LaTeX document class for *Les Cahiers du GERAD* series

Benoit Hamel*   Karine Hébert†‡

April 25, 2022

Contents

---

*Library, HEC Montréal
†GERAD, HEC Montréal
‡English translation by Josée Lafrenière

Abstract

The `geradwp` document class was designed to allow researchers who are **GERAD** ↗ members to write their working papers, preprints and technical reports in line with the presentation standards of *Les Cahiers du GERAD* working paper series. This class and the associated files replace the template that GERAD initially distributed.

1 Installing the class

1.1 Prerequisites

Using this class assumes you've already installed a TeX distribution with an integrated code editor. In designing `geradwp`, the **TeX Live 2020 and 2021** ⬀ distributions and the **TeXstudio** ⬀ editor were used.

If you are using TeXLive or **MacTeX** ⬀ and your document compilation is buggy, begin by making sure your installation is up to date before investigating any further.

If you are using the **MikTeX** ⬀ distribution, make sure you install the latest versions of the packages indicated in Table 1 before using the `geradwp` class.

Users of **Overleaf** ⬀ can also use this class by downloading the necessary files from the **GERAD website** ⬀ .

> ❗ `geradwp` **makes use of** `fancyhdr` **version 4**
> Starting at `geradwp` version 1.1, version 4 of the **fancyhdr** ⬀ is used. This version introduces new commands that are not backwards compatible with version 3. It is available with the 2021 editions of Tex Live and MacTeX, as well as on Overleaf if you use the 2021 version of TeX Live.
>
> If you are using another TeX distribution, please make sure that you have the right version of `fancyhdr`.

1.2 Installation

The `.zip` archive you downloaded contains these files:

1. **geradwp.ins**: class installation file;

2. **geradwp.dtx**: documented source code for the class;

3. **geradwp.pdf**: the english version of the class' documentation;

4. **geradwp-fr.pdf** : the french version of the class' documentation;

5. **README.md**: file needed to display the class description on the **CTAN** ⬀ website.

Follow these steps to install the class on your workstation.

1. Create a working directory;

2. unzip the `.zip` archive in your working directory;

3. open a command line terminal from the directory;

4. enter the following command:

```
latex geradwp.ins
```

This command will create the `geradwp.cls` class file and the `geradwp.tex` template from which you can draft your working paper.

2 Using the class

The `geradwp` class is derived from the basic **article** ↗ class. You can therefore use all of that class' functionalities. However, a few of the article class options are defined by default in the `geradwp` class and cannot be modified:

- The font size is `10pt`;
- the paper size is `letterpaper`;
- printing is one-sided only (`oneside`) for the `gdweb` and `gdplain` versions of the template;
- printing is two-sided (`twoside`) for the `gdpaper` version of the template.

Since these options are defined in the class file, there is no risk of you deleting them from the template's `documentclass` command. Just make sure not to enter any options that might conflict with the above-mentioned options.

2.1 Options

In addition to the options available via the `article` class, there are a few options available for `geradwp`.

gdweb   The Web version of a paper that is to be posted on the GERAD website. The `oneside` option is passed on to the `article` class.

gdpaper   The paper version of an article that is to be printed and placed in the GERAD documentation centre. The `twoside` option is passed on to the article class.

gdplain   The unformatted version of a paper, similar to a basic LaTeX article, that is to be distributed by the author. The `oneside` option is passed on to the article class.

gdrevised   When a paper is revised by the authors, this option is used to display the

revision date on the paper's cover page.

gdfinal   During the drafting and revision process, a 5 pt `overfullrule` is printed in the right-hand margin to indicate any parts of the paper that go outside the margin. Once these two processes are done, this option is used to remove the document's `overfullrule`.

gdsmallhead   Some packages have fun at our expense by modifying the paper's header. The `gdsmallhead` option corrects this by resetting the proper header.

gdpostpub   Once a paper's content is published by a publisher, the paper must be updated to show the new publication's information on the cover page. The `gdpostpub` option swaps out the *Cahier*'s citation for the publisher's official one and the article URL for the *Cahier*'s

gdsupplement   When authors want to add extra research data or an important "appendix" to their working paper without including it in the main document, they can write that extra material in a blank `geradwp` template with the `gdsupplement` option included. Combined with the `\GDsupplementname` command (see subsubsection 2.3.1), this option will clearly show the supplement name on the title pages and page headers.

gdminitabs   Authors sometimes create tables so large that they extend beyond the margins. To solve this issue, the `gdminitabs` option can be used to set the tables in the document to `footnotesize`.

2.2   Using packages

Since the goal of this class is to make sure that working papers use a consistent layout, very few packages are preloaded. Table 1 lists those that are preloaded, along with the files where you will find them (and their options, where applicable). Researchers can choose to use whichever packages they will need, taking into account their features (see below). Care should be taken not to reload any of them or to change any of the default options.

2.2.1   babel

The person maintaining the original template advised the author of this document class that using babel with the template causes a number of problems, so **please do not use the babel package with this new template**, until these issues have been fixed. A future release of the class may allow you to use it.

2.2.2   algorithm, algorithmic, algorithm2e

algorithm, algorithmic 🔗 and algorithm2e 🔗 are three different packages, each of which has its fans among the *Cahiers du GERAD* authors. All are accepted

Package	Class file	Template	Options
amssymb	✔		
amsmath	✔		
amsfonts	✔		
latexsym	✔		
graphicx	✔		graphicspath=Figures
mathrsfs	✔		
geometry	✔		
fancyhdr	✔		
booktabs	✔		
multirow	✔		
array	✔		
caption	✔		font={footnotesize,bf,sf}
xcolor	✔		
enumitem	✔		
float	✔		
algorithm		✔	
algorithmic		✔	
algorithm2e		✔	
hyperref		✔	colorlinks
			citecolor={blue}
			urlcolor={blue}
			breaklinks={true}

Table 1: List of the class' preloaded packages along with their location and options

and loaded in the preamble of the template. Simply comment out those that will not be used. **Bear in mind that `algorithm` and `algorithmic` must be loaded together** as they don't work independently. `algorithm2e`, on the other hand, il self-sufficient.

`algorithm` and `algorithm2e` are mutually exclusive and cannot be both loaded at once without causing bugs.

Finally, when using the `algorithm` and `algorithmic` duo, please put your algorithms' `\caption` in `\footnotesize`.

2.2.3   float

The `float` package is loaded with the class **only when the `gdminitabs` option is enabled**. When loaded, it resizes the tables in `footnotesize`. If you need this package even if your tables are reasonably small, you can load it in the preamble of the document.

If you are using the `algorithm` package, please note that it loads `float`, so there is no need to load it in the preamble.

2.2.4 cleveref

The template already includes the `amsthm` package to allow referencing of theorems. However, in order for them to appear when using the `cleveref` package, `\newtheorem` definitions must be placed **after** the `cleveref` package is loaded (as specified in Section 14.1 of the **cleveref package documentation** ☑).

2.3 Commands

The handful of public commands that were created for this class have two purposes: document layout and filling in metadata for the working paper.

2.3.1 Metadata

All located in the preamble, the metadata commands allow authors and the GERAD team to insert the bibliographical data that will be found on the cover and title pages of the paper.

`\GDtitle`   Title of the working paper. The title is on both the cover and title pages.

`\GDauthorsShort`   List of authors, formatted as *[First initial]. [Last name]* (e.g.: B. Hamel, K. Hébert). The contents of this command will be found on the title page, under the title.

`\GDauthorsCopyright`   List of the authors' last names for the authors' copyright notice at the bottom of the title page.

`\GDmonth`   Publication month of the working paper in both French and English. The month for the French version is in the first set of curly brackets and the English one in the second.

`\GDyear`   The year the paper was published, formatted as YYYY.

`\GDnumber`   Number assigned to the working paper by the GERAD team.

`\GDrevised`   When a working paper is revised by its authors, this command is used to display the revision date on the cover page.

`\GDsupplementname`   If you write extra research data or an appendix using the `geradwp` template and the `gdsupplement` option (see subsection 2.1), the `\GDsupplementname` command will serve as place holder for the supplement's name and the class will output it on the title pages and on page headers.

`\GDpostpubcitation`   When the working paper is officially published, the GERAD team will replace the *Cahier*'s citation with the official journal citation and replace the link to the GERAD website with the URL from the publisher. The citation must be placed in the first set of curly brackets and the URL in the second.

2.3.2 Document Layout

To keep the template from getting cluttered and to keep authors from deleting critical formatting commands, commands were created to mark each subdivision of the document.

\GDcoverpage   The entire cover page is generated with this command. It is largely formatted with the formatting commands listed in subsubsection 2.3.1. The title page that follows the cover is generated by the GDtitlepage environment described in subsection 2.4.

\GDabstracts   This command marks the beginning of the "content" section, beginning with the English and French abstracts. It configures the page headers and footers, which are used throughout the paper, including the metadata described in subsubsection 2.3.1. The abstracts are written in the GDabstract environment described in subsection 2.4.

\GDarticlestart   The working paper begins with this command. It handles some final fine-tuning of the formatting settings.

2.4 Environments

A few environments were created to quickly format the title page and the abstracts section.

2.4.1 Title page

GDtitlepage   The entire title page is generated via this environment. To create the page, authors only need to type their personal information in the GDauthlist, GDaffillist, and GDemaillist environments described below.

GDauthlist
\GDauthitem
\GDrefsep
The GDauthlist environment is a customized list in which the authors enter their full name using the \GDauthitem command (NB: one author per line). The authors can link their affiliations with the \ref{} command, as demonstrated in Source Code 1. In the event that an author has more than one affiliation, they must use one \ref{} command per affiliation, separating each one with a \GDrefsep command.

Source Code 1: Authors list example

```
1  \begin{GDauthlist}
2   \GDauthitem{Benoit Hamel\ref{affil:hec}}
3   \GDauthitem{Karine H\'ebert\ref{affil:gerad}\GDrefsep\ref{affil:hec}}
4  \end{GDauthlist}
```

GDaffillist
\GDaffilitem
The GDaffillist environment is a customized list of all the authors' affiliations, in no predefined order of importance. Each affiliation is written with a

`\GDaffilitem` command with the label of the affiliation entered between the first set of curly brackets, and the affiliation itself in the second, as shown in Source Code 2.

Source Code 2: Affiliations list example

```
5  \begin{GDaffillist}
6    \GDaffilitem{affil:hec}{HEC Montr\'eal}
7    \GDaffilitem{affil:gerad}{GERAD}
8  \end{GDauthlist}
```

GDemaillist The final customized list created for the title page of a *Cahier* is the
\GDemailitem GDemaillist environment, where the authors' email addresses are listed, with one email address per `\GDemailitem` command.

Source Code 3: Email list example

```
9   \begin{GDemaillist}
10    \GDemailitem{benoit.2.hamel@hec.ca}
11    \GDemailitem{karine.hebert@gerad.ca}
12  \end{GDauthlist}
```

2.4.2 Abstracts section

GDabstract In a GERAD working paper, the French and English abstracts are written in a single paragraph. Even though it would have been simpler to write only one `\paragraph` command per abstract in the template, the authors of the class chose to use the "environment" format in order to add formatting and remain consistent with the behaviour of the abstract environment.

GDacknowledgements In a GERAD working paper, the acknowledgements are in a distinct block of text that does not match what the `\thanks` command yields in terms of formatting. The authors therefore must write all their acknowledgements in the GDacknowledgements environment, and the `geradwp` class will handle the layout according to the chosen version.

3 The `geradwp.tex` template

The `geradwp.tex` template was designed to be as simple as possible and is divided in a way that makes the source code of each paper uniform. Here is a brief presentation of the different sections.

3.1 Default packages (lines 92-106)

All the packages that are not loaded by default in the class (see Table 1) are loaded in this section. It's in this section that the choice between the `algorithm` and `algorithm2e` packages is made. Also, this is where you should load the packages that tend to malfunction if they are loaded after the `hyperref` package.

3.2 Default options (lines 107-136)

If the name of your folder containing your paper's figures is named differently than the default name, or if there are multiple folders with figures in them, this is where you can enter that information.

If you want to add `hypersetup` options without modifying or removing the default ones, you can do that here.

In all other cases, this section should remain unchanged.

3.3 Author commands (lines 137-145)

This section belongs entirely to the author. This is where all the packages needed for the paper can be loaded, as well as their options.

This is also where customized commands, environments, and theorems can be entered.

3.4 Metadata (lines 147-183)

This section is divided in two: the first is at the end of the preamble, and the second in the `GDtitlepage` environment located at the beginning of the document. This is where all the bibliographical metadata for the paper should be.

3.5 Abstracts, keywords, acknowledgements, article (starting at line 185)

These last two sections are, of course, where the body of the article will be.

A   Class source code

In this appendix, you will find the source code for the `geradwp` class. If you're interested to see how it's programmed, or help with debugging or improving the class, this section is for you.

10

A.1 Tests and boolean values

To do conditional tests, the class uses the `ifthen` package. The boolean variables identify which version of the paper to generate, how far in the publication process the paper is and it configures some parts of the formatting. Once the variables have been created, default values are set.

```
1 ⟨*class⟩
2 \RequirePackage{ifthen}
3
4 % Booleans %
5 \newboolean{GD@isWebVersion}
6 \newboolean{GD@isPaperVersion}
7 \newboolean{GD@isPlainVersion}
8 \newboolean{GD@needsSmallHeadSep}
9 \newboolean{GD@isFinalImpression}
10 \newboolean{GD@isPostPublication}
11 \newboolean{GD@isSupplement}
12 \newboolean{GD@isRevised}
13 \newboolean{GD@needsminitabs}
14
15 \setboolean{GD@isWebVersion}{false}
16 \setboolean{GD@isPaperVersion}{true}
17 \setboolean{GD@isPlainVersion}{false}
18 \setboolean{GD@needsSmallHeadSep}{false}
19 \setboolean{GD@isFinalImpression}{false}
20 \setboolean{GD@isPostPublication}{false}
21 \setboolean{GD@isSupplement}{false}
22 \setboolean{GD@isRevised}{false}
23 \setboolean{GD@needsminitabs}{false}
```

A.2 Class options

The few class options are declared here. They essentially change some boolean values and pass some options to the `article` class.

```
24
25 % Class Options %
26 \DeclareOption{gdweb}{%
27 \setboolean{GD@isWebVersion}{true}
28 \setboolean{GD@isPaperVersion}{false}
29 \setboolean{GD@isPlainVersion}{false}
30 \PassOptionsToClass{oneside}{article}
31 }
32 \DeclareOption{gdpaper}{%
33 \setboolean{GD@isWebVersion}{false}
34 \setboolean{GD@isPaperVersion}{true}
35 \setboolean{GD@isPlainVersion}{false}
```

```
36 \PassOptionsToClass{twoside}{article}
37 }
38 \DeclareOption{gdplain}{%
39 \setboolean{GD@isWebVersion}{false}
40 \setboolean{GD@isPaperVersion}{false}
41 \setboolean{GD@isPlainVersion}{true}
42 \PassOptionsToClass{oneside}{article}
43 }
44 \DeclareOption{gdsmallhead}{%
45 \setboolean{GD@needsSmallHeadSep}{true}
46 }
47 \DeclareOption{gdfinal}{%
48 \setboolean{GD@isFinalImpression}{true}
49 }
50 \DeclareOption{gdpostpub}{%
51 \setboolean{GD@isPostPublication}{true}
52 }
53 \DeclareOption{gdsupplement}{%
54 \setboolean{GD@isSupplement}{true}
55 }
56 \DeclareOption{gdrevised}{%
57 \setboolean{GD@isRevised}{true}
58 }
59 \DeclareOption{gdminitabs}{%
60 \setboolean{GD@needsminitabs}{true}
61 }
```

A.3   Loading the class

The class is loaded in the document with all the user-defined or default values.

```
62
63 % Standard Class Loading %
64 \DeclareOption*{\PassOptionsToClass{\CurrentOption}{article}}
65 \ProcessOptions\relax
66 \LoadClass[letterpaper,10pt]{article}
```

A.4   Defaut packages and their options

Very few packages are loaded with the class in order to allow the user to write with
the greatest possible flexibility. The packages that are loaded, however, ensure that
all the papers in the collection have consistent formatting.

```
67
68 % Required Packages %
69 \RequirePackage{amssymb}
70 \RequirePackage{amsmath}
```

```
71 \RequirePackage{amsthm}
72 \RequirePackage{amsfonts}
73 \RequirePackage{latexsym}
74 \RequirePackage{graphicx}
75 \RequirePackage{mathrsfs}
76 \RequirePackage{geometry}
77 \RequirePackage{fancyhdr}
78 \RequirePackage{booktabs}
79 \RequirePackage{multirow}
80 \RequirePackage{array}
81 \RequirePackage[font={footnotesize,bf,sf}]{caption}
82 \RequirePackage{xcolor}
83 \RequirePackage{enumitem}
84 \ifthenelse{\boolean{GD@needsminitabs}}{%
85 \RequirePackage{float}
86 }{}
87
88 % Required Packages Setup %
89 \captionsetup[table]{skip=5pt} % caption pkg setup
```

A.5 Formatting

We begin by defining the lengths of the document. These can change from one version of the paper to another.

```
90
91 % Lengths %
92 \newlength{\GD@authitemsep}
93 \newlength{\GD@authtopsep}
94 \newlength{\GD@affilitemsep}
95 \newlength{\GD@affiltopsep}
96 \newlength{\GD@titleminipage@hspace}
97 \newlength{\GD@coverpage@vspace}
98 \ifthenelse{\boolean{GD@isPlainVersion}}{%
99 \setlength{\GD@authitemsep}{0pt}
100 \setlength{\GD@authtopsep}{12pt}
101 \setlength{\GD@affilitemsep}{0pt}
102 \setlength{\GD@affiltopsep}{9pt}
103 }{%
104 \setlength{\GD@authitemsep}{8pt}
105 \setlength{\GD@authtopsep}{24pt}
106 \setlength{\GD@affilitemsep}{6pt}
107 \setlength{\GD@affiltopsep}{9pt}
108 }
109 \ifthenelse{\boolean{GD@isPaperVersion}}{%
110 \setlength{\GD@titleminipage@hspace}{240pt}
111 }{}
112 \ifthenelse{\boolean{GD@isWebVersion}}{%
```

```
113 \setlength{\GD@titleminipage@hspace}{227pt}
114 }{}
```

We then set up the geometry of the document, which varies from one version to another.

```
115
116 % Geometry %
117 \ifthenelse{\boolean{GD@isWebVersion}}{%
118 \geometry{tmargin=1.5cm,%
119 bmargin=2cm,%
120 lmargin=3cm,%
121 rmargin=3cm,%
122 nofoot,%
123 headsep=30pt,%
124 includehead}
125 }{}
126 \ifthenelse{\boolean{GD@isPlainVersion}}{%
127 \geometry{tmargin=1.5cm,%
128 bmargin=2cm,%
129 lmargin=3cm,%
130 rmargin=3cm,%
131 headsep=30pt,%
132 includehead}
133 }{}
134 \ifthenelse{\boolean{GD@isPaperVersion}}{%
135 \geometry{tmargin=1.5cm,%
136 bmargin=2cm,%
137 lmargin=3cm,%
138 rmargin=2cm,%
139 nofoot,%
140 headsep=30pt,%
141 includehead}
142 }{}
143 \ifthenelse{\boolean{GD@needsSmallHeadSep}}{%
144 \headsep=15pt
145 }{}
146 \parindent=15pt
147 \parskip=7pt plus 1pt minus 1pt
148 \g@addto@macro\@floatboxreset\centering
149 \widowpenalty=10000
150 \clubpenalty=10000
151 \raggedbottom
152 \allowdisplaybreaks
```

We add a touch of consistency by modifying the section headers, going down the hierarchy all the way down to \paragraph. Among other changes, we assign the font \sffamily to the headers, theorems, and proof.

```
153
```

```
154 % Section headings %
155 \renewcommand{\section}{\@startsection {section}{1}{\z@}%
156 {-2ex \@plus -1ex \@minus -.2ex}%
157 {1ex \@plus.2ex}%
158 {\normalfont\Large\sffamily\bfseries}}
159 \renewcommand{\subsection}{\@startsection{subsection}{2}{\z@}%
160 {-1.25ex\@plus -1ex \@minus -.2ex}%
161 {.75ex \@plus .2ex}%
162 {\normalfont\large\sffamily\bfseries}}
163 \renewcommand{\subsubsection}{\@startsection{subsubsection}{3}%
164 {\z@}%
165 {-1.25ex\@plus -1ex \@minus -.2ex}%
166 {.75ex \@plus .2ex}%
167 {\normalfont\normalsize\sffamily\bfseries}}
168 \renewcommand{\paragraph}{\@startsection{paragraph}{4}{\z@}%
169 {-1.25ex \@plus 1ex \@minus -.2ex}%
170 {-.5em \@plus -.1em}%
171 {\normalfont\normalsize\sffamily\bfseries}}
172 \setlength{\partopsep}{.5ex \@plus .1ex} %% to reduce spaces
173 \def\@listI{\leftmargin\leftmargini     %% above, between and under
174 \parsep .25ex \@plus .1ex  %% lists - itemize
175 \topsep .25ex \@plus .1ex  %% description - enumerate
176 \itemsep \parsep}
177 \let\@listi\@listI
178 \@listi
```

We resize oversized tables that extend past the margins.

```
179
180 % Resizing of huge tables %
181 \ifthenelse{\boolean{GD@needsminitabs}}{%
182 \floatstyle{plaintop}
183 \restylefloat{table}
184 \let\oldtabular\tabular
185 \renewcommand{\tabular}{\footnotesize\oldtabular}
186 \let\oldtable\table
187 }{}
```

Finally, we adjust the formatting of the theorems and of the `proof` environment so they are consistent with everything else.

```
188
189 % Theorems and proof layout %
190 \newtheoremstyle{gerad}%
191 {3pt}% Space above
192 {3pt}% Space below
193 {}{}%
194 {\sffamily\bfseries}% head font
195 {.}% Punctuation
196 {.5em}% Space after theorem head
```

```
197 {}
198 \theoremstyle{gerad}
199
200 \renewenvironment{proof}[1][\proofname]{\par
201 \pushQED{\qed}%
202 \normalfont \topsep6\p@\@plus6\p@\relax
203 \trivlist
204 \item\relax
205 {\bfseries\sffamily
206 #1\@addpunct{.}}\hspace\labelsep\ignorespaces
207 }{%
208 \popQED\endtrivlist\@endpefalse
209 }
```

A.6 Private class commands

Private commands play two separate roles: 1) storing and reusing the document's metadata; 2) isolate large blocks of code to prevent code duplication.

A.6.1 Metadata

The following commands store the metadata in the associated public commands and populate different parts of the paper such as the headers, cover page and title page.

```
210
211 % Class Private Commands %
212 % Metadata %
213 \newcommand{\gd@year}{}
214 \newcommand{\gd@month@fr}{}
215 \newcommand{\gd@month@en}{}
216 \newcommand{\gd@number}{}
217 \newcommand{\gd@title}{}
218 \newcommand{\gd@authors@short}{}
219 \newcommand{\gd@authors@copyright}{}
220 \newcommand{\gd@postpubcitation}{}
221 \newcommand{\gd@postpubcitation@url}{}
222 \newcommand{\gd@supplementname}{}
223 \newcommand{\gd@revised@year}{}
224 \newcommand{\gd@revised@month@fr}{}
225 \newcommand{\gd@revised@month@en}{}
```

A.6.2 Cover and title pages

The cover page and the title page change according to the version of the paper being generated and its publication stage. Rather than duplicating code, the

16

cover and title pages have been separated into sections that are called up with the criteria mentioned above.

The cover page displays in every version of the paper except `gdplain`. The following commands define its appearance. The bottom part of the page is different if the `gdpostpub` option is used.

```
226
227 % Cover page
228 \newcommand{\GD@cover}{%
229 \ifthenelse{\boolean{GD@isFinalImpression}}{}{%
230 \overfullrule=5pt
231 }
232
233 \pagestyle{empty}
234 \begin{titlepage}
235 \sffamily
236 \ifthenelse{\boolean{GD@needsSmallHeadSep}}{%
237 \vspace*{35pt}
238 }{}
239
240 {\noindent{\large\bfseries Les Cahiers du GERAD}\hfill ISSN:\quad
241 0711--2440}
242 \ifthenelse{\boolean{GD@isWebVersion}}{%
243
244 \vspace*{54pt}
245 {\noindent\LARGE\bfseries \gd@title\par} %Title
246 \ifthenelse{\boolean{GD@isSupplement}}%
247 {{\noindent\LARGE\gd@supplementname\par}}{}
248 \vspace*{18pt}
249 {\noindent\Large\gd@authors@short\par}
250
251 \vfill
252 }{}
253
254 \ifthenelse{\boolean{GD@isPaperVersion}}{%
255 \vspace*{\GD@coverpage@vspace}
256 }{}
257 \hspace*{\GD@titleminipage@hspace}
258 \begin{minipage}[c][5.4cm][c]{7cm}
259 {\ifthenelse{\boolean{GD@isWebVersion}}%
260 {\GDcover@minipagetable@web}%
261 {\GDcover@minipagetable@paper}%
262 }
263 \end{minipage}
264
265 \vfill
266
267 \ifthenelse{\boolean{GD@isPostPublication}}{%
268 \GDcover@bottom@postpub
```

```
269 }{%
270 \GDcover@bottom@regular
271 }
272 \end{titlepage}
273 }
274
275 % Cover page minipage table (web version)
276 \newcommand{\GDcover@minipagetable@web}{%
277 \begin{tabular}{p{.5cm}|p{5.5cm}}
278 & \normalsize G--\gd@year--\gd@number
279 \ifthenelse{\boolean{GD@needsminitabs}}%
280 {\\*[10pt]}%
281 {\\*[8pt]}
282 & \normalsize\gd@month@en\ \gd@year
283 \ifthenelse{\boolean{GD@isRevised}}{%
284 \\
285 &\normalsize Revised: \gd@revised@month@en\ \gd@revised@year
286 }{}
287 \end{tabular}
288 }
289
290 % Cover page minipage table (paper version)
291 \newcommand{\GDcover@minipagetable@paper}{%
292 \begin{tabular}{p{.5cm}|p{5.5cm}}
293 \multicolumn{2}{p{6.5cm}}{\normalsize\bfseries \gd@title
294 \ifthenelse{\boolean{GD@needsminitabs}}%
295 {\vspace*{12.5pt}}%
296 {\vspace*{10pt}}}\\
297 \ifthenelse{\boolean{GD@isSupplement}}%
298 {& \gd@supplementname\\*[10pt]}{}
299 & \normalsize\gd@authors@short \\ %Initials. Name
300 & \ifthenelse{\boolean{GD@needsminitabs}}%
301 {\\*[15pt]}%
302 {\\*[12pt]}
303 & \normalsize G--\gd@year--\gd@number
304 \ifthenelse{\boolean{GD@needsminitabs}}%
305 {\\*[10pt]}%
306 {\\*[8pt]}
307 & \normalsize\gd@month@en\ \gd@year
308 \ifthenelse{\boolean{GD@isRevised}}{%
309 \\
310 &\normalsize Revised: \gd@revised@month@en\ \gd@revised@year
311 }{}
312 \end{tabular}
313 }
314
315 % Regular cover page bottom
316 \newcommand{\GDcover@bottom@regular}{%
317 \hrule
318 \smallskip
```

```latex
319
320 \noindent\begin{minipage}[t][][l]{7.5cm}
321 \scriptsize
322 La collection \textit{Les Cahiers du GERAD} est constitu\'{e}e des
323 travaux de recherche men\'{e}s par nos membres. La plupart de ces
324 documents de travail a \'{e}t\'{e} soumis \'{a} des revues avec
325 comit\'{e} de r\'{e}vision. Lorsqu'un document est accept\'{e} et
326 publi\'{e}, le pdf original est retir\'{e} si c'est n\'{e}cessaire et
327 un lien vers l'article publi\'{e} est ajout\'{e}.\\
328
329 \medskip
330 \scriptsize
331 \textbf{Citation sugg\'{e}r\'{e}e :} \gd@authors@short~(\gd@month@fr\
332 \gd@year). \gd@title,
333 \ifthenelse{\boolean{GD@isSupplement}}{\gd@supplementname .}{}
334 Rapport technique, Les Cahiers du GERAD G--
335 \gd@year--\gd@number, GERAD, HEC Montr\'{e}al, Canada.
336 \ifthenelse{\boolean{GD@isRevised}}%
337 { Version r\'evis\'ee: \gd@revised@month@fr\ \gd@revised@year}{}\\
338
339 \textbf{Avant de citer ce rapport technique,} veuillez visiter notre
340 site Web (\url{https://www.gerad.ca/fr/papers/G-\gd@year-\gd@number})
341 afin de mettre \'a jour vos donn\'ees de r\'ef\'erence, s'il a \'et\'e
342 publi\'e dans une revue scientifique.\par
343 \end{minipage}
344 \hfill
345 \begin{minipage}[t][][l]{7.5cm}
346 \scriptsize
347 The series \textit{Les Cahiers du GERAD} consists of working papers
348 carried out by our members. Most of these pre-prints have been submitted
349 to peer-reviewed journals. When accepted and published, if necessary,
350 the original pdf is removed and a link to the published article is
351 added.\\ \\
352
353 \scriptsize
354 \textbf{Suggested citation:} \gd@authors@short~(\gd@month@en\ \gd@year).
355 \gd@title,
356 \ifthenelse{\boolean{GD@isSupplement}}{\gd@supplementname .}{}
357 Technical report, Les Cahiers du GERAD G--\gd@year--\gd@number,
358 GERAD, HEC Montr\'{e}al, Canada.
359 \ifthenelse{\boolean{GD@isRevised}}%
360 { Revised version: \gd@revised@month@en\ \gd@revised@year}{}\\
361
362 \textbf{Before citing this technical report,} please visit our website
363 (\url{https://www.gerad.ca/en/papers/G-\gd@year-\gd@number}) to update
364 your reference data, if it has been published in a scientific journal.
365 \par
366 \end{minipage}
367
368 \bigskip
```

```latex
369 \hrule
370 \smallskip
371
372 \noindent\begin{minipage}[t][2.1cm][l]{7.5cm}
373 \scriptsize
374 La publication de ces rapports de recherche est rendue possible gr\^ace
375 au soutien de HEC Montr\'eal, Polytechnique Montr\'eal, Universit\'e
376 McGill, Universit\'e du Qu\'ebec \`a Montr\'eal, ainsi que du Fonds de
377 recherche du Qu\'ebec -- Nature et technologies.
378
379 \medskip
380 D\'ep\^ot l\'egal -- Biblioth\`eque et Archives nationales du Qu\'ebec,
381 \gd@year\\
382 \phantom{Depot legal} -- Biblioth\`eque et Archives Canada, \gd@year
383 \par
384 \end{minipage}
385 \hfill
386 \begin{minipage}[t][2.1cm][l]{7.5cm}
387 \scriptsize
388 The publication of these research reports is made possible
389 thanks to the support of HEC Montr\'eal, Polytechnique Montr\'eal,
390 McGill University, Universit\'e du Qu\'ebec \`a Montr\'eal, as well as
391 the Fonds de recherche du Qu\'ebec -- Nature et technologies.
392
393 \medskip
394 Legal deposit -- Biblioth\`eque et Archives nationales du Qu\'ebec,
395 \gd@year\\
396 \phantom{Legal deposit} -- Library and Archives Canada, \gd@year\par
397 \end{minipage}
398
399 \hrule
400 \smallskip
401
402 \noindent
403 \begin{minipage}[t][1cm][l]{7.5cm}
404 \begin{scriptsize}\raggedleft
405 \textbf{GERAD} HEC Montr\'eal
406
407 3000, chemin de la C\^ote-Sainte-Catherine
408
409 Montr\'eal (Qu\'ebec) Canada H3T 2A7\par
410 \end{scriptsize}
411 \end{minipage}
412 \hspace*{.35cm}\vrule\hfill
413 \begin{minipage}[t][1cm][l]{7.5cm}
414 \begin{scriptsize}
415 \textbf{T\'el.\,: 514 340-6053}
416
417 T\'el\'ec.\,: 514 340-5665
418
```

20

```
419 info@gerad.ca
420
421 www.gerad.ca\par
422 \end{scriptsize}
423 \end{minipage}
424
425 \bigskip
426 \hrule
427 }
428
429 % Post-publication cover page bottom
430 \newcommand{\GDcover@bottom@postpub}{%
431 \hrule
432 \smallskip
433
434 \noindent
435 \begin{minipage}[t][][l]{7.5cm}
436 \scriptsize
437 La collection \textit{Les Cahiers du GERAD} est constitu\'{e}e des
438 travaux de recherche men\'{e}s par nos membres. La plupart de ces
439 documents de travail a \'{e}t\'{e} soumis \`{a} des revues avec comit\'e
440 de r\'{e}vision. Lorsqu'un document est accept\'{e} et publi\'{e}, le
441 pdf original est retir\'{e} si c'est n\'{e}cessaire et un lien vers
442 l'article publi\'{e} est ajout\'{e}.\par
443 \end{minipage}
444 \hfill
445 \begin{minipage}[t][][l]{7.5cm}
446 \scriptsize
447 The series \textit{Les Cahiers du GERAD} consists of working papers
448 carried out by our members. Most of these pre-prints have been submitted
449 to peer-reviewed journals. When accepted and published, if necessary,
450 the original pdf is removed and a link to the published article is
451 added.\par
452 \end{minipage}
453
454 \noindent
455 \begin{minipage}[t][][l]{\textwidth}
456 \footnotesize
457 \textbf{CITATION ORIGINALE / ORIGINAL CITATION}
458 \smallskip
459
460 \gd@postpubcitation\ \url{\gd@postpubcitation@url}.
461 \end{minipage}
462
463 \bigskip
464
465 \hrule
466 \smallskip
467
468 \noindent\begin{minipage}[t][2.1cm][l]{7.5cm}
```

```latex
469 \scriptsize
470 La publication de ces rapports de recherche est rendue possible gr\^ace
471 au soutien de HEC Montr\'eal, Polytechnique Montr\'eal, Universit\'e
472 McGill, Universit\'e du Qu\'ebec \`a Montr\'eal, ainsi que du Fonds de
473 recherche du Qu\'ebec -- Nature et technologies.
474
475 \medskip
476 D\'ep\^ot l\'egal -- Biblioth\`eque et Archives nationales du Qu\'ebec,
477 \gd@year\\
478 \phantom{Depot legal} -- Biblioth\`eque et Archives Canada, \gd@year
479 \par
480 \end{minipage}
481 \hfill
482 \begin{minipage}[t][2.1cm][l]{7.5cm}
483 \scriptsize
484 The publication of these research reports is made possible
485 thanks to the support of HEC Montr\'eal, Polytechnique Montr\'eal,
486 McGill University, Universit\'e du Qu\'ebec \`a Montr\'eal, as well as
487 the Fonds de recherche du Qu\'ebec -- Nature et technologies.
488
489 \medskip
490 Legal deposit -- Biblioth\`eque et Archives nationales du Qu\'ebec,
491 \gd@year\\
492 \phantom{Legal deposit} -- Library and Archives Canada, \gd@year\par
493 \end{minipage}
494
495 \hrule
496 \smallskip
497
498 \noindent
499 \begin{minipage}[t][1cm][l]{7.5cm}
500 \begin{scriptsize}\raggedleft
501 \textbf{GERAD} HEC Montr\'eal
502
503 3000, chemin de la C\^ote-Sainte-Catherine
504
505 Montr\'eal (Qu\'ebec) Canada H3T 2A7\par
506 \end{scriptsize}
507 \end{minipage}
508 \hspace*{.35cm}\vrule\hfill
509 \begin{minipage}[t][1cm][l]{7.5cm}
510 \begin{scriptsize}
511 \textbf{T\'el.\,: 514 340-6053}
512
513 T\'el\'ec.\,: 514 340-5665
514
515 info@gerad.ca
516
517 www.gerad.ca\par
518 \end{scriptsize}
```

22

```
519 \end{minipage}
520
521 \bigskip
522 \hrule
523 }
```

The title page appears in all versions of the paper, but it varies according to the version. Given that it is contained in the `GDtitlepage` environment, the internal commands for the title page's display are divided into two parts: `@begin` and `@end`.

```
524
525 %  Regular title page
526 \newcommand{\GD@titlepage@begin}{%
527 \ifthenelse{\boolean{GD@isWebVersion}}{%
528 \newpage\clearpage
529 }{%
530 \ifthenelse{\boolean{GD@isPaperVersion}}{%
531 \newpage\cleardoublepage
532 }{}
533 }
534 \parindent=0pt
535 \sffamily
536 {\LARGE\bfseries \gd@title\par} %Title
537 \ifthenelse{\boolean{GD@isSupplement}}%
538 {{\LARGE\gd@supplementname\par}
539 }{}
540 \begin{minipage}[t][10cm][l]{7.5cm}
541 \vspace*{55pt}
542 }
543
544 \newcommand{\GD@titlepage@end}{%
545 \vfill
546 \end{minipage}
547 \vfill
548 {\bfseries \gd@month@en\ \gd@year}\\*
549 \ifthenelse{\boolean{GD@isRevised}}%
550 {Revised: \gd@revised@month@en\ \gd@revised@year \\}%
551 {}
552 {\bfseries Les Cahiers du GERAD}\\
553 {\bfseries G--\gd@year--\gd@number}\\
554 {\footnotesize Copyright \copyright\ \gd@year\ GERAD,
555 \gd@authors@copyright}
556 \vspace*{0.05cm}
557
558 \hrule
559 \smallskip
560
561 \noindent
562 \begin{minipage}[t][][l]{7.5cm}
```

```latex
563 \begin{scriptsize}
564 Les textes publi\'es dans la s\'erie des rapports de recherche
565 \textit{Les Cahiers du GERAD} n'engagent que la responsabilit\'e de
566 leurs auteurs. Les auteurs conservent leur droit d'auteur et leurs
567 droits moraux sur leurs publications et les utilisateurs s'engagent \`a
568 reconna\^{\i}tre et respecter les exigences l\'{e}gales associ\'{e}es
569 \`{a} ces droits. Ainsi, les utilisateurs:
570 \begin {itemize}
571 \item Peuvent t\'{e}l\'{e}charger et imprimer une copie de toute
572 publication du portail public aux fins d'\'{e}tude ou de recherche
573 priv\'{e}e;
574 \item Ne peuvent pas distribuer le mat\'{e}riel ou l'utiliser pour une
575 activit\'{e} \`{a} but lucratif ou pour un gain commercial;
576 \item Peuvent distribuer gratuitement l'URL identifiant la publication.
577 \end{itemize}
578 Si vous pensez que ce document enfreint le droit d'auteur, contactez-
579 nous en fournissant des d\'etails. Nous supprimerons imm\'{e}diatement
580 l'acc\`es au travail et enqu\^{e}terons sur votre demande.\par
581 \end{scriptsize}
582 \end{minipage}
583 \hfill
584 \begin{minipage}[t][][l]{7.5cm}
585 \begin{scriptsize}
586 The authors are exclusively responsible for the content of their
587 research papers published in the series \textit{Les Cahiers du GERAD}.
588 Copyright and moral rights for the publications are retained by the
589 authors and the users must commit themselves to recognize and abide the
590 legal requirements associated with these rights. Thus, users:
591 \begin{itemize}
592 \item May download and print one copy of any publication from the public
593 portal for the purpose of private study or research;
594 \item May not further distribute the material or use it for any
595 profit-making activity or commercial gain;
596 \item May freely distribute the URL identifying the publication.
597 \end{itemize}
598 If you believe that this document breaches copyright please contact us
599 providing details, and we will remove access to the work immediately and
600 investigate your claim.\par
601 \end{scriptsize}
602 \end{minipage}
603
604 \thispagestyle{empty}
605 \parindent=15pt
606 \newpage
607 }
608
609 % Plain title page
610 \newcommand{\GD@plain@titlepage@begin}{%
611 \thispagestyle{empty}
612 \sffamily
```

```
613 {\sffamily\LARGE\bfseries\noindent\gd@title\par}
614 \ifthenelse{\boolean{GD@isSupplement}}%
615 {{\noindent\LARGE\gd@supplementname\par}}{}
616 }
617
618 \newcommand{\GD@plain@pagetitle@end}{%
619 \vspace*{12pt}
620 {\noindent\gd@month@en\ \gd@year}
621 \ifthenelse{\boolean{GD@isRevised}}%
622 {\\ {\noindent Revised: \gd@revised@month@en\ \gd@revised@year}}{}
623 \vspace*{30pt}
624 }
```

A.7 Public class commands and environments

The public commands are those that can be directly accessed by the user. They are, however, each linked to a specific part of the paper, and thus cannot be reused or moved.

A.7.1 Document layout

The number of a `geradwp` template's possible versions imply that some internal document layout commands must be easily changed via public commands, available in the template's preamble. This allows more efficient work on the publisher's side and prevents the multiplication of homemade versions of the class[1].

```
625
626 % Layout public commands
627 \newcommand{\GDcoverpagewhitespace}[1]{%
628 \setlength{\GD@coverpage@vspace}{#1}
629 }
```

A.7.2 Metadata

The following commands are those users use to enter their paper's bibliographical data. They modify the values of the corresponding private commands (see [subsubsection A.6.1](#)).

```
630
631 % Metadata public commands
632 \newcommand{\GDyear}[1]{%
633 \renewcommand{\gd@year}{#1}
634 }
635 \newcommand{\GDmonth}[2]{%
```

---

[1]Any reference to a real-life person is pure coincidence.

```
636 \renewcommand{\gd@month@fr}{#1}
637 \renewcommand{\gd@month@en}{#2}
638 }
639 \newcommand{\GDnumber}[1]{%
640 \renewcommand{\gd@number}{#1}
641 }
642 \newcommand{\GDtitle}[1]{%
643 \renewcommand{\gd@title}{#1}
644 }
645 \newcommand{\GDauthorsShort}[1]{%
646 \renewcommand{\gd@authors@short}{#1}
647 }
648 \newcommand{\GDauthorsCopyright}[1]{%
649 \renewcommand{\gd@authors@copyright}{#1}
650 }
651 \newcommand{\GDpostpubcitation}[2]{%
652 \renewcommand{\gd@postpubcitation}{#1}
653 \renewcommand{\gd@postpubcitation@url}{#2}
654 }
655 \newcommand{\GDsupplementname}[1]{%
656 \renewcommand{\gd@supplementname}{#1}
657 }
658 \newcommand{\GDrevised}[3]{%
659 \renewcommand{\gd@revised@month@fr}{#1}
660 \renewcommand{\gd@revised@month@en}{#2}
661 \renewcommand{\gd@revised@year}{#3}
662 }
```

A.7.3 Document subdivisions

Each part of the paper has specific characteristics in terms of geometry and formatting (headers, footers, etc.). Rather than bloating the template with multiple lines of code, a few commands and environments were created to group them together.

```
663
664 % Cover page
665 \newcommand{\GDcoverpage}{%
666 \ifthenelse{\boolean{GD@isPlainVersion}}{}{\GD@cover}
667 }
668
669 % Title page
670 \newenvironment{GDtitlepage}{
671 \ifthenelse{\boolean{GD@isPlainVersion}}%
672 {\GD@plain@titlepage@begin}%
673 {\GD@titlepage@begin}
674 }{
675 \ifthenelse{\boolean{GD@isPlainVersion}}%
```

```
676 {\GD@plain@pagetitle@end}%
677 {\GD@titlepage@end}
678 }
679
680 % Title page lists and list items
681 \newlist{GDauthlist}{itemize}{1}
682 \setlist[GDauthlist]{label={},%
683 left=0pt .. 0pt,%
684 itemsep=\GD@authitemsep,%
685 topsep=\GD@authtopsep}
686 \newlist{GDaffillist}{enumerate}{1}
687 \setlist[GDaffillist]{label=\textsuperscript{\emph{\alph*}},%
688 ref=\textsuperscript{\emph{\alph*}},%
689 wide,%
690 left=0pt .. 1em,%
691 itemsep=\GD@affilitemsep,%
692 topsep=\GD@affiltopsep}
693 \newlist{GDemaillist}{itemize}{1}
694 \setlist[GDemaillist]{label={},%
695 left=0pt .. 0pt,%
696 itemsep=0pt,%
697 parsep=0pt}
698 \newcommand{\GDrefsep}{\textsuperscript{,\,}}
699 \newcommand{\GDauthitem}[1]{%
700 \ifthenelse{\boolean{GD@isPlainVersion}}{%
701 \item {\sffamily\large\bfseries #1}
702 }{%
703 \item {\Large\bfseries #1}
704 }
705 }
706 \newcommand{\GDaffilitem}[2]{\item \label{#1}{\itshape #2}}
707 \newcommand{\GDemailitem}[1]{\item {\small\ttfamily #1}}
708
709 % Abstracts section
710 \newcommand{\GDabstracts}{%
711 \ifthenelse{\boolean{GD@isPlainVersion}}{}{%
712 \setcounter{page}{2}
713 \renewcommand{\thepage}{\roman{page}}
714 \pagestyle{fancy}
715 \fancyhead[LO]{%
716 \textcolor{gray}{\sffamily{\,} Les Cahiers du GERAD}\hfill
717 \textcolor{gray}{\sffamily G--\gd@year--\gd@number}%
718 \ifthenelse{\boolean{GD@isSupplement}}%
719 {\textcolor{gray}{\sffamily\ -- \itshape \gd@supplementname}}%
720 {} %
721 \ifthenelse{\boolean{GD@isRevised}}%
722 {\textcolor{gray}{\sffamily\ -- \itshape Revised}}%
723 {}\hfill
724 \textcolor{gray}{\sffamily\thepage}
725 {\large\strut}\color{gray}{\hrule}
```

```
726 }
727 \fancyhead[LE]{%
728 \textcolor{gray}{\sffamily{\,}\thepage}\hfill
729 \textcolor{gray}{\sffamily G--\gd@year--\gd@number}%
730 \ifthenelse{\boolean{GD@isSupplement}}%
731 {\textcolor{gray}{\sffamily\ -- \itshape \gd@supplementname}}%
732 {} %
733 \ifthenelse{\boolean{GD@isRevised}}%
734 {\textcolor{gray}{\sffamily\ -- \itshape Revised}}%
735 {}\hfill
736 \textcolor{gray}{\sffamily Les Cahiers du GERAD}
737 {\large\strut}\color{gray}{\hrule}
738 }
739 \fancyhead[C]{}
740 \fancyhead[R]{}
741 \fancyfoot{}
742 \renewcommand{\headrulewidth}{0pt}
743 \renewcommand{\footrulewidth}{0pt}
744 \rmfamily
745 \vspace*{5pt}
746 }
747 }
748
749 % Custom abstract environment
750 \newenvironment{GDabstract}[1]{%
751 \paragraph{#1 : }
752 }{%
753 \ifthenelse{\boolean{GD@isPlainVersion}}{}{\vspace*{2cm}}
754 }
755
756 % Acknowledgements section
757 \newenvironment{GDacknowledgements}{%
758 \ifthenelse{\boolean{GD@isPlainVersion}}{%
759 \paragraph{Acknowledgements: }
760 }{%
761 \vfill
762 \hrule
763 \smallskip
764 \paragraph{Acknowledgements: }
765 }
766 }{}
767
768 % Article section
769 \newcommand{\GDarticlestart}{%
770 \ifthenelse{\boolean{GD@isPlainVersion}}{}{%
771 \newpage
772 \setcounter{page}{1}
773 \renewcommand{\thepage}{\arabic{page}}
774 \baselineskip=12.5pt
775 \rmfamily
```

```
776 }
777 }
```

A.8   Deprecated commands and environments

In geradwp version 1.1, all commands and environments that had French names
have been translated in English for consistency reasons and to make sure that the
they could be directly understood by most users.

The French commands and environments are preserved only to ensure back-
wards compatibility between version 1.0 of the template and subsequent versions
of the class. Once that version of the template stops circulating, everything that
is deprecated will be removed from the class.

```
778
779 \newcommand{\GDtitre}[1]{\GDtitle{#1}}
780 \newcommand{\GDmois}[2]{\GDmonth{#1}{#2}}
781 \newcommand{\GDannee}[1]{\GDyear{#1}}
782 \newcommand{\GDnumero}[1]{\GDnumber{#1}}
783 \newcommand{\GDauteursCourts}[1]{\GDauthorsShort{#1}}
784 \newcommand{\GDauteursCopyright}[1]{\GDauthorsCopyright{#1}}
785 \newcommand{\GDpageCouverture}{\GDcoverpage}
786 \newenvironment{GDpagetitre}{
787 \ifthenelse{\boolean{GD@isPlainVersion}}%
788 {\GD@plain@titlepage@begin}%
789 {\GD@titlepage@begin}
790 }{
791 \ifthenelse{\boolean{GD@isPlainVersion}}%
792 {\GD@plain@pagetitle@end}%
793 {\GD@titlepage@end}
794 }
795
796 ⟨/class⟩
```

Change History