LaTeX document class for *Les Cahiers du GERAD* series

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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}
color	✔		
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   The GDauthlist environment is a customized list in which the authors enter
\GDauthitem   their full name using the \GDauthitem command (NB: one author per line). The
\GDrefsep   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   The GDaffillist environment is a customized list of all the authors' affil-
\GDaffilitem   iations, 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
\GDemailitem

The final customized list created for the title page of a *Cahier* is the 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.

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{color}
83 \RequirePackage{enumitem}
84 \ifthenelse{\boolean{GD@needsminitabs}}{%
85 \RequirePackage{float}
86 }{}
87
88 % Required Packages Setup %
89 \definecolor{gris}{rgb}{0.44,0.44,0.44} % color pkg setup
90 \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.

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

```
113 \ifthenelse{\boolean{GD@isWebVersion}}{%
114 \setlength{\GD@titleminipage@hspace}{227pt}
115 }{}
```

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

```
116
117 % Geometry %
118 \ifthenelse{\boolean{GD@isWebVersion}}{%
119 \geometry{tmargin=1.5cm,%
120 bmargin=2cm,%
121 lmargin=3cm,%
122 rmargin=3cm,%
123 nofoot,%
124 headsep=30pt,%
125 includehead}
126 }{}
127 \ifthenelse{\boolean{GD@isPlainVersion}}{%
128 \geometry{tmargin=1.5cm,%
129 bmargin=2cm,%
130 lmargin=3cm,%
131 rmargin=3cm,%
132 nofoot,%
133 headsep=30pt,%
134 includehead}
135 }{}
136 \ifthenelse{\boolean{GD@isPaperVersion}}{%
137 \geometry{tmargin=1.5cm,%
138 bmargin=2cm,%
139 lmargin=3cm,%
140 rmargin=2cm,%
141 nofoot,%
142 headsep=30pt,%
143 includehead}
144 }{}
145 \ifthenelse{\boolean{GD@needsSmallHeadSep}}{%
146 \headsep=15pt
147 }{}
148 \parindent=15pt
149 \parskip=7pt plus 1pt minus 1pt
150 \g@addto@macro\@floatboxreset\centering
151 \widowpenalty=10000
152 \clubpenalty=10000
153 \raggedbottom
154 \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.

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

We resize oversized tables that extend past the margins.

```
181
182 % Resizing of huge tables %
183 \ifthenelse{\boolean{GD@needsminitabs}}{%
184 \floatstyle{plaintop}
185 \restylefloat{table}
186 \let\oldtabular\tabular
187 \renewcommand{\tabular}{\footnotesize\oldtabular}
188 \let\oldtable\table
189 }{}
```

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

```
190
191 % Theorems and proof layout %
192 \newtheoremstyle{gerad}%
193 {3pt}% Space above
194 {3pt}% Space below
195 {}{}%
```

15

```
196 {\sffamily\bfseries}% head font
197 {.}% Punctuation
198 {.5em}% Space after theorem head
199 {}
200 \theoremstyle{gerad}
201
202 \renewenvironment{proof}[1][\proofname]{\par
203 \pushQED{\qed}%
204 \normalfont \topsep6\p@\@plus6\p@\relax
205 \trivlist
206 \item\relax
207 {\bfseries\sffamily
208 #1\@addpunct{.}}\hspace\labelsep\ignorespaces
209 }{%
210 \popQED\endtrivlist\@endpefalse
211 }
```

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.

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

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 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\textsc{\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
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 {& \textsc{\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
311 }{}
312 \end{tabular}
313 }
```

18

```
314
315 % Regular cover page bottom
316 \newcommand{\GDcover@bottom@regular}{%
317 \hrule
318 \smallskip
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, Rapport technique, Les Cahiers du GERAD G--
333 \gd@year--\gd@number, GERAD, HEC Montr\'{e}al, Canada.\\
334
335 \textbf{Avant de citer ce rapport technique,} veuillez visiter notre
336 site Web (\url{https://www.gerad.ca/fr/papers/G-\gd@year-\gd@number})
337 afin de mettre \'a jour vos donn\'ees de r\'ef\'erence, s'il a \'et\'e
338 publi\'e dans une revue scientifique.\par
339 \end{minipage}
340 \hfill
341 \begin{minipage}[t][][l]{7.5cm}
342 \scriptsize
343 The series \textit{Les Cahiers du GERAD} consists of working papers
344 carried out by our members. Most of these pre-prints have been submitted
345 to peer-reviewed journals. When accepted and published, if necessary,
346 the original pdf is removed and a link to the published article is
347 added.\\ \\
348
349 \scriptsize
350 \textbf{Suggested citation:} \gd@authors@short~(\gd@month@en\ \gd@year).
351 \gd@title, Technical report, Les Cahiers du GERAD G--\gd@year--\gd@number,
352 GERAD, HEC Montr\'{e}al, Canada.\\
353
354 \textbf{Before citing this technical report,} please visit our website
355 (\url{https://www.gerad.ca/en/papers/G-\gd@year-\gd@number}) to update
356 your reference data, if it has been published in a scientific journal.
357 \par
358 \end{minipage}
359
360 \bigskip
361 \hrule
362 \smallskip
363
```

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

```
414 \end{scriptsize}
415 \end{minipage}
416
417 \bigskip
418 \hrule
419 }
420
421 % Post-publication cover page bottom
422 \newcommand{\GDcover@bottom@postpub}{%
423 \hrule
424 \smallskip
425
426 \noindent
427 \begin{minipage}[t][][l]{7.5cm}
428 \scriptsize
429 La collection \textit{Les Cahiers du GERAD} est constitu\'{e}e des
430 travaux de recherche men\'{e}s par nos membres. La plupart de ces
431 documents de travail a \'{e}t\'{e} soumis \`{a} des revues avec comit\'e
432 de r\'{e}vision. Lorsqu'un document est accept\'{e} et publi\'{e}, le
433 pdf original est retir\'{e} si c'est n\'{e}cessaire et un lien vers
434 l'article publi\'{e} est ajout\'{e}.\par
435 \end{minipage}
436 \hfill
437 \begin{minipage}[t][][l]{7.5cm}
438 \scriptsize
439 The series \textit{Les Cahiers du GERAD} consists of working papers
440 carried out by our members. Most of these pre-prints have been submitted
441 to peer-reviewed journals. When accepted and published, if necessary,
442 the original pdf is removed and a link to the published article is
443 added.\par
444 \end{minipage}
445
446 \noindent
447 \begin{minipage}[t][][l]{\textwidth}
448 \footnotesize
449 \textbf{CITATION ORIGINALE / ORIGINAL CITATION}
450 \smallskip
451
452 \gd@postpubcitation\ \url{\gd@postpubcitation@url}.
453 \end{minipage}
454
455 \bigskip
456
457 \hrule
458 \smallskip
459
460 \noindent
461 \begin{minipage}[t][2.1cm][l]{7.5cm}
462 \scriptsize
463 \medskip
```

```latex
464 La publication de ces rapports de recherche est rendue possible gr\^ace
465 au soutien de HEC Montr\'eal, Polytechnique Montr\'eal, Universit\'e
466 McGill, Universit\'e du Qu\'ebec \`a Montr\'eal, ainsi que du Fonds de
467 recherche du Qu\'ebec -- Nature et technologies.
468
469 \medskip
470 D\'ep\^ot l\'egal -- Biblioth\`eque et Archives nationales du Qu\'ebec,
471 2020\\
472 \phantom{Depot legal} -- Biblioth\`eque et Archives Canada, 2020\par
473 \end{minipage}
474 \hfill
475 \begin{minipage}[t][2.1cm][l]{7.5cm}
476 \scriptsize
477 \medskip
478 The publication of these research reports is made possible
479 thanks to the support of HEC Montr\'eal, Polytechnique Montr\'eal,
480 McGill University, Universit\'e du Qu\'ebec \`a Montr\'eal, as well as
481 the Fonds de recherche du Qu\'ebec -- Nature et technologies.
482
483 \medskip
484 Legal deposit -- Biblioth\`eque et Archives nationales du Qu\'ebec,
485 2020\\
486 \phantom{Legal deposit} -- Library and Archives Canada, 2020\par
487 \end{minipage}
488
489 \hrule
490 \smallskip
491
492 \noindent
493 \begin{minipage}[t][1cm][l]{7.5cm}
494 \begin{scriptsize}\raggedleft
495 \textbf{GERAD} HEC Montr\'eal
496
497 3000, chemin de la C\^ote-Sainte-Catherine
498
499 Montr\'eal (Qu\'ebec) Canada H3T 2A7\par
500 \end{scriptsize}
501 \end{minipage}
502 \hspace*{.35cm}\vrule\hfill
503 \begin{minipage}[t][1cm][l]{7.5cm}
504 \begin{scriptsize}
505 \textbf{T\'el.\,: 514 340-6053}
506
507 T\'el\'ec.\,: 514 340-5665
508
509 info@gerad.ca
510
511 www.gerad.ca\par
512 \end{scriptsize}
513 \end{minipage}
```

```
514
515 \bigskip
516 \hrule
517 }
```

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`.

```
518
519 %  Regular title page
520 \newcommand{\GD@titlepage@begin}{%
521 \ifthenelse{\boolean{GD@isWebVersion}}{%
522 \newpage\clearpage
523 }{%
524 \ifthenelse{\boolean{GD@isPaperVersion}}{%
525 \newpage\cleardoublepage
526 }{}
527 }
528 \parindent=0pt
529 \sffamily
530 {\LARGE\bfseries \gd@title\par} %Title
531 \ifthenelse{\boolean{GD@isSupplement}}%
532 {\vspace{14pt}
533 {\LARGE\textsc{\gd@supplementname}\par}
534 }{}
535 \begin{minipage}[t][10cm][l]{7.5cm}
536 \vspace*{55pt}
537 }
538
539 \newcommand{\GD@titlepage@end}{%
540 \vfill
541 \end{minipage}
542 \vfill
543 {\bfseries \gd@month@en\ \gd@year}\\*
544 \ifthenelse{\boolean{GD@isRevised}}%
545 {\\ Revised: \gd@revised \\}%
546 {}
547 {\bfseries Les Cahiers du GERAD}\\
548 {\bfseries G--\gd@year--\gd@number}\\
549 {\footnotesize Copyright \copyright\ \gd@year\ GERAD,
550 \gd@authors@copyright}
551 \vspace*{0.05cm}
552
553 \hrule
554 \smallskip
555
556 \noindent
557 \begin{minipage}[t][][l]{7.5cm}
```

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

```
608 {\sffamily\LARGE\bfseries\noindent\gd@title\par}
609 \ifthenelse{\boolean{GD@isSupplement}}%
610 {{\noindent\LARGE\textsc{\gd@supplementname}\par}}{}
611 }
612
613 \newcommand{\GD@plain@pagetitle@end}{%
614 \vspace*{12pt}
615 {\noindent\gd@month@en\ \gd@year}
616 \vspace*{30pt}
617 }
```

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].

```
618
619 % Layout public commands
620 \newcommand{\GDcoverpagewhitespace}[1]{%
621 \setlength{\GD@coverpage@vspace}{#1}
622 }
```

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).

```
623
624 % Metadata public commands
625 \newcommand{\GDyear}[1]{%
626 \renewcommand{\gd@year}{#1}
627 }
628 \newcommand{\GDmonth}[2]{%
629 \renewcommand{\gd@month@fr}{#1}
630 \renewcommand{\gd@month@en}{#2}
```

---

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

```
631 }
632 \newcommand{\GDnumber}[1]{%
633 \renewcommand{\gd@number}{#1}
634 }
635 \newcommand{\GDtitle}[1]{%
636 \renewcommand{\gd@title}{#1}
637 }
638 \newcommand{\GDauthorsShort}[1]{%
639 \renewcommand{\gd@authors@short}{#1}
640 }
641 \newcommand{\GDauthorsCopyright}[1]{%
642 \renewcommand{\gd@authors@copyright}{#1}
643 }
644 \newcommand{\GDpostpubcitation}[2]{%
645 \renewcommand{\gd@postpubcitation}{#1}
646 \renewcommand{\gd@postpubcitation@url}{#2}
647 }
648 \newcommand{\GDsupplementname}[1]{%
649 \renewcommand{\gd@supplementname}{#1}
650 }
651 \newcommand{\GDrevised}[1]{%
652 \renewcommand{\gd@revised}{#1}
653 }
```

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.

```
654
655 % Cover page
656 \newcommand{\GDcoverpage}{%
657 \ifthenelse{\boolean{GD@isPlainVersion}}{}{\GD@cover}
658 }
659
660 % Title page
661 \newenvironment{GDtitlepage}{
662 \ifthenelse{\boolean{GD@isPlainVersion}}%
663 {\GD@plain@titlepage@begin}%
664 {\GD@titlepage@begin}
665 }{
666 \ifthenelse{\boolean{GD@isPlainVersion}}%
667 {\GD@plain@pagetitle@end}%
668 {\GD@titlepage@end}
669 }
670
```

```
671 % Title page lists and list items
672 \newlist{GDauthlist}{itemize}{1}
673 \setlist[GDauthlist]{label={},%
674 left=0pt .. 0pt,%
675 itemsep=\GD@authitemsep,%
676 topsep=\GD@authtopsep}
677 \newlist{GDaffillist}{enumerate}{1}
678 \setlist[GDaffillist]{label=\textsuperscript{\emph{\alph*}},%
679 ref=\textsuperscript{\emph{\alph*}},%
680 wide,%
681 left=0pt .. 1em,%
682 itemsep=\GD@affilitemsep,%
683 topsep=\GD@affiltopsep}
684 \newlist{GDemaillist}{itemize}{1}
685 \setlist[GDemaillist]{label={},%
686 left=0pt .. 0pt,%
687 itemsep=0pt,%
688 parsep=0pt}
689 \newcommand{\GDrefsep}{\textsuperscript{,\,}}
690 \newcommand{\GDauthitem}[1]{%
691 \ifthenelse{\boolean{GD@isPlainVersion}}{%
692 \item {\sffamily\large\bfseries #1}
693 }{%
694 \item {\Large\bfseries #1}
695 }
696 }
697 \newcommand{\GDaffilitem}[2]{\item \label{#1}{\itshape #2}}
698 \newcommand{\GDemailitem}[1]{\item {\small\ttfamily #1}}
699
700 % Abstracts section
701 \newcommand{\GDabstracts}{%
702 \ifthenelse{\boolean{GD@isPlainVersion}}{}{%
703 \setcounter{page}{2}
704 \renewcommand{\thepage}{\roman{page}}
705 \pagestyle{fancy}
706 \fancyhead[LO]{%
707 \textcolor{gris}{\sffamily{\,} Les Cahiers du GERAD}\hfill
708 \textcolor{gris}{\sffamily G--\gd@year--\gd@number}%
709 \ifthenelse{\boolean{GD@isSupplement}}%
710 {\textcolor{gris}{\sffamily\ -- \itshape \gd@supplementname}}%
711 {} %
712 \ifthenelse{\boolean{GD@isRevised}}%
713 {\textcolor{gris}{\sffamily\ -- \itshape Revised}}%
714 {}\hfill
715 \textcolor{gris}{\sffamily\thepage}
716 {\large\strut}\color{gris}{\hrule}
717 }
718 \fancyhead[LE]{%
719 \textcolor{gris}{\sffamily{\,}\thepage}\hfill
720 \textcolor{gris}{\sffamily G--\gd@year--\gd@number}%
```

```
721 \ifthenelse{\boolean{GD@isSupplement}}%
722 {\textcolor{gris}{\sffamily\ -- \itshape \gd@supplementname}}%
723 {} %
724 \ifthenelse{\boolean{GD@isRevised}}%
725 {\textcolor{gris}{\sffamily\ -- \itshape Revised}}%
726 {}\hfill
727 \textcolor{gris}{\sffamily Les Cahiers du GERAD}
728 {\large\strut}\color{gris}{\hrule}
729 }
730 \fancyhead[C]{}
731 \fancyhead[R]{}
732 \fancyfoot{}
733 \renewcommand{\headrulewidth}{0pt}
734 \renewcommand{\footrulewidth}{0pt}
735 \rmfamily
736 \vspace*{5pt}
737 }
738 }
739
740 % Custom abstract environment
741 \newenvironment{GDabstract}[1]{%
742 \paragraph{#1 : }
743 }{%
744 \ifthenelse{\boolean{GD@isPlainVersion}}{}{\vspace*{2cm}}
745 }
746
747 % Acknowledgements section
748 \newenvironment{GDacknowledgements}{%
749 \ifthenelse{\boolean{GD@isPlainVersion}}{%
750 \paragraph{Acknowledgements: }
751 }{%
752 \vfill
753 \hrule
754 \smallskip
755 \paragraph{Acknowledgements: }
756 }
757 }{}
758
759 % Article section
760 \newcommand{\GDarticlestart}{%
761 \ifthenelse{\boolean{GD@isPlainVersion}}{}{%
762 \newpage
763 \setcounter{page}{1}
764 \renewcommand{\thepage}{\arabic{page}}
765 \baselineskip=12.5pt
766 \rmfamily
767 }
768 }
```

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 backwards 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.

```
769
770 \newcommand{\GDtitre}[1]{\GDtitle{#1}}
771 \newcommand{\GDmois}[2]{\GDmonth{#1}{#2}}
772 \newcommand{\GDannee}[1]{\GDyear{#1}}
773 \newcommand{\GDnumero}[1]{\GDnumber{#1}}
774 \newcommand{\GDauteursCourts}[1]{\GDauthorsShort{#1}}
775 \newcommand{\GDauteursCopyright}[1]{\GDauthorsCopyright{#1}}
776 \newcommand{\GDpageCouverture}{\GDcoverpage}
777 \newenvironment{GDpagetitre}{
778 \ifthenelse{\boolean{GD@isPlainVersion}}%
779 {\GD@plain@titlepage@begin}%
780 {\GD@titlepage@begin}
781 }{
782 \ifthenelse{\boolean{GD@isPlainVersion}}%
783 {\GD@plain@pagetitle@end}%
784 {\GD@titlepage@end}
785 }
786
787 ⟨/class⟩
```

Change History