskip}
```

WORD 中的字号对应该关系如下 ($1\text{bp} = 72.27/72 \text{ pt}$) :

初号	42.2bp	14.82mm	42.1575pt
小初	36.1bp	12.70mm	36.135 pt
一号	26.1bp	9.17mm	26.0975pt
小一	24.1bp	8.47mm	24.09pt
二号	22.1bp	7.76mm	22.0825pt
小二	18.1bp	6.35mm	18.0675pt
三号	16.1bp	5.64mm	16.06pt
小三	15.1bp	5.29mm	15.05625pt
四号	14.1bp	4.94mm	14.0525pt
小四	12.1bp	4.23mm	12.045pt
五号	10.5bp	3.70mm	10.59375pt
小五	9.0bp	3.18mm	9.03375pt
六号	7.5bp	2.56mm	
小六	6.5bp	2.29mm	
七号	5.5bp	1.94mm	
八号	5.0bp	1.76mm	

\heu@def@fontsize 根据习惯定义字号。用法: `\heu@def@fontsize{<字号名称>} {<磅数>}` 避免了字号选择和行距的紧耦合。所有字号定义时为单倍行距, 并提供选项指定行距倍数。

```
2759 \def\heu@def@fontsize#1#2{%
2760   \expandafter\newcommand\csname #1\endcsname[1][1.3]{%
2761     \fontsize{#2}{##1\dimexpr #2}\selectfont}}
```

\dachu 一组字号定义。可以在论文中使用 `\fontsize` 格式指定, 如 `\sihao`。

```
\chuhao 2762 \heu@def@fontsize{dachu}{58.0bp}
\xiaochu 2763 \heu@def@fontsize{chuhao}{42.2bp}
\yihao 2764 \heu@def@fontsize{xiaochu}{36.1bp}
\xiaoyi 2765 \heu@def@fontsize{yihao}{26.1bp}
\erhao 2766 \heu@def@fontsize{xiaoyi}{24.1bp}
\xiaoer 2767 \heu@def@fontsize{erhao}{22.1bp}
\sanhao 2768 \heu@def@fontsize{xiaoer}{18.1bp}
\xiaosan 2769 \heu@def@fontsize{sanhao}{16.1bp}
\xiaosan 2770 \heu@def@fontsize{xiaosan}{15.1bp}
\sihao 2771 \heu@def@fontsize{sihao}{14.1bp}
\banxiaosi 2772 \heu@def@fontsize{banxiaosi}{13.0bp}
\xiaosi 2773 \heu@def@fontsize{xiaosi}{12.1bp}
\dawu 2774 \heu@def@fontsize{dawu}{11.0bp}
\wuhao
\xiaowu
\liuhao
\xiaoliu
```

```

2775 \heu@def@fontsize{wuham}{10.5bp}
2776 \heu@def@fontsize{xiaowu}{9.0bp}
2777 \heu@def@fontsize{liuhao}{7.5bp}
2778 \heu@def@fontsize{xiaoliu}{6.5bp}
2779 \heu@def@fontsize{qihao}{5.5bp}
2780 \heu@def@fontsize{bahao}{5.0bp}
2781 
```

4.5.3 页眉页脚

`\heu@empty` 定义四种页眉页脚格式:

`\heu@plain` • `heu@empty`: 页眉页脚都没有

`\heu@headings` • `heu@plain`: 只显示页脚的页码。`\chapter` 自动调用 `\thispagestyle{heu@plain}`。

`\heu@titleheadings` • `heu@headings`: 页眉页脚同时显示, 奇数页显示章节

• `heu@titleheadings`: 页眉页脚同时显示, 奇数页显示论文题目

```

2782 (*bookcls)
2783 \let\heu@headrule\headrule
```

空白页面页眉页脚格式控制

```

2784 \fancypagestyle{heu@empty}{%
2785   \fancyhf{}%
2786   \let\headrule\heu@headrule%
2787   \renewcommand{\headrulewidth}{0pt}%
2788   \renewcommand{\footrulewidth}{0pt}%
2789 }
```

正文页眉页脚格式控制

```

2790 \fancypagestyle{heu@headings}{%
2791   \fancyhf{}%
2792   \ifheu@english
```

英文版页眉格式控制

```

2793   \fancyhead[C]{\wuham[0]\leftmark}
2794   \fancyfoot[C]{\wuham\thepage}
2795   \renewcommand{\headrule}{%
2796     \vskip 0.6mm
2797     \hrule\@height0.5mm\@width\headwidth
2798     \vskip 0.3mm
2799     \hrule\@height0.8mm\@width\headwidth
2800   }
2801 \else
2802   \ifheu@postdoc
```

博后页眉控制

```

2803   \fancyhead[CO]{\songti\wuham[0]\leftmark}
2804   \fancyhead[CE]{\songti\wuham[0]\heu@cschoolname\heu@postdoc@documenttitlenospace}
2805   \fi
2806   \ifheu@doctor
2807     \fancyhead[CO]{\songti\wuham[0]\leftmark}
2808     \ifheu@harbin
```

```

2809      \fancyhead[CE] {\songti\wuhao[0]\heu@cschoolname\heu@cdegree\heu@cthesisname}
2810      \fi
2811      \ifheu@qingdao
2812          \fancyhead[CE] {\songti\wuhao[0]\heu@cschoolname\heu@qingdaocampus\heu@cdegree\heu@cthesisname}
2813          \fi
2814          \ifheu@yantai
2815              \fancyhead[CE] {\songti\wuhao[0]\heu@cschoolname\heu@yantaicampus\heu@cdegree\heu@cthesisname}
2816              \fi
2817          \fi
2818          \ifheu@master
2819              \fancyhead[CO] {\songti\wuhao[0]\leftmark}
2820              \ifheu@harbin
2821                  \fancyhead[CE] {\songti\wuhao[0]\heu@cschoolname\heu@cdegree\heu@cthesisname}
2822                  \fi
2823                  \ifheu@qingdao
2824                      \fancyhead[CE] {\songti\wuhao[0]\heu@cschoolname\heu@qingdaocampus\heu@cthesisname}
2825                      \fi
2826                      \ifheu@yantai
2827                          \fancyhead[CE] {\songti\wuhao[0]\heu@cschoolname\heu@yantaicampus\heu@cdegree\heu@cthesisname}
2828                          \fi
2829                      \fi
2830                      \ifheu@bachelor
2831                          \fancyhead[CO] {\songti\wuhao[0]\leftmark}
2832                          \ifheu@harbin
2833                              \fancyhead[CE] {\songti\wuhao[0]\heu@cschoolname\heu@bachelor@cxuewei\heu@bachelor@cthesisname}
2834                              \fi
2835                              \ifheu@qingdao
2836                                  \fancyhead[CE] {\songti\wuhao[0]\heu@cschoolname\heu@qingdaocampus\heu@bachelor@cthesisname}
2837                                  \fi
2838                                  \ifheu@yantai
2839                                      \fancyhead[CE] {\songti\wuhao[0]\heu@cschoolname\heu@yantaicampus\heu@bachelor@cthesisname}
2840                                      \fi
2841                                      \fi
2842                                      \fancyfoot[C] {\wuhao\thepage}
2843                                      \renewcommand{\headrule}{%
2844                                          \vskip 0.6mm
2845                                          \hrule\@height0.5mm\@width\headwidth
2846                                          \vskip 0.3mm
2847                                          \hrule\@height0.8mm\@width\headwidth
2848                                      }
2849                                      \fi
2850                                      \renewcommand{\footrulewidth}{0pt}
2851 }

```

前文页眉页脚格式控制（奇数页页眉为论文题目）

```

2852 %
2853 \fancypagestyle{heu@titleheadings}%
2854 {%
2855     \fancyhead{} %
2856     \fancyhead[CO] {\songti\wuhao[0]\heu@ctitle}

```

```

2857 \ifheu@postdoc
2858   \fancyhead[CE] {\songti\wuhao[0]\heu@cschoolname\heu@postdoc@documenttitlenospace}
2859 \fi
2860 \ifheu@doctor
2861   \ifheu@harbin
2862     \fancyhead[CE] {\songti\wuhao[0]\heu@cschoolname\heu@cdegree\heu@cthesisname}
2863 \fi
2864 \ifheu@qingdao
2865   \fancyhead[CE] {\songti\wuhao[0]\heu@cschoolname\heu@qingdaocampus\heu@cdegree\heu@cthesisname}
2866 \fi
2867 \ifheu@yantai
2868   \fancyhead[CE] {\songti\wuhao[0]\heu@cschoolname\heu@yantaicampus\heu@cdegree\heu@cthesisname}
2869 \fi
2870 \fi
2871 \ifheu@master
2872   \ifheu@harbin
2873     \fancyhead[CE] {\songti\wuhao[0]\heu@cschoolname\heu@cdegree\heu@cthesisname}
2874 \fi
2875 \ifheu@qingdao
2876   \fancyhead[CE] {\songti\wuhao[0]\heu@cschoolname\heu@qingdaocampus\heu@cthesisname}
2877 \fi
2878 \ifheu@yantai
2879   \fancyhead[CE] {\songti\wuhao[0]\heu@cschoolname\heu@yantaicampus\heu@cdegree\heu@cthesisname}
2880 \fi
2881 \fi
2882 \ifheu@bachelor
2883   \ifheu@harbin
2884     \fancyhead[CE] {\songti\wuhao[0]\heu@cschoolname\heu@bachelor@cxuewei\heu@bachelor@cthesisname}
2885 \fi
2886 \ifheu@qingdao
2887   \fancyhead[CE] {\songti\wuhao[0]\heu@cschoolname\heu@qingdaocampus\heu@bachelor@cthesisname}
2888 \fi
2889 \ifheu@yantai
2890   \fancyhead[CE] {\songti\wuhao[0]\heu@cschoolname\heu@yantaicampus\heu@bachelor@cthesisname}
2891 \fi
2892 \fi
2893 \fancyfoot[C]{\wuhao\thepage}      % 只显示号码
2894 \renewcommand{\headrulewidth}{0pt}    % 页眉线粗细
2895 \renewcommand{\footrulewidth}{0pt}     % 页脚线粗细
2896 \renewcommand{\headrule}{%
2897   \vskip 0.6mm
2898   \hrule\@height0.5mm\@width\headwidth
2899   \vskip 0.3mm
2900   \hrule\@height0.8mm\@width\headwidth
2901 }
2902 }
2903 \AtBeginDocument{%
2904   \pagestyle{heu@empty}
2905   \renewcommand{\chaptermark}[1]{\@mkboth{\CTEXthechapter\enspace#1}{}}}
2906 
```

4.5.4 段落

全文首行缩进 2 字符，标点符号用全角

```
2907 (*bookcls)
2908 \ctexset{%
2909   punct=quanjiao,
2910   space=auto,
2911   autoindent=true}
```

利用 enumitem 命令调整默认列表环境间的距离，以符合中文习惯。

```
2912 \setlist{nosep}
2913 
```

4.5.5 脚注

脚注符合中文习惯，数字带圈。

```
2914 (*bookcls)
2915 \def\heu@textcircled#1{%
2916   \ifnum\value{#1} >9
2917     \ClassError{heuthesis}{%
2918       {Too many footnotes in this page.}{Keep footnote less than 10.}}
2919   \fi
2920   \ifheu@pifootnote%
2921     \ding{\the\numexpr\value{#1}+171\relax}%
2922   \else%
2923     \textcircled{\xiaoliu\arabic{#1}}%
2924   \fi}
2925 \renewcommand{\thefootnote}{\heu@textcircled{footnote}}
2926 \renewcommand{\thempfootnote}{\heu@textcircled{mpfootnote}}
```

定义脚注分割线，字号（宋体小五），以及悬挂缩进（1.5 字符）。

```
2927 \def\footnoterule{\vskip-3\p@\hrule\width0.3\textwidth\height0.4\p@\vskip2.6\p@}
2928 \let\heu@footnotysize\footnotysize
2929 \renewcommand\footnotysize{\heu@footnotysize\xiaowu[1.5]}
2930 \footnotemargin1.5em\relax
```

\@makefnmark 默认是上标样式，而在脚注部分要求为正文大小。利用\patchcmd 动态调整 \@makefnmark 的定义。

```
2931 \let\heu@makefnmark\@makefnmark
2932 \def\heu@makefnmark{\hbox{\normalfont\@thefnmark}}
2933 \pretocmd{\@makefntext}{\let\@makefnmark\heu@makefnmark}{}{}
2934 \apptocmd{\@makefntext}{\let\@makefnmark\heu@makefnmark}{}{}
2935 
```

4.5.6 数学相关

允许太长的公式断行、分页等。

```
2936 (*bookcls)
2937 \allowdisplaybreaks[4]
2938 \predisplaypenalty=0 % 公式之前可以换页，公式出现在页面顶部
2939 \postdisplaypenalty=0
```

设置公式编号方式为 X-n

```
2940 \renewcommand{\theequation}{\ifnum \c@chapter>\z@ \thechapter-\fi @arabic\c@equation}
```

设置公式前后随意断页公式距前后文的距离由 4 个参数控制，参见 `\normalsize` 的定义。同时为了让 `amsmath` 的 `\tag*` 命令得到正确的格式，我们必须修改这些代码。`\makeatdf@tag` 是定义 `\tag*` 和 `\tag` 内部命令的。`\makeatdf@tag@@` 处理 `\tag*`，我们就改它！

```
| \def\makeatdf@tag{\@ifstar\makeatdf@tag@@\makeatdf@tag@@@}
| \def\makeatdf@tag@@#1{%
|   \gdef\df@tag{\maketag@@@{#1}\def\@currentlabel{#1}}}
```

```
2941 \def\makeatdf@tag{\@ifstar\heu@makeatdf@tag@@\makeatdf@tag@@@}
```

```
2942 \def\heu@makeatdf@tag@@#1{\gdef\df@tag{\heu@maketag{#1}\def\@currentlabel{#1}}}
```

```
2943 \iffalse
```

```
2944 \ifheu@bachelor
```

```
2945   \def\heu@maketag#1{\maketag@@@{%
```

```
2946     (\ignorespaces\textrm{\equationname}\hspace{0.5em}#1\unskip\@@italiccorr)}}
```

```
2947   \def\tagform@#1{\maketag@@@{%
```

```
2948     (\ignorespaces\textrm{\equationname}\hspace{0.5em}#1\unskip\@@italiccorr)\equacaption{#1}}
```

```
2949 \fi
```

```
2950 \fi
```

```
2951 \def\heu@maketag#1{\maketag@@@{(\ignorespaces #1\unskip\@@italiccorr)}}
```

```
2952 \def\tagform@#1{\maketag@@@{(\ignorespaces #1\unskip\@@italiccorr)\equacaption{#1}}}
```

修改 `\tagform` 会影响 `\eqref`。

```
2953 \renewcommand{\eqref}[1]{\textup{(\ref{#1})}}
```

```
2954 
```

定理标题使用黑体，正文使用宋体，冒号隔开。

```
2955 <*bookcfg>
2956 \theorembodyfont{\normalfont}
2957 \theoremsymbol{\ensuremath{\square}}
2958 \ifheu@english
2959 \theoremheaderfont{\normalfont\bf}
2960 \newtheorem*[proof]{Proof}{}
2961 \else
2962 \theoremheaderfont{\normalfont\hei}
2963 \newtheorem*[proof]{证明}{}
2964 \fi
```

英文版黑体加粗

```
2965 \theoremstyle{plain}
2966 \theoremsymbol{}
2967 \theoremseparator{}
2968 \ifheu@english
2969 \newtheorem{assumption}{Assumption}[chapter]
2970 \newtheorem{definition}{Definition}[chapter]
2971 \newtheorem{proposition}{Proposition}[chapter]
2972 \newtheorem{lemma}{Lemma}[chapter]
2973 \newtheorem{theorem}{Theorem}[chapter]
2974 \newtheorem{axiom}{Axiom}[chapter]
2975 \newtheorem{corollary}{Corollary}[chapter]
```

```

2976 \newtheorem{exercise}{exercise}[chapter]
2977 \newtheorem{example}{Example}[chapter]
2978 \newtheorem{remark}{Remark}[chapter]
2979 \newtheorem{problem}{Problem}[chapter]
2980 \newtheorem{conjecture}{Conjecture}[chapter]
2981 \newtheorem{fact}{Fact}[chapter]
2982 \else
2983 \newtheorem{assumption}{假设}[chapter]
2984 \newtheorem{definition}{定义}[chapter]
2985 \newtheorem{proposition}{命题}[chapter]
2986 \newtheorem{lemma}{引理}[chapter]
2987 \newtheorem{theorem}{定理}[chapter]
2988 \newtheorem{axiom}{公理}[chapter]
2989 \newtheorem{corollary}{推论}[chapter]
2990 \newtheorem{exercise}{练习}[chapter]
2991 \newtheorem{example}{例}[chapter]
2992 \newtheorem{remark}{注释}[chapter]
2993 \newtheorem{problem}{问题}[chapter]
2994 \newtheorem{conjecture}{猜想}[chapter]
2995 \newtheorem{fact}{事实}[chapter]
2996 \fi
2997 </bookcfg>
2998 (*artcfg)
2999 \theorembodyfont{\normalfont}
3000 \theoremheaderfont{\normalfont\heiti}
3001 \theoremsymbol{\ensuremath{\square}}
3002 \newtheorem*{proof}{证明}
3003 \theoremstyle{plain}
3004 \theoremsymbol{}
3005 \theoremseparator{}
3006 \newtheorem{assumption}{假设}
3007 \newtheorem{definition}{定义}
3008 \newtheorem{proposition}{命题}
3009 \newtheorem{lemma}{引理}
3010 \newtheorem{theorem}{定理}
3011 \newtheorem{axiom}{公理}
3012 \newtheorem{corollary}{推论}
3013 \newtheorem{exercise}{练习}
3014 \newtheorem{example}{例}
3015 \newtheorem{remark}{注释}
3016 \newtheorem{problem}{问题}
3017 \newtheorem{conjecture}{猜想}
3018 \ctexset{%
3019   contentsname={目\hspace{\ccwd} 录},
3020   figurename= 图,
3021   tablename= 表
3022 }
3023 \let\CJK@todaysave=\today
3024 \def\JK@todaysmall@short{\the\year 年 \the\month 月}
3025 \def\JK@todaysmall{\the\year 年 \the\month 月 \the\day 日}

```

```
3026 \def\CJK@todaybig@short{\zhdigits{\the\year} 年\zhnumber{\the\month} 月}
3027 \def\CJK@todaybig{\zhdigits{\the\year} 年\zhnumber{\the\month} 月\zhnumber{\the\day}
    日}
3028 \def\CJK@today{\CJK@todaysmall}
3029 \renewcommand\today{\CJK@today}
3030 \newcommand\CJKTtoday[1][1]{%
3031   \ifcase#1\def\CJK@today{\CJK@todaysave}%
3032     \or\def\CJK@today{\CJK@todaysmall}%
3033     \or\def\CJK@today{\CJK@todaybig}%
3034   \fi}%
3035 \cdate{\ifheu@bachelor\JK@todaysmall\else\JK@todaysmall@short\fi}%
3036 \ifheu@doctor
3037 \gdef\heu@cxuewei{博士}
3038 \gdef\heu@cxuewei{\heu@cxuewei{博士}}
3039 \gdef\heu@cdegree{\heu@cxueke\heu@cxuewei}
3040 \def\heu@cauthortitle{\heu@cxuewei{博士研究生}}
3041 \fi
3042 \ifheu@master
3043 \gdef\heu@cxuewei{硕士}
3044 \gdef\heu@cxuewei{\heu@cxuewei{硕士}}
3045 \gdef\heu@cdegree{\heu@cxueke\heu@cxuewei}
3046 \def\heu@cauthortitle{\heu@cxuewei{硕士研究生}}
3047 \fi
3048 \ifheu@bachelor
3049 \gdef\heu@cxuewei{学士}
3050 \fi
3051 \def\heu@stage@opening{开题}
3052 \def\heu@stage@midterm{中期}
3053 \def\heu@stage@doctype{报告}
3054 \def\heu@bachelor@cxuewei{本科生}
3055 \def\heu@bachelor@cthesisname{毕业设计(论文)}
3056 \def\heu@bachelor@cmajortitle{专\hspace{2\ccwd}业}
3057 \def\heu@bachelor@cstudenttitle{学\hspace{2\ccwd}生}
3058 \def\heu@bachelor@cstudentidtitle{学\hspace{2\ccwd}号}
3059 \def\heu@bachelor@cclass{班\hspace{2\ccwd}号}
3060 \def\heu@bachelor@caffilttitle{学院(系)名称}
3061 \def\heu@bachelor@caffilttitle{烟台学院}
3062 \def\heu@bachelor@caffilttitle{青岛学院}
3063 \def\heu@bachelor@csupervisortitle{指导教师}
3064 \def\heu@bachelor@cdatetitle{日\hspace{2\ccwd}期}
3065 \newcommand{\heu@bachelor@teachercomment}{指导教师评语: }
3066 \newcommand{\heu@bachelor@teachersign}{指导教师签字: }
3067 \newcommand{\heu@bachelor@checkdate}{检查日期: }
3068 \def\heu@cthesistitleprefix{题\hspace{\ccwd}目}
3069 \def\heu@graduate@caffilttitle{院\hspace{3\ccwd}(系)}
3070 \def\heu@graduate@cmajortitle{学\hspace{4\ccwd}科}
3071 \def\heu@graduate@supervisor{导\hspace{4\ccwd}师}
3072 \def\heu@graduate@studenttitle{研\hspace{1.5\ccwd}究\hspace{1.5\ccwd}生}
3073 \def\heu@graduate@studentid{学\hspace{4\ccwd}号}
3074 \def\heu@graduate@datetitle{\ifheu@opening\heu@stage@opening
```

```

3075 \else\ifheu@midterm\heu@stage@midterm\fi\fi\heu@stage@doctype 日期}
3076 \def\heu@graduate@enrolldate{入\hspace{0.666666\ccwd} 学\hspace{0.666666\ccwd}
时\hspace{0.666666\ccwd} 间}
3077 \def\heu@graduate@thesistitle{论\hspace{0.666666\ccwd} 文\hspace{0.666666\ccwd}
题\hspace{0.666666\ccwd} 目}
3078 \def\heu@graduate@cafflimajor{学\hspace{0.666666\ccwd} 科\hspace{0.666666\ccwd}
专\hspace{0.666666\ccwd} 业}
3079 \def\heu@cschoolname{哈尔滨工程大学}
3080 \def\heu@qingdaocampus{(青岛)}
3081 \def\heu@cthesisname{学位论文}
3082 \def\heu@yantacampus{(烟台)}
3083 \def\heu@cthesismidtermcheck{\heu@cxueweishort\hspace{.125\ccwd} 士\hspace{.125\ccwd}
学\hspace{.125\ccwd} 位\hspace{.125\ccwd} 论\hspace{.125\ccwd} 文\hspace{.125\ccwd}
中\hspace{.125\ccwd} 期\hspace{.125\ccwd} 检\hspace{.125\ccwd} 查\hspace{.125\ccwd}
报\hspace{.125\ccwd} 告}
3084 \def\heu@cschoolnametitle{学位授予单位}
3085 \def\heu@csubmitdatatitle{论文提交日期}
3086 \def\heu@coralexdatetitle{论文答辩日期}
3087 \def\heu@caffilttitle{所在单位}
3088 \def\heu@csubjecttitle{学科、专业}
3089 \def\heu@cdegreeritle{申请学位}
3090 \def\heu@csupervisortitle{指导教师}
3091 \def\heu@cassosupervisortitle{副导师}
3092 \def\heu@ccosupervisortitle{联合导师}
3093 \def\heu@creviewertitle{学位论文主审人}
3094 \def\heu@title@csep{::}
3095 \def\heu@natclassifiedindextitle{分类号}
3096 \def\heu@internatclassifiedindextitle{UDC}
3097 \def\heu@secretlevel{密级}
3098 \def\heu@cnumbertitle{编号}
3099 \newcommand{\heu@authorsig}{作者签名:}
3100 \newcommand{\heu@teachersig}{导师签名:}
3101 \newcommand{\heu@frontdate}{日期:}
3102 \newcommand{\heu@authorizationtitle}{学位论文使用权限}
3103 \newcommand{\heu@qingdao@schoolbottommark}{}
3104 \begin{center}
3105 \songti\sanhao\textbf{哈工程(青岛)制}
3106 \end{center}
3107 }
3108 \newcommand{\heu@yantai@schoolbottommark}{}
3109 \begin{center}
3110 \songti\sanhao\textbf{哈工程(烟台)制}
3111 \end{center}
3112 }
3113 \newcommand{\heu@harbin@schoolbottommark}{}
3114 \begin{center}
3115 \songti\sanhao\textbf{研究生院制}
3116 \end{center}
3117 }
3118 \newcommand{\heu@harbin@bachelor@schoolbottommark}{}

```

```

3119 \begin{center}
3120   \songti\xiaoer\textbf{哈尔滨工程大学本科生院制}
3121   \end{center}
3122 }
3123 \newcommand{\heu@doctor@midterm@note} {
3124 \thispagestyle{empty}
3125 \begin{center}
3126 \songti\sanhao\textbf{说\hspace{4\ccwd} 明}
3127 \end{center}
3128 }
3129 \vspace{1cm}\songti\sihao[2]
3130 \begin{enumerate} [itemsep=-4bp]
3131 \item 博士研究生学位论文中期报告一般在入学后的第五学期末完成。
3132 \item 此报告由学生本人填写，请导师签字后提交一份给检查小组。答辩结束后由检查组长签署意见。
3133 \item 报告经中期报告检查组长签字同意后，由学科部保存，以备论文答辩时参考。研究生院学生培养
      处将对研究生的学位论文中期报告进行抽查。
3134 \item 报告统一用 A4 纸打印。
3135 \end{enumerate}
3136 }
3137 \newcommand{\heu@datefill}{\hspace{2.5em} 年\hspace{1.5em} 月\hspace{1.5em} 日}
3138 \def\heu@motto{大工至善，大学至臻}
3139 \def\heuthesis{\textsc{heu}\textsc{Thesis}}
3140 \def\heu{哈尔滨工程大学}
3141 
```

4.5.7 浮动对象以及表格

设置浮动对象和文字之间的距离，由于规范中没有明确规定，根据经验，设置成正文汉字高度。

```

3142 {*bookcls}
3143 \ifheu@postdoc
3144 \setlength{\intextsep}{10.5bp}
3145 \setlength{\textfloatsep}{10.5bp}
3146 \setlength{\floatsep}{10.5bp}
```

添加博后的浮动间距设置

```

3147 \else
3148 \setlength{\intextsep}{\ifheu@glue 8.50398bp \oplus 2.83465bp \minus 0bp \else 8.50398bp \fi}
3149 \setlength{\textfloatsep}{\ifheu@glue 8.50398bp \oplus 2.83465bp \minus 0bp \else 8.50398bp \fi}
3150 \setlength{\floatsep}{\ifheu@glue 12bp \oplus 2.83465bp \minus 0bp \else 12bp \fi}
3151 \fi
```

此处设置 float 在 p 选项时间隔，此处不设置 \@fptop 和 \@fpbot 以确保居中。下面这组命令使浮动对象的缺省值稍微宽松一点，从而防止幅度对象占据过多的文本页面，也可以防止在很大空白的浮动页上放置很小的图形。

```

3152 \g@addto@macro\appendix{\renewcommand*\thefigure{\thechapter.\arabic{figure}}}
3153 \g@addto@macro\appendix{\renewcommand*\thetable{\thechapter.\arabic{table}}}
3154 \g@addto@macro\appendix{\renewcommand*\theequation{\thechapter.\arabic{equation}}}
3155 \renewcommand{\textfraction}{0.15}
3156 \renewcommand{\topfraction}{0.85}
```

```
3157 \renewcommand{\bottomfraction}{0.65}
3158 \renewcommand{\floatpagefraction}{0.60}
```

\@makecaption 根据我校规范，本科和硕博的图题序号之后的空格不一样。《哈尔滨工程大学研究生学位论文撰写规范》2.13.1 中规定：“每个图均应有图题（由图序和图名组成），图题不宜有标点符号，图名在图序之后空 1 个半角字符排写。”《哈尔滨工程大学本科毕业生论文撰写规范》2.13.1 中规定：“每个图均应有图题（由图序和图名组成），图题不宜有标点符号，图名在图序之后空 1 个字符排写。”我校规范中没有明确规定是否标题是否居中对齐，这里给出一个居中选项自行调整。注意，我校只规定：“居中书写”。此处不额外添加悬挂处理。

```
3159 \long\def\@makecaption#1#2{%
3160   \vskip\abovecaptionskip
3161   \wuhao\sbox{@tempboxa}{#1\ifheu@bachelor\hskip\ccwd\else\enskip\fi#2}%
3162   \ifdim\wd@tempboxa >\hsize
3163     \ifheu@capcenterlast%
3164       \vskip 6.3bp%
3165       {\setbox0=\vbox{#1\ifheu@bachelor\hskip\ccwd\else\enskip\fi#2}%
3166         \setbox1=\vbox{%
3167           \unvbox0
3168           \setbox2=\lastbox
3169             \hbox to \textwidth{\hfill\unhcipy2 \unskip\unskip\hfill}%
3170           }
3171         \unvbox1}
3172     \else%
3173       #1\ifheu@bachelor\hskip\ccwd\else\enskip\fi#2%
3174     \fi%
3175   \par
3176 \else%
3177   \global\minipagefalse
3178   \hb@xt@\hsize{\hfil\box@tempboxa\hfil}%
3179 \fi
3180 \vskip\belowcaptionskip}
```

\LT@makecaption 有关 longtable 的 caption 支持

```
3181 \long\def\LT@makecaption#1#2#3{%
3182   \LT@mcol\LT@cols c{\hbox to\z@\hss\parbox[t]\LTcapwidth{%
3183     \wuhao\sbox{@tempboxa}{#1{#2\ifheu@bachelor\hskip\ccwd\else\enskip\fi }#3}%
3184     \ifdim\wd@tempboxa>\hsize
3185       \ifheu@capcenterlast%
3186         \vskip 6.3bp%
3187         {\setbox0=\vbox{#1{#2\ifheu@bachelor\hskip\ccwd\else\enskip\fi }#3}%
3188           \setbox1=\vbox{%
3189             \unvbox0
3190             \setbox2=\lastbox
3191               \hbox to \textwidth{\hfill\unhcipy2 \unskip\unskip\hfill}%
3192             }
3193           \unvbox1}
3194     \else%
3195       #1{#2\ifheu@bachelor\hskip\ccwd\else\enskip\fi }#3%
3196     \fi%
```

```

3197     \par
3198     \else
3199         \global \minipagefalse
3200         \hbox to\hsize{\hfil\box\@tempboxa\hfil}
3201     \fi
3202     \endgraf\vskip\belowcaptionskip}%
3203 \hss}{}}

```

\longbionenumcaption 长表格的双语标题是一个坑。因为第一不能用浮动格式，只能用 longtable 包中的 tabular，这样表题只能使用表格中前两行来写。这样出现了一个问题是，中英表题的间距，标题和表第一行间距，表格内部间距等多个变量的协调问题。这个问题只要使用 tabular 的形式，就是无法解决的。唯一的方法就是把这些参数都给用户列出来。以下，第 2, 5 参数为中英双语标题内容，1, 4 为标题参数。6 为中英标题间距，7 为表题和表格间距。

```

3204 \renewcommand*{\longbionenumcaption}[7]{%
3205 \@if@contemptyarg{#1}{\caption{#2}}{\caption[#1]{#2}}%
3206 \global\let\@cont@oldtablename\ tablename
3207 \gdef\ tablename{#3}
3208 \global\let\LT@c@ption\@cont@LT@nonumintoc
3209 \\[ #6]
3210 \@if@contemptyarg{#4}{\caption{#5}}{\caption[#4]{#5}}%
3211 \global\let\ tablename\@cont@oldtablename
3212 \global\let\LT@c@ption\@cont@oldLT@c@ption
3213 \vspace{#7}}

```

\ltfontsize 我们采用 longtable 来处理跨页的表格。同样我们需要设置其默认字体为五号，行距设置为 1.3 倍行距。此处还需要提供一个设置长表格内部字体的命令。

```

3214 \let\heu@LT@array\LT@array
3215 \def\LT@array{\wuhao\heu@LT@array} % set default font size
3216 \newcommand{\ltfontsize}[1]{\def\LT@array{#1\heu@LT@array}}

```

图表名称及格式。

```

3217 \renewcommand{\thesubtable}{(\alph{subtable})}
3218 \renewcommand{\thefigure}{\arabic{chapter}.\arabic{figure}}% 使图编号为 7.1 的
格式 \%protect{~}
3219 \renewcommand{\thesubfigure}{(\alph{subfigure})}% 使子图编号为 (a) 的格式
3220 \renewcommand{\p@subfigure}{\thefigure~} % 使子图引用为 7.1(a) 的格式，母图编号和
子图编号之间用 ~ 加一个空格
3221 \renewcommand{\thetable}{\arabic{chapter}.\arabic{table}}% 使表编号为 7.1 的格
式

```

调整罗列环境、浮动格式、间距。

```

3222 \setitemize{leftmargin=0em,itemsep=0em,partopsep=0em,parsep=0em,topsep=0em,itemindent=0em}
3223 \setenumerate{leftmargin=0em,itemsep=0em,partopsep=0em,parsep=0em,topsep=0em,itemindent=0em}
3224 \newcommand{\citeup}[1]{\textsuperscript{\cite{#1}}}
3225 \captionnamefont{\wuhao}
3226 \captiontitlefont{\wuhao}
3227 \renewcommand{\subcapsize}{\wuhao}
3228 \setlength{\abovecaptionskip}{0pt}% 为了双标题之间的间距，不能设置
3229 \setlength{\belowcaptionskip}{0pt}
3230 % 自定义项目列表标签及格式 \begin{publist} 列表项 \end{publist}

```

```

3231 \newcounter{pubctr} % 自定义新计数器
3232 \newenvironment{publist}{\begin{list}{[\arabic{pubctr}]}} % 定义新环境
3233 \begin{list}{[\arabic{pubctr}]} % 标签格式
3234 {
3235   \usecounter{pubctr}
3236   \setlength{\leftmargin}{1.7em} % 左边界 \leftmargin = \itemindent + \labelwidth +
3237   \setlength{\itemindent}{0em} % 标号缩进量
3238   \setlength{\labelsep}{0.5em} % 标号和列表项之间的距离, 默认 0.5em
3239   \setlength{\rightmargin}{0em} % 右边界
3240   \setlength{\topsep}{0ex} % 列表到上下文的垂直距离
3241   \setlength{\parsep}{0ex} % 段落间距
3242   \setlength{\itemsep}{0ex} % 标签间距
3243   \setlength{\listparindent}{0pt} % 段落缩进量
3244 }
3245 \end{list}

```

设置定理定义格式

```

3246 \renewtheoremstyle{plain}
3247 {\item[\hspace{\labelsep} \theorem@headerfont ##1\ ##2\ \theorem@separator]}
3248 {\item[\hspace{\labelsep} \theorem@headerfont ##1\ ##2\ ##3\ \theorem@separator]}
3249 \theorembodyfont{\songti\rmfamily}
3250 \theoremheaderfont{\hei\rmfamily}
3251 \theoremsymbol{$\square$}
3252 \setlength{\theorempreskipamount}{0pt}
3253 \setlength{\theorempostskipamount}{-2pt}
3254 \setlength{\parindent}{2em}
3255 \arraycolsep=1.6pt
3256 \end{bookcls}

```

4.5.8 章节标题

```

3257 <*bookcfg>
3258 \ifheu@english
3259 \ctexset{%
3260   chapter/name={Chapter\enskip, },
3261   appendixname={Appendix},
3262   contentsname={Contents},
3263   listfigurename={List of Figures},
3264   listtablename={List of Tables},
3265   figurename={Figure},
3266   tablename={Table},
3267   bibname={References},
3268 }
3269 \else
3270 \ctexset{%
3271   chapter/name={第, 章},
3272   appendixname=附录,
3273   contentsname={目\hspace{\ccwd} 录},
3274   listfigurename=插图索引,
3275   listtablename=表格索引,
3276   figurename=图,

```

```

3277   tablename= 表,
3278   bibname= 参考文献,
3279   indexname= 索引,
3280 }
3281 \fi
3282 \ifheu@postdoc
3283 \ctexset{
3284   contentsname={目录},
3285 }
3286 \fi

```

添加 Article 和 English 版本以及 postdoc 版本标题名称设置

```

3287 \ifheu@english
3288 \newcommand\equationname{Equation}
3289 \else
3290 \newcommand\equationname{公式}
3291 \fi
3292 \newcommand\listfigurename{Index of figure}
3293 \newcommand\listtablename{Index of table}
3294 \newcommand\listequationname{Index of equation}
3295 \newcommand\listequationname{公式索引}

```

设置英文版公式名称

```
3296 \newcommand{\cabstractname}{Abstract (In Chinese)}
```

此处删除冗余选项

```

3297 \newcommand{\eabSTRACTNAME}{Abstract}
3298 \newcommand{\eabSTRACTNAME}{Abstract (In English)}
3299 \newcommand{\cabSTRACTNAME}{摘要}
3300

```

添加博后摘要

```

3301 \newcommand{\heu@ckeywords@title}{关键词: }
3302 \def\heu@ckeywords@separator{; }
3303 \def\heu@ekeywords@separator{, }
3304 \let\CJK@todaysave=\today
3305 \def\CJK@todaysmall@short{\the\year 年 \the\month 月}
3306 \def\CJK@todaysmall{\the\year 年 \the\month 月 \the\day 日}
3307 \def\CJK@todaybig@short{\zhdigits{\the\year} 年\zhnumber{\the\month} 月}
3308 \def\CJK@todaybig{\zhdigits{\the\year} 年\zhnumber{\the\month} 月\zhnumber{\the\day} 日}
3309 \def\CJK@today{\CJK@todaysmall}
3310 \renewcommand\today{\CJK@today}
3311 \newcommand\CKTodAY[1][1]{%
3312   \ifcase#1\def\CKTodAY{\CKTodAY[1]}%
3313   \or\def\CKTodAY{\CKTodAY[2]}%
3314   \or\def\CKTodAY{\CKTodAY[3]}%
3315   \fi}

```

按照 word 示范要求，此处使用阿拉伯数字

```

3316 \cdate{\ifheu@bachelor\JK@todaysmall\else\JK@todaysmall@short\fi}
3317 \edate{\ifcase \month \or January\or February\or March\or April\or May%
3318           \or June\or July \or August\or September\or October\or November

```

```
3319     \or December\fi\unskip,\ \ \the\year}
3320 
```

按照我校要求，页面中标题之下不少于一行。

```
3321 {*bookcls}
3322 \def\heu@title@font{%
3323   \ifheu@arialtitle\sfamily\else\heiti\fi}
3324 \newcommand\heu@chapter@titleformat[1]{% 开启悬挂缩进选项
3325   \ifheu@english
3326     \MakeUppercase{\#1}
3327   \else
3328     \ifthenelse{%
3329       {\equal{\#1}{\eababstractcname}}}{%
3330       {\bfseries \#1}}%
3331     % 实现章标题的居中加悬挂缩进,注意,此处一定是\CTEX@chaptername\CTEX@chapter@aftername, 否
3332     % 则是英文标题长度
3333     {\ifheu@chapterhang\settowidth{\hangindent}{\CTEX@chaptername\CTEX@chapter@aftername}%
3334     \fi
3334 }
```

添加英文版目录 chapter title 控制

```
3335 \newcommand\heu@chapter@engformat[1]{% 开启悬挂缩进选项
3336   \begin{center}
3337     \heu@title@font
3338     \if@mainmatter
3339       \xiaoer[1.57481]
3340     \else
3341       \sanhao[1.57481]
3342     \fi\bfseries
3343     #1
3344   \end{center}}
3345 \newcommand\heu@chapter@engnameformat[1]{% 开启悬挂缩进选项
3346   \begin{center}
3347     \MakeUppercase{\#1}
3348   \end{center}}
3349 \newcommand\heu@chapter@postdocformat[1]{\centering\heu@title@font\xiaoer[1.57481]\text{}
```

添加博后标题格式

```
3350 \renewcommand{@afterheading{%
3351   \@nobreaktrue
3352   \everypar{%
3353     \if@nobreak
3354       \@nobreakfalse
3355       \clubpenalty 1
3356       \if@afterindent \else
3357         {\setbox\z@\lastbox}%
3358       \fi
3359     \else
3360       \clubpenalty 1
3361       \everypar{}%
3362     \fi}}}
```

设置一到四级标题、目录、书签格式。

按照规范中规定行距的 mm 数定义各级行距

```

3363 \ifheu@english
3364   \ctexset{%
3365     chapter={%
3366       afterindent=true,
3367       pagestyle={heu@headings},
3368       beforeskip={28.34646bp},% 一个空行 1.57481 × 18
3369       afterskip={28.74646bp},%0.8 应该不计算间距 0.8 × 18 + 0.57481×18
3370       aftername={\par},
3371       format={\heu@chapter@engformat},
3372       nameformat={\heu@chapter@engnameformat},%\center 会影响之后全局
3373       numberformat=\relax,
3374       titleformat={\heu@chapter@titleformat},
3375       fixskip=true, % 添加这一行去除默认间距
3376       %hang=true,
3377     },
3378     section={%
3379       afterindent=true,
3380       beforeskip={\ifheu@glue 19.84252bp \@plus 2.834646bp \@minus 0bp \else 19.84252bp
上下空 0.5 行
3381       afterskip={\ifheu@glue 19.84252bp \@plus 2.834646bp \@minus 0bp \else 19.84252bp
3382       format={\heu@title@font\ifheu@glue\fontsize{15bp}{21bp}\@plus 1.677267bp \@minus
3383       aftername=\enspace,
3384       fixskip=true,
3385       break={},
3386     },
3387     subsection={%
3388       afterindent=true,
3389       beforeskip={\ifheu@glue 17.00787bp \@plus 2.834646bp \@minus 0bp \else 17.00787bp
3390       afterskip={\ifheu@glue 17.00787bp \@plus 2.834646bp \@minus 0bp \else 17.00787bp
3391       format={\heu@title@font\ifheu@glue\fontsize{14bp}{18bp}\@plus 1.842609bp \@minus
3392       aftername=\enspace,
3393       fixskip=true,
3394       break={},
3395     },
3396     subsubsection={%
3397       afterindent=true,
3398       beforeskip={\ifheu@glue 8.503937bp \@plus 2.834646bp \@minus 0bp \else 8.503937bp
3399       afterskip={\ifheu@glue 8.503937bp \@plus 2.834646bp \@minus 0bp \else 8.503937bp
3400       format={\heu@title@font\normalsize},
3401       aftername=\enspace,
3402       fixskip=true,
3403       break={},
3404     },
3405     paragraph/afterindent=true,
3406     subparagraph/afterindent=true
3407   }
3408 \else

```

```

3409 \ifheu@postdoc
3410   \ctexset{%
3411     chapter={%
3412       afterindent=true,
3413       pagestyle={heu@headings},
3414       beforeskip={28.34646bp},% 一个空行 1.57481 × 18
3415       afterskip={28.74646bp},%0.8 应该不计算间距 0.8 × 18 + 0.57481×18
3416       aftername=\enspace,
3417       format={\heu@chapter@postdocformat},%\center 会影响之后全局
3418       nameformat=\relax,
3419       numberformat=\relax,
3420       titleformat=\heu@chapter@titleformat,
3421       fixskip=true, % 添加这一行去除默认间距
3422       %hang=true,
3423     },
3424     section={%
3425       afterindent=true,
3426       beforeskip={\ifheu@glue 19.84252bp \@plus 2.834646bp \@minus 0bp \else 19.84252bp
上下空 0.5 行
3427       afterskip={\ifheu@glue 19.84252bp \@plus 2.834646bp \@minus 0bp \else 19.84252bp
3428       format={\heu@title@font\ifheu@glue\fontsize{15bp}{21bp \@plus 1.677267bp \@minus
3429       aftername=\enspace,
3430       fixskip=true,
3431       break={},
3432     },
3433     subsection={%
3434       afterindent=true,
3435       beforeskip={\ifheu@glue 17.00787bp \@plus 2.834646bp \@minus 0bp \else 17.00787bp
3436       afterskip={\ifheu@glue 17.00787bp \@plus 2.834646bp \@minus 0bp \else 17.00787bp
3437       format={\heu@title@font\ifheu@glue\fontsize{14bp}{18bp \@plus 1.842609bp \@minus
3438       aftername=\enspace,
3439       fixskip=true,
3440       break={},
3441     },
3442     subsubsection={%
3443       afterindent=true,
3444       beforeskip={\ifheu@glue 8.503937bp \@plus 2.834646bp \@minus 0bp \else 8.503937bp
3445       afterskip={\ifheu@glue 8.503937bp \@plus 2.834646bp \@minus 0bp \else 8.503937bp
3446       format={\heu@title@font\normalsize},
3447       aftername=\enspace,
3448       fixskip=true,
3449       break={},
3450     },
3451     paragraph/afterindent=true,
3452     subparagraph/afterindent=true
3453   }
3454 \else
3455   \ctexset{%
3456     chapter={%
3457       afterindent=true,

```

```

3458     pagestyle={heu@headings},
3459     beforeskip={28.34646bp},% 一个空行 1.57481 × 18
3460     afterskip={28.74646bp},%0.8 应该不计算间距 0.8 × 18 + 0.57481×18
3461     aftername=\enspace,
3462     format={\centering\heu@title@font\xiaoer[1.57481]},%\center 会影响之后全局
3463     nameformat=\relax,
3464     numberformat=\relax,
3465     titleformat=\heu@chapter@titleformat,
3466     fixskip=true, % 添加这一行去除默认间距
3467     %hang=true,
3468 },
3469 section={
3470     afterindent=true,
3471     beforeskip={\ifheu@glue 19.84252bp \@plus 2.834646bp \@minus 0bp \else 19.84252bp
上下空 0.5 行
3472     afterskip={\ifheu@glue 19.84252bp \@plus 2.834646bp \@minus 0bp \else 19.84252bp
3473     format={\heu@title@font\ifheu@glue\fontsize{15bp}{21bp \@plus 1.677267bp \@minus
3474     aftername=\enspace,
3475     fixskip=true,
3476     break={},
3477 },
3478 subsection={
3479     afterindent=true,
3480     beforeskip={\ifheu@glue 17.00787bp \@plus 2.834646bp \@minus 0bp \else 17.00787bp
3481     afterskip={\ifheu@glue 17.00787bp \@plus 2.834646bp \@minus 0bp \else 17.00787bp
3482     format={\heu@title@font\ifheu@glue\fontsize{14bp}{18bp \@plus 1.842609bp \@minus
3483     aftername=\enspace,
3484     fixskip=true,
3485     break={},
3486 },
3487 subsubsection={
3488     afterindent=true,
3489     beforeskip={\ifheu@glue 8.503937bp \@plus 2.834646bp \@minus 0bp \else 8.503937bp
3490     afterskip={\ifheu@glue 8.503937bp \@plus 2.834646bp \@minus 0bp \else 8.503937bp
3491     format={\heu@title@font\normalsize},
3492     aftername=\enspace,
3493     fixskip=true,
3494     break={},
3495 },
3496     paragraph/afterindent=true,
3497     subparagraph/afterindent=true
3498 }
3499 \fi
3500 \fi

```

此处添加英文版和博后的 title 设置设置附表、附录格式。

```

3501 \ifheu@english
3502 \NewDocumentCommand{\heu@appendix@chapter}{s o m o}{%
3503   \IfBooleanT{#1}{%

```

```

3504  {
3505      \phantomsection
3506      \IfValueTF{#2}{
3507          \markboth{#2}{#2}
3508      }{
3509          \markboth{#3}{#3}
3510      }
3511
3512      \ifthenelse%
3513          {\equal{#3}{\cabstractcname}}%
3514          {\relax}
3515          {\addcontentsline{toc}{chapter}{\texorpdfstring{\ifheu@arialtitle\sffamily\heiti\el}}
3516
3517          \IfValueT{#4}{\addcontentsline{toe}{chapter}{\texorpdfstring{\bfseries #4}{#4}}}
3518          \heu@chapter*{#3}
3519      }
3520  }
3521 \else

```

添加英文版附表格式

```

3522 \NewDocumentCommand{\heu@appendix@chapter}{s o m o}{%
3523     \IfBooleanT{#1}{%
3524         {
3525             \phantomsection
3526             \IfValueTF{#2}{%
3527                 \markboth{#2}{#2}
3528             }{
3529                 \markboth{#3}{#3}
3530             }
3531             \ifthenelse%
3532                 {\equal{#3}{\eabstractcname}}%
3533                 {\addcontentsline{toc}{chapter}{\texorpdfstring{\ifheu@arialtitle\sffamily\heiti\el}}
3534                 {\addcontentsline{toc}{chapter}{\texorpdfstring{\ifheu@arialtitle\sffamily\heiti\el}}
3535                 \IfValueT{#4}{\addcontentsline{toe}{chapter}{\texorpdfstring{\bfseries #4}{#4}}}
3536                 \heu@chapter*{#3}
3537             }
3538         }
3539 \fi
3540 \newcommand{\BiAppChapter}[2]      % 该附录命令适用于有章节的完整附录
3541 {\phantomsection
3542 \chapter{#1}

```

此处添加保护选项添加\texorpdfstring 命令去除书签中带有格式时的警告

```

3543 \addcontentsline{toe}{chapter}{\texorpdfstring{\bfseries \xiaosi Appendix \thechapter}{#1}}
3544 }

```

设置章节命令。s: 星号，表示在目录中不出现序号。m: 必须要有的选项，中文章节名称也即目录中名称，页眉中名称，书签中的名称。o: 可选内容，没有就默认是正文章节，如果有，则是英文目录中显示的内容。

\chapter

```

3545 \let\heu@chapter\chapter

```

```

3546 \RenewDocumentCommand{\chapter}{s o m o}{%
3547   \ifheu@openright\cleardoublepage\else\clearpage\fi\phantomsection%
3548   \IfBooleanTF{#1}{%
3549     {%
3550       \IfNoValueTF{#2}{%
3551         {\heu@chapter*{#3}}%
3552         {\heu@chapter*[#2]{#3}}%
3553       \IfValueT{#4}{%

```

此处添加保护选项

```

3554           \addcontentsline{toe}{chapter}{\texorpdfstring{\bfseries #4}{#4}}%
3555         }%
3556       }%
3557     {%
3558       \IfNoValueTF{#2}{%
3559         {\heu@chapter{#3}}%
3560         {\heu@chapter[#2]{#3}}%
3561       \IfValueT{#4}{%

```

此处需删除章节的空白此处添加保护选项

```

3562           \addcontentsline{toe}{chapter}{\texorpdfstring{\bfseries\relax Chapter \the%
3563         }%
3564       }%
3565     }

```

\section

```

3566 \let\heu@section\section
3567 \RenewDocumentCommand{\section}{s o m o}{%
3568   \IfBooleanTF{#1}{%
3569     {%
3570       \IfNoValueTF{#2}{%
3571         {\heu@section*{#3}}%
3572         {\heu@section*[#2]{#3}}%
3573       \IfValueT{#4}{%
3574         \addcontentsline{toe}{section}{#4}%
3575       }%
3576     }%
3577     {%
3578       \IfNoValueTF{#2}{%
3579         {\heu@section{#3}}%
3580         {\heu@section[#2]{#3}}%
3581       \IfValueT{#4}{%

```

此处需删除章节的空白

```

3582     \addcontentsline{toe}{section}{\protect\numberline{\csname thesection\endcsname}\igno%
3583     }%
3584   }%
3585 }

```

\subsection

```

3586 \let\heu@subsection\subsection

```

```

3587 \RenewDocumentCommand\subsection{s o m o}{
3588   \IfBooleanTF{#1}%
3589   {%
3590     if \subsection*
3591     \IfNoValueTF{#2}%
3592     {\heu@subsection*{#3}}%
3593     {\heu@subsection*[#2]{#3}}%
3594     \IfValueT{#4}{%
3595       \addcontentsline{toe}{subsection}{#4}%
3596     }%
3597   }%
3598   {%
3599     if \subsection
3600     \IfNoValueTF{#2}%
3601     {\heu@subsection{#3}}%
3602     {\heu@subsection[#2]{#3}}%
3603     \IfValueT{#4}{%

```

此处需删除章节的空白添加\ignorespaces 选项，矫正英文目录多出一个空白而无法对其的 bug

```

3604       \addcontentsline{toe}{subsection}{\protect\numberline{\csname thesubsection\endcsna
3605     }%

```

\subsubsection

```

3606 \let\heu@subsubsection\subsubsection
3607 \RenewDocumentCommand\subsubsection{s o m o}{
3608   \IfBooleanTF{#1}%
3609   {%
3610     if \subsubsection*
3611     \IfNoValueTF{#2}%
3612     {\heu@subsubsection*{#3}}%
3613     {\heu@subsubsection*[#2]{#3}}%
3614     \IfValueT{#4}{%
3615       \addcontentsline{toe}{subsubsection}{#4}%
3616     }%
3617   }%
3618   {%
3619     if \subsubsection
3620     \IfNoValueTF{#2}%
3621     {\heu@subsubsection{#3}}%
3622     {\heu@subsubsection[#2]{#3}}%
3623     \IfValueT{#4}{%

```

此处需删除章节的空白添加\ignorespaces 选项，矫正英文目录多出一个空白而无法对其的 bug

```

3624       \addcontentsline{toe}{subsubsection}{\protect\numberline{\csname thesubsubsection\endcsna
3625     }%
3626   }%
3627 }%

```

4.5.9 定义封面

封面信息。

```

3626 \def\heu@def@term#1{%
3627   \define@key{heu}{#1}{{\csname #1\endcsname{\#1}}}
3628   \expandafter\gdef\csname #1\endcsname##1{%
3629     \expandafter\gdef\csname heu@#1\endcsname{\#1}}
3630   \csname #1\endcsname{}}
3631
3632 \heu@def@term{statesecrets} % 密级
3633 \heu@def@term{cnumber} % 编号
3634 \heu@def@term{natclassifiedindex} % 国内图书分类号
3635 \heu@def@term{intclassifiedindex} % 国际图书分类号
3636 \heu@def@term{ctitlecover} % 中文标题封面
3637 \heu@def@term{ctitle} % 中文标题
3638 \heu@def@term{csubtitle} % 中文副标题
3639 \heu@def@term{cxueke} % 中文学科
3640 \heu@def@term{cauthor} % 中文作者
3641 \heu@def@term{csupervisor} % 中文导师
3642 \heu@def@term{cprofessional} % 职称
3643 \heu@def@term{csupervisorcaffil} % 导师单位
3644 \heu@def@term{cassosupervisor} % 中文副导师
3645 \heu@def@term{ccosupervisor} % 中文联合导师
3646 \heu@def@term{creviewer} % 论文主审人
3647 \heu@def@term{caffil} % 中文院系
3648 \heu@def@term{csubject} % 中文专业
3649 \heu@def@term{csubmitdate} % 论文提交日期
3650 \heu@def@term{coralexdate} % 论文答辩日期
3651 \heu@def@term{cdate} % 论文封面日期

```

添加博后封皮选项

```

3652 \heu@def@term{cpositionname} % 博士后工作站名称
3653 \heu@def@term{cfinishdate} % 完成日期
3654 \heu@def@term{cstartdate} % 开始日期
3655 \heu@def@term{cenddate} % 博士后期满时间
3656
3657 \heu@def@term{cstudentid} % 学号
3658 \heu@def@term{cstudenttype} % 学生类型
3659 \heu@def@term{ctitleone} % 第一行标题
3660 \heu@def@term{ctitletwo} % 第二行标题
3661
3662 \heu@def@term{etitle} % 英文标题
3663 \heu@def@term{esubtitle} % 英文标题
3664 \heu@def@term{exueke} % 英文学科
3665 \heu@def@term{eauthor} % 英文作者
3666 \heu@def@term{esupervisor} % 英文导师
3667 \heu@def@term{eassosupervisor} % 英文副导师
3668 \heu@def@term{ecosupervisor} % 英文联合导师
3669 \heu@def@term{eaffil} % 英文院系
3670 \heu@def@term{esubject} % 英文学科
3671 \heu@def@term{esubmitdate} % 英文论文提交日期
3672 \heu@def@term{eoralexdate} % 英文论文答辩日期
3673 \heu@def@term{edate} % 英文日期

```

```

3674 \heu@def@term{estudenttype}%
3675 % 英文学生类型
3676 \newcommand{\heu@@cabstract}[1]{\long\gdef\heu@cabstract{#1}}
3677 \newenvironment{cabstract}{\Collect@Body\heu@@cabstract}{}
3678 \newcommand{\heu@eabstract}[1]{\long\gdef\heu@eabstract{#1}}
3679 \newenvironment{eabstract}{\Collect@Body\heu@@eabstract}{}
3680 \def\heu@parse@keywords#1{
3681   \define@key{heu}{#1}{\csname #1\endcsname{\#1}}
3682   \expandafter\gdef\csname heu@#1\endcsname{}
3683   \expandafter\gdef\csname #1\endcsname{\#1{
3684     \@for\reserved@a:=#1\do{
3685       \expandafter\ifx\csname heu@#1\endcsname\empty\else
3686         \expandafter\g@addto@macro\csname heu@#1\endcsname{%
3687           \ignorespaces\csname heu@#1@separator\endcsname}
3688       \fi
3689     \expandafter\expandafter\expandafter\g@addto@macro%
3690       \expandafter\csname heu@#1\expandafter\endcsname\expandafter{\reserved@a}}}}
3691 \heu@parse@keywords{ckeywords}
3692 \heu@parse@keywords{ekeywords}
3693 \def\heu@setup{\kvsetkeys{heu}}
3694 
```

定义封面中用到的词汇。

```

3695 <*bookcfg>
3696 \ifheu@postdoc
3697 \gdef\heu@cxueweishort{博}
3698 \gdef\heu@exuewei{Doctor}
3699 \gdef\heu@exueweier{D.Eng}%
3700 \gdef\heu@cxuewei{\heu@cxueweishort 士}
3701 \gdef\heu@cdegree{\heu@cxueke\heu@cxuewei}
3702 \gdef\heu@edegree{\heu@exuewei \ of \heu@exueke}
3703 \def\heu@cauthoritle{\heu@cxueweishort 士研究生}
3704 \fi
3705

```

添加博后选项

```

3706
3707 \ifheu@doctor
3708 \gdef\heu@cxueweishort{博}
3709 \gdef\heu@exuewei{Doctor}
3710 \gdef\heu@exueweier{D.Eng}%
3711 \gdef\heu@cxuewei{\heu@cxueweishort 士}
3712 \gdef\heu@cdegree{\heu@cxueke\heu@cxuewei}
3713 \gdef\heu@edegree{\heu@exuewei \ of \heu@exueke}
3714 \def\heu@cauthoritle{\heu@cxueweishort 士研究生}
3715 \fi
3716
3717 \ifheu@master
3718 \gdef\heu@cxueweishort{硕}
3719 \gdef\heu@exuewei{Master}
3720 \gdef\heu@exueweier{M.Eng}%

```

```

3721 \gdef\heu@cxuewei{\heu@cxueweishort 士}
3722 \gdef\heu@cdegree{\heu@cxueke\heu@cxuewei}
3723 \gdef\heu@edegree{\heu@exuewei \ of \heu@exueke}
3724 \def\heu@cauthortitle{\heu@cxueweishort 士研究生}
3725 \fi
3726
3727 \ifheu@bachelor
3728 \gdef\heu@cxuewei{学士}
3729 \fi
3730
3731 \def\heu@postdoc@classifiedindex{分类号}
3732 \def\heu@postdoc@secretlevel{密级}
3733 \def\heu@postdoc@number{编号}
3734 \def\heu@postdoc@UDC{U\hspace{0.4\ccwd}D\hspace{0.4\ccwd}C: }
3735 \def\heu@stage@opening{开题}
3736 \def\heu@stage@midterm{中期}
3737 \def\heu@stage@doctype{报告}
3738

```

调整博后封皮中字间距

```

3739 \def\heu@postdoc@documenttitle{博\hspace{0.58\ccwd} 士\hspace{0.58\ccwd} 后\hspace{0.58\ccwd}
研\hspace{0.58\ccwd} 究\hspace{0.58\ccwd} 工\hspace{0.58\ccwd} 作\hspace{0.58\ccwd}
报\hspace{0.58\ccwd} 告}
3740 \def\heu@postdoc@documenttitlenospace{博士后研究报告}
3741 \def\heu@postdoc@finishdate{工作完成日期}
3742 \def\heu@postdoc@submitdate{报告提交日期}
3743 \def\heu@postdoc@authorname{博士后姓名}
3744 \def\heu@postdoc@supervisor{合作导师}
3745 \def\heu@postdoc@positionname{流动站名称}
3746 \def\heu@postdoc@major{专业名称}
3747 \def\heu@postdoc@startdate{研究工作起始时间}
3748 \def\heu@postdoc@enddate{研究工作期满时间}
3749 \def\heu@postdoc@separator{:}

```

添加本科开题封皮中 title 定义

```

3750 \def\heu@bachelor@cxuewei{本科生}
3751 \def\heu@bachelor@cthesisname{毕业论文}
3752 \def\heu@bachelor@cstudenttitle{学生姓名}
3753 \def\heu@bachelor@cstudentidtitle{学\hspace{2\ccwd} 号}
3754 \def\heu@bachelor@secretlevel{密\hspace{2\ccwd} 级}
3755 \def\heu@bachelor@ccoletitle{所在学院}
3756 \def\heu@bachelor@cmajortitlecov{专业名称}
3757 \def\heu@bachelor@cmajortitlesec{所在专业}
3758 \def\heu@bachelor@csupervisortitle{指导教师}
3759 \def\heu@bachelor@cprofessionaltitle{职称}
3760 \def\heu@bachelor@cthesistitle{题目}
3761 \def\heu@bachelor@cdatetitle{日\hspace{2\ccwd} 期}
3762 \def\heu@bachelor@caffilttitle{学院(系)名称}
3763 \def\heu@bachelor@cupervisoraffilttitle{所在单位}
3764 \def\heu@bachelor@caffilttitleqd{青岛学院}
3765 \def\heu@bachelor@caffilttitleya{烟台学院}

```

3766

此处添加青岛校区设置

3767

3768 \newcommand{\heu@bachelor@teachercomment}{指导教师评语: }

3769 \newcommand{\heu@bachelor@teachersign}{指导教师签字: }

3770 \newcommand{\heu@bachelor@checkdate}{检查日期: }

3771

3772 \def\heu@cthesistitleprefix{题\hspace{\ccwd} 目 }

3773 \def\heu@cthesisname{学位论文}

3774 \def\heu@cschoolname{哈尔滨工程大学}

3775

此处添加校区设置

3776

3777 \def\heu@qingdaocampus{ (青岛) }

3778 \def\heu@yantaicampus{ (烟台) }

3779 \def\heu@harbincampus{ (哈尔滨) }

3780

3781 \def\heu@cschoolnametitle{学位授予单位}

3782 \def\heu@csubmitdatatitle{论文提交日期}

3783 \def\heu@coralexdatetitle{论文答辩日期}

3784 \def\heu@caffilttitle{所在单位}

3785 \def\heu@ccolegetitle{所在学院}

3786 \def\heu@csubjecttitle{学科、专业}

3787 \def\heu@cprodrgreetitle{学位类别}

3788 \def\heu@cprosubjecttitle{专业类别}

3789 \def\heu@cdereetitle{申请学位}

3790 \def\heu@csupervisortitle{指导教师}

3791 \def\heu@cassosupervisortitle{副导师}

3792 \def\heu@ccosupervisortitle{校外导师}

3793 \def\heu@creviewertitle{学位论文主审人}

3794 \def\heu@title@csep{ : }

3795 \def\heu@eaughtortitle{Candidate}

3796 \def\heu@esupervisortitle{Supervisor}

3797 \def\heu@eassosupervisortitle{Associate Supervisor}

3798 \def\heu@ecosupervisortitle{Co Supervisor}

3799 \def\heu@edegreetitle{Academic Degree Applied for}

3800 \def\heu@esubjecttitle{Specialty}

3801 \def\heu@eaffilttitle{College}

3802 \def\heu@ecategorytitle{Professional category}

3803 \def\heu@esubmitdatetitle{Date of Submission}

3804 \def\heu@eoralexdatetitle{Date of Oral Examination}

3805 \def\heu@eschoolnametitle{University}

3806 \def\heu@eschoolname{Harbin Engineering University}

3807 \def\heu@title@esep{ : }

3808 \def\heu@natclassifiedindextitle{分类号}

3809 \def\heu@internatclassifiedindextitle{UDC}

3810 \def\heu@secretlevel{密级}

3811 \def\heu@cnumbertitle{编号}

专业学位论文扉页研究类型选项

```

3812 \ifheu@productdevelopment
3813   \def\heu@searcctype{(\{\wuhao\SquareSolid} 产品设计\hspace{0.5\ccwd}{\wuhao\Square}
  工程规划\hspace{0.5\ccwd}{\wuhao\Square} 工程设计\hspace{0.5\ccwd}{\wuhao\Square}
  应用研究) }
3814 \fi
3815 \ifheu@projectdplanning
3816   \def\heu@searcctype{(\{\wuhao\Square} 产品设计\hspace{0.5\ccwd}{\wuhao\SquareSolid}
  工程规划\hspace{0.5\ccwd}{\wuhao\Square} 工程设计\hspace{0.5\ccwd}{\wuhao\Square}
  应用研究) }
3817 \fi
3818 \ifheu@projectdesign
3819   \def\heu@searcctype{(\{\wuhao\Square} 产品设计\hspace{0.5\ccwd}{\wuhao\Square}
  工程规划\hspace{0.5\ccwd}{\wuhao\SquareSolid} 工程设计\hspace{0.5\ccwd}{\wuhao\Square}
  应用研究) }
3820 \fi
3821 \ifheu@applicationresearch
3822   \def\heu@searcctype{(\{\wuhao\Square} 产品设计\hspace{0.5\ccwd}{\wuhao\Square}
  工程规划\hspace{0.5\ccwd}{\wuhao\Square} 工程设计\hspace{0.5\ccwd}{\wuhao\SquareSolid}
  应用研究) }
3823 \fi
3824
3825 \def\heu@conclusion@ctitle{结论}
3826
3827 \def\heu@conclusion@etitle{Conclusions}
3828 \def\heu@bibname@etitle{References}
3829
3830 \def\heu@appendix@ctitle{附录}
3831 \def\heu@appendix@etitle{Appendix}
3832
3833 \def\heu@acknowledgement@ctitle{致谢}
3834 \def\heu@acknowledgement@etitle{Acknowledgements}
3835
3836 \ifheu@postdoc
3837 \def\heu@resume@ctitle{博士后个人简历}
3838 \else
3839 \def\heu@resume@ctitle{个人简历}
3840 \fi

```

添加博后封皮 title 的选项

```

3841
3842 \def\heu@correspondingaddr@ctitle{永久通讯地址}
3843
3844 \def\heu@resume@etitle{Resume}
3845 \def\heu@authorization@ctitle{学位论文原创性声明}
3846 \def\heu@authorization@etitle{Statement of copyright and Letter of authorization}
3847
3848 \newcommand{\heu@authorsig}{作者(签字): }
3849 \newcommand{\heu@teachersig}{导师(签字): }
3850 \newcommand{\heu@frontdate}{日期: }

```

```
3851 \newcommand{\heu@denotation@ctitle}{物理量名称及符号表}
3852 \newcommand{\heu@denotation@etitle}{List of physical quantity and symbol}
3853 \newcommand{\heu@authorizationtitle}{学位论文授权使用声明}
3854
3855 \newcommand{\heu@qingdao@schoolbottommark} {
3856     \begin{center}
3857         \songti\sanhao\textbf{哈工程（青岛）制}
3858     \end{center}
3859     \begin{center}
3860         \songti\sanhao\textbf{二〇二〇年三月}
3861     \end{center}
3862 }
3863 \newcommand{\heu@yantai@schoolbottommark} {
3864     \begin{center}
3865         \songti\sanhao\textbf{哈工程（烟台）制}
3866     \end{center}
3867     \begin{center}
3868         \songti\sanhao\textbf{二〇二〇年三月}
3869     \end{center}
3870 }
3871 \newcommand{\heu@harbin@schoolbottommark} {
3872     \begin{center}
3873         \songti\sanhao\textbf{研究生院制}
3874     \end{center}
3875     \begin{center}
3876         \songti\sanhao\textbf{二〇一四年九月}
3877     \end{center}
3878 }
3879 \newcommand{\heu@harbin@bachelor@schoolbottommark} {
3880     \begin{center}
3881         \songti\xiaoer\textbf{哈尔滨工程大学本科生院制}
3882     \end{center}
3883 }
3884
3885 \newcommand{\heu@doctor@midterm@note} {
3886 \thispagestyle{empty}
3887 \begin{center}
3888 \songti\sanhao\textbf{说\hspace{4\ccwd} 明}
3889 \end{center}
3890 }
3891 \vspace{1cm}\songti\sihao[2]
3892 \begin{enumerate} [itemsep=-4bp]
3893 \item 博士研究生学位论文中期报告一般在入学后的第五学期末完成。
3894 \item 此报告由学生本人填写，请导师签字后提交一份给检查小组。答辩结束后由检查组长签署意见。
3895 \item 报告经中期报告检查组长签字同意后，由学科部保存，以备论文答辩时参考。研究生院学生培养
处将对研究生的学位论文中期报告进行抽查。
3896 \item 报告统一用 A4 纸打印。
3897 \end{enumerate}
3898 }
3899 % \end{macrocode}
```

```

3900 \% \changes{v1.0.5}{2026/03/01}{根据 2026.02.28 哈尔滨工程大学最新要求修改原创型声
明和授权使用声明}
3901 \% \begin{macrocode}
3902 \newcommand{\heu@authorizationtext}{%
3903 {\wuhalo 本人完全了解学校保护知识产权的有关规定,即研究生在校攻读学位期间论文工作的知识产权
属于 \heu@cschoolname。 \heu@cschoolname 有权保留并向国家有关部门或机构送交论文的复
印件。本人允许 \heu@cschoolname 将论文的部分或全部内容编入有关数据库进行检索,可采用影印、
缩印或扫描等复制手段保存和汇编本学位论文,可以公布论文的全部内容。同时本人保证毕业后结合学位
论文研究课题再撰写的论文一律注明作者第一署名单位为 \heu@cschoolname。涉密学位论文待解密
后适用本声明。}}
3904
3905 {\wuhalo 本论文(\xiao{\Square}) 在授予学位后即可 \hspace{0.1em} {\xiao{\Square}} 在
授予学位 24 个月(含)后 \hspace{0.1em} {\xiao{\Square}} 全部内容在授予学位 \underline{\hspace{1.5em}} 月后【限填 24 个月以上,须学校审批】\hspace{0.1em} {\xiao{\Square}} 部分内容在授予
学位 \underline{\hspace{1.5em}} 月后【须学校审批】\hspace{0.1em} {\xiao{\Square}} 解
密后)由 \heu@cschoolname 送交有关部门进行保存汇编、公布使用等。}}
3906
3907 \newcommand{\heu@declarename@bachelor}{\heu@cschoolname 本科毕业设计(论文)原创
性声明}
3908 \newcommand{\heu@authorizationtext@bachelor}{%
3909 {\wuhalo 本人郑重声明:在\heu@cschoolname 攻读学士学位期间,所提交的毕业设计(论文)\heu@ctitle,
是本人在导师指导下独立进行研究工作所取得的成果。对本文的研究工作做出重要贡献的个人和集体,均
已在文中以明确方式注明,其它未注明部分不包含他人已发表或撰写过的研究成果,不存在购买、由他人
代写、剽窃和伪造数据等作假行为。本人完全意识到本声明的法律结果由本人承担。}}
3910 \newcommand{\heu@declarename}{学位论文原创性声明}
3911 \newcommand{\heu@declaretext}{%
3912 {\wuhalo 本人郑重声明:本论文的所有工作,是在导师的指导下,由作者本人独立完成的。有关观点、方
法、数据和文献的引用已在文中指出,并与参考文献相对应。本论文在撰写过程中,所有由人工智能技术
辅助生成的内容,作者均已明确标注,并对其真实性、准确性及合规性承担最终责任。论文中所有研究设计、
数据分析、核心观点、结论及创新性研究成果均为作者独立思考完成,不存在将人工智能技术或工具
标注为作者或完成人的情况。除文中已注明引用的内容外,本论文不包含任何其他个人或集体已经公开发
表的作品成果。对本文的研究做出重要贡献的个人和集体,均已在文中以明确方式标明。本人完全意识到
本声明的法律结果由本人承担。}}
3913
3914 \ifheu@english
3915 \newcommand{\heu@publication@ctitle}{Author's Publications}
3916 \else
3917 \ifheu@postdoc
3918 \newcommand{\heu@publication@ctitle}{博士后期间的研究成果}
3919 \else
3920 \newcommand{\heu@publication@ctitle}{攻读\heu@cxuewei 学位期间发表的论文及其他成
果}
3921 \fi
3922 \fi
3923 \newcommand{\heu@doctorpublication@ctitle}{博士生期间的研究成果}
博后和英文版附录 title
3924
3925 \newcommand{\heu@datefill}{\hspace{3.0em} 年\hspace{1.5em} 月\hspace{1.5em} 日}
3926 \newcommand{\heu@publication@etitle}{Papers published in the period of Ph.D. education}

```

```

3927 \def\heu@index@etitle{Index}
3928 \def\heu@motto{大工至善，大学至臻}
3929 \def\heu@cbraceleft{ (}
3930 \def\heu@cbraceright{) }
3931 \def\heu@ebraceleft{()
3932 \def\heu@ebraceright{)}
3933 
```

中英文封面。

```

3934 {*bookcls}
3935 \newlength{\heu@title@width}
3936 \newcommand{\heu@put@title}[2][\heu@title@width]{%
3937   \begin{CJKfilltwosides}[b]{#1}#2\end{CJKfilltwosides}}
3938
3939 \def\heu@first@titlepage{%
3940   \ifheu@postdoc\heu@first@titlepage@postdoc\else\ifheu@bachelor\heu@first@titlepage@ba
3941
3942 \def\heu@second@titlepage{%
3943   \ifheu@postdoc\heu@second@titlepage@postdoc\else\ifheu@bachelor\heu@second@titlepage@b
3944

```

博后封皮

```

3945 \newcommand{\heu@first@titlepage@postdoc}{%
3946   \songti\sihao\renewcommand{\arraystretch}{2}\
3947   \begin{tabular}{@{}r@{}l@{\hspace{7\ccwd}}r@{}l@{\hspace{3em}}r}
3948     \heu@postdoc@classifiedindex & \underline{\makebox[6\ccwd]{\heu@natclassifiedinde
3949     \heu@postdoc@UDC & \underline{\makebox[6\ccwd]{\heu@intclassifiedinde
3950   \end{tabular}\renewcommand{\arraystretch}{1}}
3951   \vspace*{0.5cm}
3952   \parbox[t][5cm][b]{\textwidth}{\begin{center}\heiti\xiaoer[2]\heu@cschoolname\par
3953     \heu@postdoc@documenttitle\end{center}}
3954   \parbox[b][4cm][b]{\textwidth}{%
3955     \songti\xiaoer[2]\renewcommand{\arraystretch}{1.5}
3956     \begin{center}
3957       \begin{tabular}{c}
3958         \makebox[9cm]{\heu@ctitleone}\\
3959         \hline
3960         \makebox[9cm]{\heu@ctitletwo}\\
3961         \hline
3962       \end{tabular}\renewcommand{\arraystretch}{1}
3963     \end{center}}
3964   \begin{center}
3965     \songti\sihao[2]\centering\heu@cauthor
3966   \end{center}
3967   \parbox[b][4.5cm][b]{\textwidth}{%
3968     \songti\sihao[2]\renewcommand{\arraystretch}{1.5}
3969     \begin{center}
3970       \begin{tabular}{rl}
3971         \heu@postdoc@finishdate & \underline{\makebox[6cm]{\heu@cfinishdate}} \\
3972         \heu@postdoc@submitdate & \underline{\makebox[6cm]{\heu@csubmitdate\hfill}} \\
3973       \end{tabular}\renewcommand{\arraystretch}{1}
3974     

```

```

3974     \end{center}
3975   }
3976   \vfill
3977   {\songti\sihao[2]
3978     \begin{center}
3979       \heu@cschoolname%
3980       \%ifheu@harbin
3981       \%heu@harbincampus
3982       \%fi
3983       \ifheu@yantai
3984       \heu@yantaicampus
3985       \%fi
3986       \ifheu@qingdao
3987       \heu@qingdaocampus
3988       \%fi
3989     \end{center}
3990     \begin{center}
3991       \heu@cdate
3992     \end{center} }
3993 }
3994

```

搏后封二

```

3995 \newcommand{\heu@second@titlepage@postdoc}{%
3996   \ifthenelse{%
3997     {\equal{\heu@fontset}{siyuan}}{%
3998       {\xiaosi[1]\vspace*{0.65em}}{%
3999         {\xiaosi[1]\textcolor[rgb]{1,1,1}{\songti{\heu@motto}}}}{%
4000           \vspace*{1.2cm}}
4001         \begin{center}
4002           \parbox[t][8cm][t]{\textwidth}{%
4003             \begin{center}\songti\sanhao[2]\heu@ctitlecover\end{center}
4004             \vspace*{16bp}
4005             \begin{center}\sihao[2]\MakeUppercase{\heu@etitle}\end{center}
4006           }
4007           \parbox[t][5cm][t]{\textwidth}{%
4008             \begin{center}\songti\sihao[2]
4009               \begin{tabularx}{0.6\linewidth}{l@{\heu@postdoc@separator}l}
4010                 \makebox[9em][s]{\heu@postdoc@authorname} & \heu@cauthor \\
4011                 \makebox[9em][s]{\heu@postdoc@supervisor} & \heu@csupervisor \\
4012                 \makebox[9em][s]{\heu@postdoc@positionname} & \heu@cpositionname \\
4013                 \makebox[9em][s]{\heu@postdoc@major} & \heu@csubject \\
4014                 \makebox[9em][s]{\heu@postdoc@startdate} & \heu@cstartdate \\
4015                 \makebox[9em][s]{\heu@postdoc@enddate} & \heu@cenddate \\
4016               \end{tabularx}
4017             \end{center}
4018           }
4019         \end{center}
4020         \vfill
4021         {\songti\sihao[2]

```

```
4022 \begin{center}
4023     \heu@cschoolname%
4024     \% \ifheu@harbin
4025     \% \heu@harbincampus
4026     \% \fi
4027     \ifheu@yantai
4028     \heu@yantaicampus
4029     \fi
4030     \ifheu@qingdao
4031     \heu@qingdaocampus
4032     \fi
4033 \end{center}
4034 \begin{center}
4035     \heu@cdate
4036 \end{center} } }
```

本科论文封面

```
4038 \newcommand{\heu@first@titlepage@bachelor}{%
4039 \ifthenelse{%
4040 { \equal{\heu@fontset}{siyuan} }{%
4041 { \xiaosi[1]\textcolor[rgb]{1,1,1}{\songti{\heu@motto}} }{%
4042 \vspace*{0.1cm}%
4043 \begin{center}%
4044 { \songti\xiaosi%
4045 \begin{tabular}{@{\qquad}c@{}l@{}l@{\qquad}}%
4046 & & \\
4047 & & \\
4048 \end{tabular}\hfill%
4049 { \songti\xiaosi%
4050 \begin{tabular}{@{}r@{:}l@{}l@{\qquad}}%
4051 \heu@bachelor@cstudentidtitle & \underline{\makebox[2.5cm]{\heu@cstudentid}} & \\\
4052 \heu@bachelor@secretlevel & \underline{\makebox[2.5cm]{\heu@statesecrets}} & %
4053 \end{tabular}}%
4054 \parbox[t][2.0cm][t]{\textwidth}{\begin{center} \end{center}}%
4055 \parbox[t][1.2cm][t]{\textwidth}{%
4056 \begin{center}\xiaoer[1]\songti{\heu@cschoolname\heu@bachelor@cxuewei\heu@bachelor@%
4057 \parbox[t][1.2cm][t]{\textwidth}{%
4058 \parbox[t][7.8cm][t]{\textwidth}{%
4059 \begin{center}\erhao\heiti\heu@ctitlecover\end{center}}%
4060 \ifheu@subtitle\begin{center}\hspace{-4em}\xiaoer\heiti\pozhehao\heu@csubtitle\end{center}%
4061 \parbox[t][7.4cm][t]{\textwidth}{%
4062 { \xiaosan%
4063 \setlength{\heu@title@width}{7em}%
4064 \begin{center} \renewcommand{\arraystretch}{1.62} \songti%
4065 \begin{tabular}{l@{\heu@title@csep}l}%
4066 { \songti\heu@put@title{\heu@bachelor@caffilttitle}} & \heu@caffil \\%
4067 { \songti\heu@put@title{\heu@bachelor@cmajortitlecov}} & \heu@csubject \\%
4068 { \songti\heu@put@title{\heu@bachelor@cstudenttitle}} & \heu@cauthor \\%
4069 { \songti\heu@put@title{\heu@bachelor@csupervisortitle}} & \heu@csupervisor\quad\heu@%
```

```

4070     \end{tabular} \renewcommand{\arraystretch}{1}
4071     \end{center}}}
4072 \parbox[t][1.4cm][t]{\textwidth}{%
4073 \begin{center}\kaishu\xiaoer{\heu@cschoolname}\end{center}}
4074 {\songti\xiaosan{\heu@cdate}}
4075 \end{center}
4076 }
4077

```

本科封二

```

4078 \newcommand{\heu@second@titlepage@bachelor}{%
4079   \vspace*{0.5cm}
4080   {\songti\xiaosi
4081     \begin{tabular}{@{\qquad\qquad}r@{}l@{}l@{\qquad}}
4082       & & \\
4083       & &
4084     \end{tabular}\hfill
4085   {\songti\xiaosi
4086     \begin{tabular}{r@{:}l@{}l@{\qquad}}
4087       \heu@bachelor@cstudentidtitle & \underline{\makebox[2.5cm]{\heu@cstudentid}} & \\
4088       \heu@bachelor@secretlevel & \underline{\makebox[2.5cm]{\heu@statesecrets}} &
4089     \end{tabular}}
4090   \vspace*{1.5cm}
4091   \begin{center}
4092     \parbox[t][8.0cm][t]{\textwidth}{%
4093       {\hei\xiaosan
4094         \begin{center}\erhao\hei\heu@ctitlecover\end{center}
4095         \ifheu@subtitle\begin{center}\hspace{-4em}\xiaoer\hei\pozhehao\heu@csubtitle\end{center}
4096         \begin{center}\erhao{\heu@etitle}\end{center}
4097         \begin{center}\xiaoer\textbf{\ifheu@subtitle\heu@title@esep\heu@esubtitle\fi}\end{center}
4098       }
4099     \parbox[t][9.8cm][b]{\textwidth}{%
4100       {\hei\xiaosan
4101         \setlength{\heu@title@width}{6em}
4102         \begin{center} \renewcommand{\arraystretch}{1.5} \songti
4103           \begin{tabular}{l@{\heu@title@csep}l}
4104             \textbf{\heu@put@title{\heu@bachelor@cstudenttitle}} & \heu@cauthor\\
4105             \textbf{\heu@put@title{\heu@bachelor@ccolegetitle}} & \heu@caffil\\
4106             \textbf{\heu@put@title{\heu@bachelor@cmajortitlesec}} & \heu@csubject\\
4107             \textbf{\heu@put@title{\heu@bachelor@csupervisortitle}} & \heu@csupervisor\\
4108             \textbf{\heu@put@title{\heu@bachelor@cprofessionaltitle}} & \heu@cprofessional\\
4109             \textbf{\heu@put@title{\heu@bachelor@cupervisoraffilttitle}} & \heu@csupervisorcaffi\\
4110             \textbf{\heu@put@title{\heu@submitdata@title}} & \heu@submitdate\\
4111             \textbf{\heu@put@title{\heu@coralexdate@title}} & \heu@coralexdate\\
4112             \textbf{\heu@put@title{\heu@cschoolname@title}} & \heu@cschoolname
4113           \end{tabular} \renewcommand{\arraystretch}{1}
4114         \end{center}
4115       }
4116     \end{center}
4117   }

```

4118

硕博论文封面

```

4119 \newcommand{\heu@first@titlepage@other} {
4120 \ifthenelse%
4121 {\equal{\heu@fontset}{siyuan}}%
4122 {\xiaosi[1]\textcolor{rgb}{1,1,1}{\songti{\heu@motto}}}%
4123 \vspace*{0.1cm}
4124 \begin{center}
4125 {\songti\xiaosi
4126 \begin{tabular}{@{\qquad}@{}r@{: }l@{\qquad}}
4127 \heu@natclassifiedindextitle & \underline{\makebox[2.5cm]{\heu@natclassifiedin}}
4128 \heu@internatclassifiedindextitle & \underline{\makebox[2.5cm]{\heu@intclassifiedin}}
4129 \end{tabular}\hfill
4130 {\songti\xiaosi
4131 \begin{tabular}{@{}r@{: }l@{\qquad}}
4132 \heu@secretlevel & \underline{\makebox[2.5cm]{\heu@statesecrets}} & \\
4133 \heu@cnumbertitle & \underline{\makebox[2.5cm]{\heu@cnumber}} &
4134 \end{tabular}}
4135
4136 \vspace*{2.0cm}
4137 \parbox[t][1.2cm][t]{\textwidth}{\xiaoer[1]
4138 \begin{center}\xiaoer[1]\songti{\heu@cdegree\heu@cthesisname}\end{center}}
4139 % 修改第二行标题：学术类型
4140 \parbox[t][1.2cm][t]{\textwidth}{\quad}
4141 \parbox[t][6.0cm][t]{\textwidth}{%
4142 \begin{center}\erhao\heiti\heu@ctitlecover\end{center}
4143 \ifheu@subtitle\begin{center}\hspace{-4em}\xiaoer\heiti\pozhehao\heu@csubtitle\end{center}
4144 \parbox[t][7.4cm][t]{\textwidth}{%
4145 {\xiaosan
4146 \setlength{\heu@title@width}{7em}
4147 \begin{center} \renewcommand{\arraystretch}{1.62} \songti
4148 \begin{tabular}{l@{\heu@title@csep}l}
4149 {\songti\heu@put@title{\heu@cauthortitle}} & \heu@cauthor\\
4150 {\songti\heu@put@title{\heu@csupervisortitle}} & \heu@csupervisor\\
4151 \ifx\heu@cassosupervisor@\empty\else%
4152 {\songti\heu@put@title{\heu@cassosupervisortitle}} & \heu@cassosupervisor\\
4153 \fi
4154 \ifheu@profdegree%
4155 {\songti\heu@put@title{\heu@ccosupvisortitle}} & \heu@ccosupvisor \\
4156 {\songti\heu@put@title{\heu@cprodrgreettitle}} & \heu@cstudenttype \\
4157 \else%
4158 {\songti\heu@put@title{\heu@csubjecttitle}} & \heu@csubject \\
4159 \fi
4160 \ifx\heu@creviewer@\empty\else%
4161 {\songti\heu@put@title{\heu@creviewertitle}} & \heu@creviewer
4162 \fi
4163 \end{tabular} \renewcommand{\arraystretch}{1}
4164 \end{center}}}
4165 \parbox[t][3.0cm][b]{\textwidth}{%

```

```

4166 \begin{center}\kaishu\xiaoer{\heu@cschoolname}\end{center}
4167 {\songti\xiaosan{\heu@cdate}}
4168 \end{center}
4169 }
4170

```

硕博论文内封

```

4171 \newcommand{\heu@second@titlepage@other} {
4172   \begin{center}
4173     {\songti\xiaosi
4174       \begin{tabular}{@{\qquad}@{}r@{: }l@{}l@{\qquad}}
4175         \heu@natclassifiedindextitle & \underline{\makebox[2.5cm]{\heu@natclassifiedin}}
4176         \heu@internatclassifiedindextitle & \underline{\makebox[2.5cm]{\heu@intclassifiedin}}
4177       \end{tabular}\hfill
4178     {\songti\xiaosi
4179       \begin{tabular}{@{}r@{: }l@{}l@{\qquad}}
4180         \heu@secretlevel & \underline{\makebox[2.5cm]{\heu@statesecrets}} & \\
4181         \heu@cnumbertitle & \underline{\makebox[2.5cm]{\heu@cnumber}} &
4182       \end{tabular}}
4183     \parbox[t][2.0cm][t]{\textwidth}{\begin{center} \end{center}}
4184     \parbox[t][1.2cm][t]{\textwidth}{\xiaoer[1]
4185   \begin{center}\songti\heu@cdegree\heu@cthesisname\end{center}}
4186 % 修改第二行标题：学术类型
4187   \parbox[t][1.2cm][t]{\textwidth}{\quad}
4188   \parbox[t][5cm][t]{\textwidth}{\erhao
4189   \begin{center}\heiti\heu@ctitlecover\end{center}
4190   \ifheu@subtitle\hspace{-4em}\xiaoer\heiti\pozhehao\heu@csubtitle\fi
4191   \ifheu@profdegree{\begin{center}\sihao\songti\par\heu@searcetype\end{center}}\else
4192   \parbox[t][9.8cm][b]{\textwidth}
4193   {\sihao
4194     \setlength{\heu@title@width}{6em}
4195     \begin{center} \renewcommand{\arraystretch}{1.5} \songti
4196     \begin{tabular}{l@{\heu@title@csep}l}
4197       \textbf{\heu@put@title{\heu@cauthortitle}} & \heu@cauthor\\
4198       \textbf{\heu@put@title{\heu@c supervisortitle}} & \heu@c supervisor\\
4199       \ifx\heu@cassosupervisor@\empty\else%
4200         \textbf{\heu@put@title{\heu@cassosupvisortitle}} & \heu@cassosupervisor\\
4201       \fi
4202       \ifheu@profdegree%
4203         \textbf{\heu@put@title{\heu@ccosupvisortitle}} & \heu@ccosupervisor\\
4204         \textbf{\heu@put@title{\heu@cprosubjecttitle}} & \heu@csubject\\
4205         \textbf{\heu@put@title{\heu@ccoletitle}} & \heu@caffil\\
4206       \else%
4207         \textbf{\heu@put@title{\heu@cdereetitle}} & \heu@cdegree\\
4208         \textbf{\heu@put@title{\heu@csubjecttitle}} & \heu@csubject\\
4209         \textbf{\heu@put@title{\heu@caffilttitle}} & \heu@caffil\\
4210       \fi
4211         \textbf{\heu@put@title{\heu@csubmitdatatitle}} & \heu@csubmitdate\\
4212         \textbf{\heu@put@title{\heu@coralexdatetitle}} & \heu@coralexdate\\
4213         \textbf{\heu@put@title{\heu@cschoolnametitle}} & \heu@cschoolname

```

```

4214     \end{tabular} \renewcommand{\arraystretch}{1}
4215     \end{center} }
4216 \end{center}
4217 }

```

硕博论文英文内封

```

4218 \newcommand{\emultiline}[2][c]{\renewcommand{\arraystretch}{1}\begin{tabular}[\#1]{@{}l@{}}
4219 \newcommand{\heu@engcover}{%
4220   {\songti\xiaosi
4221     \begin{tabular}{@{\qquad}l@{}l@{\qquad}}
4222       Classified Index:\ \heu@natclassifiedindex & \\
4223       U.D.C:\ \heu@intclassifiedindex &
4224     \end{tabular}\hfill
4225   {\songti\xiaosi
4226     \begin{tabular}{@{}r@{\ }l@{\qquad}}
4227       & & \\
4228       & &
4229     \end{tabular}}
4230   \vspace*{1em}
4231   \begin{center}
4232 % 工程硕士、非全日制学位论文英文封面第一行文字不同。
4233   \parbox[t]{1.6cm}[t]{\textwidth}{\begin{center} \end{center} }
4234   \parbox[t]{1.2cm}[t]{\textwidth}{\xiaoer[1]
4235     \begin{center}
4236       \ifheu@profdegree A Thesis for the Degree of {\heu@estudenttype}
4237       \else A Dissertation for the Degree of {\heu@exueweier}
4238     \fi
4239   \end{center}}
4240   \parbox[t]{1.2cm}[t]{\textwidth}{\xiaoer[1] \qquad}
4241   \parbox[t]{7cm}[t]{\textwidth}{%
4242     \begin{center}\erhao{\heu@etitle}\end{center}
4243     \begin{center}\xiaoer{\ifheu@subtitle\heu@title@esep\heu@esubtitle\fi}\end{center}%
4244   {\xiaosi\renewcommand{\arraystretch}{1.3}
4245     \begin{tabular}{@{}r@{\sim}l@{}}
4246       \textbf{\heu@authortitle\heu@title@esep} & \heu@eaauthor\\
4247       \textbf{\heu@supervisortitle\heu@title@esep} & \heu@esupervisor\\
4248       \ifx\heu@eassosupervisor\empty\else%
4249         \textbf{\heu@put@title{\heu@eassosupvisortitle}} & \heu@eassosupervisor\\
4250       \fi
4251       \ifheu@profdegree%
4252         \textbf{\heu@eassosupvisortitle\heu@title@esep} & \heu@eassosupvisor\\
4253         \textbf{\heu@ecategorytitle\heu@title@esep} & \heu@esubject\\
4254         \textbf{\heu@eaffiltitle\heu@title@esep} & \heu@eaffil\\
4255       \else%
4256         \textbf{\heu@edegreetitle\heu@title@esep} & \heu@edegree\\
4257         \textbf{\heu@esubjecttitle\heu@title@esep} & \heu@esubject\\
4258       \fi
4259         \textbf{\heu@esubmitdatetitle\heu@title@esep} & \heu@esubmitdate\\
4260         \textbf{\heu@eoralexdatetitle\heu@title@esep} & \heu@eoralexdate\\
4261         \textbf{\heu@eschoolnametitle\heu@title@esep} & \heu@eschoolname

```

```

4262     \end{tabular}\renewcommand{\arraystretch}{1}}
4263 \end{center}
4264 }
4265

```

生成封面。

```

4266 \def\makecover{
4267   \phantomsection
4268   \pdfbookmark[0]{\heu@ctitle}{ctitle}
4269   \xiaosi[1]%
4270   \begin{titlepage}
4271     \ifheu@yantai
4272       \ifheu@bachelor
4273         \relax
4274     \else
4275       \heu@first@titlepage
4276       \ifheu@library\clearpage\else\cleardoublepage\fi
4277     \fi
4278   \else
4279     \heu@first@titlepage
4280     \ifheu@library\clearpage\else\cleardoublepage\fi
4281   \fi
4282   \heu@second@titlepage
4283   \ifheu@library\clearpage\else\cleardoublepage\fi
4284   \ifheu@postdoc
4285     \relax
4286   \else
4287     \ifheu@bachelor
4288       \relax
4289     \else
4290       \phantomsection
4291       \pdfbookmark[0]{\heu@etitle}{etitle}
4292       \heu@engcover
4293       \ifheu@library\clearpage\else\cleardoublepage\fi
4294     \fi
4295   \fi
4296   \end{titlepage}
4297   \normalsize
4298   \cleardoublepage

```

生成独创性声明和授权签字页。

```

4299 \def\heu@authorization@other{%
4300   \ifheu@openright\cleardoublepage\else\clearpage\fi
4301   % \heu@appendix@chapter*\{\heu@authorization@ctitle}[\heu@authorization@etitle]
4302   % \xiaosi[1.5]\vspace{\baselineskip}
4303   \begin{center}
4304     \quad\%
4305     \xiaoer\heiti\heu@cschoolname\%
4306     \vspace{0.25\baselineskip}%
4307     \heu@declarename
4308   \end{center}

```

```

4309 \vspace{0.25\baselineskip}
4310 \par\heu@declaretext
4311 \vspace{\baselineskip}
4312 \par\hspace{23em}{\wuhao \heu@authorsig}
4313 \vspace{0.25\baselineskip}
4314 \par\hspace{23em}{\wuhao \heu@frontdate\heu@datefill}
4315 \vspace{\baselineskip}
4316 \begin{center}
4317     \xiaoer\heiti\heu@cschoolname\\%
4318     \vspace{0.25\baselineskip}%
4319     \heu@authorizationtitle
4320 \end{center}
4321 \vspace{0.25\baselineskip}
4322 \par\heu@authorizationtext
4323 \vspace{\baselineskip}
4324 \par\hspace{0em}{\wuhao \heu@authorsig} \hspace{17em} {\wuhao \heu@teachersig}
4325 \vspace{0.5\baselineskip}
4326 \par\hspace{0em}{\wuhao \heu@frontdate\heu@datefill} \hspace{12.5em}{\wuhao \heu@datefill}
4327 \def\heu@authorization@bachelor{%
4328     \ifheu@openright\cleardoublepage\else\clearpage\fi
4329     \heu@appendix@chapter*\heu@declarename@bachelor}
4330 \heu@authorizationtext@bachelor
4331 \vspace{\baselineskip}
4332 \par\hspace{6em}\heu@authorsig\hfill\heu@frontdate\heu@datefill}
4333 \NewDocumentCommand{\authorization}{o}{%
4334     \IfNoValueTF{#1}{%
4335         \thispagestyle{empty}%
4336         \% 本科不需要原创性和授权页, 删掉
4337         \% \ifheu@bachelor\heu@authorization@bachelor\else\heu@authorization@other\fi
4338         \heu@authorization@other
4339     }{%
4340         \ifheu@openright\cleardoublepage\else\clearpage\fi%
4341         \includepdf[fitpaper=true, pagecommand={%
4342             \thispagestyle{empty}%
4343             \% 原创性和授权页不加到目录
4344             \% \phantomsection\addcontentsline{toc}{chapter}{\ifheu@bachelor\heu@declarename@bachelor\else\heu@authorization@other\fi}
4345             \% \ifheu@doctor%
4346                 \% \addcontentsline{toe}{chapter}{\texorpdfstring{\bfseries \heu@authorization@doctor}{\heu@authorization@doctor}}
4347             \% \fi%
4348         }]{#1}%
4349     }%
4350 }

```

生成摘要和关键字。

```

4351 \newbox\heu@kw
4352 \newcommand\heu@put@keywords[2]{%
4353     \begingroup
4354     \setbox\heu@kw=\hbox{#1}
4355     \noindent\hangindent\wd\heu@kw\hangafter1%
4356     \box\heu@kw\#2\par

```

```

4357 \endgroup
4358 \newcommand{\makeabstract}{%
4359   \ifheu@openright\cleardoublepage\else\clearpage\fi
4360   \ifheu@english
4361   \addtocontents{toc}{~\hfill\textbf{Page}\par}
4362   \addtocontents{\ext@table}{\noindent\sihao\textbf{Table}~\hfill\textbf{Page}}\par%
4363   \addtocontents{\ext@figure}{\noindent\sihao\textbf{Figure}~\hfill\textbf{Page}}\par%
4364 \fi

```

摘要不加入目录、不在页眉显示

```

4365 % \heu@appendix@chapter*{\cabstractcname}[\cabstractname]
4366 \pagestyle{heu@titleheadings}
4367 \pagenumbering{Roman}
4368 \begin{center}
4369   ~\\
4370   \xiaoer\hei\cabstractname
4371 \end{center}\par
4372 \heu@cabstract
4373 \vskip12bp
4374 \heu@put@keywords{\ifheu@postdoc\bfseries\fi\hei\heu@ckeywords@title}{\heu@ckeywords@title}

```

博后关键字加粗

```

4375 \ifheu@openright\cleardoublepage\else\clearpage\fi
4376 \clearpage

```

摘要不加入目录、不在页眉显示

```

4377 % \heu@appendix@chapter*{\eabstractcname}[\eabstractname]
4378 \begin{center}
4379   ~\\
4380   \xiaoer\textbf{\eabstractname}
4381 \end{center}\par
4382 \heu@eabstract
4383 \vskip12bp
4384 \heu@put@keywords{\textbf{Keywords}:\enskip}{\heu@ekeywords}

```

定义符号表。

```

4385 \newenvironment{denotation}[1][2.5cm]{%
4386   \ifheu@openright\cleardoublepage\else\clearpage\fi
4387   \heu@appendix@chapter*{\heu@denotation@ctitle}[\heu@denotation@etitle]
4388 \setcounter{table}{0}
4389 \renewcommand{\thetable}{\arabic{table}}% 使表编号为 1 的格式
4390 }{\renewcommand{\thetable}{\arabic{chapter}.\arabic{table}}% 使表编号为 7.1 的
格式
4391 \setcounter{table}{0}}%

```

定义索引、目录格式

```

4392 \def\heu@starttoc#1{%
  #1: float type, prepend type name in \listof*** entry.
4393 \let\oldnumberline\numberline
4394 \def\numberline##1{\oldnumberline{\csname #1name\endcsname\hspace{.4em}##1}}
4395 \starttoc{\csname ext@#1\endcsname}
4396 \let\numberline\oldnumberline
4397 \def\heu@listof#1#2{%
  #1: float type

```

```
4398 \clearpage
4399 % \ifheu@openright\cleardoublepage\else\clearpage\fi
```

前文的图、表清单不列入目录

```
4400 % \heu@appendix@chapter*[\csname list#1name\endcsname]{\csname list#1name\endcsname}[
4401 \begin{center}
4402 ~\\
4403 {\xiaoer\heiti{\csname list#1name\endcsname}}
4404 \end{center}\par
4405 \heu@starttoc{\#1}}
```

只有英文版用到，且需要 clearpage

```
4406
4407 \renewcommand\listoffigures{\heu@listof{figure}{\listfigurename}}
4408 \renewcommand*\l@figure{\addvspace{6bp}\@dottedtocline{1}{0em}{4em}}
4409 \renewcommand\listoftables{\heu@listof{table}{\listtablename}}
4410 \let\l@table\l@figure
4411 \def\ext@equation{\oe}
4412 \def\equation#1{%
4413 \addcontentsline{\ext@equation}{equation}{%
4414 \protect\numberline{\#1}}}
4415 \newcommand\listofequations{\heu@listof{equation}{\listequationname}}
4416 \let\l@equation\l@figure
```

4.5.10 目录

默认目录是三级，如需要四级目录需要设置 `tocfour=true`。

```
4417 \setcounter{secnumdepth}{3}
4418 \setcounter{tocdepth}{2}
4419 \ifheu@bachelor\ifheu@tocfour\setcounter{tocdepth}{3}\fi\fi
4420 \renewcommand\tableofcontents{%
4421 \ifheu@openright\cleardoublepage\else\clearpage\fi
4422 \phantomsection
4423 \markboth{\contentsname}{ccontent}}
```

工程大学论文要求：目录中的目录位置是空白。

```
4424 %\heu@chapter*{\contentsname}
4425 \begin{center}
4426 ~\\
4427 {\xiaoer\heiti\contentsname}
4428 \end{center}\par
4429 \pdfbookmark[0]{\contentsname}{ccontent}
4430 \normalsize\starttoc{toc}
4431 \ifheu@doctor
4432 \tableofengcontents
```

有些硕士的范例中带有英文目录，这里添加手动开关 `engtoc=true`

```
4433 \else
4434 \ifheu@engtoc
4435 \tableofengcontents
4436 \fi
4437 \fi
```

将英文目录嵌入中文目录命令中

```
4438 \ifheu@english
4439 \printnoidxglossary[sort=word,style=engstyle,title={Nomenclature},nopostdot,noumberlist]
4440 \listoftables
4441 \listoffigures
4442 \fi
4443 }
```

添加英文 toc 控制按照我校要求的目录格式。

```
4444 \ifheu@arialtoc
4445   \def\heu@toc@font{\sffamily}
4446 \fi
4447 \def\@pnumwidth{4em}%
4448 \def\@tocrmarg{\@pnumwidth}
4449 \def\@dotsep{1}
```

此处临时更改一下对齐方式。CT_EX 似乎无法应对双语目录。将 leftskip 设置参数至于外侧，以便后续添加可以适应标题长度的\contentsline 方法

```
4450 \setlength\@tempdima{4em}%
4451 \patchcmd{\@dottedtocline}{#4}{\csname heu@toc@font\endcsname #4}{}{%
4452 \patchcmd{\@dottedtocline}{\hb@xt@\@pnumwidth}{\hbox}{}{%
4453 \renewcommand*\l@chapter[2]{%
4454   \ifnum \c@tocdepth >\m@ne
4455     \addpenalty{-\@highpenalty}%
4456     \%vskip 4bp \oplus\p@
4457     \begingroup
4458       \parindent \z@ \rightskip \@pnumwidth
4459       \parfillskip -\@pnumwidth
4460       \leavevmode
4461       \advance\leftskip\@tempdima
4462       \hskip -\leftskip
4463       \% numberline is called here, and it uses \@tempdima
4464     \ifheu@bachelor\rmfamily\else\csname
4465       heu@toc@font\endcsname\fi\heiti\ifheu@postdoc\bfseries\fi\ifheu@english\bfseries\fi}
```

博后和英文版需要加粗

```
4466   \leaders\hbox{$\mkern \dotsep mu\hbox{.}\mkern \dotsep mu$\hfill}%
4467   \nobreak{\normalfont\normalcolor \#2}\par
4468   \penalty\@highpenalty
4469   \endgroup
4470 \fi}
```

按工程大学标准，缩小目录中各级标题之间的缩进，使它们相隔一个字符距离，也就是 12pt。

```
4471 \renewcommand*\l@section{\@dottedtocline{1}{1em}{1.8em}}
4472 \renewcommand*\l@subsection{\@dottedtocline{2}{2em}{2.5em}}
4473 \renewcommand*\l@subsubsection{\@dottedtocline{3}{3\ccwd}{3.1em}}
```

英文目录格式。

```
4474 \def\@dotsep{0.75} % 定义英文目录的点间距
4475 \setlength\leftmargini {0pt}
4476 \setlength\leftmarginii {0pt}
4477 \setlength\leftmarginiii {0pt}
```

```

4478 \setlength{\leftmarginiv}{0pt}
4479 \setlength{\leftmarginv}{0pt}
4480 \setlength{\leftmarginvi}{0pt}
4481
4482 \def\engcontentsname{\bfseries Contents}
4483 \newcommand\tableofengcontents{

```

此处添加英文目录的章标题格式，默认细点

```

4484 \def\l@chapter{\@dottedtocline{0}{0em}{5em}}% 控制英文目录：细点 \@dottedtocline 粗
点 \@dottedtoclinebold
4485 \restonewcolfalse
4486 \chapter*{\engcontentsname} % chapter* 上移一行，避免在 toc 中出现。
4487 \pdfbookmark[0]{Contents}{econtent}
4488 \mkboth{\%
4489 \engcontentsname}{\engcontentsname}}

```

此处临时更改一下对齐方式。CT_EX 似乎无法应对双语目录。

```

4490 \starttoc{toe}%
4491 \if@restonewcol\twocolumn\fi%
4492 \def\dotsep{0.75} % 定义英文目录的点间距

```

目录中附录的章号格式。

```

4493 \ctexset{%
4494 appendix/number=\ifheu@bachelor\arabic{chapter}\else\Alph{chapter}\fi,
4495 }

```

设置附录、结论、参考文献等格式。

```

4496 \let\heu@appendix\appendix
4497 \renewenvironment{appendix}[2]{%
4498 \heu@appendix
4499 \ifheu@bachelor\renewcommand{\thechapter}{\arabic{chapter}}\fi
4500 \ifheu@openright\cleardoublepage\else\clearpage\fi
4501 \renewcommand{\thechapter}{#1} % 修改附录序号
4502 \ifheu@english
4503 \addcontentsline{toc}{chapter}{\heu@appendix@etitle #1 ~ #2}
4504 \begin{center}
4505 ~\\
4506 \xiaoer\heiti\heu@appendix@etitle #1 ~ #2
4507 \end{center}\par
4508 \else
4509 \addcontentsline{toc}{chapter}{\heu@appendix@ctitle #1 ~ #2}
4510 \begin{center}
4511 ~\\
4512 \xiaoer\heiti\heu@appendix@ctitle #1 ~ #2
4513 \end{center}\par
4514 \fi}%
4515 \let\title\gobble
4516 \let\title\@gobble
4517
4518 \newlist{translationbib}{enumerate}{1}
4519 \setlist[translationbib]{label=[\arabic*], align=left, nosep, itemsep=6bp,
4520 leftmargin=10mm, labelsep=!, before=\vspace{0.5\baselineskip}\wuhaot{1.3}}

```

```
4521
4522 \newenvironment{conclusions}{%
4523 \ifheu@openright\cleardoublepage\else\clearpage\fi
4524 \ifheu@english
4525 %\heu@appendix@chapter*{\heu@conclusion@etitle}
4526 \addcontentsline{toc}{chapter}{\heu@conclusion@etitle}
4527 \begin{center}
4528   ~\\
4529   \xiaoer\heiti\heu@conclusion@etitle
4530 \end{center}\par
4531 \else
4532 %\heu@appendix@chapter*{\heu@conclusion@ctitle}[\heu@conclusion@etitle]
4533 \addcontentsline{toc}{chapter}{\heu@conclusion@ctitle}
4534 \begin{center}
4535   ~\\
4536   \xiaoer\heiti\heu@conclusion@ctitle
4537 \end{center}\par
4538 \fi}{}}
4539
4540 \newenvironment{acknowledgements}{%
4541   \ifheu@openright\cleardoublepage\else\clearpage\fi
4542   \ifheu@english
4543 %\heu@appendix@chapter*{\heu@acknowledgement@etitle}
4544 \addcontentsline{toc}{chapter}{\heu@acknowledgement@etitle}
4545 \begin{center}
4546   ~\\
4547   \xiaoer\heiti\heu@acknowledgement@etitle
4548 \end{center}\par
4549 \else
4550 %\heu@appendix@chapter*{\heu@acknowledgement@ctitle}[\heu@acknowledgement@etitle]
4551 \addcontentsline{toc}{chapter}{\heu@acknowledgement@ctitle}
4552 \begin{center}
4553   ~\\
4554   \xiaoer\heiti\heu@acknowledgement@ctitle
4555 \end{center}\par
4556 \fi}{}}
4557
4558 \newenvironment{correspondingaddr}{%
4559   \ifheu@openright\cleardoublepage\else\clearpage\fi
4560 %\heu@appendix@chapter*{\heu@correspondingaddr@ctitle}
4561 \addcontentsline{toc}{chapter}{\heu@correspondingaddr@ctitle}
4562 \begin{center}
4563   ~\\
4564   \xiaoer\heiti\heu@correspondingaddr@ctitle
4565 \end{center}\par
4566 }{}}
4567
4568 \newenvironment{resume}{%
```

博后用到的通讯页面

```
4568 \newenvironment{resume}{%
```

```

4569 \ifheu@openright\cleardoublepage\else\clearpage\fi
4570 \%heu@appendix@chapter*\{\heu@resume@ctitle}[\heu@resume@etitle]
4571 \addcontentsline{toc}{chapter}{\heu@resume@ctitle}
4572 \begin{center}
4573   ~\\
4574   \xiaoer\heiti\heu@resume@ctitle
4575 \end{center}\par
4576 } {}
4577
4578 \newenvironment{publication}{%
4579   \ifheu@openright\cleardoublepage\else\clearpage\fi
4580 \%heu@appendix@chapter*\{\heu@publication@ctitle}[\heu@publication@etitle]
4581 \addcontentsline{toc}{chapter}{\heu@publication@ctitle}
4582 \begin{center}
4583   ~\\
4584   \xiaoer\heiti\heu@publication@ctitle
4585 \end{center}\par
4586 } {}
4587
4588 \newenvironment{doctorpublication}{%
4589   \ifheu@openright\cleardoublepage\else\clearpage\fi
4590 \%heu@appendix@chapter*\{\heu@doctorpublication@ctitle}
4591 \addcontentsline{toc}{chapter}{\heu@doctorpublication@ctitle}
4592 \begin{center}
4593   ~\\
4594   \xiaoer\heiti\heu@doctorpublication@ctitle
4595 \end{center}\par
4596 } {}
4597

```

此处添加博后用到的博士生发表页面此处中英文索引的格式设置尽量符合《哈尔滨工程大学研究生学位论文撰写规范》中给出的示例的格式。此处间距常数是人工调节的。

```

4598 \newenvironment{ceindex}{%
4599   \ifheu@openright\cleardoublepage\else\clearpage\fi
4600 \%heu@appendix@chapter*\{\indexname}[\heu@index@etitle]
4601 \addcontentsline{toc}{chapter}{\indexname}
4602 \begin{center}
4603   ~\\
4604   \xiaoer\heiti\indexname
4605 \end{center}\par
4606 \setlength{\columnsep}{4em}
4607 \begin{adjustwidth}{2em}{2em}
4608 \begin{multicols*}{2}}{\end{multicols*}}
4609 \end{adjustwidth}
4610 }
4611
4612 \newlist{idxwordlist}{description}{3}
4613 \setlist[ idxwordlist, 1]{%
4614   itemsep=\baselineskip,
4615   labelindent=8em,

```

```

4616   font=\normalsize\bfseries,
4617 }
4618 \setlist[idxwordlist, 2]{%
4619   nosep,
4620   labelindent=2em,
4621   font=\wuhaor\rm,
4622 }
4623 \setlist[idxwordlist, 3]{%
4624   nosep,
4625   labelindent=4em,
4626   font=\wuhaor\rm,
4627 }
4628
4629 \newcommand\bibstyle@numerical{\bibpunct{}{}{}{,}{,}{\textsuperscript{,}}}
4630 \citestyle{numerical}
4631 \DeclareRobustCommand\inlinecite{\@inlinecite}
4632 \def\@inlinecite#1{\begingroup\citestyle{inline}\let\@cite\NAT@citenum\citep{#1}\endgroup
4633 \let\onlinecite\inlinecite
4634 \newcommand{\lcite}{\inlinecite}
4635 \renewenvironment{thebibliography}[1]{%
4636   \ifheu@openright\cleardoublepage\else\clearpage\fi\phantomsection%
4637   \%heu@appendix@chapter*\{\bibname\}[\heu@bibname@etitle]
4638   \addcontentsline{toc}{chapter}{\bibname}
4639   \begin{center}
4640     ~\\
4641     \xiaoker\hei\bold\tiny\bibname
4642   \end{center}\par
4643   \normalsize
4644   \list{\@biblabel{\@arabic\c@enumiv}}%
4645   {\renewcommand{\makelabel}[1]{\#1\hfill}
4646     \settowidth{\labelwidth}{\@biblabel{\#1}}
4647     \setlength{\labelsep}{0.5em}
4648     \setlength{\itemindent}{0pt}
4649     \setlength{\leftmargin}{\labelsep+\labelwidth}
4650     \addtolength{\itemsep}{-0.8em}
4651     \usecounter{enumiv}%
4652     \let\p@enumiv\empty
4653     \renewcommand\theenumiv{\@arabic\c@enumiv}%
4654     \sloppy\frenchspacing
4655     \flushbottom
4656     \ifheu@splitbibitem
4657       \clubpenalty0
4658       \clubpenalty \clubpenalty
4659       \widowpenalty0%
4660       \interlinepenalty-50%
4661     \else
4662       \clubpenalty4000
4663       \clubpenalty \clubpenalty
4664       \widowpenalty4000%
4665       \interlinepenalty4000%

```

```

4666 \fi
4667 \sfcode`.\@m}
4668 {\def\@noitemerr
4669 {\\@latex@warning{Empty `thebibliography' environment}}%
4670 \endlist\frenchspacing}
4671 \patchcmd{\NAT@citex}{%
4672 \\@ifnum{\\NAT@ctype=\\z@}{%
4673 \\if*#2*\\else\\NAT@cnt#2\\fi
4674 }{}}%
4675 \\NAT@mbox{\\NAT@@close}}%
4676 }{%
4677 \\NAT@mbox{\\NAT@@close}}%
4678 \\@ifnum{\\NAT@ctype=\\z@}{%
4679 \\if*#2*\\else\\textsuperscript{#2}\\fi
4680 }{}}%
4681 }{}}%
4682 \renewcommand{\NAT@citesuper}[3]{\\ifNAT@swa
4683 \\if*#2*\\else#2\\NAT@spacechar\\fi
4684 \\unskip\\kern\\p@\\textsuperscript{\\NAT@@open#1\\NAT@@close\\if*#3*\\else#3\\fi}}%
4685 \\else #1\\fi\\endgroup}
4686 \patchcmd{\NAT@citex}{%
4687 \\if*#2*\\else\\NAT@cnt#2\\fi
4688 \\if\\relax\\NAT@date\\relax\\else\\NAT@@close\\fi
4689 }{%
4690 \\if\\relax\\NAT@date\\relax\\else\\NAT@@close\\fi
4691 \\if*#2*\\else\\textsuperscript{#2}\\fi
4692 }{}}%
4693 \renewcommand{\NAT@cite}{%
4694 [3]{\\ifNAT@swa\\NAT@@open\\if*#2*\\else#2\\NAT@spacechar\\fi
4695 \\#1\\NAT@@close\\if*#3*\\else\\textsuperscript{#3}\\fi\\else#1\\fi\\endgroup}
4696 
```

4.6 其它

在模板文档结束时即装入配置文件，这样用户就能在导言区进行相应的修改。

```

4697 <*bookcls>
4698 \AtEndOfClass{\input{heuthesisbook.cfg}}
4699 \AtEndOfClass{\sloppy}
4700 
```

5 修改记录

v1.0.1		GBT7714-2015	22
General: 矫正英文目录缩进与中文目录一致的 bug	120	v1.0.4	
v1.0.2		General: 修改附录格式	120
General: 移植自 hitThesis 论文模板	22	v1.0.5	
v1.0.3		General: 根据 2026.02.28 哈尔滨工程大学最新 要求修改原创型声明和授权使用声明 ..	115
General: 删除文献格式定义, texlive 已包含			

6 索引

Symbols	
\-	3139
\.	301, 2394, 4667
\@	91, 92
\@@italiccorr	2946, 2948, 2951, 2952
\@afterheading	3350
\@arabic	2378, 2387, 2940, 4644, 4653
\@biblabel	2378, 2380, 4644, 4646
\@cite	2374, 4632
\@citea	2639
\@clubpenalty	2391, 4658, 4663
\@cont@LT@nonumintoc	3208
\@cont@oldLT@c@option	3212
\@cont@oldtablename	3206, 3211
\@currentlabel	2942
\@dotsep	4449, 4466, 4474, 4492
\@dottedtocline	4408, 4451, 4452, 4471, 4472, 4473, 4484
\@dottedtoclinebold	4484
\@for	2228, 3684
\@gobble	4515, 4516
\@height	2797, 2799, 2845, 2847, 2898, 2900, 2927
\@highpenalty	4455, 4468
\@if@contemptyarg	3205, 3210
\@ifnum	4672, 4678
\@ifstar	2941
\@inlinecite	2373, 2374, 4631, 4632
\@latex@warning	2396, 4669
\@mainmatterfalse	2723
\@mainmattertrue	2741, 2747
\@makecaption	3159
\@makefnmark	2931, 2933, 2934
\@makefntext	2933, 2934
\@minipagefalse	3177, 3199
\@mkboth	2905, 4488
\@nobreakfalse	3354
\@nobreaktrue	3351
\@noitemerr	2395, 4668
\@pnumwidth	4447, 4448, 4452, 4458, 4459
\@restonecolfalse	...
\@starttoc	2347, 4395, 4430, 4490
\@tempboxa	3161, 3162, 3178, 3183, 3184, 3200
\@tempdima	4450, 4461, 4463
\@thefnmark	2932
\@tocrmarg	4448
\@width	2797, 2799, 2845, 2847, 2898, 2900, 2927
\{	2685
\}	2686
\u	3946
	A
a3cover.tex(file)	5
\abovecaptionskip	3160, 3228
\abovedisplayshortskip	2147, 2149, 2756, 2758
\abovedisplayskip	2146, 2148, 2755, 2757
acknowledgement(env.) ..	20
\addcontentsline ..	3515, 3517, 3533, 3534, 3535, 3543, 3554, 3562, 3574, 3582, 3594, 3602, 3614, 3622, 4344, 4346, 4413, 4503, 4509, 4526, 4533, 4544, 4551, 4561, 4571, 4581, 4591, 4601, 4638
\addpenalty	4455
\addtocontents	4361, 4362, 4363
\addtolength	2384, 4650
\addvspace	4408
\advance	4461
\allowdisplaybreaks	2937
\Alph	4494
\alph	3217, 3219
amsmath(package)	74, 85
\appendix	3152, 3153, 3154, 4496
appendix(env.)	19
\apptocmd	2934
\arabic	2923, 3152, 3153, 3154, 3218, 3221, 3233, 4389, 4390, 4494, 4499, 4519
\arraycolsep	3255
\arraystretch	2268, 2276, 2321, 2328, 3946, 3950, 3955, 3962, 3968, 3973, 4064, 4070, 4102, 4113, 4147, 4163, 4195, 4214, 4218, 4244, 4262
\AtEndOfClass
\authorization	21, 4333
\authorization.pdf(file)	21
	B
back/cover.tex(file) ..	13
\backmatter	2745
\bahao	2762
\banxiaosi	2762
\baselineskip	4302, 4306, 4309, 4311, 4313, 4315, 4318, 4321, 4323, 4325, 4331, 4520, 4614
\belowcaptionskip	3180, 3202, 3229
\belowdisplayshortskip	2149, 2758
\belowdisplayskip	2148, 2757
\bf	2959
\bfseries	3330, 3342, 3382, 3391, 3428, 3437, 3517, 3535, 3543,
\BiAppChapter	3540
\bib	572
\bibaddress	111
\bibauthor	100
\bibbooktitle	104
\bibtitedate	120
\bibcountry	107
\bibdate	122
\biedition	109
\bieditor	101
\bibinstitution	113
\bibitem	446
\bibjournal	105
\bibmark	106
\bibmodifydate	119
\bibname	4637, 4638, 4641

\bibnumber	116	\center	3372, 3417, 3462	\cnumber	11
\biborganization	110	\changes	3900	\Collect@Body ...	3677, 3679
\bibpages	118	\chapter ...	3542, 3545, 4486	\columnsep	4606
\bibpatentid	108	\chaptermark	2905	conclusion(env.)	19
\bibpublisher	112	\chuhao	2762	\contentsname	
\bibpunct ..	2369, 2370, 4629	\cite	3224	... 4423, 4424, 4427, 4429	
\bibschool	114	\citep	2374, 4632	\coralexdate	13
\bibstyle@inline	2370	\citestyle		\cprofessional	13
\bibstyle@numerical 2372, 2374, 4630, 4632		\creviewer	13
..... 2369, 4629		\citeup	3224	\cstudentid	14
\bibtitle	103	\CJK@today ..	3028, 3029,	\cstudenttype	13
\bibtranslator	102	3031, 3032, 3033, 3309,		\csubject	12
\biburl	123, 819	3310, 3312, 3313, 3314		\csubmitdate	13
\bibversion	117	\CJK@todaybig		\csubtitle	12
\bibvolume	115	... 3027, 3033, 3308, 3314		\csupervisor	13
\bibyear	121	\CJK@todaybig@short ..		ctex (package)	73
booktabs (package)	76 3026, 3307		\CTEX@chapter@aftername	
\bottomfraction	3157	\CJK@todaysave 3331, 3332	
\box	3178, 3200, 4356	... 3023, 3031, 3304, 3312		\CTEX@chaptername	3331, 3332
build.bat (file)	5	\CJK@todaysmall ..	3025,	ctexbook (package) ..	73, 73, 73
		3028, 3032, 3035,		\ctexset	2175, 2908,
		3306, 3309, 3313, 3316		3018, 3259, 3270, 3283,	
C				3364, 3410, 3455, 4493	
\c@chapter	2940	\CJK@todaysmall@short		\CTEXthechapter	2905
\c@enumiv 3024, 3035, 3305, 3316		\ctitle	12
... 2378, 2387, 4644, 4653		\CJKTtoday	3030, 3311	\ctitleone	12
\c@equation	2940	\ckeywords	14	\ctitletwo	12
\c@tocdepth	4454	\ClassError	2013,	\CurrentOption ..	2005, 2502
cabstract (env.)	14	2026, 2038, 2066, 2533,		\cxueke	12
\cabstractcname		2559, 2572, 2645, 2917		\cleardoublepage	2691,
... 3299, 3513, 4365, 4370				2722, 2726, 2737, 2746,	
\cabstractename ..	3296, 4365			3547, 4276, 4280, 4283,	
\caffil	12			4293, 4298, 4300, 4328,	
\caption	3205, 3210			4340, 4359, 4375, 4386,	
\captionnamefont	3225			4399, 4421, 4500, 4523,	
\captiontitlefont	3226			4541, 4559, 4569,	
\cassosupervisor	13			4579, 4589, 4599, 4636	
\cauthor	12	\clearpage	2357,	\dachu	2762
\ccosupervisor	13	2360, 2365, 2717, 2722,		\dawu	2762
\ccwd ...	3019, 3056, 3057,	2726, 2737, 2739, 2746,		\day ..	3025, 3027, 3306, 3308
3058, 3059, 3064, 3068,		3547, 4276, 4280, 4283,		\DeclareBoolOption ...	
3069, 3070, 3071, 3072,		4293, 4300, 4328, 4340,	 1997, 1998, 1999,	
3073, 3076, 3077, 3078,		4359, 4375, 4376, 4386,		2000, 2001, 2479, 2480,	
3083, 3126, 3161, 3165,		4398, 4399, 4421, 4500,		2481, 2482, 2483, 2484,	
3173, 3183, 3187, 3195,		4523, 4541, 4559, 4569,		2485, 2486, 2487, 2488,	
3273, 3734, 3739, 3753,		4579, 4589, 4599, 4636		2489, 2490, 2491, 2492,	
3754, 3761, 3772, 3813,		\clubpenalty	2390,	2493, 2494, 2495, 2496,	
3816, 3819, 3822, 3888,		2391, 3355, 3360,		2497, 2498, 2499, 2500	
3947, 3948, 3949, 4473		4657, 4658, 4662, 4663		\DeclareDefaultOption	
\cdate	13, 3035, 3316	\cmidrulewidth	2620 2005, 2502	
ceindex (env.)	20			\DeclareRobustCommand	
			 2373, 4631	
				\DeclareStringOption ..	
			 2003, 2501	
				\def@NAT@last@yr	
			 2636, 2639, 2641	

```

\define@key ..... itemize ..... 19 heuthesis.ist ..... 5
.... 1952, 1962, 1979, publication ..... 19 heuthesis.pdf ..... 4
1992, 2208, 2225, 2412, resume ..... 21 heuthesisbook.cfg .
2422, 2438, 2450, 2460, \eqref ..... 2953 ..... 4, 5, 6, 21
2467, 2474, 3627, 3681 \equal ..... 2047, heuthesisbook.cls .
denotation (env.) ..... 14 2053, 2240, 2294, 2515, ..... 4, 5, 6
description (env.) ..... 19 2521, 3329, 3513, latexmkrc ..... 5
\df@tag ..... 2942 3532, 3997, 4040, 4121 main.pdf ..... 4, 5, 5
\dimexpr ..... 2153, 2761 \equationname ..... main.tex 6, 11, 14, 15, 19, 19
\ding ..... 2921 ... 2946, 2948, 3288, 3290 make_cover.bat ..... 5
\do ..... 2228, 3684 \equacaption 2948, 2952, 4412 Makefile ..... 4, 5, 5, 5
E \erhao ..... 2249, 2762, 4059, 4094, README.md ..... 4, 5
\abstract (env.) ..... 14 4096, 4142, 4188, 4242 spine.tex ..... 5, 5
\abstractcname .. 3297, 3329, 3532, 4377 thesis.tex ..... 3
\abstractename . 3298, 4377 \estudenttype ..... 13 \FloatBarrier 命令 2137, 2671
\affil ..... 12 \esubject ..... 12 \floatpagefraction .. 3158
\assosupervisor ..... 13 \esubtitle ..... 12 \floatsep ..... 3146, 3150
\author ..... 12 \esupervisor ..... 13 \flushbottom ..... 2389, 4655
\cosupervisor ..... 13 \etitle ..... 12 \fontsize ..... 2153,
\date ..... 13, 3317 \everypar ..... 3352, 3361 2761, 3382, 3391,
\keywords ..... 14 \ext@equation ... 4411, 4413 3428, 3437, 3473, 3482
\multiline ..... 4218 \ext@figure ..... 4363 fontspec (package) .... 73, 73
\encodingdefault ..... \ext@table ..... 4362 \footnotemargin ..... 2930
..... 2584, 2588, 2593 \exueke ..... 12 \footnoterule ..... 2927
\endgraf ..... 3202 \fancyfoot . 2794, 2842, 2893 \footrulewidth ..... 2788, 2850, 2895
\endlist ..... 2397, 4670 \fancyhdr (package) ..... 77 \frenchspacing ..... 2388, 2397, 4654, 4670
\engcontentsname ..... \fancyhead ..... front/cover.tex (file) ... 11
..... 4482, 4486, 4489 ..... 2793, 2803, 2804, front/denotation.tex
\enskip ..... 3161, 2807, 2809, 2812, 2815, (file) ..... 14
..... 3165, 3173, 3183, 2819, 2821, 2824, 2827, \frontmatter ..... 2721
..... 3187, 3195, 3260, 4384 2831, 2833, 2836, 2839, \G
\enspace 2181, 2190, 2199, 2855, 2856, 2858, 2862, \g@addto@macro ..... 2230, 2233, 3152,
2905, 3383, 3392, 3401, 2865, 2868, 2873, 2876, 3153, 3154, 3686, 3689
3416, 3429, 3438, 3447, 2879, 2884, 2887, 2890 \gdef ..... 2209, 2210,
3461, 3474, 3483, 3492 \fancyhf ... 2748, 2785, 2791 2226, 2227, 2942, 3037,
\ensuremath ..... 2957, 3001 \fancypagestyle ..... 3038, 3039, 3043, 3044,
\enumerate (env.) ..... 19 ..... 2784, 2790, 2853 authorization.pdf . 21 3045, 3049, 3207, 3628,
\enumitem (package) . 19, 19, 84 file: back/cover.tex .... 13 3629, 3676, 3678, 3682,
environments: acknowledgement ... 20 build.bat ..... 5 3683, 3697, 3698, 3699,
..... 19 appendix ..... 19 front/cover.tex .... 11 3700, 3701, 3702, 3708,
cabstract ..... 14 build.bat ..... 5 3709, 3710, 3711, 3712,
ceindex ..... 20 conclusion ..... 19 front/denotation.tex
..... 14 denotation ..... 14 ..... 14 3713, 3718, 3719, 3720,
..... 14 description ..... 19 heuthesis.bst ... 4, 6, 18 3721, 3722, 3723, 3728
eabstract ..... 14 heuthesis.dtx ..... 4, 4 \genacrfullformat ... 2705
enumerate ..... 19 heuthesis.ins ..... 4, 4 \geometry ..... 2112, 2648

```

```

\global ..... 3177, 3199, \heu@applicationresearchtrue \heu@bachelor@cthesistitle
          3206, 3208, 3211, 3212 ..... 1971, 2431 ..... 2302, 2833,
\glsdescwidth ..... 2697 \heu@authorization@bachelor ..... 2836, 2839, 2884, 2887,
\glsentrylong ..... 2706 ..... 4327, 4337 ..... 2890, 3055, 3751, 4056
\heu@authorization@ctitle \heu@bachelor@cthesistitle
..... 3845, 4301, 4344 ..... 3760
H
\hangafter ..... 3332, 4355 \heu@authorization@etitle \heu@bachelor@cupervisoraffilttitle
\hangindent ..... 3332, 4355 ..... 3846, 4301, 4346 ..... 3763, 4109
\hb@xt@ ..... 3178, 4452 \heu@authorization@other \heu@bachelor@cxewei
\hbox 2932, 3169, 3182, 3191, ..... 4299, 4337, 4338 ..... 2833,
          3200, 4354, 4452, 4466 \heu@authorizationtext ..... 2836, 2839, 2884, 2887,
\headrule ..... 2783, ..... 3902, 4322 ..... 2890, 3054, 3750, 4056
\headrulewidth .. 2787, 2894 \heu@authorizationtext@bachelor@secretlevel
\headwidth .. 2797, 2799, ..... 3908, 4330 ..... 3754, 4052, 4088
          2845, 2847, 2898, 2900 \heu@authorizationtitle \heu@bachelor@teachercomment
\heavyrulewidth ..... 2618 ..... 3102, 3853, 4319 ..... 2341, 3065, 3768
\heiti ..... 2180, \heu@authorsig ... 3099, \heu@bachelor@teachersign
          2189, 2198, 2962, 3000, ..... 3848, 4312, 4324, 4332 ..... 2342, 3066, 3769
          3250, 3323, 3515, 3533, \heu@bachelor@caffilttitle \heu@bachelor@false ...
          3534, 3952, 4059, 4060, ..... 3060, 3762, 4066 ..... 1953, 2413
          4093, 4094, 4095, 4100, \heu@bachelor@caffilttitleqd \heu@bibname@etitle ...
          4142, 4143, 4189, 4190, ..... 3062, 3764 ..... 3828, 4637
          4305, 4317, 4370, 4374, \heu@bachelor@caffilttitleya \heu@cabstract ... 3676, 4372
          4403, 4427, 4465, 4506, ..... 3765 \heu@caffil ..... 2270,
          4512, 4529, 4536, 4547, ..... 3061, 4066, 4105, 4205, 4209
          4554, 4564, 4574, \heu@bachelor@caffilttitleyt \heu@caffilttitle ...
          4584, 4594, 4604, 4641 ..... 3061 ..... 3087, 3784, 4209
\heu ..... 3140 \heu@bachelor@cclass 3059 \heu@cassosupervisor .
\heu@@cabstract . 3676, 3677 \heu@bachelor@cdatetitle ..... 4151, 4152, 4199, 4200
\heu@@eabstract . 3678, 3679 ..... 2327, 3064, 3761 \heu@cassosupvisortitle
\heu@@makefnmark 2932, 2933 \heu@bachelor@checkdate ..... 3091, 3791, 4152, 4200
\heu@acknowledgement@ctitle ..... 2342, 3067, 3770 \heu@cauthor ..... 2273,
..... 3833, 4550, 4551, 4554 \heu@bachelor@cmajortitle ..... 2324, 3965, 4010,
\heu@acknowledgement@etitle ..... 2323, 3056 ..... 4068, 4104, 4149, 4197
..... 3834, \heu@bachelor@cmajortitlecov \heu@cauthor@title .....
          4543, 4544, 4547, 4550 ..... 3756, 4067 ..... 3040, 3046, 3703,
\heu@appendix ... 4496, 4498 \heu@bachelor@cmajortitlesec ..... 3714, 3724, 4149, 4197
\heu@appendix@chapter ..... 3502, 3522, \heu@braceleft ..... 3929
          4301, 4329, 4365, 4377, ..... 3757, 4106 \heu@cbraceright .....
          4387, 4400, 4525, 4532, ..... 3759, 4108 \heu@ccolegetitle 3785, 4205
          4543, 4550, 4560, 4570, \heu@bachelor@cstudentidtitle \heu@ccosupervisor ...
          4580, 4590, 4600, 4637 ..... 2325, ..... 4155, 4203
\heu@appendix@ctitle ..... 3830, 4509, 4512 ..... 3058, 3753, 4051, 4087 \heu@ccosupvisortitle
\heu@appendix@etitle ..... 3831, 4503, 4506 \heu@bachelor@cstudenttitle ..... 3092, 3792, 4155, 4203
\heu@applicationresearchfalse ..... 2324, \heu@cdate .. 2275, 2327,
..... 1966, 2426 ..... 3057, 3752, 4068, 4104 ..... 3991, 4035, 4074, 4167
\heu@bachelor@csupvisortitl \heu@cdegree 2809, 2812,
..... 2326, ..... 3063, 3758, 4069, 4107 ..... 2815, 2821, 2827, 2862,
\heu@bachelor@cthesistitle ..... 2865, 2868, 2873, 2879,

```

3039, 3045, 3701, 3712, 3722, 4138, 4185, 4207	\heu@cprofessional 4069, 4108	\heu@ctitle 2856, 3909, 4268 \heu@ctitlecover
\heu@cdegreetitle 3089, 3789, 4207	\heu@cprosjecttile 3788, 4204 2263, 2316, 4003, 4059, 4094, 4142, 4189
\heu@cenddate 4015	\heu@creviewer .. 4160, 4161	\heu@ctitleone 3958
\heu@cfinishdate 3971	\heu@creviewertitle ..	\heu@ctitletwo 3960
\heu@chapter 3518, 3536, 3545, 3551, 3552, 3559, 3560, 4424 3093, 3793, 4161 \heu@cschoolname . 2245, 2804, 2809, 2812, 2815, 2821, 2824, 2827, 2833, 2836, 2839, 2858, 2862,	\heu@cxueke 3039, 3045, 3701, 3712, 3722 \heu@cxuewei 2249, 3038, 3039, 3044, 3045, 3049, 3700, 3701, 3711, 3712, 3721, 3722, 3728, 3920
\heu@chapter@engformat 3335, 3371	2865, 2868, 2873, 2876, 2879, 2884, 2887, 2890,	\heu@cxueweishort 3037, 3038, 3040, 3043, 3044, 3046, 3083, 3697,
\heu@chapter@engnameformat 3345, 3372	3079, 3774, 3903, 3905, 3907, 3909, 3952, 3979,	3700, 3703, 3708, 3711, 3714, 3718, 3721, 3724
\heu@chapter@postdocformat 3349, 3417	4023, 4056, 4073, 4112, 4166, 4213, 4305, 4317	\heu@cxueweishort 3037, 3038, 3040, 3043, 3044, 3046, 3083, 3697,
\heu@chapter@titleformat ... 3324, 3374, 3420, 3465	4166, 4213, 4305, 4317	3700, 3703, 3708, 3711, 3714, 3718, 3721, 3724
\heu@chinesefalse ... 2452	\heu@cschoolnametitle	\heu@datefill 3137,
\heu@chinesesettrue ... 2455	... 3084, 3781, 4112, 4213	3925, 4314, 4326, 4332
\heu@citetwocommafalse 2475	\heu@cstartdate 4014	\heu@declarename 3910, 4307
\heu@citetwoendashfalse 2476	\heu@cstudentid	\heu@declarename@bachelor
\heu@citetwoendashtrue 2473	... 2274, 2325, 4051, 4087 3907, 4329, 4344
\heu@ckeywords 4374	\heu@cstudenttype ... 4156	\heu@declaretext 3911, 4310
\heu@ckeywords@separator 3302	\heu@csubject 2271, 2323, 4013, 4067, 4106, 4158, 4204, 4208	\heu@def@fontsize 2151, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165,
\heu@ckeywords@title 3301, 4374	\heu@csubjecttitle 3088, 3786, 4158, 4208	2166, 2167, 2168, 2169, 2170, 2171, 2172, 2759, 2762, 2763, 2764, 2765,
\heu@cleardoublepage 2715, 2717	\heu@csubmitdata title ... 3085, 3782, 4110, 4211	2766, 2767, 2768, 2769, 2770, 2771, 2772, 2773, 2774, 2775, 2776,
\heu@clearemptydoublepage 2716, 2719	\heu@csubmitdate	2777, 2778, 2779, 2780
\heu@cnumber 3949, 4133, 4181	\heu@csupervisor	\heu@def@term 2207,
\heu@cnumbertitle 3098, 3811, 4133, 4181 2272, 2326, 4011, 4069, 4107, 4150, 4198	2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220,
\heu@conclusion@ctitle ... 3825, 4532, 4533, 4536	\heu@csupervisorcaffil 4109	2221, 2222, 3626, 3632, 3633, 3634, 3635, 3636,
\heu@conclusion@etitle 3827, 4525, 4526, 4529, 4532	\heu@csupervisortitle ... 3090, 3790, 4150, 4198	3637, 3638, 3639, 3640, 3641, 3642, 3643, 3644,
\heu@coralexdate 4111, 4212	\heu@cthesismidtermcheck 3083	3645, 3646, 3647, 3648, 3649, 3650, 3651, 3652,
\heu@coralexdatetitle ... 3086, 3783, 4111, 4212	\heu@cthesisname . 2249, 2809, 2812, 2815, 2821,	3653, 3654, 3655, 3657, 3658, 3659, 3660, 3662,
\heu@correspondingaddr@ctitle ... 3842, 4560, 4561, 4564	2824, 2827, 2862, 2865, 2868, 2873, 2876, 2879,	3663, 3664, 3665, 3666, 3667, 3668, 3669, 3670,
\heu@cpositionname .. 4012	3081, 3773, 4138, 4185	3671, 3672, 3673, 3674
\heu@prodrgreetitle 3787, 4156	\heu@cthesistitleprefix ... 2263, 2316, 3068, 3772	\heu@denotation@ctitle 3851, 4387

\heu@denotation@etitle	3852, 4387	\heu@exueke 3702, 3713, 3723	\heu@harbincampus
\heu@doctor@midterm@note	3123, 3885	\heu@exuewei 3698, 3702, 3709, 3713, 3719, 3723	\heu@harbinfalse 1982, 2441
\heu@doctorfalse 1955, 2415		\heu@exueweier	\heu@harbintrue . 1986, 2445
\heu@doctorpublication@ctitl...		\heu@first@titlepage 3699, 3710, 3720, 4237	\heu@headings 2782
\heu@eaffiltitle 3801, 4254		\heu@first@titlepage@other .. 3939, 4275, 4279	\heu@headrule ... 2783, 2786
\heu@eassosupervisor ..	4248, 4249, 4252 3940, 4119	\heu@index@etitle 3927, 4600
\heu@eassosupvisortitle ..	3797, 4249, 4252	\heu@first@titlepage@postdoc ... 3940, 3945	\heu@inline@sep 2370
\heu@eaauthor	4246 3940, 3945	\heu@intclassifiedindex
\heu@eauthortitle 3795, 4246		\heu@fontset	\heu@kw 4351, 4354, 4355, 4356
\heu@ebraceleft	3931 2047, 2053, 2058,	\heu@listof
\heu@ebraceright	3932	2240, 2294, 2515, 2521, 4397, 4407, 4409, 4415
\heu@ecategorytitle ..	3802, 4253	2526, 3997, 4040, 4121	\heu@LT@array 3214, 3215, 3216
\heu@ecosupvisortitle ..	3798	\heu@footnotesize 2928, 2929	\heu@make@df@tag@@ ...
\heu@edegree	3702, 3713, 3723, 4256	\heu@frontdate ... 3101, 2941, 2942
\heu@edegreetitle 3799, 4256		3850, 4314, 4326, 4332	\heu@makefnmark . 2931, 2934
\heu@ekeywords	4384 2463	\heu@maketag 2942, 2945, 2951
\heu@ekeywords@separator ..	3303	\heu@geometrynewonefalse	\heu@masterfalse 1954, 2414
\heu@empty	2782 2461	\heu@midtermfalse ... 1994
\heu@engcover ... 4219, 4292		\heu@geometrynewtwofalse	\heu@motto
\heu@englishfalse ... 2451	 2462 2242, 2296, 3138,
\heu@eoralexdate ... 4260		\heu@geometrynewtwottrue	3928, 3999, 4041, 4122
\heu@eoralexdatetitle ..	3804, 4260 2548	\heu@natclassifiedindex
\heu@eschoolname 3806, 4261		\heu@graduate@caffilttitle	... 3095, 3808, 4127, 4175
\heu@eschoolnametitle ..	3805, 4261 2270, 3069	\heu@openingfalse ... 1993
\heu@estudenttype ... 4236		\heu@graduate@cafflimajor	\heu@openrightfalse . 2713
\heu@esubject ... 4253, 4257	 3078	\heu@parse@keywords ...
\heu@esubjecttitle ..	3800, 4257	\heu@graduate@cmajortitle	... 2224, 3680, 3691, 3692
\heu@esubmitdate ... 4259	 2271, 3070	\heu@plain 2782
\heu@esubmitdatetitle ..	3803, 4259	\heu@graduate@datetitle	\heu@postdoc@authorname
\heu@esubtitle .. 4097, 4243	 2275, 3074 3743, 4010
\heu@esupervisor ... 4247		\heu@graduate@enrolldate	\heu@postdoc@classifiedindex
\heu@esupervisortitle ..	3796, 4247 3076 3731, 3948
\heu@etitle	4005, 4096, 4242, 4291	\heu@graduate@studentid	\heu@postdoc@documenttitle
	 2274, 3073 3739, 3953
		\heu@graduate@studenttitle	\heu@postdoc@documenttitlenospace
	 2273, 3072 2804, 2858, 3740
		\heu@graduate@supervisor	\heu@postdoc@enddate .
	 2272, 3071 3748, 4015
		\heu@graduate@thesistitle	\heu@postdoc@finishdate
	 3077 3741, 3971
		\heu@harbin@bachelor@school	\heu@postdoc@major ...
	 2335, 3118, 3879 3746, 4013
		\heu@harbin@schoolbottommark	\heu@postdoc@number ..
	 2281, 3113, 3871 3733, 3949

```

\heu@postdoc@positionname \heu@resume@ctitle ... 3400, 3428, 3437, 3446,
..... 3745, 4012 ..... 3837, 3462, 3473, 3482, 3491
\heu@postdoc@secretlevel ..... 3732, 3948 \heu@title@width .....
..... 3839, 4570, 4571, 4574 \heu@title@width .....
\heu@postdoc@separator ..... 3749, 4009 \heu@resume@etitle ...
..... 3844, 4570 ..... 3935, 3936,
\heu@postdoc@startdate ..... 3747, 4014 \heu@searcertype .. 3813, 4063, 4101, 4146, 4194
\heu@postdoc@submitdate ..... 3742, 3972 \heu@second@titlepage ..... 3942, 4282 \heu@yantai@schoolbottommark
\heu@postdoc@supervisor ..... 3744, 4011 \heu@second@titlepage@bachelor ..... 3943, 4078 ..... 2287, 3108, 3863
\heu@postdoc@UDC 3734, 3949 \heu@second@titlepage@other ..... 3943, 4171 \heu@yantaicampus .....
..... 2245, 2815, 2827,
\heu@postdocfalse ... 2416 \heu@second@titlepage@postdoc ..... 3943, 3995 \heu@zijvregfalse .. 2468
\heu@productdevelopmentfalse ..... 1963, 2423 \heu@secretlevel ..... 3097, 3810, 4132, 4180 \heu@zijvregtrue ... 2542
\heu@projectdesignfalse ..... 1965, 2425 \heu@section ..... 3566, 3571, 3572, 3579, 3580 \heu@zijvwordfalse .. 2469
\heu@projectplanningfalse ..... 1964, 2424 \heu@stage@doctype ..... 2257, 2310, 3053, 3075, 3737 \heu@yantaifalse 1981, 2440
\heu@publication@ctitle ..... 3915, 3918, \heu@stage@midterm ..... 2254, 2307, 3052, 3075, 3736 \heu@zijvregfalse .. 2468
..... 3920, 4580, 4581, 4584 \heu@stage@opening ..... 2251, 2304, 3051, 3074, 3735 \heu@zijvregtrue ... 2542
\heu@publication@etitle ..... 3926, 4580 \heu@starttoc ... 4392, 4405 \heu@zijvwordfalse .. 2469
\heu@put@keywords ..... 4352, 4374, 4384 \heu@statesecrets 3948, 4052, 4088, 4132, 4180 \heu@ythesis ..... 3139
..... 3936, 4066, 4067, 4068, 4069, 4104, 4105, 4106, 4107, 4108, 4109, 4110, 4111, 4112, 4149, 4150, 4152, 4155, 4156, 4158, 4161, 4197, 4198, 4200, 4203, 4204, 4205, 4207, 4208, 4209, 4211, 4212, 4213, 4249 \heu@textcircled ..... 2915, 2925, 2926 \heu@teachersig .....
..... 3100, 3849, 4324 \heu@title@csep .. 2263, 2316, 3094, 3794, 4065, 4103, 4148, 4196 \heu@title@esep .. 3807, 4097, 4243, 4246, 4247, 4252, 4253, 4254, 4256, 4257, 4259, 4260, 4261 \heu@title@font .. 3322, 3337, 3349, 3382, 3391, 3400, 3428, 3437, 3446, 3462, 3473, 3482, 3491, 3837, 3935, 3936, 4063, 4101, 4146, 4194, 2287, 3108, 3863, 2245, 2815, 2827, 2839, 2868, 2879, 2890, 3082, 3778, 3984, 4028, 1981, 2440, 2468, 2542, 2469, 11, 2236, 3693, 3139, 4, 6, 18, 4, 4, 4, 4, 5, 4, 4, 4, 5, 4, 4, 4, 5, 6, 21, 4, 5, 6, 3178, 3200, 2342, 2379, 3169, 3191, 3972, 4048, 4084, 4129, 4177, 4224, 4332, 4361, 4362, 4363, 4466, 4645, 3959, 3961, 2797, 2799, 2845, 2847, 2898, 2900, 2927, 3162, 3178, 3184, 3200, 2946, 2948, 3161, 3165, 3173, 3183, 3187, 3195, 3247, 3248, 4394, 4462, 3019, 3056, 3057, 3058, 3059, 3064, 3068, 3069, 3070, 3071, 3072, 3073, 3076, 3077, 3078, 3083, 3126, 3137, 3273, 3562, 3734, 3739, 3753, 3754, 3761, 3772, 3813, 3816, 3819, 3822, 3888,

```

3905, 3925, 3947, 4060,	\ifheu@geometrynewno .	\ifheu@projectdesign .
4095, 4143, 4190, 4312, 2459, 2547 1960, 1970, 2024,
4314, 4324, 4326, 4332	\ifheu@geometrynewone	2420, 2430, 2557, 3818
\hss 2457, 2545	\ifheu@projectdplanning
\hypersetup	\ifheu@geometrynewtwo 1959, 1969, 2023,
 2458, 2546	2419, 2429, 2556, 3815
I	\ifheu@glue	\ifheu@qingdao
\if@afterindent	2754, 3148, 3149, 3150, 3380, 1976, 1985,
\if@mainmatter	3381, 3382, 3389, 3390,	2245, 2283, 2435, 2444,
\if@nobreak	3391, 3398, 3399, 3426,	2811, 2823, 2835, 2864,
\if@restonecol	3427, 3428, 3435, 3436,	2875, 2886, 3986, 4030
\IfBooleanT	3437, 3444, 3445, 3471,	\ifheu@raggedbottom ..
\IfBooleanTF	3472, 3473, 3480, 2083, 2604
... 3548, 3568, 3588, 3608	3481, 3482, 3489, 3490	\ifheu@splitbibitem . 4656
\iffalse	\ifheu@harbin	\ifheu@subcapcenterlast
\ifheu@absupper 1978, 2280, 2437, 2674
\ifheu@applicationresearch	2808, 2820, 2832, 2861,	\ifheu@subtitle
	2872, 2883, 3980, 4024 4060, 4095,
\ifheu@arialtitle	\ifheu@library	4097, 4143, 4190, 4243
... 3323, 3515, 3533, 3534 2713, 2737, 4276, 4280, 4283, 4293	\ifheu@toc
\ifheu@arialtoc	\ifheu@master 1950,	2358
\ifheu@bachelor ..	2011, 2409, 2508, 2530,	\ifheu@tocfour
1949, 2010, 2352, 2408, 2505,	2818, 2871, 3042, 3717	4419
2529, 2830, 2882, 2944,	\ifheu@midterm ... 1991,	\ifheu@yantai 1977,
3035, 3048, 3161, 3165,	2037, 2253, 2306, 3075	1984, 2245, 2286, 2332,
3173, 3183, 3187, 3195,	\ifheu@newtxmath 2074, 2583	2436, 2443, 2814, 2826,
3316, 3727, 3940, 3943,	\ifheu@opening ... 1990,	2838, 2867, 2878,
4272, 4287, 4337, 4344,	2036, 2250, 2303, 3074	2889, 3983, 4027, 4271
4419, 4464, 4494, 4499	\ifheu@openright . 2722,	\ifheu@zijvregu
\ifheu@capcenterlast ..	2726, 2746, 3547, 4300, 2465, 2540, 2730
..... 3163, 3185	4328, 4340, 4359, 4375,	\ifheu@zijvword
\ifheu@chapterhang ..	4386, 4399, 4421, 4500, 2466, 2541, 2727
3332	4523, 4541, 4559, 4569,	\ifNAT@swa
\ifheu@chinese	4579, 4589, 4599, 4636	4682, 4694
2449	\ifheu@pageempty 2714	\IfNoValueTF
\ifheu@citetwocomma ..	\ifheu@pifootnote	3550, 3558, 3570, 3578, 3590,
..... 2471, 2635 2090, 2611, 2920	3598, 3610, 3618, 4334
\ifheu@citetwoendash 2472	\ifheu@postdoc	\ifthenelse
\ifheu@debug 2126, 2647, 2661 2411, 2532, 2802,	2046, 2052, 2239, 2293, 2514,
\ifheu@doctor 1951,	2857, 3143, 3282, 3409,	2520, 3328, 3512,
2012, 2410, 2511, 2531,	3696, 3836, 3917, 3940,	3531, 3996, 4039, 4120
2736, 2806, 2860,	3943, 4284, 4374, 4465	\IfValueT ... 3517, 3535,
3036, 3707, 4345, 4431	\ifheu@productdevelopment	3553, 3561, 3573, 3581,
\ifheu@english 1958, 1968, 2022,	3593, 3601, 3613, 3621
.... 2448, 2454, 2692,	2418, 2428, 2555, 3812	\IfValueTF
2708, 2792, 2958, 2968,	\ifheu@profdegree	3506, 3526
3258, 3287, 3325, 3363, 2554, 4154,	\ifxetex
3501, 3914, 4360, 4438,	4191, 4202, 4236, 4251	2064, 2570
4465, 4502, 4524, 4542	\ignorespaces 2231, 2946,	\ignorespaces 2231, 2946,
\ifheu@engtoc	\ifheu@productdevelopment	2948, 2951, 2952, 3562,
4434 1958, 1968, 2022,	3582, 3602, 3622, 3687
	2418, 2428, 2555, 3812	\includegraphics 2299
	\ifheu@profdegree	\includepdf 4341
 2554, 4154,	\includepdfset .. 2079, 2600
	4191, 4202, 4236, 4251	\indexname . 4600, 4601, 4604

```

\inlinecite 18, 2373, 2375,          \lightrulewidth ..... 2619 \maketag@@@ ..... .
                               2376, 4631, 4633, 4634 \list ..... 2378, 4644 ... 2945, 2947, 2951, 2952
\input ..... 2398, 4698 \listequationname ... \MakeUppercase .....
\intclassifiedindex ... II ..... 3294, 4415 ... 3326, 3347, 3533, 4005
\interlinepenalty ..... \listequationname ... 3295 \markboth ..... 3507,
..... 2393, 4660, 4665 \listfigurename 3292, 4407 ... 3509, 3527, 3529, 4423
\intextsep . 2697, 3144, 3148 \listof ..... 4392 \mbox ..... 106, 717, 718
\item ..... 3131, 3132, \listofequations .... 4415 \MessageBreak 2015, 2016,
       3133, 3134, 3247, 3248, \listoffigures .. 4407, 4441 ... 2028, 2029, 2040, 2041,
       3893, 3894, 3895, 3896 \listoftables ... 4409, 4440 ... 2067, 2534, 2560, 2573
\itemindent ..... \listparindent ..... 3243 \mkern ..... 4466
... 2382, 3236, 3237, 4648 \listtablename . 3293, 4409 \month ..... 3024,
itemize(env.) ..... 19 \liuhao ..... 2762 ... 3025, 3026, 3027, 3305,
\itemsep ... 2384, 3242, 4650 \long .. 3159, 3181, 3676, 3678 ... 3306, 3307, 3308, 3317
\longbionenumcaption 3204

K
\kaishu .... 2245, 4073, 4166
\kern ..... 4684
\kvoptions(package) ..... II
\kvsetkeys ..... .
... 1947, 2236, 2407, 3693

L
\l@chapter ..... 4453, 4484
\l@equation ..... 4416
\l@figure .. 4408, 4410, 4416
\l@section ..... 4471
\l@subsection ..... 4472
\l@subsubsection ..... 4473
\l@table ..... 4410
\labelsep ..... 2381,
      2383, 3236, 3238,
      3247, 3248, 4647, 4649
\labelwidth ..... 2380,
      2383, 3236, 4646, 4649
\lastbox ... 3168, 3190, 3357
\latexmkrc(file) ..... 5
\lcite ..... 2376, 4634
\leaders ..... 4466
\leavevmode ..... 4460
\leftmargin 2383, 3236, 4649
\leftmargini ..... 4475
\leftmarginii ..... 4476
\leftmarginiii ..... 4477
\leftmarginiv ..... 4478
\leftmarginv ..... 4479
\leftmarginvi ..... 4480
\leftmark ..... 2793,
      2803, 2807, 2819, 2831
\leftskip ..... 4461, 4462

M
\math ..... 4466
main.pdf(file) ..... 4, 5, 5
main.tex(file) ..... .
      6, 11, 14, 15, 19, 19
\mainmatter ..... 2735
\make@df@tag ..... 2941
\make@df@tag@@@ ..... 2941
\make_cover.bat(file) .... 5
\makeabstract ..... 4358
\makebackcover ..... 2364
\makebox ..... 2270,
      2271, 2272, 2273, 2274,
      2275, 2323, 2324, 2325,
      2326, 2327, 2342, 3948,
      3949, 3958, 3960, 3971,
      3972, 4010, 4011, 4012,
      4013, 4014, 4015, 4051,
      4052, 4087, 4088, 4127,
      4128, 4132, 4133,
      4175, 4176, 4180, 4181
\makecover ..... 2350, 4266
\Makefile(file) ..... 4, 5, 5, 5
\makeglossaries ..... 2711
\makelabel ..... 2379, 4645
\maketitle ..... 2945, 2947, 2951, 2952
\markboth ..... 3507,
... 3509, 3527, 3529, 4423
\mbox ..... 106, 717, 718
\mkern ..... 4466
\month ..... 3024,
... 3025, 3026, 3027, 3305,
... 3306, 3307, 3308, 3317

N
\n ..... 2686
\nAT@@close . 4675, 4677,
      4684, 4688, 4690, 4695
\nAT@open ..... 4684, 4694
\nAT@cite ..... 4693
\nAT@citemum ..... 2374, 4632
\nAT@citesuper ..... 4682
\nAT@citex ..... 4686
\nAT@citexnum 2636, 2645, 4671
\nAT@cmt ..... 4673, 4687
\nAT@ctype ..... 4672, 4678
\nAT@date ..... 4688, 4690
\nAT@last@yr ..... 2638
\nAT@mbox ..... 4675, 4677
\nAT@penalty ..... 2636, 2641
\nAT@spacechar .. 4683, 4694
\natclassifiedindex ... II
\nNeedsTeXFormat ..... 1934
\newbox ..... 4351
\newDocumentCommand .. .
      3502, 3522, 4333
\newglossarystyle ... 2694
\newif ..... 1949,
      1950, 1951, 1958, 1959,
      1960, 1961, 1976, 1977,
      1978, 1990, 1991, 2408,
      2409, 2410, 2411, 2418,
      2419, 2420, 2421, 2435,
      2436, 2437, 2448, 2449,
      2457, 2458, 2459,
      2465, 2466, 2471, 2472
\newindex ..... 2680, 2681
\newlength ..... 3935
\nnewline ..... 123

```

-
- \newlist 4518, 4612 \pagestyle 2717, 2725, 2743, 2749, 2904, 4366 README.md (file) 4, 5
 \newtheorem 2960, 2963, 2969, 2970, 2971, 2972, 2973, 2974, 2975, 2976, 2977, 2978, 2979, 2980, 2981, 2983, 2984, 2985, 2986, 2987, 2988, 2989, 2990, 2991, 2992, 2993, 2994, 2995, 3002, 3006, 3007, 3008, 3009, 3010, 3011, 3012, 3013, 3014, 3015, 3016, 3017
 newtxmath (package) 75 \nobreak 4467
 \normalcolor 4467 \normalsize 2752
 \numberline 3582, 3602, 3622, 4393, 4394, 4396, 4414
 \numexpr 2921
- O**
- \oldencodingdefault 2584, 2593
 \oldnumberline 4393, 4394, 4396
 \oldrmdefault 2585, 2594
 \oldsfdefault 2586, 2595
 \oldttdefault 2587, 2596
 \onlinecite 2375, 4633
- P**
- \p@enumiv 2386, 4652
 \p@subfigure 3220
 package:
 amsmath 74, 85
 booktabs 76
 ctex 73
 ctexbook 73, 73, 73
 enumitem 19, 19, 84
 fancyhdr 77
 fontspec 73, 73
 kvoptions 11
 longtable 91
 newtxmath 75
 pdfpages 75
 pifont 72
 xeCJK 3, 11, 73
 xeCJKfntef 76
- \pagenumbering 2724, 2742, 4367
- \parbox 2261, 2266, 2314, 2319, 2341, 2342, 3182, 3952, 3954, 3967, 4002, 4007, 4054, 4055, 4057, 4058, 4061, 4072, 4092, 4099, 4137, 4140, 4141, 4144, 4165, 4183, 4184, 4187, 4188, 4192, 4233, 4234, 4240, 4241
 \parfillskip 4459
 \parindent 3254, 4458
 \parsep 3241
 \PassOptionsToClass 2005, 2058, 2502, 2506, 2509, 2512, 2526
 \PassOptionsToPackage 2008, 2049, 2056, 2504, 2517, 2524, 2675
 \patchcmd 2636, 4451, 4452, 4671, 4686
 \pdfbookmark 4268, 4291, 4429, 4487
 pdfpages (package) 75
 \penalty 4468
 pifont (package) 72
 \postdisplaypenalty 2939
 \pozhehao 4060, 4095, 4143, 4190
 \predisplaypenalty 2938
 \pretocmd 2933
 \printnoidxglossary 4439
 \ProcessKeyvalOptions 2007, 2503
 \profdegree 13
 \ProvidesClass 1935, 1936
 \ProvidesFile 1937, 1938
 publication (env.) 19
- Q**
- \qihao 2762
 \qqquad 4045, 4050, 4081, 4086, 4126, 4131, 4174, 4179, 4221, 4226, 4240
 \quad 4069, 4140, 4187, 4191, 4304
- R**
- \raggedbottom 2085, 2606
- README.md (file) 4, 5
 \RenewDocumentCommand 3546, 3567, 3587, 3607
 \renewenvironment 2377, 2696, 4497, 4635
 \renewtheoremstyle 3246
 \researchtype 13
 \reserved@a 2228, 2234, 3684, 3690
 resume (env.) 21
 \rightmargin 3239
 \rightskip 4458
 \rm 4621, 4626
 \rmdefault 2585, 2589, 2594
 \rmfamily 3249, 3250, 4464
- S**
- \sanhao 2267, 2320, 2762, 3105, 3110, 3115, 3126, 3341, 3857, 3860, 3865, 3868, 3873, 3876, 3888, 4003
 \sbox 3161, 3183
 \section 3566
 \selectfont 2153, 2761, 3382, 3391, 3428, 3437, 3473, 3482
 \setabbreviationstyle 2699
 \setacronymstyle 2702
 \setbox 3165, 3166, 3168, 3187, 3188, 3190, 3357, 4354
 \setenumerate 3223
 \setglossarystyle 2695
 \setitemize 3222
 \setlist 2912, 4519, 4613, 4618, 4623
 \setmainfont 2580
 \setmonofont 2582
 \setsansfont 2581
 \settowidth 2380, 3332, 4646
 \SetupKeyvalOptions 1944, 2404
 \sfdefault 2586, 2590, 2595
 \sffamily 3323, 3515, 3533, 3534, 4445
 \sihao 2189, 2762, 3129, 3891, 3946, 3965, 3968, 3977, 4005, 4008, 4021, 4191, 4193, 4362, 4363

```

\sloppy  2388, 2399, 4654, 4699
\songti . 2242, 2249, 2263,
         2267, 2296, 2302, 2316,
         2320, 2803, 2804, 2807,
         2809, 2812, 2815, 2819,
         2821, 2824, 2827, 2831,
         2833, 2836, 2839, 2856,
         2858, 2862, 2865, 2868,
         2873, 2876, 2879, 2884,
         2887, 2890, 3105, 3110,
         3115, 3120, 3126, 3129,
         3249, 3857, 3860, 3865,
         3868, 3873, 3876, 3881,
         3888, 3891, 3946, 3955,
         3965, 3968, 3977, 3999,
         4003, 4008, 4021, 4041,
         4044, 4049, 4056, 4064,
         4066, 4067, 4068, 4069,
         4074, 4080, 4085, 4102,
         4122, 4125, 4130, 4138,
         4147, 4149, 4150, 4152,
         4155, 4156, 4158, 4161,
         4167, 4173, 4178, 4185,
         4191, 4195, 4220, 4225
spine.tex(file) ..... 5, 5
\Square ..... 3813,
         3816, 3819, 3822, 3905
\square .... 2957, 3001, 3251
\SquareSolid .....
         ... 3813, 3816, 3819, 3822
\statesecrets ..... 11
\subcapsize ..... 3227
\subsection ..... 3586
\subsubsection ..... 3606

T
\tablename . 3206, 3207, 3211
\tableofcontents .....
         ... 2345, 2359, 4420
\tableofengcontents ..
         ... 4432, 4435, 4483
>tagform@ ..... 2947, 2952
\texorpdfstring .. 3515,
         3517, 3533, 3534, 3535,
         3543, 3554, 3562, 4346
\text ..... 2946, 2948
\textbf ..... 344,
         2245, 2249, 2263, 2270,
         2271, 2272, 2273, 2274,
         2275, 2302, 2316, 2323,
         2324, 2325, 2326, 2327,
         3105, 3110, 3115, 3120,
         3126, 3349, 3857, 3860,
         3865, 3868, 3873, 3876,
         3881, 3888, 4097, 4104,
         4105, 4106, 4107, 4108,
         4109, 4110, 4111, 4112,
         4197, 4198, 4200, 4203,
         4204, 4205, 4207, 4208,
         4209, 4211, 4212, 4213,
         4246, 4247, 4249, 4252,
         4253, 4254, 4256, 4257,
         4259, 4260, 4261, 4361,
         4362, 4363, 4380, 4384
\textcircled ..... 2923
\textcolor ..... 2242,
         2296, 3999, 4041, 4122
\textfloatsep ... 3145, 3149
\textfraction ..... 3155
\textit ..... 338
\textnormal ..... 93, 95
\textsc ..... 3139
\textsuperscript ..... 2369, 3224, 4629,
         4679, 4684, 4691, 4695
\textup ..... 2953
\textwidth ..... 2261,
         2266, 2314, 2319, 2341,
         2342, 2927, 3169, 3191,
         3952, 3954, 3967, 4002,
         4007, 4054, 4055, 4057,
         4058, 4061, 4072, 4092,
         4099, 4137, 4140, 4141,
         4144, 4165, 4183, 4184,
         4187, 4188, 4192,
         4233, 4234, 4240, 4241
\the ..... 2921, 3024,
         3025, 3026, 3027, 3305,
         3306, 3307, 3308, 3319
\thechapter ..... 2940,
         3152, 3153, 3154,
         3543, 3562, 4499, 4501
\theenumiv ..... 2387, 4653
\theequation .... 2940, 3154
\thefigure . 3152, 3218, 3220
\thefootnote ..... 2925
\thempfootnote ..... 2926
\theorem@headerfont ..
         ... 3247, 3248
\theorembodyfont .....
         ... 2956, 2999, 3249
\theoremheaderfont ...
         ... 2959, 2962, 3000, 3250
\theorempostskipamount
         ..... 3253
\theempreskipamount 3252
\theoremseparator 2967, 3005
\theoremstyle ... 2965, 3003
\theoremsymbol ... 2957,
         2966, 3001, 3004, 3251
\thepage ... 2794, 2842, 2893
thesis.tex(file) ..... 3
\thesubfigure ..... 3219
\thesubtable ..... 3217
\thetable ..... 3153, 3221, 4389, 4390
\thinspace ..... 94
\thispagestyle ..... 2340, 2346,
         3124, 3886, 4335, 4342
\title ..... 4515, 4516
\today . 3023, 3029, 3304, 3310
\topfraction ..... 3156
\topsep ..... 3240
\ttdefault . 2587, 2591, 2596
\twocolumn ..... 4491
\typeout ..... 2644

U
\underline ..... 2270,
         2271, 2272, 2273, 2274,
         2275, 2323, 2324, 2325,
         2326, 2327, 2342, 3905,
         3948, 3949, 3971, 3972,
         4051, 4052, 4087, 4088,
         4127, 4128, 4132, 4133,
         4175, 4176, 4180, 4181
\unhcopy ..... 3169, 3191
\unskip ..... 2946,
         2948, 2951, 2952,
         3169, 3191, 3319, 4684
\unvbox 3167, 3171, 3189, 3193
\url ..... 123, 821
\urlstyle ..... 2109, 2633
\usecounter 2385, 3235, 4651

V
\value ..... 2916, 2921

```

-
- \vbox .. 3165, 3166, 3187, 3188
 \vfill . 2279, 2331, 3976, 4020
 \vskip .. 2796, 2798, 2844,
 2846, 2897, 2899, 2927,
 3160, 3164, 3180, 3186,
 3202, 4373, 4383, 4456
 \vspace 2241,
 2243, 2247, 2260, 2295,
 2297, 2313, 2697, 3129,
 3213, 3891, 3951, 3998,
 4000, 4004, 4042, 4079,
 4090, 4123, 4136, 4230,
 4302, 4306, 4309, 4311,
 4313, 4315, 4318, 4321,
 4323, 4325, 4331, 4520
- W**
- \wd 3162, 3184, 4355
 \widowpenalty 2392, 4659, 4664
 \wuhaoo .. 2762, 2793, 2794,
 2803, 2804, 2807, 2809,
 2812, 2815, 2819, 2821,
 2824, 2827, 2831, 2833,
 2836, 2839, 2842, 2856,
- 2858, 2862, 2865, 2868,
 2873, 2876, 2879, 2884,
 2887, 2890, 2893, 3161,
 3183, 3215, 3225, 3226,
 3227, 3813, 3816, 3819,
 3822, 3903, 3905, 3909,
 3912, 4312, 4314, 4324,
 4326, 4520, 4621, 4626
- X**
- xeCJK (package) 3, 11, 73
 xeCJKfntef (package) 76
 \xiaochu 2762
- Y**
- \xiaoer . 2245, 2263, 2316,
 2762, 3120, 3339, 3349,
 3462, 3881, 3952, 3955,
 4056, 4060, 4073, 4095,
 4097, 4137, 4138, 4143,
 4166, 4184, 4190, 4234,
 4240, 4243, 4305, 4317,
 4370, 4380, 4403, 4427,
 4506, 4512, 4529, 4536,
 4547, 4554, 4564, 4574,
 4584, 4594, 4604, 4641
- \xiaoliu .. 2762, 2923, 3905
 \xiaosan 2180,
 2762, 4062, 4074,
 4093, 4100, 4145, 4167
 \xiaosi . 2241, 2242, 2295,
 2296, 2762, 3543, 3998,
 3999, 4041, 4044, 4049,
 4080, 4085, 4122, 4125,
 4130, 4173, 4178, 4220,
 4225, 4244, 4269, 4302
 \xiaowu 2762, 2929
 \xiaoyi 2302, 2762
- Z**
- \year 3024,
 3025, 3026, 3027, 3305,
 3306, 3307, 3308, 3319
 \yihao 2762
- zhnumber**
- \zhdigits
 ... 3026, 3027, 3307, 3308
 \ziju 2728, 2731