# Documentation of the \LaTeX class of North-Western European Journal of Mathematics for authors

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1. Introduction

1 Introduction

Remark 1.1 – Documentation: work in progress

This documentation is a work in progress. Readers finding errors or with comments are invited to send them via the email address on the title page.

Warning 1.1 – Class to be used

The North-Western European Journal of Mathematics (nwejm) provides two \LaTeX classes:

1. The nwejm class designed for entire issues of the journal, and thus intended for the nwejm managing team (and not for authors of articles);
2. The nwejmart class for authors of articles to be published in nwejm. Authors of articles should therefore take care to use the nwejmart class and not the nwejm class.

Warning 1.2 – Required packages

In order to use the nwejmart class, it is necessary to have:

• A reasonably recent \TeX distribution;
• The biblatex package;
• The biber\footnote{Attention! The bibliography must be compiled not with the usual bibtex, but with biber. More details in warning 3.3 on p. 8 and Section 7 on p. 11.} program.

With Ubuntu for example, if \TeX Live is installed via the GNU/Linux distribution packages, those named texlive-bibtex-extra and biber are required.

The \LaTeX class nwejmart is intended for authors wishing to publish an article in nwejm. The purpose of this class is:

1. To accurately reproduce the nwejm’s layout, allowing thus authors to work on the layout of their document under real conditions;

2. To provide some tools (commands et environments) to facilitate the writing of documents, especially those containing mathematics.
2 Article’s configuration

2.1 Language

The \texttt{nwejm} accepts articles in four languages:

\begin{itemize}
  \item English
  \item French
  \item German
  \item Dutch
\end{itemize}

and the \texttt{nwejmart} class allows to specify the language\footnote{The language is managed underhand by the \texttt{babel} package.} by using the following classes.

\begin{itemize}
  \item \texttt{english} (no value, default option)
\end{itemize}

\footnote{The language is managed underhand by the \texttt{babel} package.}
2. Article’s configuration

This option sets English as article language.

**french** (no value)

This option sets French as article language.

**german** (no value)

This option sets German as article language. It as **ngerman** as alias.

**Remark 2.1 – babel option underlying the german option**

The **german** language option of **nwejmart** class calls underhand the **ngerman** option of **babel** package.

**dutch** (no value)

This option sets Dutch as article language.

**Remark 2.2 – Default article language**

If none of these options are specified, the default language is English.

2.2 Other configurations

**\articlesetup{⟨options⟩}**

This command allows you to configure the ⟨options⟩ of the current article in key/value form.

The only key provided for the time being is **gradient**.

*gradient=grad|nabla* (no default value, initially **grad**)

This key allows you to specify how the gradient is displayed using the command **\grad** p.20.

**Warning 2.1 – \articlesetup command: not in the preamble!**

The \articlesetup command must be *exclusively* used in the body of the document (preferably just after \begin{document}), otherwise the chosen configuration, although taken into account in the article alone, may not be taken into account in the complete volume!
3 Preparing the article “title”

This section lists commands, options and environment for preparing the “title” of the article and its possible final part.

3.1 Title, subtitle

\texttt{\textbackslash title\[⟨alternative title toc\]⟩\{(header alternative title)\}\{(title)\}}

This command defines for the current article:

- Its \texttt{(title)} on the first page;
- Its possible \texttt{(alternative title toc)} listed in:
  - The volume in which the article will be published:
    * In the table of contents (toc);
    * In the bookmarks;
  - In the pdf file of the stand-alone article, in the “Title” metadata;
- Its possible \texttt{(header alternative title)} as a header\(^4\) on even-numbered pages.

The precise use of this command is summarized in Table 1.

| \texttt{\textbackslash title\{(title)\}} | first page | toc | header |
| \texttt{\textbackslash title\[⟨alt. toc⟩\]⟨⟨titre⟩⟩} | ⟨⟨titre⟩⟩ | ⟨⟨titre⟩⟩ | ⟨⟨titre⟩⟩ |
| \texttt{\textbackslash title\[langle alt. header⟩\]⟨⟨titre⟩⟩} | ⟨⟨titre⟩⟩ | ⟨⟨titre⟩⟩ | ⟨⟨titre⟩⟩ |
| \texttt{\textbackslash title\[⟨alt. toc⟩\][⟨alt. header⟩]⟨⟨titre⟩⟩} | ⟨⟨titre⟩⟩ | ⟨⟨titre⟩⟩ | ⟨⟨titre⟩⟩ |

\texttt{\textbackslash subtitle\[⟨alternative subtitle toc\]⟩\{(subtitle)\}}

This command defines if needed, for the current article:

- Its \texttt{(subtitle)} following the \texttt{(title)} on the first page;
- Its possible \texttt{(alternative subtitle toc)} following the \texttt{(title)}\(^5\):
  - In the issue where the article will be published:
    * In the toc;
    * In the bookmarks;
  - In the pdf file of the stand-alone, in the “Title” metadata.

\[\text{\texttt{\textbackslash title\{Treatise on Probability Calculus\}\{Treatise on Probability Calculus and its Applications\}}\]
\[\text{\texttt{\textbackslash subtitle\{Scope and limits of a Borelian project\}\{Scope and limits}\}}\]

\(^4\)I.e. in current title.
\(^5\)Or possible \texttt{(alternative title toc)}.
3. Preparing the article “title”

of a large-scale Borelian project (1921-1939)
affiliationtagged={(tag)} (no default value, initially empty)

This key allows you to specify a (unique) affiliation already defined and tagged for a previous author.

\author[
  affiliation={Laboratoire \textsc{sphere}, Universit'\'e Paris Diderot}]
{Bustamante, Martha-Cecilia}
\author[
  affiliation=[aff2]{\textsc{lpma}, Universit'\'e Pierre et Marie Curie},
  affiliation={\textsc{ghdso}, Universit'\'e Paris-Sud}]{Cl'ery, Matthias}
\author[
  affiliationtagged={aff2}]
{Mazliak, Laurent}

**Warning 3.2 – Brace pairs**

In the presence of commas in the \texttt{(affiliation)} value, a pair of braces around it is mandatory.

**Warning 3.3 – Display of first and last names of author(s)**

To display the first and last names of the author(s), it is necessary:
1. To use the usual \texttt{\maketitle} command;
2. To do several compilations*:
   (a) pdf\TeX;
   (b) biber;
   (c) pdf\TeX.

*To automate these compilations, one can use the \texttt{latexmk} “compiler”, provided by any recent \TeX distribution, with the help of the \texttt{latexmkrc} configuration file attached to this class.

### 3.3 Summary

\begin{abstract}
\end{abstract}

This environment is intended to receive the article’s \texttt{(abstract)}. 
4. Generating the article title

3.4 Keywords

\keywords{(variant of keywords)}{(keywords)}

This command allows you to specify the article (keywords) in the form of a comma-separated list. The “Keywords” metadata of the generated PDF file automatically contains the specified \keywords. If these contain characters (notably mathematical ones) that are not allowed in the metadata of PDF files, an optional argument is to specify a \keywords{variant of keywords} containing only allowed characters.

\keywords{N\string_p-space}{$\mathcal{N}_p$-space}

3.5 Mathematical Subject Classification (msc)

\msc{(msc)}

This command allows you to specify the \msc of the article l’article in the form of a comma-separated list.

4 Generating the article title

The actual title of the article, combining all the elements entered in Section 3 on p. 6, is generated by the standard \maketitle command.

\maketitle

This command displays the article’s “title”, i.e.:
- Its title and possible subtitle (\title \p.6 and \subtitle \p.6 commands);
- Its author(s), in the form of their full name(s) (\author \p.7 command) and, in footnote, their respective affiliations;
- Its possible abstract (abstract \p.8 environment);
- Its keyword(s) (\keywords command);
- Its msc (\msc command).

\title[Le Traité du calcul des probabilités]{Le Traité du calcul des probabilités et de ses applications}
\subtitle[Étendue et limites d’un projet borélien]{Étendue et limites d’un projet borélien de grande envergure (1921–1939)}
%
\author[
  affiliation={Laboratoire \textsc{sphere}, Université Paris Diderot}]

5 Acknowledgements

\acknowledgements{(thanks)}

This optional command allows you to specify \textit{(thanks)} for an article.

\acknowledgments{
    The first author's research was supported by the Hungarian National Science Foundation Grants K81658 and K104183. Research conducted while the second author enjoyed the hospitality of the Alfréd Rényi Institute of Mathematics, and benefited from the \textsc{otka} grant K109789.
}

6. Structuring commands

Remark 5.1 – Displaying acknowledgements

For the acknowledgements to be displayed, it is necessary to use the \printbibliography command at the end of the article.

6 Structuring commands

The nwejmart class modifies the usual \section structuring command in order to differentiate the alternative title in toc from that in the header⁶.

\section[⟨alternative title toc⟩][⟨alternative title header⟩]{⟨title⟩}

This command defines for the current section:

- Its ⟨title⟩ appearing throughout the text;
- Its possible ⟨alternative title toc⟩ appearing in the issue where the article will be published:
  - In the toc;
  - As a bookmark.
- Its possible ⟨alternative title header⟩⁷ appearing on odd-numbered pages.

The precise use of this command is summarised in Table 2.

Table 2 – Use (of the two optional arguments) of the \section command

<table>
<thead>
<tr>
<th>\section⟨⟨title⟩⟩</th>
<th>text flow</th>
<th>toc</th>
<th>header</th>
</tr>
</thead>
<tbody>
<tr>
<td>\section⟨⟨alt. toc⟩⟩⟨⟨title⟩⟩</td>
<td>⟨⟨title⟩⟩</td>
<td>⟨⟨alt. toc⟩⟩</td>
<td></td>
</tr>
<tr>
<td>\section[⟨alt. header⟩]⟨⟨title⟩⟩</td>
<td>⟨⟨title⟩⟩</td>
<td>⟨⟨alt. header⟩⟩</td>
<td></td>
</tr>
<tr>
<td>\section[⟨alt. toc⟩][⟨alt. header⟩]⟨⟨title⟩⟩</td>
<td>⟨⟨title⟩⟩</td>
<td>⟨⟨alt. toc⟩⟩</td>
<td>⟨⟨alt. header⟩⟩</td>
</tr>
</tbody>
</table>

7 Bibliography

To compose bibliographies, the nwejmart class uses modern tools such as the biblatex package and biber engine. Their use can be summarized as follows⁸.


---

⁶Note, from this point of view, the similarity with the \title command.
⁷I.e. in the current title.
⁸for more details, see e.g. Bitouzé, 2022a, Conférence BiTeX # 6, in French.
⁹Such files have a .bib extension.
To do this, we recommend to use a dedicated software, JabRef for instance, configured via the menu Options → Preferences → General and by choosing:

Default encoding: UTF8;

Default bibliography mode: biblatex.

By the way, we can change the interface language in the Language drop-down list.

Don’t forget to assign a unique ⟨key⟩ to each bibliographic reference¹⁰.

2. In the .tex source file:

(a) In the preamble, use the \addbibresource command to specify the ⟨bibliographic file⟩:

\addbibresource{⟨bibliographic file⟩.bib}

(b) In the body of the document, use the \autocite command¹¹¹² or, optionally, the \textcite command¹³ from the biblatex package to cite bibliographic references (each with a ⟨key⟩):

...\autocite{⟨key1⟩}... \textcite{⟨key2⟩} ...
...\autocite{⟨key3, key4⟩}... \textcite{⟨key5, key6⟩} ...

(c) At the end of the document, list the bibliographic references by using the \printbibliography command.

3. Perform the successive compilations pdflatex, biber and pdflatex¹⁴.

\printbibliography

This command produces the bibliographic references list entered with respect to the biblatex package syntax. It has been redefined to automatically display the possible acknowledgements (\acknowledgements p.10 command) before the references list.

For example, if the .bib file contains:

¹⁰In JabRef, the “magic wand” or key icon helps to generate the ⟨key⟩.
¹¹Preferably to the \cite command.
¹²The reference is then detailed in a footnote.
¹³The reference is then displayed throughout the text, but with less details.
¹⁴To automate these compilations, one can use the latexmk “compiler”, provided by any recent \TeX distribution, with the help of the latexmkrc configuration file attached to this class.
then the following .tex source file:

\begin{verbatim}
\The first assertion is a direct consequence of the Riemann-Roch formula for threefolds\autocite[See e.g.][]{har} and Kawamata-Viehweg vanishing\autocite[Theorem~4.3.1]{laz1}. For the second assertion, see \textcite[Theorem~(0.4)]{shin}.
\end{verbatim}

\printbibliography

provides the text appearing in the box entitled “An example of a bibliography” on the next page.
An example of a bibliography

The first assertion is a direct consequence of the Riemann-Roch formula for three-folds¹ and Kawamata-Viehweg vanishing². For the second assertion, see Shin (1989, Theorem (0.4)).

References


¹See e.g. Hartshorne, 1977, *Algebraic geometry*, p. 437.

8 Mathematics-specific commands

The nwejmart class:

- loads the following packages:
  - kpfonts which provides all the standards symbols, including those in the amssymb package, but also offers many others;
  - mathtools which itself loads amsmath (but extends it and fixes some flaws), so that all the commands of both packages are available;
  - rsfso which provides nice calligraphic letters (via the \mathscr command);
- redefines some commands and provides some new ones, listed below;
- provides classical “theorem” environments (based on the amsthm and thmtools packages), listed below.
8. Mathematics-specific commands

8.1 Universal constants and usual functions

\[ \text{i} \]
This command displays the imaginary unit: “i”.

\[ \text{E}[⟨argument⟩] \]
Depending on its optional argument, this command displays:
- The exponential function applied to \((⟨argument⟩)\);
- The Euler number “e”.

\begin{align}
\text{E}[\text{i}\pi] + 1 & = 0 \\
\text{E} & = \sum_{n\geq 0} \frac{1}{n!}
\end{align}

\[
e^{i\pi} + 1 = 0 \quad (1)
\]
\[
e = \sum_{n\geq 0} \frac{1}{n!} \quad (2)
\]

Remark 8.1 – Equivalent syntaxes for the exponential function

There is equivalence between:
- \(\text{E}[⟨argument⟩]\) which is provided by the class;
- \(\text{E}^{⟨argument⟩}\) which is more frequent.

\[ \text{log}(*) \]
This command displays in its:
- not starred form: “ln”;
- starred form: “log”.

\[ \text{lg}(*) \]
This command displays in its:
- not starred form: “ln”;
- starred form: “lg”.

8.2 Sets

Usual sets

\[ \text{bbN} \]
This command displays the set of positive integers: \( \mathbb{N} \).

\[ \mathbb{Z} \]

This command displays the set of relative integers: \( \mathbb{Z} \).

\[ \mathbb{D} \]

This command displays the set of decimal numbers: \( \mathbb{D} \).

\[ \mathbb{Q} \]

This command displays the set of rational numbers: \( \mathbb{Q} \).

\[ \mathbb{R} \]

This command displays the set of real numbers: \( \mathbb{R} \).

\[ \mathbb{C} \]

This command displays the set of complex numbers: \( \mathbb{C} \).

\[ \mathbb{K} \]

This command can be used to denote any field. It displays \( \mathbb{K} \).

**Defining sets**

\[ \text{\texttt{\textbackslash set\{definition\}\[characterization\}}} \]

This command displays the set defined by \( \langle \text{definition} \rangle \), with an optional \( \langle \text{characterization} \rangle \)\(^{15}\).

\[
\begin{align}
\mathbb{N} & = \{0, 1, 2, 3, \ldots\} \quad (3) \\
\mathbb{Z} & = \mathbb{N} \cup \{-n \mid n \in \mathbb{N}\} \quad (4) \\
\mathbb{Q} & = \{p/q \mid p \in \mathbb{Z}, q \in \mathbb{N}^*\} \quad (5) \\
\mathbb{Q} & = \{p/q \mid p \in \mathbb{Z}, q \in \mathbb{N}^*\} \quad (6)
\end{align}
\]

\(^{15}\)The part after “such that”.

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8. Mathematics-specific commands

8.3 Trigonometric and hyperbolic functions, direct and inverse

Remark 8.2 – French-specific commands

The commands in this section are only defined (or redefined) for articles in French.

\cot
This command displays the cotangent function: “cot”. Its alias is \cotan.

\arccos
This command displays (the principal value of) the arccosine function: “Arccos”.

\arcsin
This command displays (the principal value of) the arcsine function: “Arcsin”.

\arctan
This command displays (the principal value of) the arctangent function: “Arctan”.

\cosh
This command displays the hyperbolic cosine function: “ch”. Its alias is \ch.

\sinh
This command displays the hyperbolic sine function: “sh”. Its alias is \sh.

\tanh
This command displays the hyperbolic tangent function: “th”.

Remark 8.3 – No \th command for the hyperbolic tangent function

The \th command is already defined in \TeX and therefore cannot be used for the hyperbolic tangent function.

\arccosh
This command displays the inverse hyperbolic cosine function: “Argch”. Its alias is \Argch.

\arcsinh
This command displays the inverse hyperbolic sine function: “Argsh”. Its alias is \Argsh.

\arctanh
This command displays the inverse hyperbolic tangent function: “Argth”. Its alias is \Argth.
Preset commands

The class provides some commands listed in Table 3, enabling the entry of delimiter pairs, e.g. for norms, absolute values, etc.

Since these commands all have the same syntax, only the \texttt{\textbackslash norm} command is detailed.

\begin{verbatim}
\texttt{\textbackslash norm[<parameter size>]{<argument>}}
\end{verbatim}

This command displays the norm of \texttt{<argument>}. The default delimiters height is automatically adjusted to the height of the \texttt{<argument>} but it is possible to specify a \texttt{<size parameter>} as an optional argument:

- 0: default delimiter size\textsuperscript{16};
- 1 or \texttt{\textbackslash big}: delimiter size larger than the previous one;
- 2 or \texttt{\textbackslash Big}: delimiter size larger than the previous one;
- 3 or \texttt{\textbackslash bigg}: delimiter size larger than the previous one;
- 4 or \texttt{\textbackslash Bigg}: delimiter size larger than the previous one;

\begin{verbatim}
\texttt{\textbackslash norm*{<argument>}}
\end{verbatim}

This command is equivalent to \texttt{\textbackslash norm[0]{<argument>}}.

\textsuperscript{16}Delimiter size in text mode.
8. Mathematics-specific commands

\begin{equation}
\supnorm{\frac{A}{2}}^k \quad \supnorm[0]{\frac{A}{2}}^k \quad \supnorm[1]{\frac{A}{2}}^k \quad \supnorm[2]{\frac{A}{2}}^k \quad \supnorm[3]{\frac{A}{2}}^k \quad \supnorm[4]{\frac{A}{2}}^k \quad \supnorm*{\frac{A}{2}}^k
\end{equation}

\( \| A \|_2^k \) \label{7}

\textbf{Remark 8.4 – Subscripts of delimiter pairs that do not have default ones}

It is always possible to manually add a subscript to a delimiter pair command that does not have one by default.

\begin{equation}
\norm{\frac{A}{2}}_3
\end{equation}

\( \| A \|_3 \) \label{8}

\textbf{Defining new commands}

New commands that facilitate the entry of delimiter pairs can be defined by using the \texttt{NewPairedDelimiter} command.

\texttt{\textbackslash NewPairedDelimiter\{\texttt{command}\}\{\texttt{options}\}}

This command defines a \texttt{\texttt{command}} similar to the \texttt{\norm} command but with left and right delimiters and subscript specified in \texttt{\texttt{options}} by using the \texttt{left}, \texttt{right}, and \texttt{subscript} keys.

\texttt{\texttt{left=}}\texttt{(delimiter)} \hspace{1cm} \text{(no default value, initially empty)}
This key is used to specify the left \textit{delimiter} of the created \textit{command}.

\begin{verbatim}
  \NewPairedDelimiter{\floor}{left=\lfloor, right=\rfloor, subscript=\text{eff}}
\end{verbatim}

\begin{equation}
\floor{\frac{A}{2}}_{\text{eff}}
\end{equation}

(9)

8.5 Operators

Preset operators

\textit{\dif}

This command displays the “d” differential operator used in particular in integrals.

\begin{verbatim}
  \begin{equation}
    \iiint_T f(x,y,z) \dif x \dif y \dif z = 0
  \end{equation}
\end{verbatim}

\begin{equation}
\iiint_T f(x,y,z) \, dx \, dy \, dz = 0
\end{equation}

(10)
8. Mathematics-specific commands

This command displays the gradient:
- in the “grad” form by default;
- in the “∇” form if the nabla value is put in the gradient \textsuperscript{p.5} key in argument of \texttt{articlesetup} \textsuperscript{p.5} command.

\texttt{\textbackslash Div}

This command displays the divergence operator: “div”.

\begin{align*}
\text{\texttt{\textbackslash Div} } F & = \text{\texttt{\textbackslash grad} } \cdot F \\
\text{\texttt{\textbackslash curl} } F & = \text{\texttt{\textbackslash grad} } \wedge F
\end{align*}

\texttt{\textbackslash curl}

This command displays the rotational operator: “curl”. Its alias is \texttt{\textbackslash rot}.

\begin{align*}
\text{\texttt{\textbackslash curl} } F & = \text{\texttt{\textbackslash grad\wedge} } F
\end{align*}

\texttt{\textbackslash supp}

This command displays the support (of a function, of a measure, etc.): “supp”.

\texttt{\textbackslash supp}

Defining new operators

New operators can be defined by using the usual \texttt{\textbackslash DeclareMathOperator} command.

\texttt{\textbackslash DeclareMathOperator}\{\langle command\rangle\}{\langle name\rangle}

This command defines the \texttt{\langle command\rangle} displaying the operator named \texttt{\langle name\rangle}.

\texttt{\textbackslash DeclareMathOperator}\{\texttt{\textbackslash cat}\}{\texttt{Cat}}
A standard example is $\texttt{\LaTeX}$, the $2$-category of all (small) ideals.

A standard example is $\texttt{Cat}$, the $2$-category of all (small) ideals.

(Advanced use) Precautions for unusual binary operations

If, in binary operations, an operator\textsuperscript{17} is followed by a usual binary \LaTeX{} operator ($\texttt{\circ}$, $\texttt{\cdot}$, $\texttt{\wedge}$, etc.), the horizontal spaces between them will be correct.

However, if the binary operator is not common, it should be declared by using the \texttt{\BinaryOperators} command.

\begin{verbatim}
\newcommand{\mybinop}{\mathbin{\ast}}
\end{verbatim}

\begin{tabular}{>{$}l<{$}@{ \,: }l}
\text{grad} \cdot F & \text{good} \\
\text{grad} \mybinop F & \text{bad} \\
\text{grad} \mybinop F \text{ good (thanks to \verb+\BinaryOperators{\mybinop}+)}
\end{tabular}

\textbf{17}Preset or defined with the \texttt{\DeclareMathOperator} command.
\textbf{18}Separated by commas.

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8. Mathematics-specific commands

8.6 Miscellaneous

Remark 8.6 – French-specific commands (bis)

The following commands are only redefined for French articles.

\leq

This command displays “≤”.

\geq

This command displays “≥”.

8.7 “Theorem” environments

To easily compose theorems and similar objects, the \nwejmart class provides ready-to-use environments and allows to create new ones if needed (cf. \newtheorem command).

Preset environments

Table 4 on the next page lists theorems and similar objects predefined by the \nwejmart class with:

in column 1 The names of the corresponding environments;
in column 2 Their recurring titles (automatically translated into the article language).

Remark 8.7 – Unnumbered “theorem”

Each environment in Table 4 on the next page has a starred version that creates an unnumbered version of a “theorem”-like object.

\begin{theorem}
Every metrizable and sequentially compact space is compact.
\end{theorem}

\begin{definition}[congruence modulo $n$]
Let $n$ be an integer greater than or equal to $2$. Two integers $a$ and $b$ are said to be congruent modulo $n$ if $a - b \in n\bbZ$.
\end{definition}

\begin{remark*}
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One of the most beautiful mathematical relationships is $e^{i\pi} + 1 = 0$.

\begin{proof}
Everything that is rare is expensive. A cheap horse is rare. So a cheap horse is expensive.
\end{proof}

\begin{table}
\begin{tabular}{ll}
\textbf{Environment} & \textbf{Title (here in French)} \\
\texttt{theorem} & Théorème \\
\texttt{corollary} & Corollaire \\
\texttt{conjecture} & Conjecture \\
\texttt{proposition} & Proposition \\
\texttt{lemma} & Lemme \\
\texttt{axiom} & Axiome \\
\texttt{definition} & Définition \\
\texttt{remark} & Remarque \\
\texttt{example} & Example \\
\texttt{notation} & Notation \\
\texttt{proof} & Preuve \\
\end{tabular}
\caption{“theorem”-like environments}
\end{table}

\textbf{Theorem 1} – Every metrizable and sequentially compact space is compact.

\textbf{Definition 1 \textit{(congruence modulo} \texttt{n})} – Let $n$ be an integer greater than or equal to 2. Two integers $a$ and $b$ are said to be congruent modulo $n$ if $a - b \in n\mathbb{Z}$.

\textbf{Remark} – One of the most beautiful mathematical relationships is $e^{i\pi} + 1 = 0$.

\textbf{Proof}. Everything that is rare is expensive. A cheap horse is rare. So a cheap horse is expensive.

In the previous example, the “theorems” have different formattings. The nwejmart class provides three “theorem” styles, \texttt{theorem}, \texttt{definition} and \texttt{proof}, see their characteristics in Table 5 on the next page.
8. Mathematics-specific commands

<table>
<thead>
<tr>
<th>Style</th>
<th>Recurrent title</th>
<th>Content</th>
<th>Relevant “theorems”</th>
</tr>
</thead>
<tbody>
<tr>
<td>theorem</td>
<td>bold, roman, numbered</td>
<td>italic</td>
<td>theorems, corollaries, conjectures, propositions, lemmas, axioms</td>
</tr>
<tr>
<td>definition</td>
<td>bold, roman, numbered</td>
<td>roman</td>
<td>definitions, remarks, examples, notations</td>
</tr>
<tr>
<td>proof</td>
<td>non bold, italic, non numbered</td>
<td>roman, ended with a white square</td>
<td>proofs</td>
</tr>
</tbody>
</table>

Table 5 – Provided “theorems” styles

User-defined environments

If the “theorem” environments provided by the class are not enough, the `\newtheorem` command can create new ones.

\newtheorem[{option(s)}]{(name)}

This command creates a new \LaTeX{} environment, \langle name \rangle, which has by default:
- \langle Name \rangle¹⁹ as recurring title;
- theorem as a style.

This command also creates the starry environment \langle name \rangle* which produce unnumbered occurrences of this “theorem”.

\begin{article*}[Establishment of the Union]
Reflecting the will of the citizens and States of Europe to build a common future, this Constitution establishes the European Union
\[...
\end{article*}

\begin{article}{Establishment of the Union}\label{premier}
Reflecting the will of the citizens and States of Europe to build a common future, this Constitution establishes the European Union
\[...

¹⁹Id est, regardless of the article language, the \langle name \rangle of the \LaTeX{} environment with a capital initial letter.
Article (Establishment of the Union) – Reflecting the will of the citizens and States of Europe to build a common future, this Constitution establishes the European Union [...]

Article 1 (Establishment of the Union) – Reflecting the will of the citizens and States of Europe to build a common future, this Constitution establishes the European Union [...]

Article 1 is fundamental.

If the default value of the style (theorem) is not suitable, you can specify in \texttt{\{option(s)\}} the desired one with the following \texttt{style} key.

\texttt{style=theorem|definition|proof}  
\hfill (no default value, initially \texttt{theorem})

This key allows you to specify the style of the “theorem” to be created, using \texttt{theorem}, \texttt{definition} and \texttt{proof} values.

\begin{verbatim}
newtheorem[style=definition]{fact}
\end{verbatim}

\begin{verbatim}
\begin{fact}\label{major}
Everything that is rare is expensive.
\end{fact}
\begin{fact}\label{minor}
A cheap horse is rare.
\end{fact}
According to \texttt{\cref{minor,major}}, a cheap horse is expensive.
\end{verbatim}

Fact 1 – Everything that is rare is expensive.

Fact 2 – A cheap horse is rare.

According to Facts 1 and 2, a cheap horse is expensive.

If the default value of the recurring title (\texttt{\{Name\}}) is not suitable, you can specify in \texttt{\{option(s)\}} the desired one with the following \texttt{title} key.

\texttt{title=(recurring title)}  
\hfill (no default value, initially empty)
8. Mathematics-specific commands

This key allows you to specify a *recurring title* different from *(Name)*, regardless of the article language.

\newtheorem*[title=experience]{experience}

\begin{experience}\label{one}
A 6-sided dice is rolled [...] \
\end{experience}
\begin{experience}\label{two}
Two 6-sided dice are rolled [...] \
\end{experience}

The \vref{one,two} highlight [...] 

**Experience 1** – A 6-sided dice is rolled [...] 

**Experience 2** – Two 6-sided dice are rolled [...] 

The Experiences 1 and 2 highlight [...] 

Note that, in the case of cross-references using the \vref{p.34} (or \cref{p.34}) command, the recurring title of the referenced “theorem(s)” is automatically added to the reference, possibly on its plural form. By default, this latter is obtained by adding a final “s” in *(name)* or in *(recurring title)* set in the title option. If this form should be constructed differently, this should be specified in *(option(s))* using the following *title-plural* key.

**title-plural**=*plural form of the recurring title* (no default value, initially empty)

This key is used to specify the plural form of the recurring title.

\newtheorem*[title-plural=rings]{ring}

\begin{ring}\label{ring}
Consider a ring: [...] \
\end{ring}
\begin{ring}\label{ring-bis}
\end{ring}

\footnote{Cf. Section 10.1 on p. 34}
Consider another ring: [...] 
\end{ring}
The \vref{ring,ring-bis} admit [...] 

\begin{Verbatim}
Ring 1 – Consider a ring: [...] 
Ring 2 – Consider another ring: [...] 
The Rings 1 and 2 admit [...] 
\end{Verbatim}

\newtheorem{title=ideal,title-plural=ideals}{ideal}

\begin{ideal} \label{ideal} 
Consider an ideal: [...] 
\end{ideal}
\begin{ideal} \label{ideal-bis} 
Consider another ideal: [...] 
\end{ideal}
The \vref{ideal,ideal-bis} admit [...] 

\begin{Verbatim}
Ideal 1 – Consider an ideal: [...] 
Ideal 2 – Consider another ideal: [...] 
The Ideals 1 and 2 admit [...] 
\end{Verbatim}

8.8 Enumerations
To make the composition of enumerations (of hypothesis, assertions, conditions, etc.) easier, the nwejmart class provides ready-to-use environments and allows to create new ones if needed (see the \newenumeration \p. 29 command).

Predefined enumerations
In mathematical articles, it is common to enumerate assertions, hypothesis or conditions and to refer to these. To do this, the nwejmart class provides three environments: assertions \p. 29, hypotheses \p. 29 and conditions \p. 29. Each assertion, hypothesis or condition is introduced by the \item command.
8. Mathematics-specific commands

\begin{assertions}
\langle \text{assertions} \rangle
\end{assertions}

This environment composes a list of assertions.

\begin{hypotheses}
\langle \text{hypothesis} \rangle
\end{hypotheses}

This environment composes a list of hypothesis

\begin{conditions}
\langle \text{conditions} \rangle
\end{conditions}

This environment composes a list of conditions.

\begin{axiom}\label{my-axiom}
Each of the following assertions are admitted.
\begin{assertions}
\item\label{rare-expensive} Everything that is rare is expensive.
\item\label{horse} A cheap horse is rare.
\end{assertions}
\end{axiom}

According to the \vref{rare-expensive, horse} of \vref{my-axiom}, a cheap horse is expensive.

Axiom 1 – Each of the following assertions are admitted.
\((A_1)\) Everything that is rare is expensive.
\((A_2)\) A cheap horse is rare.

According to the assertion \((A_1)\) and ?? and on p. ?? of Axiom 1, a cheap horse is expensive.

User-defined enumerations

If the enumerations provided by the class are not enough, it is possible to create new ones via the \newenumeration command.

\newenumeration[\langle option(s) \rangle] \{(name)\}

This command creates a new \texttt{\LaTeX} environment, \{(name)\}, which is used as the usual enumerate environment of ordered lists and in which each item is introduced by the \item command.
\newenumeration{conventions}

\begin{conventions}
\item The horse is cheap.
\item The horse is expensive.
\end{conventions}

(C1) The horse is cheap.
(C2) The horse is expensive.

We note that each listed item has a default label consisting of the initial of the \texttt{name} indexed by an Arabic numeral, all in parentheses. If this label is not suitable, we can specify the desired one in the \texttt{option(s)} with the \texttt{label} key.

\item\texttt{label=⟨label⟩} (no default value, initially initial of \texttt{name})

This key is used to specify a \texttt{⟨label⟩} different from the initial of the environment \texttt{name}.

\newenumeration[\texttt{label=K}]{conventions}

\begin{conventions}
\item\texttt{label=k-one} The horse is cheap.
\item\texttt{label=k-two} The horse is expensive.
\end{conventions}

See \texttt{\vref{k-one}}. See \texttt{\vref{k-one,k-two}}.

(K1) The horse is cheap.
(K2) The horse is expensive.
See convention (K1). See conventions (K1) and (K2).

Note that when cross-referencing using the \texttt{\vref}`p.34 (or \texttt{\cref}`p.34) command\textsuperscript{21}, the \texttt{name} of the referenced enumerations is automatically added to the reference, in its singular or plural form as appropriate. By default, The plural form is the \texttt{name}.

The singular form is obtained by deleting the last letter\textsuperscript{22} of the \texttt{name}.

\textsuperscript{21}See Section 10.1 on p. 34
\textsuperscript{22}Supposed to be an “s”. 

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8. Mathematics-specific commands

If these singular or plural forms must be built differently, they should be specified in the ⟨option(s)⟩ via the following singular and plural keys.

\begin{verbatim}
\newenumeration[singular=\text{criterion}]{criteria} % Otherwise, sing.
form = "criteri.
\begin{criteria}
  \item\label{criterion-one} The horse is cheap.
  \item\label{criterion-two} The horse is expensive.
\end{criteria}
See \vref{criterion-one}. See \vref{criterion-one,criterion-two}.
\end{verbatim}

(C_1) The horse is cheap.
(C_2) The horse is expensive.
See criterion (C_1). See criteria (C_1) and (C_2).

\begin{verbatim}
\newenumeration[singular=\text{rôle},plural=\text{rôles}]{roles}
\begin{roles}
  \item\label{role-one} The horse is cheap.
  \item\label{role-two} The horse is expensive.
\end{roles}
Cf. \vref{role-one}. Cf. \vref{role-one,role-two}.
\end{verbatim}

(R_1) The horse is cheap.
(R_2) The horse is expensive.
Cf. rôle (R_1). Cf. rôles (R_1) and (R_2).
If necessary, the \renewenumeration \textsuperscript{p.32} command can be used to redefine an enumeration previously defined with the \newenumeration \textsuperscript{p.29} command.

\renewenumeration[(option(s))]{(name)}

This command redefines the enumeration environment \textit{(name)}. Its \textit{(option(s))} are the same as those of the \renewenumeration \textsuperscript{p.29} command.

9 Generalist commands

In addition to math-specific commands, the nwejmart class provides generalist commands to make easier the input of an article to be published in \textit{NWEJM}.

\texttt{\textbackslash ie(*)}

This command displays the phrase “\textit{id est}” translated into the language of the article, in the form:

\texttt{\textbackslash ie(*)}

\texttt{\textbackslash Ie(*)}

This command displays the phrase “\textit{Id est}” translated into the language of the article, in the form:

\texttt{\textbackslash century(*)\{(number)\}}

This command displays the ordinal of the \textit{(number)}\textsuperscript{2324} of a century, followed by the word “century” translated into the article language and by the possible mention that it is a century before our era. Thus:

\begin{itemize}
  \item In the \texttt{\century{-1}}, [...]. Later, in the \texttt{\century{8}}, [...]
  \item In the 1\textsuperscript{st} century BC, [...]. Later, in the 8\textsuperscript{th} century, [...]
\end{itemize}

The starred version displays only the ordinal (unless the \textit{(number)} is negative). Thus:

\begin{itemize}
  \item Agriculture in the \texttt{\century*{-1}} was [...].
  \item The poetry of the \texttt{\century*{19}} has profoundly marked [...].
\end{itemize}

\textsuperscript{23}This number must be a non-zero integer, negative if appropriate.
\textsuperscript{24}In French and German, \textit{(number)} is written in Roman numerals and small capitals.
10. Selection of tools from third party packages

This section lists some tools (commands and environments) provided by packages automatically loaded by the \texttt{nwejmart} class\textsuperscript{25}.

\texttt{\textbackslash aside}\{\textit{text}\}\}

This command allows you to compose \textit{text} between long dashes. \textbf{In the non starred form}, it inserts the \textit{text} between two long dashes. \textbf{In the starred form}, the \textit{text} is simply preceded by a dash. This is to be used at the end of a sentence.

Thus:

Experiences \texttt{\textbackslash aside\{in the \enquote{real} word\}} have been triggered by digital experiences.

Experiences — in the “real” word — have been triggered by digital experiences.

and:

It is suspected not \texttt{\textbackslash aside*\{for example it is expected that $1/\pi$ is not a period\}}.

It is suspected not — for example it is expected that $1/\pi$ is not a period.

\texttt{nwejm}

This command displays:
\textbf{In the non starred form}: the abbreviated version “\texttt{NWEJM}”; 
\textbf{In the starred form}: the non abbreviated version “North-Western European Journal of Mathematics”.

\textbf{10 Selection of tools from third party packages}

This section lists some tools (commands and environments) provided by packages automatically loaded by the \texttt{nwejmart} class\textsuperscript{25}.

\textsuperscript{25}L’Appendix B on p. 41 lists those whose features may be useful for authors.
10.1 Cross-referencing

The cleveref package makes cross-referencing powerful. In particular, it provides the following commands \cref and \vref.

\cref{⟨label₁⟩,...,⟨labelₙ⟩}

If one or more objects\textsuperscript{26} are labelled with \label{⟨label₁⟩},..., \label{⟨labelₙ⟩}, the command \cref:

- displays their numbers\textsuperscript{27};
- detects their nature\textsuperscript{26} and displays the corresponding keywords\textsuperscript{28} before their numbers, automatically translated into the article language\textsuperscript{29}.

Please refer to \cref{sec-title,sec-authors} [...] Please refer to Sections 3.1 and 3.2 [...]

\vref{⟨label₁⟩,...,⟨labelₙ⟩}

This command:

- includes the features of \cref;
- displays\textsuperscript{30} the (numbers of the) pages where they are located\textsuperscript{31} after the numbers of the referenced objects.

Please refer to \vref{sec-title,sec-authors} [...] Please refer to Sections 3.1 and 3.2 on p. 6 and on p. 7 [...]

\textsuperscript{26}Section, equation, theorem, figure, array, etc.
\textsuperscript{27}Surrounded by brackets where customary, e.g. for equations.
\textsuperscript{28}Feature provided by the cleveref package package.
\textsuperscript{29}Feature provided by the nwejmart class.
\textsuperscript{30}Or not, depending on the context.
\textsuperscript{31}Feature provided by the varioref package.
10. Selection of tools from third party packages

Remark 10.1 – Hyperlinks to a referenced object

The numbers and possible — numbers of — pages of the cross-references created with \cref and \vref are hyperlinks to referenced objects\footnote{Feature provided by the hyperref package}.

10.2 Acronyms

Acronyms often need to be used in mathematical articles. To this end, the glossaries package offers a very efficient and simple feature: just use the commands:

- \newacronym to define an acronym;
- \gls (or \acrshort) to display an acronym.

\newacronym{⟨key⟩}{⟨short form⟩}{⟨long form⟩}

This command, best used in the preamble, defines an acronym where:
1. ⟨key⟩ identifies the acronym uniquely in the document\footnote{The author should be careful not to use the same key twice to identify different acronyms};
2. ⟨short form⟩ is the acronym itself;
3. ⟨long form⟩ is the meaning of the acronym.

Warning 10.2 – Short form of acronyms: in lowercase

The ⟨short form⟩ of an acronym has to be entered exclusively in lowercase since it will be actually composed in small capitals.

\gls{⟨key⟩}

This command displays the acronym identified by ⟨key⟩ according to the following principle:
1. The first occurrence of this command in the document displays the acronym in its complete form, id est its ⟨long form⟩ followed by its ⟨short form⟩ in brackets;
2. The following ones display the acronym only in ⟨short form⟩.

\newacronym{bap}{bap}{bounded approximation property}
\begin{enumerate}
\item \gls{bap},
\item \gls{bap}.
\end{enumerate}

1. bounded approximation property (\textit{BAP}),
2. \textit{BAP}.

\acrshort{(key)}

This command displays (only) the \textit{short form} of the acronym, whatever the context\textsuperscript{33}.

\textbf{Remark 10.2 – The \acrshort{acronym} command: useful in a title}

The \acrshort{acronym} command can be useful in particular in the article title where you do not want the full form of an acronym to be detailed.

The glossaries package provides many other commands and features\textsuperscript{34}.

\section{10.3 Quotes, citations}

The csquotes package is dedicated to formal and informal citations, and text excerpts. It includes the following easy-to-use \texttt{enquote} command.

\texttt{enquote{(text)}}

This command composes the \textit{text} in quotation marks, automatically adapted to:

- The typographic standards of the current language. It will therefore be used whenever text is to be enclosed in quotes;
- The level (1 or 2) of “citation” in case of nesting. It can therefore be used whenever text is to be informally quoted.

he replied: \texttt{enquote}{Courteline used to say: \texttt{enquote}{To be taken for an idiot in the eyes of an imbecile is the pleasure of a fine gourmet.}}

\textsuperscript{33}Id est even if it is the first time the acronym is used in the document.

\textsuperscript{34}For more details, see for instance Bitouzé, 2022b, \textit{Conférence \LaTeX \# 7}. 

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10. Selection of tools from third party packages

he replied: “Courteline used to say: ‘To be taken for an idiot in the eyes of an imbecile is the pleasure of a fine gourmet.’”

\blockcquote{(key)}{(excerpt)}

This command allows you to quote an \textit{excerpt} formally\textsuperscript{35}. The corresponding bibliographic reference must be included in one of the added \texttt{.bib} files and identified by the key \texttt{(key)}.

\citeauthor{Bitouze} specifies that:\texttt{\blockcquote{Bitouze}{\textit{This} command composes the citations by detaching automatically from the current paragraph those which are long.}}

Bitouzé specifies that: “[This] command composes the citations by detaching automatically from the current paragraph those which are long.”\textsuperscript{1}

\textsuperscript{1}Bitouzé, 2022a, \textit{Conférence \LaTeX\ # 6}.

The \texttt{\blockcquote} command has optional arguments allowing to add text \texttt{(prior)} and/or \texttt{(subsequent)} to the excerpt citation\textsuperscript{37}.

10.4 Web addresses (url)

The \texttt{hyperref} package provides (among other things) the \texttt{url} command, which makes it easy the display of web addresses, also known as “Uniform Resource Locator (url)”, even if they contain special \TeX\ characters (\#, \%, \_, ~, \&, etc.): these characters can therefore be entered as they are, unless the \texttt{url} command is used in the argument of another command\textsuperscript{38}, in which case the \# and \% characters must be preceded by the backslash command \\

\url{(Web address)}

This command displays the \textit{(Web address)} entered as \textit{is} and makes it a hypertext link.

\textsuperscript{35}Id est with details of the source.

\textsuperscript{36}Using the \texttt{addbibresource} command

\textsuperscript{37}For more details, see for instance Bitouzé, 2022a, \textit{Conférence \LaTeX\ # 6}.

\textsuperscript{38}For instance \texttt{\footnote}. 

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10.5 Lists within paragraphs

The reader is certainly familiar with the \texttt{itemize}, \texttt{enumerate} and \texttt{description} environments for creating respectively unordered\textsuperscript{39}, ordered\textsuperscript{40} and “description” lists. The \texttt{enumitem} package provides starred versions of these environments which compose these lists within the same paragraph\textsuperscript{41}.

\begin{verbatim}
\begin{itemize*}
  ⟨list⟩
\end{itemize*}
\end{verbatim}

This environment composes a “bulleted” list.

\begin{verbatim}
\begin{enumerate*}
  ⟨list⟩
\end{enumerate*}
\end{verbatim}

This environment composes a “numbered” list.

\begin{verbatim}
\begin{description*}
  ⟨list⟩
\end{description*}
\end{verbatim}

This environment composes a “description” list.

\begin{verbatim}
\begin{enumerate}
\item The data I have collected […]
\item The data I have collected are
  \begin{enumerate*}
  \item publicly available on the internet: web pages and CVs of
    speakers;
  \item accessible via Wikipedia, through the precious
    \texttt{enquote} mathematics genealogy project
  \end{enumerate*}
\end{enumerate}
\end{verbatim}

\textsuperscript{39}“Bulleted”.
\textsuperscript{40}Id est numbered
\textsuperscript{41}The first aim of this package is to customize lists, but this is not recommended in the \texttt{NWEJM} framework as it may contravene its typographic approach.
A. Typical source file outline

1. The data I have collected [...] 
2. The data I have collected are (a) publicly available on the internet: web pages and CVs of speakers; (b) accessible via Wikipedia, through the precious “mathematics genealogy project” (http://genealogy.math.ndsu.nodak.edu/); (c) for 60 of the speakers for whom my information was too incomplete, [...].
Documentation of the \LaTeX class of nwejm

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\documentclass[nwejmart]
% french % If the language of the article will be French
% german % If the language of the article will be German
% dutch % If the language of the article will be Dutch
\addbibresource{}
% Should acronyms be used in the article, define them thanks to \newacronym command from 'glossaries' package as follows:
% - 1st argument: \langle label \rangle of the acronym (also called key),
% - 2nd argument: \langle short form \rangle of the acronym (lowercase!),
% - 3rd argument: \langle long form \rangle of the acronym,
% and use them with \gls{\langle label \rangle} (or, if needed, with \acrshort{\langle label \rangle}).
% See 'glossaries' package's documentation for more details.
% \newacronym{\{}{\}{\}}
%\begin{document}
%\title{}
%\subtitle{}
%\author[]{}
%\begin{abstract}
...\end{abstract}
% The keywords are entered thanks to \keywords command, as a comma separated list.
% \keywords{}
% The Mathematical Subject Classification (MSC) are entered thanks to \msc command, as a comma separated list.
% \msc{}
% The title is made as usually. Be aware that author(s) will be displayed or updated only if a 'biber' run (cf. 'nwejm'\textquotesingle s documentation for more details).
% \maketitle
%\begin{acknowledgments}
%\end{acknowledgments}
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B Packages loaded (or not) by the class

B.1 Packages loaded by the class

We have seen that, for several of its features, the nwejmart class relies on automatically loaded packages. Those whose features can be useful to the authors of \textit{nwej}M articles are listed below. Their function and possible option(s) are indicated.

In addition to the specific tools to the nwejmart class, all those provided by these different packages are therefore available to \textit{nwej}M authors.

\textbf{nag}: reporting\textsuperscript{43} of obsolete packages, commands and environments:

\begin{quote}
\textbf{default options:} 12tabu, orthodox;
\end{quote}

\textbf{kpfonts}: main font of the document:

\begin{quote}
\textbf{default options:} noDcommand;
\end{quote}

\textbf{graphicx}: image inclusion;

\textbf{subcaption}: sub-figures and sub-arrays;

\textbf{adjustbox}: adjusting box position, for example of images;

\textbf{xspace}: defining commands that don’t “eat” the space that follows;

\textbf{array}: extending (and bug-fixing) array environments;

\textbf{booktabs}: professional-looking arrays;

\textbf{csquotes}: informal and formal citations\textsuperscript{44}:

\begin{quote}
\textbf{default option:} autostyle;
\end{quote}

\begin{quote}
\textbf{default setting:} \texttt{\SetCiteCommand{\autocite}};
\end{quote}

\textbf{biblatex}: powerfull bibliography management;

\textsuperscript{43}In the form of \textit{warnings}.

\textsuperscript{44}With citation of sources, see Section 10.3 on p. 36.
datetime2: date and time formats:
  
  **default option:** `useregional`;

hyperref: support for hyperlinks:\(^{45}\):
  
  **default option:** `hidelinks, pdfencoding=unicode, final, breaklinks, hypertexnames=false`;

glossaries: creation of glossaries and (lists of) acronyms:
  
  **default option:** `nowarn`;

varioref: smart page references.

cleveref: smart cross-referencing:\(^{46}\);
  
  **default option:** `french, ngerman, dutch, english, noabbrev, capitalize`.

### B.2 Packages not loaded by the class

The following list, for from being exhaustive, lists packages not loaded by the `nwejmart` class but which may prove useful to authors. In addition, when manually loaded, some of them have options or settings set by the `nwejmart` class, the most notable of which are specified.

tikz-cd: easy creation of very high quality commutative diagrams:\(^{47}\);

pgfplots: easy creation of very high quality (2D or 3D) figures to represent functions or experimental data;

siunitx: management of numbers, angles and units, and vertical alignment on the decimal separator in tables:

  **default option:**

  * `detect-all`;

  * `locale=FR` or `UK` or `DE` depending on the article language;

listings: insertion of computer listings;

todonotes: insertion of “TODO”:\(^{48}\).

\(^{45}\)See Section 10.4 on p. 37.

\(^{46}\)See Section 10.1 on p. 34.

\(^{47}\)The `xy` package, often used for such diagrams, is incompatible with the present class: See Appendix C on the next page.

\(^{48}\)Reminders of points to add, complete, modify, etc.
C. Incompatibilities

C Incompatibilities

For technical reasons, the nwejm does not accept a .tex source file loading the xy package and the nwejmart will issue an error in that case. The user who has to compose “matrix-like” diagrams, and especially commutative diagrams, should use the modern and user-friendly tikz-cd package.

D Notations, syntax, terminology and colour coding

We specify here the notations, syntax, terminology and colour coding of this documentation.

D.1 Commands, environments, keys, values

Commands, environments, keys and key values are systematically composed in monospaced font. In addition, to distinguish them easily, these are displayed with their own colours:

- blue commands: \command;
- “teal” environments: environment;
- purple keys: key;
- violet keys values: value.

D.2 Generic arguments

To explain the role of a command, it is sometimes necessary to indicate what it applies to. In other words, what its generic argument is. Such an argument is composed:

- in monospaced font;
- in italics;
- between single rafters;

all in brown, thus: (generic argument).

D.3 Hyperlinks

Hyperlinks are shown in colour, as follows: hyperlink. Most references to commands, environments and keys defined in this document are hyperlinks, topped by the page number where the corresponding target is located (unless it is on the same page):
• \author\textsuperscript{p.7};
• abstract\textsuperscript{p.8}.

D.4 “Mandatory” elements

The icon next to certain items (commands or environments) indicates that they are “mandatory”.

D.5 Source codes

The examples in this documentation consist of source code and, where appropriate, the corresponding screen shots.

These source codes are shown in blue boxes, which may include a title:

• unshaded if they are to be entered in the body of the document;

\begin{quote}
⟨source code⟩langle title⟩⟨source code⟩
\end{quote}

• shaded if they are to be entered in the preamble of the file.

\begin{quote}
⟨source code to be inserted in preamble⟩langle title⟩⟨source code to be inserted in preamble⟩
\end{quote}

D.6 Spaces in source code

To avoid confusion, spaces in source code that must be entered using the keyboard are sometimes realized with the \hphantom{ } mark.
D.7 Options

This class, and some of its commands and environments, can be adjusted with options, or lists of options (separated by commas). These options can be in the form ⟨key⟩=⟨value⟩ and the inputted ⟨value⟩ can be:

**free.** If such a ⟨key⟩ is for instance named freekey, then it is documented according to the following syntax:

\[
\text{freekey}=\langle\text{value}\rangle\quad(\text{default and initial values})
\]

**imposed** (from a list of possible values). If such a ⟨key⟩ is for instance named choicekey and with imposed values value1, ..., valueN, then it is documented according to the following syntax:

\[
\text{choicekey}=\text{value1}|...|\text{valueN}\quad(\text{default and initial values})
\]

The ⟨default and initial values⟩ of a key are often specified (in brackets at the end of a line). They indicate the value of the key:

**by default** i.e. when the key is used alone i.e. without any explicit value imputed;

**initially** i.e. when the key is not used.

References


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As is often the case in computing, the vertical bar to separate the possible values means “or”.

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