hecthese: the LaTeX document class for dissertations and theses at HEC Montréal

Benoit Hamel, Library , HEC Montréal

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Abstract

The **hecthese** LaTeX document class has been created to allow graduate students at HEC Montréal to write their dissertation or thesis with the document preparation system while complying to all presentation standards required by the University. As such, the class complies entirely with the *Guidelines for Writing an Academic Work at a Graduate Level*[?], hereafter called the *Guidelines*.

1 Installing the class

1.1 Prerequisites

The use of this document class presumes that you have already installed a TeX distribution and a code editor. For the development of **hecthese**, the TeXLive 2016 distribution[?] and the TeXStudio code editor[?] were used. Its features were tested with the `latex`, `pdflatex`, `bibtex` and `makeindex` compilers. The class has also been tested with the MiKTeX distribution[1] and WinEdt code editor. We invite you to test the class with your own distribution and code editor and to use it like you would with any other work you do with LaTeX.

1.2 Installation

> **❗ MacOS users**
> For a reason still unresolved, the installation process described hereunder doesn't work on MacOS. You must **download** ↗ a preinstalled version of the class to work with it.

The `.zip` archive you downloaded contains the following files and directory:

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[1] A big "thank you!" goes to Franck Jeannot for making the tests.

1. **hecthese-fr.ins**: the french class installation file;

2. **hecthese-en.ins**: the english class installation file;

3. **hecthese.dtx**: the bilingual documented source code;

4. **hecthese.pdf**: the french version of the class documentation;

5. **hecthese-en.pdf**: the english version of the class documentation;

6. **README.md**: the file required to show the class description on the ctan.org Website.

Follow these steps to install the class [2]:

1. Create a working directory on your computer.

2. Extract the `.zip` archive in that directory.

3. Open a command-line editor.

4. Change directories until you reach your working directory.

5. Type the following command in the editor:

```
latex hecthese-en.ins
```

The command will create a bunch of files that will become your document. The list of files needed will depend on the type of document you'll be writing.

1.3   List of a document's required files

Table 1 shows a list of all required files for each type of document. Depending on the type of work you'll be doing, you'll have to choose between one of these four templates:

- **template-phd-classic.tex** : template for writing a dissertation in a classic manner;

- **template-phd-articles.tex** : template for writing a dissertation with articles;

- **template-msc-classic.tex** : template for writing a thesis in a classic manner;

- **template-msc-articles.tex** : template for writing a thesis with articles.

Table 1: List of a document's required files

File	Dissertations		Theses	
	Classic	With articles	Classic	With articles
template-phd-*.tex	✓	✓	⊘	⊘
template-msc-*.tex	⊘	⊘	✓	✓
abstract-french.tex	✓	✓	✓	✓
abstract-english.tex	✓	✓	✓	✓
acronym-list.tex	✓	✓	✓	✓
dedication.tex	✓	✓	⊘	⊘
acknowledgements.tex	✓	✓	✓	✓
preface.tex	✓	✓	✓	✓
introduction.tex	✓	✓	✓	✓
theoretical-framework.tex	⊘	✓	⊘	⊘
literature-revue.tex	⊘	⊘	✓	✓
chapter-1.tex	✓	⊘	✓	⊘
chapter-2.tex	✓	⊘	✓	⊘
chapter-3.tex	✓	⊘	✓	⊘
article-1.tex	⊘	✓	⊘	✓
article-2.tex	⊘	✓	⊘	⊘
article-3.tex	⊘	✓	⊘	⊘
conclusion.tex	✓	✓	✓	✓
appendix.tex	✓	✓	✓	✓

Once you have chosen a template file, delete the three remaining ones as you won't need them. The template file is your document's master file, the one on which you will have to run all compilers needed to generate your final document. It is also in this file that you will write all the metadata related to your work (title, author, etc.) and add all packages, user-defined commands and environments you will need to complete your work.

Your work will be written in the other files. Each file represents a section of your work. Their name is, as such, self-explanatory. You can add and delete as many files as you wish. Just make sure to include the added files to your template file with \include commands, to erase the \include commands related to the deleted files and, most of all, to comply with all the *Guidelines*' rules related to the mandatory sections of your work and their presentation order.

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[2]An installation tutorial is available at https://www.youtube.com/watch?v=nfTEgcJbufs (in French with English subtitles).

2 Using the class

The **hecthese** document class has been created to be as simple and as flexible as possible. The main goal of the class is to layout your dissertation or thesis according to the presentation standards required by the *Guidelines* and to allow you to add as many features as you see fit.

hecthese is based on the `memoir` document class[**?**] which already provides numerous features. Before programming any new commands or environments, you should read the class' exhaustive documentation [3].

2.1 Class options

The class has very few default options. They only concern font size, document language and type. They are all enclosed in the `\documentclass` command.

10pt,11pt,12pt The french edition of the *Guidelines* mentions that "font size usually varies between 10 and 12 points in the text"[**?**, p. 15]. You have to choose between one of these three options: `10pt`, `11pt` or `12pt`. If none of the options is chosen, the default `12pt` option will be used by the class [4].

english,frenchb `frenchb` and `english` options come from the `babel` package[**?**] and they are used to indicate to the compiler in which language(s) the document is written. The last language in the options list is the document's default language. Even if these options come from the `babel` package, they are inserted in the `\documentclass` command so they can be applied globally to all packages that could use them.

phdclassique You use `phdclassique` when you write a dissertation in a classic manner,
phdarticles `phdarticles` when you write a dissertation with articles, `mscclassique` when
mscclassique you write a thesis in a classic manner and `mscarticles` when you write a thesis
mscarticles with articles. Each of these options is automatically inserted in its corresponding template file when you install the **hecthese** document class. Since `phdclassique` is the class' default document type option, you could erase this option from the **template-phd-classic.tex** file, but we advise you don't do that so you don't encounter problems while writing.

As for the three other document type options, **never erase them from the `\documentclass` command**! By doing so, you would encounter errors when compiling your document, especially during the BiBTeX compilations and during the title page layout.

2.2 Class commands

The **hecthese** document class provides commands that can be separated into three categories:

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[3] . . . although. . . the author of the present class did not read it himself entirely. *Mea culpa. . .*
[4] As an example, this documentation is written with a `10pt` font size

1. document metadata (author, title, etc.) used to generate the title pages;

2. document layout commands;

3. bibliography-related commands for dissertations and theses written with articles.

2.2.1 Document metadata

The following commands are used in all document types.

\HECtitle   This is the title of your dissertation or thesis. Do not use the LaTeX \title command as the class will not take it into account. If your title is very long, separate it in more than one line with the \\ command.

\HECsubtitle   This is the subtitle of your dissertation or thesis. If there is a subtitle, a colon (:) will automatically separate the title from the subtitle, and the latter will be laid out below the title without you having to add the \\ command after the title.

\HECauthor   This is the author of the dissertation or thesis, meaning you, unless you have plagiarized your work... Write your name in the *FirstName LastName* format. Do not use the LaTeX \author command as the class will not take it into account.

\HECoption   The \HECoption determines your dissertation's or thesis' option.

\HECsubMonth   \HECsubMonth and \HECsubYear represent the month and year of the final
\HECsubYear   submission of your work. Write down the month in full letters and the year in the *YYYY* format.

\HECpdfauteur   These are variants of the \HECauthor and \HECtitle commands and they
\HECpdftitre   are used for inserting metadata in the final .pdf document. They are included in the \hypersetup command's pdftitle and pdfauthor options provided by the hyperref package[?].

The following commands are used in dissertations only. If you are writing a thesis, you can skip to Section ??.

\HECrapporteurPresident   Each of these commands identifies a person involved in your work. The
\HECresearchDirector   commands take two arguments. The first argument is the person's name in the
\HECresearchCodirector   *FirstName LastName* format. The second argument is the person's gender, male
\HECexternalexaminator   (M) or female (F). It is important to type in the person's gender as it will affect
\HECdirectorRepresentative   how the person's title is rendered on the title page, and it is not advisable to hurt your directors' feelings upon submission of your work...

\HECjuryMember   This command has the same role as the five preceding ones, but it only takes one argument, the person's name, as the job title is in this case gender-neutral.

\HECcodirectorUniversity   By default, your codirector, jury member and external examinator are con-
\HECjuryMemberUniversity   sidered working at HEC Montréal by the **hecthese** document class, but they could
\HECexaminatorUniversity   be working at another university. You'll then have to modify the university's name is these commands when necessary.

2.2.2 Document layout

`\HECtitlepages` Title pages differ from one document type to the other as it is shown in the *Guidelines'* title page templates. A jury identification page is also included after the title page in dissertations. The `\HECtitlepages` command automatically generates all title pages using the contents of the commands listes in Section 2.2.1.

> ## ❷ Why are my title pages displayed in French?
> The Université de Montréal's *Règlement pédagogique de la faculté des études supérieures et postdoctorales*[?, art. 88,89,134,135] states the language and presentation standards that prevail for dissertations and thesis, and refers to the *Guide de présentation des mémoires et des thèses*[?, p. 22] where it is written that "*title pages must be written in French even when the dissertation or thesis is written in English*". Since HEC Montréal is one of Université de Montréal's affiliate universities, this rule prevails.

`\HECtitreIntroduction`
`\HECtitreConclusion`
`\HECgenererTitres`

The `\HECtitreIntroduction` and `\HECtitreConclusion` commands are placed as arguments in the **introduction.tex** and **conclusion.tex** files' `\chapter*` command. They are used in the title generation with the `\HECgenererTitres` command. If you write a dissertation or thesis in a classical manner, the titles of your document's introduction and conclusion will be "Introduction" and "Conclusion", whereas if you write a dissertation or thesis with articles, the titles will be "General Introduction" and "General Conclusion".

`\HECtdmAbreviations`
`\HECtdmRemerciements`
`\HECtdmAvantPropos`
`\HECtdmCadreTheorique`
`\HECtdmRevueLitterature`
`\HECtdmResumeArticle`

Many parts of HEC Montréal's dissertations and theses being "homemade" sections and chapters, no official english translations exist for their titles. The **hecthese** class takes care of the problem by automatically detecting the document's default language and by generating the appropriate titles for these sections: general introduction and conclusion, acronym list, acknowledgements, preface, theoretical framework, literature revue and each article's abstract.

2.2.3 By-article dissertations' and theses' bibliographies

In dissertations and theses written with articles, there are many bibliographies: one specific bibliography for each article and a general bibliography for the whole document. The **hecthese** document class uses the `chapterbib` package[?] to generate multiple bibliographies in one document.

`\HECbibliographieArticle` The `chapterbib` package and `memoir` class have conflicting issues concerning the bibliographies' place in a document's divisions. The `\HECbibliographieArticle` makes sure that the articles' bibliographies are positioned as unnumbered sections inside the articles. This is why, in the by-articles templates, this command is placed just after the `\HECtitlepages` command.

`\HECbibliographieGenerale` This command positions the document's general bibliography as an unnumbered "chapter" (in the LaTeX definition of the term). It is placed just before the template's `\bibliographystyle` command.

6

\HECreferences   The `chapterbib` package is pretty good at fulfilling its purpose, which is generating multiple bibliographies. The problem is that a `\bibliography` command must be included in each file if one wants her citations to appear in the document. And by including the command, a bibliography is generated for that part of the document. In sections of the document such as the introduction, the abstracts or the conclusion, a bibliography must not be generated as the references for these parts have to be included in the general bibliography. The `\HECreferences` command allows you to insert citations and see them displayed correctly in a given section without generating a bibliography for that section. Its syntax is as follows:

```
\HECreferences{bibliographic style>}{<file.bib>}
```

Even if the bibliography of a given section won't be displayed, it is important to specify a bibliography style as the references will still appear in the general bibliography.

2.3   Class environments

The **hecthese** class' environments all share the same purpose : laying out your work.

HECdedication   This environment can be found in the **dedication.tex** file. It is inside the `HECdedication` environment that you will write... your dedication. At the document's compilation, the dedication will be vertically centered, aligned at the right margin and emphasized.

HECabbreviations   `HECabreviations` is a variant of the `description` environment. It is used to build your acronyms list. It takes as argument the longest of your acronyms and uses its length to align the list in two columns. The `calc`[?] and `enumitem`[?] packages are used to layout the list.

3   Writing your dissertation or thesis

In this section, we will give you a few hints for writing your dissertation or thesis with the **hecthese** document class.

3.1   One document divided in multiple files

As mentioned in Section 1.3, your document is divided in many files. A few reasons underlie the choice of such a division:

1. Separate your code (packages, commands, environments, etc.) from your document;

2. Reduce the files' size;

3. Facilitate searching through your text;

4. Offer better flexibility for adding or deleting sections.

Each file is heavily commented with instructions to make sure you don't make any mistake or mess with the document structure. Carefully read through the comments and delete them if necessary.

3.2 Bibliographies and citations

If you plan on writing your dissertation or thesis in French, we suggest you use the `francais` bibliography style when compiling your bibliographies. It has been built by Université Laval's professor Vincent Goulet[?] and it is the bibliography style resembling the most HEC Montréal's bibliography style, elaborated by Caroline Archambault[?]. This style also supports the *author-year* citation format that is recommended for use in the *Guidelines*.

If you write your dissertation or thesis in English, we suggest you use the `apa` bibliography style, which served as inspiration for the HEC Montréal bibliography style.

In order to fully comply with the *Guidelines*, we recommend you use the `\citep` command when citing your sources.

If you choose to use other bibliography styles and/or citation formats, just make sure that they are compatible with the `natbib` package loaded with the document class. Otherwise, you'll run into errors when you'll compile your document.

4 Compilation

When the time comes for compiling your document, simply pressing "Compile" in your code editor won't suffice. A precise chain of compilations is necessary if you want your document to be rendered properly, most of all if you compile a dissertation or thesis written with articles [5].

4.1 Classic dissertations and theses

Here is the compilation chain you need to do in order to generate your classic dissertation or thesis. You can perform these compilations from your code editor or from the command line. In the following list, replace `*` by `msc` or `phd` depending of the type of document you're writing.

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[5]A video tutorial showing the compilation process is available at https://www.youtube.com/watch?v=hS3LMC3H55w (in French with English subtitles)

✪ pdflatex template-*-classic.tex

✪ bibtex template-*-classic.tex

✪ makeindex template-*-classic.tex [6]

✪ pdflatex template-*-classic.tex

✪ pdflatex template-*-classic.tex

Compiling a dissertation or thesis is pretty straightforward. All compilation steps are performed on your template file. You run a first compilation with `pdflatex`, you generate your bibliography and index with `bibtex` and `makeindex` and you recompile your template file at least twice with `pdflatex` in order to output the bibliography, the index and the table of contents.

When compiling your document using the command line, you don't need to type the file extension (`tex`). Only the file name will suffice.

4.2 Dissertations and theses written with articles

Here is the compilation chain you need to do in order to generate your dissertation or thesis written with articles. As mentioned in Section **??**, replace * by `dissertation` or `thesis`.

✪ pdflatex template-*-articles.tex

✪ makeindex template-*-articles.tex [7]

✪ bibtex template-*-articles.tex

✪ bibtex [file].aux

✪ pdflatex template-*-articles.tex

✪ pdflatex template-*-articles.tex

Compiling a dissertation or thesis written with articles is more complex because you have to generate each article's bibliography separately. You begin by compiling your template file with `pdflatex`. You then run `bibtex` and `makeindex` on this same file. Once the first `bibtex` compilation is over, open each `.aux` file where you've inserted citations, i.e. **article-1.aux**, **article-2.aux**, **article-3.aux**, etc. [8] Run a `bibtex` compilation on each of these files. Finally, run `pdflatex` at least twice on your template file to output all bibliographies, the index and the table of contents.

As mentioned at Section **??**, only the file names are necessary for compiling from the command line.

---

[6]Do this compilation only if you,ve inserted index entries and the `\printindex` command in your document.

[7]See note **??**.

[8]Open the `.aux` files only if you compile your documents from the code editor.

A   hecthese class source code

You will find in this section the LATEX **hecthese** document class' source code. If you want to see how it is programmed, help debug or enhance it, etc., this section is for you.

A.1   Boolean tests and values

To run conditional tests, the class uses the `ifthen` package[**?**]. Boolean variables are used to determine what kind of document is being written (Ph.D. or M.Sc., classic or by articles) and to determine each contributor's gender. Once the variables have been instantiated, default values are given to these variables.

```
 1 ⟨∗class⟩
 2 \RequirePackage{ifthen}
 3
 4 % Booléens
 5 \newboolean{HEC@isPhD} % Le travail est une thèse ou non
 6 \newboolean{HEC@isClassique} % Le travail est rédigé de manière classique ou non
 7 \newboolean{HEC@isPresRappFemme} % Président rapporteur femme ou non
 8 \newboolean{HEC@isDirRechFemme} % Directeur de la recherche femme ou non
 9 \newboolean{HEC@isCodirRechFemme} % Codirecteur de la recherche femme ou non
10 \newboolean{HEC@isExamExtFemme} % Examinateur externe femme ou non
11 \newboolean{HEC@isRepDirFemme} % Représentant du directeur femme ou non
12
13 % Valeurs par défaut
14 \setboolean{HEC@isPhD}{true}
15 \setboolean{HEC@isClassique}{true}
16 \setboolean{HEC@isPresRappFemme}{false}
17 \setboolean{HEC@isDirRechFemme}{false}
18 \setboolean{HEC@isCodirRechFemme}{false}
19 \setboolean{HEC@isExamExtFemme}{false}
20 \setboolean{HEC@isRepDirFemme}{false}
```

A.2   Class options

The few options available with the class are declared hereunder. Note that the `babel` package's options are not declared here.

```
21
22 % Taille de la police de caractère
23 \DeclareOption{10pt}{%
24 \PassOptionsToClass{10pt}{memoir}
25 }
26 \DeclareOption{11pt}{%
27 \PassOptionsToClass{11pt}{memoir}
28 }
```

```
29 \DeclareOption{12pt}{%
30 \PassOptionsToClass{12pt}{memoir}
31 }
32
33 % Type de document
34 \DeclareOption{mscclassique}{%
35 \setboolean{HEC@isPhD}{false}
36 \setboolean{HEC@isClassique}{true}
37 }
38 \DeclareOption{mscarticles}{%
39 \setboolean{HEC@isPhD}{false}
40 \setboolean{HEC@isClassique}{false}
41 }
42 \DeclareOption{phdclassique}{%
43 \setboolean{HEC@isPhD}{true}
44 \setboolean{HEC@isClassique}{true}
45 }
46 \DeclareOption{phdarticles}{%
47 \setboolean{HEC@isPhD}{true}
48 \setboolean{HEC@isClassique}{false}
49 }
50
```

A.3   Class loading

The class is loaded in the document with all the options declared by the end user. If a font size is not specified, the classe loads the **12pt** font size by default.

```
51
52 % Chargement de la classe
53 \DeclareOption*{\PassOptionsToClass{\CurrentOption}{memoir}}
54 \ExecuteOptions{12pt} % Taille par défaut
55 \ProcessOptions
56 \LoadClass{memoir}
57
```

A.4   Required packages

Very few packages are loaded in the class so you can write your document with a maximum flexibility.

The class uses the **natbib** package[**?**] so you can write your citations in the *author-year* format. The **chapterbib** package is loaded only if the dissertation or thesis is written with articles.

The other packages loaded are typical to any other document: file encoding, graphics, images and color management, math modes, etc.

```
58
```

```
59 \RequirePackage[utf8]{inputenc} % Pour écrire les diacritiques directement
60 \RequirePackage[T1]{fontenc} % Utilisation des polices T1
61 \RequirePackage{natbib} % À inclure avant babel
62
63 % Si le document est rédigé par articles, charger chapterbib.
64 \ifthenelse{\boolean{HEC@isClassique}}{}{%
65 \RequirePackage{chapterbib} % Bibliographies multiples pour les articles
66 }
67 \RequirePackage{babel} % Support multilingue
68 \RequirePackage[autolanguage]{numprint}
69 \RequirePackage{calc} % Nécessaire pour la liste des abréviations
70 \RequirePackage{enumitem} % Nécessaire pour la liste des abréviations
71 \RequirePackage{tocvsec2} % Pour déterminer la profondeur de la TDM
72 \RequirePackage{graphicx} % Insertion de graphiques et d'images
73 \RequirePackage{color} % Gestion des couleurs
74 \RequirePackage{amsmath} % Package obligatoire pour les maths
75 \RequirePackage{iflang} % Détection de la langue
76
```

A.5 Layout

All the presentation standards required by the *Guidelines* are programmed hereunder. During compilation, LATEX will complain that some headers are too small for your content, but this will not generate errors (the compiler only issues warnings).

```
77
78 \pagestyle{plain} % Numéro de page centré au pied de page
79 \renewcommand{\baselinestretch}{1.5} % Interligne et demie
80 \setlength{\topmargin}{0cm} % Marge du haut
81 \setlength{\oddsidemargin}{1.5cm} % Marge de gauche des pages impaires
82 \setlength{\evensidemargin}{1.5cm} % Marge de gauche des pages paires
83 \setlength{\textwidth}{15cm} % Largeur du bloc de texte
84 \setlength{\textheight}{21.9cm} % Hauteur du bloc de texte
85 \setlength{\marginparwidth}{0pt} % Suppression des notes de marge
86 \setlength{\marginparsep}{0pt} % Suppression du séparateur de marge
87 \setlength{\headheight}{0pt} % Suppression de l'entête
88 \setlength{\headsep}{0pt} % Suppression du séparateur d'entête
89
```

A.6 Class commands

A.6.1 Document metadata

Every metadata-related command that you'll find in the document preamble has its internal command equivalent. Example given, the \HECtitre has \HEC@titre as equivalent. The internal commands are used to generate the document's title page and jury indentification page.

Many commands have their english translation so english-speaking students can work easily with the class, but these english translations are only placeholders that call their french equivalent.

```
 90
 91 % Commandes internes
 92 \newcommand{\HEC@titre}{}
 93 \newcommand{\HEC@sousTitre}{}
 94 \newcommand{\HEC@auteur}{}
 95 \newcommand{\HEC@optionPhD}{}
 96 \newcommand{\HEC@optionMSc}{}
 97 \newcommand{\HEC@moisDepot}{}
 98 \newcommand{\HEC@anneeDepot}{}
 99 \newcommand{\HEC@presidentRapporteur}{}
100 \newcommand{\HEC@directeurRecherche}{}
101 \newcommand{\HEC@codirecteurRecherche}{}
102 \newcommand{\HEC@universiteCodirecteur}{}
103 \newcommand{\HEC@membreJury}{}
104 \newcommand{\HEC@universiteMembreJury}{}
105 \newcommand{\HEC@examinateurExterne}{}
106 \newcommand{\HEC@universiteExaminateur}{}
107 \newcommand{\HEC@representantDirecteur}{}
108
109 % Commandes publiques
110 \newcommand{\HECtitre}[1]{%
111 \renewcommand{\HEC@titre}{#1}
112 }
113 \newcommand{\HECtitle}[1]{\HECtitre{#1}}
114
115 \newcommand{\HECsoustitre}[1]{%
116 \renewcommand{\HEC@sousTitre}{#1}
117 }
118 \newcommand{\HECsubtitle}[1]{\HECsoustitre{#1}}
119
120 \newcommand{\HECauteur}[1]{%
121 \renewcommand{\HEC@auteur}{#1}
122 }
123 \newcommand{\HECauthor}[1]{\HECauteur{#1}}
124
125 \newcommand{\HECoption}[1]{%
126 \ifthenelse{\boolean{HEC@isPhD}}{%
127 \renewcommand{\HEC@optionPhD}{#1}
128 }{%
129 \renewcommand{\HEC@optionMSc}{#1}
130 }
131 }
132
133 \newcommand{\HECmoisDepot}[1]{%
134 \renewcommand{\HEC@moisDepot}{#1}
135 }
```

```latex
136 \newcommand{\HECsubMonth}[1]{\HECmoisDepot{#1}}
137
138 \newcommand{\HECanneeDepot}[1]{%
139 \renewcommand{\HEC@anneeDepot}{#1}
140 }
141 \newcommand{\HECsubYear}[1]{\HECanneeDepot{#1}}
142
143 \newcommand{\HECpresidentRapporteur}[2]{%
144 \renewcommand{\HEC@presidentRapporteur}{#1}
145 \ifthenelse{\equal{#2}{F}}{%
146 \setboolean{HEC@isPresRappFemme}{true}
147 }{%
148 \setboolean{HEC@isPresRappFemme}{false}
149 }
150 }
151
152 \newcommand{\HECrapporteurPresident}[2]{\HECpresidentRapporteur{#1}{#2}}
153 \newcommand{\HECdirecteurRecherche}[2]{%
154 \renewcommand{\HEC@directeurRecherche}{#1}
155 \ifthenelse{\equal{#2}{F}}{%
156 \setboolean{HEC@isDirRechFemme}{true}
157 }{%
158 \setboolean{HEC@isDirRechFemme}{false}
159 }
160 }
161 \newcommand{\HECresearchDirector}[2]{\HECdirecteurRecherche{#1}{#2}}
162
163 \newcommand{\HECcodirecteurRecherche}[2]{%
164 \renewcommand{\HEC@codirecteurRecherche}{#1}
165 \ifthenelse{\equal{#2}{F}}{%
166 \setboolean{HEC@isCodirRechFemme}{true}
167 }{%
168 \setboolean{HEC@isCodirRechFemme}{false}
169 }
170 }
171 \newcommand{\HECresearchCodirector}[2]{\HECcodirecteurRecherche{#1}{#2}}
172
173 \newcommand{\HECuniversiteCodirecteur}[1]{%
174 \renewcommand{\HEC@universiteCodirecteur}{#1}
175 }
176 \newcommand{\HECcodirectorUniversity}[1]{\HECuniversiteCodirecteur{#1}}
177
178 \newcommand{\HECmembreJury}[1]{%
179 \renewcommand{\HEC@membreJury}{#1}
180 }
181 \newcommand{\HECjuryMember}[1]{\HECmembreJury{#1}}
182
183 \newcommand{\HECuniversiteMembreJury}[1]{%
184 \renewcommand{\HEC@universiteMembreJury}{#1}
185 }
```

```
186 \newcommand{\HECjuryMemberUniversity}[1]{\HECuniversiteMembreJury{#1}}
187
188 \newcommand{\HECexaminateurExterne}[2]{%
189 \renewcommand{\HEC@examinateurExterne}{#1}
190 \ifthenelse{\equal{#2}{F}}{%
191 \setboolean{HEC@isExamExtFemme}{true}
192 }{%
193 \setboolean{HEC@isExamExtFemme}{false}
194 }
195 }
196 \newcommand{\HECexternalExaminator}[2]{\HECexaminateurExterne{#1}{#2}}
197
198 \newcommand{\HECuniversiteExaminateur}[1]{%
199 \renewcommand{\HEC@universiteExaminateur}{#1}
200 }
201 \newcommand{\HECexaminatorUniversity}[1]{\HECuniversiteExaminateur{#1}}
202
203 \newcommand{\HECrepresentantDirecteur}[2]{%
204 \renewcommand{\HEC@representantDirecteur}{#1}
205 \ifthenelse{\equal{#2}{F}}{%
206 \setboolean{HEC@isRepDirFemme}{true}
207 }{%
208 \setboolean{HEC@isRepDirFemme}{false}
209 }
210 }
211 \newcommand{\HECdirectorRepresentative}[2]{\HECrepresentantDirecteur{#1}{#2}}
212
```

A.6.2   pdf metadata

Along with the metadata-related commands for your work, the class defines commands that will insert metadata in the `.pdf` file generated after the compilation of your dissertation or thesis. These commands are placed in the `hyperref` package's options.

```
213
214 \newcommand{\HECpdfauteur}{\HEC@auteur}
215 \newcommand{\HECpdftitre}{\HEC@titre}
216
```

A.6.3   Title and jury identification pages

The class uses three internal commands to generate the title page and the jury identification page. The `\HECtitlepages` command is inserted at the beginning of the `document` environment to generate the title pages related to each type of document written.

`\HEC@pageTitrePhD`   The `\HEC@pageTitrePhD` command generates the dissertations' title page. It uses

the `memoir` class' `titlingpage` environment, which gives more flexibility than LaTeX's `\maketitle` command for the creation of title pages[**?**]. The `titlingpage` environment resets the page numbering at 1 after the title page so it prevents the following blank page from being counted as a page.

Automatic insertion of the subtitle is made possible by calculating its length. If it is empty, only a new line is inserted. If it's not empty, a colon is inserted followed by the subtitle.

Instead of defining fixed vertical spaces between the title page elements, the command makes an extensive use of the `\vfill` command, which vertically justifies all elements in the page, no matter what size they are.

```
217
218 \newcommand{\HEC@pageTitrePhD}{%
219 \begin{titlingpage}
220 \centering
221 \begin{SingleSpace}
222 {\Large HEC MONTRÉAL}\\
223 École affiliée à l'Université de Montréal
224 \vfill
225 {\bfseries\HEC@titre
226 \ifthenelse{\equal{\HEC@sousTitre}{}}%
227 { \\ }%
228 {~: \\ \HEC@sousTitre}
229 \vfill
230 par \\
231 \HEC@auteur}
232 \vfill
233 Thèse présentée en vue de l'obtention du grade de Ph. D. en administration \\
234 (option \HEC@optionPhD)
235 \vfill
236 \HEC@moisDepot~\HEC@anneeDepot
237 \vfill
238 \copyright~\HEC@auteur, \HEC@anneeDepot
239 \end{SingleSpace}
240 \end{titlingpage}
241 }
242
```

`\HEC@pageIdentificationJury` This command uses the `titlingpage` environment's starred version which doesn't reset the page numbering at 1. In this way, the french abstract can start at page number iii, as requested.

The command also determines each contributor's job title spelling according to his or her gender. It is done by evaluating each `HEC@is*Femme` boolean variable's value.

```
243
244 \newcommand{\HEC@pageIdentificationJury}{%
245 \begin{titlingpage*}
```

```latex
246 \centering
247 \begin{SingleSpace}
248 {\Large HEC MONTRÉAL}\\
249 École affiliée à l'Université de Montréal
250 \vfill
251 Cette thèse intitulée :
252 \vfill
253 {\bfseries\HEC@titre
254 \ifthenelse{\equal{\HEC@sousTitre}{}}%
255 { \\ }%
256 {~: \\ \HEC@sousTitre}}
257 \vfill
258 Présentée par :
259 \vfill %
260 {\bfseries \HEC@auteur}
261 \vfill
262 a été évaluée par un jury composé des personnes suivantes :
263 \vfill
264 \HEC@presidentRapporteur \\
265 HEC Montréal \\
266 \ifthenelse{\boolean{HEC@isPresRappFemme}}%
267 {Présidente-rapportrice}%
268 {Président-rapporteur}
269 \vfill
270 \HEC@directeurRecherche \\
271 HEC Montréal \\
272 \ifthenelse{\boolean{HEC@isDirRechFemme}}%
273 {Directrice de recherche}%
274 {Directeur de recherche}
275 \vfill
276 \HEC@codirecteurRecherche \\
277 \HEC@universiteCodirecteur \\
278 \ifthenelse{\boolean{HEC@isCodirRechFemme}}%
279 {Codirectrice de recherche}%
280 {Codirecteur de recherche}
281 \vfill
282 \HEC@membreJury \\
283 \HEC@universiteMembreJury \\
284 Membre du jury
285 \vfill
286 \HEC@examinateurExterne \\
287 \HEC@universiteExaminateur \\
288 \ifthenelse{\boolean{HEC@isExamExtFemme}}%
289 {Examinatrice externe}%
290 {Examinateur externe}
291 \vfill
292 \HEC@representantDirecteur \\
293 HEC Montréal \\
294 \ifthenelse{\boolean{HEC@isRepDirFemme}}{%
295 Représentante du directeur de HEC Montréal}{%
```

```
296 Représentant du directeur de HEC Montréal}
297 \end{SingleSpace}
298 \end{titlingpage*}
299 }
300
```

\HEC@pageTitreMSc   The \HEC@pageTitreMSc command uses the titlingpage environment in the same manner as the dissertations' title page command.

This command is also the only place where a fixed vertical space is inserted between the title and the subtitle, in order to comply with the *Guidelines*' presentation standards.

```
301
302 \newcommand{\HEC@pageTitreMSc}{%
303 \begin{titlingpage}
304 \centering
305 \begin{SingleSpace}
306 {\Large HEC MONTRÉAL}
307 \vfill
308 {\bfseries\HEC@titre
309 \ifthenelse{\equal{\HEC@sousTitre}{}}%
310 {\\[12pt]}%
311 {~: \\ \HEC@sousTitre \\[12pt]}
312 par \\[12pt]
313 \HEC@auteur
314 \vfill %
315 Sciences de la gestion \\%
316 (Option \HEC@optionMSc)}
317 \vfill
318 \emph{Mémoire présenté en vue de l'obtention \\ %
319 du grade de maîtrise ès sciences \\ %
320 (M. Sc.)}
321 \vfill
322 \HEC@moisDepot~\HEC@anneeDepot \\ %
323 \copyright~\HEC@auteur, \HEC@anneeDepot
324 \end{SingleSpace}
325 \end{titlingpage}
326 }
327
```

\HECtitlepages   The command evaluates the HEC@isPhD boolean variable's value. If the document is a dissertation, it inserts the dissertation's title page and the jury identification page. If the document is a thesis, the command inserts the thesis' title page.

```
328
329 \newcommand{\HECpagestitre}{%
330 \ifthenelse{\boolean{HEC@isPhD}}{%
331 \HEC@pageTitrePhD
332 \HEC@pageIdentificationJury
```

```
333 }{%
334 \HEC@pageTitreMSc
335 }
336 }
337 \newcommand{\HECtitlepages}{\HECpagestitre}
338
```

A.6.4   Introduction and conclusion titles

In dissertations and theses written with articles, there is more than one introduction and conclusion : a general introduction and conclusion for the whole document, and one introduction and conclusion for every article. To make a distinction between all of these introductions and conclusions, the class changes the document's introduction's and conclusion's titles to "General Introduction" and "General Conclusion". The command also takes into account the document's default language, as for all other titles, as we'll see it in Section **??**.

```
339
340 \newcommand{\HECtitreIntroduction}{Introduction}
341 \newcommand{\HECtitreConclusion}{Conclusion}
342 \newcommand{\HECgenererTitres}{%
343 \ifthenelse{\boolean{HEC@isClassique}}{}{%
344 \IfLanguageName{english}{%
345 \renewcommand{\HECtitreIntroduction}{General Introduction}
346 \renewcommand{\HECtitreConclusion}{General Conclusion}
347 }{%
348 \renewcommand{\HECtitreIntroduction}{Introduction générale}
349 \renewcommand{\HECtitreConclusion}{Conclusion générale}
350 }
351 }
352 }
353
```

A.6.5   Automatic english translation of titles and table of contents

The `iflang` package[**?**] enables the detection of a document's default language and allows the class to carry out conditional actions depending on the language. The **hecthese** class supports French and English and uses `iflang` to generate "homemade" section titles for dissertations and theses.

```
354
355 \newcommand{\HECtdmAbreviations}{%
356 \IfLanguageName{english}{List of acronyms}{Liste des abréviations}
357 }
358
359 \newcommand{\HECtdmRemerciements}{%
360 \IfLanguageName{english}{Acknowledgements}{Remerciements}
361 }
```

```
362
363 \newcommand{\HECtdmAvantPropos}{%
364 \IfLanguageName{english}{Preface}{Avant-propos}
365 }
366
367 \newcommand{\HECtdmCadreTheorique}{%
368 \IfLanguageName{english}{Theoretical framework}{Cadre théorique}
369 }
370
371 \newcommand{\HECtdmRevueLitterature}{%
372 \IfLanguageName{english}{Literature review}{Revue de la littérature}
373 }
374
375 \newcommand{\HECtdmResumeArticle}{%
376 \IfLanguageName{english}{Abstract}{Résumé}
377 }
378
```

A.6.6 Multiple bibliographies in by-articles dissertations and theses

The `memoir` class and `chapterbib` package don't play along very well when the time comes when bibliographies have to be placed in a document. The `\HECbibliographieArticle` command makes sur that an article's bibliography is considered like an unnumbered section and that its title is "References".

The `\HECbibliographieGenerale` command then puts back the document's bibliography at its usual place, which is an unnumbered chapter. The command also renames this chapter "General Bibliography".

The command finally detects the document's default language to automatically translate all titles.

```
379
380 \newcommand{\HECbibliographieArticle}{%
381 \renewcommand{\bibsection}{%
382 \IfLanguageName{english}{%
383 \renewcommand{\bibname}{References}
384 }{%
385 \renewcommand{\bibname}{Références}
386 }
387 \section*{\bibname}
388 \bibmark
389 \ifnobibintoc\else
390 \phantomsection\addcontentsline{toc}{section}{\bibname}
391 \fi
392 \prebibhook
393 }
394 }
395
396 \newcommand{\HECbibliographieGenerale}{%
```

```
397 \renewcommand{\bibsection}{%
398 \IfLanguageName{english}{%
399 \renewcommand{\bibname}{Bibliography}
400 }{%
401 \renewcommand{\bibname}{Bibliographie générale}
402 }
403 \chapter*{\bibname}
404 \bibmark
405 \ifnobibintoc\else
406 \phantomsection\addcontentsline{toc}{chapter}{\bibname}
407 \fi
408 \prebibhook
409 }
410 }
411
```

In order to display your citations correctly in all the document, the `\bibliographystyle` and `\bibliography` command have to be inserted in each included file. However, the bibliographies must only be displayed in the articles and at the end of the document. The `\HECreferences` command inserts these two bibliography commands in the document if it is written with articles, but "hides" the unwanted bibliographies in a container, a `savebox` that won't be ever used.

```
412
413 \newsavebox{\bibliographieCachee}
414
415 \newcommand{\HECreferences}[2]{%
416 \bibliographystyle{#1}
417 \savebox\bibliographieCachee{\parbox{\textwidth}{\bibliography{#2}}}
418 }
419
```

A.7   Class environments

The `HECdedication` environment creates a text block that is vertically centered, right-aligned horizontally and that takes only half of the page's regular text width. The text block is also emphasized.

The `HECabbreviations` environment is a variation of the `description` environment. It creates an acronyms list on two aligned columns : one for the acronyms and one for their definition.

```
420
421 \newenvironment{HECdedicace}{%
422 \vfill
423 \hfill
424 \begin{minipage}{0.5\textwidth}
425 \itshape}%
426 {%
```

```
427 \end{minipage}
428 \vfill%
429 }
430 \newenvironment{HECdedication}{\begin{HECdedicace}}{\end{HECdedicace}}
431
432 \newenvironment{HECabreviations}[1]{%
433 \begin{description}[leftmargin=!,labelwidth=\widthof{\bfseries #1}]}%
434 {%
435 \end{description}%
436 }
437 \newenvironment{HECabbreviations}[1]{%
438 \begin{HECabreviations}{#1}}%
439 {\end{HECabreviations}}
440
```

A.8   Package options

The official French translations for the list of figures and the index don't correspond to those of the *Guidelines*' French version. These translations are overridden by the class so they match with the university's official labels.

```
441
442 \addto\captionsfrench{%
443 \renewcommand{\listfigurename}{Liste des figures}
444 \renewcommand{\indexname}{Index analytique}
445 }
446 ⟨/class⟩
```

References

[1] Centre d'aide en français et en rédaction universitaire (2015). *Guide pour la rédaction d'un travail universitaire de 1er, 2e et 3e cycles*, HEC Montréal. Consulté le 18 mai 2017 à http://www.hec.ca/qualitecomm/caf/guide-redaction-travail-cycles.pdf

[2] Centre de formation en langues des affaires (2014). *Guidelines for writing and academic work at a graduate level*, HEC Montréal. Consulté le 24 avril 2018 à http://www.hec.ca/qualitecomm/anglais/ressources/guide-redaction-depot-memoire-anglais.pdf

[3] *TeX Live*, TeX Users Group. Consulté le 18 mai 2017 à https://www.tug.org/texlive/

[4] van der Zander, Benito, Jan Sundermeyer, Daniel Braun et Tim Hoffmann (2017). *TeXstudio : LaTeX made comfortable*, TeXstudio. Consulté le 18 mai 2017 à http://www.texstudio.org/

[5] Wilson, Peter R., Lars Madsen (2016). *Package memoir*, Comprehensive TeX Archive Network. Consulté le 19 mai 2017 à https://www.ctan.org/pkg/memoir

[6] Bezos López, Javier, Johannes L. Braams (2017). *Package babel*, Comprehensive TeX Archive Network. Consulté le 19 mai 2017 à https://www.ctan.org/pkg/babel

[7] Oberdiek, Heiko, Sebastian Rahtz (2017). *Package hyperref*, Comprehensive TeX Archive Network. Consulté le 19 mai 2017 à https://www.ctan.org/pkg/hyperref

[8] Arseneau, Donald (2010). *Package chapterbib*, Comprehensive TeX Archive Network. Consulté le 23 mai 2017 à https://www.ctan.org/pkg/chapterbib

[9] Thorup, Kresten Krab, Frank Jensen et The LaTeX Team (2007). *Package calc*, Comprehensive TeX Archive Network. Consulté le 23 mai 2017 à https://www.ctan.org/pkg/calc

[10] Bezos López, Javier (2009). *Package enumitem*, Comprehensive TeX Archive Network. Consulté le 23 mai 2017 à https://www.ctan.org/pkg/enumitem

[11] Lamport, Leslie, David Carlisle et The LaTeX Team (2014). *Package ifthen*, Comprehensive TeX Archive Network. Consulté le 23 mai 2017 à https://www.ctan.org/pkg/ifthen

[12] Goulet, Vincent (2012). *Package francais-bst*, Comprehensive TeX Archive Network. Consulté le 23 mai 2017 à https://www.ctan.org/pkg/francais-bst

[13] Daly, Patrick W., Arthur Ogawa (2009). *Package natbib*, Comprehensive TeX Archive Network. Consulté le 29 mai 2017 à https://www.ctan.org/pkg/natbib

[14] Oberdiek, Heiko (2007). *Package iflang*, Comprehensive TeX Archive Network. Consulté le 25 septembre 2017 à https://www.ctan.org/pkg/iflang

[15] Archambault, Caroline (2017). *Bibliographie selon le style HEC Montréal*, Bibliothèque HEC Montréal. Consulté le 5 octobre 2017 à http://libguides.hec.ca/style-hec

[16] Secrétariat général (2018). *Réglement pédagogique de la faculté des études supérieures et postdoctorales*, Université de Montréal. Consulté le 23 avril 2018 à http://secretariatgeneral.umontreal.ca/documents-officiels/reglements-et-politiques/reglement-pedagogique-de-la-faculte-des-etudes-superieures-et-postdoctorales/

[17] Faculté des études supérieures et postdoctorales (2015). *Guide de présentation des mémoires et des thèses de l'Université de Montréal*, Université de Montréal. Consulté le 23 avril 2018 à http://www.fesp.umontreal.ca/fileadmin/fesp/documents/Cheminement/GuidePresentationMemoiresTheses.pdf

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