ADVICE TO AUTHORS

Société Mathématique de France

Abstract. — The classes smfbook and smfart are intended to help the preparation in LATEX of the monographs and articles to be published by the Société mathématique de France. They require LATEX $2_{\mathcal{E}}$ and the $\mathcal{A}_{\mathcal{M}}\mathcal{S}$ -LATEX packages.

This paper exhibits the main features of these classes.

 $\it R\'esum\'e.$ — Les classes smfbook et smfart sont destinées à la composition en LATEX des monographies et articles édités par la Société mathématique de France. Elles nécessitent LATEX 2ε ainsi que les macros LATEX de l'AMS.

Ce document en présente l'utilisation.

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Key words and phrases. — LATEX 2ε , SMF, typesetting.

1. Introduction

The Société mathématique de France provides the authors of its publications with \LaTeX 2 ε "document classes" (smfbook for monographs and smfart for articles). The authors should submit their articles as \LaTeX 2 ε files prepared using these classes or with the \varUpsilon classes (amsbook or amsart) provided by the AMS (see § 9 for the compatibility between these classes).

This text contains a user's guide to these classes as well as some elementary typographical rules that the authors should read thoroughly before preparing their manuscript as a LATEX $2_{\mathcal{E}}$ file: sending a file prepared with the SMF classes following these rules will reduce the number of errors introduced by the editing process and will save the author proofreading time. This will hence minimize the time needed for the article to reach its printed form (and reduce the publishing costs).

2. Typographical hygiene

The file sent by the author will be adapted to the style of the journal where it will be published by the editorial board of the Société mathématique de France. It is therefore *important* that the LATEX 2_{ε} file is prepared in a very standard way, in particular by a *systematic* use of theorem- and proof-like environments (see § 7), of \label and \ref commands for referring to the corresponding numbers, and of \cite for bibliographical references. Moreover, "home" macros must be clearly written in the preamble. *No* "home" macro will be used in the title, the address, the abstracts (French and English), the keywords.

2.1. Horizontal and vertical spacing

- Delete all spacing commands like \, or \; or \! before or after mathematical symbols, parentheses, punctuation marks, etc. Horizontal spaces (in mathematical mode in particular) are handled automatically by TEX, the author should not add any.
- On the other hand, the author may impose indivisible spaces in places where she/he does not want a carriage return, e.g. Tintin~\cite{RG3} instead of Tintin \cite{RG3}.
- The author should not type any space or carriage return before punctuation marks. However, such a space or carriage return always comes after punctuation marks
- No space before a closing parentheses or bracket, as well as after an opening parentheses or bracket.
- Do not use any \linebreak, \\, \pagebreak, \newpage, etc. in the text.
- Avoid commands as \hskip, \hspace or \vskip, \vspace in the text.

2.2. Punctuation marks

- Do not put any punctuation marks at the end of any title:
 - \section{Introduction} and not \section{Introduction.}
 - \begin{remark} and not \begin{remark.}
 - etc.
- In text mode, punctuation marks are typed outside of the mathematical mode. Write for example:
 - "... the level \$\eta_0\$: \$\$ A=B.\$\$" and not
 - "... the level \$\eta_0:\$ \$\$A=B.\$\$"
- Concerning points of suspension:
 - replace ... with \ldots\ in the text (in English);
 - replace ... or \ldots with \cdots between operators (as in, for instance, $A < \cdots < B$, $A + \cdots + B$ or $A = \cdots = B$) and with \dots or \ldots for mathematical punctuation (for instance $i = 1, \ldots, n$);
 - suppress ... after "etc.".
- For a product, use \d and not .; In the same way, rewrite formulas like h(.) or (.,.) as $h(\cdot)$ or (\cdot,\cdot) .
- Replace explicit hyphenation (as in presenta-tion) with optional hyphenation \- (as in presenta\-tion). Of course, ordinary hyphens are kept for compound words.
- **2.3.** Titles. Titles begin with an upper case letter and are typed in *lower case letters*. When necessary, LATEX will produce an upper case output. No punctuation marks should be inserted at the end of titles (see above).
- **2.4.** Language. The author should follow the rules of the language she/he uses, in particular when typing numbers: in French, one should write "deux nombres égaux à 2" and in the file one should type

deux nombres \'egaux \'a \$2\$.

On the other hand, recall that French upper case letters take accents as do lower case letters.

2.5. Numbering

- Use as much as possible the automatic numbering and the corresponding \LaTeX 2 ε commands $\char`\label$, $\char`\label$. To this end, keep a consistent numbering convention. Do not "ask" commands such as $\char`\label$ section or $\char`\label$ to produce a complicated output. Recall that the final output will be done by the editorial board of the Société mathématique de France: please, try to help the secretary in her/his task.
- Use a simple logic for internal references:
 - \label{sec:1} for the first section,

- \label{th:invfunct} for the inverse function theorem,
- \label{rem:stupid} for an interesting remark.
- Do not number equations which are not referred to in the text.

2.6. The mathematical mode

- Do not put pieces of text between \$ \$ to change their style. The mathematical mode should only be used for writing mathematical formulas.
- The numbers written as digits should be typed in mathematical mode, even if this does not appear to be necessary.
- Do not add horizontal spaces in mathematical formulas. When necessary, the editorial board will do it.
- Use the right mathematical TEX or LATEX symbol at the right place: for instance, the symbols < and > should not be used for making a bracket \(\lambda\); this bracket is obtained with \$\langle,\rangle\$.
- Please, before using your own solution, check all available AMS-IATEX capabilities to place and cut mathematical formulas in display style (see [5]).

2.7. The bibliography

- Make a uniform bibliography and do not change the convention according to the entry (use BibT_FX for instance).
- Systematically use the \cite command to cite the entries of the bibliography.

3. The environment

The Société mathématique de France (SMF) provides authors with the following files:

- two class files smfbook.cls (for monographs) and smfart.cls (for articles),
- two BibTeX style files:
 - smfplain.bst (for numerical citations) and
 - smfalpha.bst (for alphabetical citations),
- a supplementary package smfthm.sty described in §8,
- a supplementary package smfenum.sty for enumerations in the French style,
- a supplementary package bull.sty for articles submitted to the Bulletin.

They may be obtained on the web site of the SMF:

http://smf.emath.fr/

under the heading Publications/Formats.

These classes have been written to remain compatible with the amsbook and amsart classes developed by the American Mathematical Society (AMS). To use them, you need:

- LATEX 2_{ε} , preferebly some recent version. The class doesn't work with the old LATEX 2.09 version which has been obsolete for years;
- the various packages furnished by the American Mathematical Society; it is better to have the November 1996 version although it should work with the 1995 one.
- To typeset an index, it is better to have the multicol.sty package available.

The file smfbook.cls (resp. smfart.cls) is used instead of amsbook.cls (resp. amsart.cls) and has to be put in the directory containing TeX inputs. In order to use the package smfthm (see § 8) or bull.sty, one should put the files smfthm.sty or bull.sty in the same directory.

Many standard packages add capabilities to LATEX 2_{ε} . In this respect, we suggest using

- epsfig.sty, [7], for the inclusion of (encapsulated) PostScript pictures:
- graphics.sty or graphicx.sty, [8, 9], in order to include pictures drawn by LATEX;
- babel.sty, [6], for a text written in various languages (hyphenation, ...);
- xypic.sty, [11], for the diagrams;
- BibTeX, [1, Appendix B] or [10], for the bibliography.

4. Structure of the document

A document typeset with one of the classes smfbook or smfart has the following structure. Fields within brackets are optional.

```
\documentclass[\langle options \rangle] \{ \sim \text{smfbook or smfart} \}
Preamble (packages, macros, theoremlike environments, ...) e.g.
  \usepackage \{ \text{francais, english} \} \\
  \usepackage \{ \text{smfthm} \}
  \usepackage \{ \text{bull} \} \\ \text{for articles submitted to the Bulletin} \\
  \text{theoremstyle \{ plain \} \newtheorem \{ \text{scholie} \} \\
  \author \[ \langle short name \rangle \] \{ \langle Firstname Lastname \rangle \} \\
  \address \{ \langle line 1 \rangle \rangle \langle line 2 \rangle \rangle \... \langle line n \rangle \} \\
  \email \{ \langle email address \rangle \} \\
  \title \[ \langle short title \rangle \] \{ \langle title of text \rangle \} \\
  \altitle \{ \langle title in the other language (French or English) \rangle \}
}
```

```
\begin{document}
\frontmatter
\begin{abstract}
      \langle Abstract\ in\ the\ main\ language\ of\ text \rangle
    \end{abstract}
\begin{altabstract}
  \langle Abstract\ in\ the\ other\ language\ (French\ or\ English) \rangle
\end{altabstract}
\sin Subjclass {\langle AMS \ classification \rangle}
\keywords{\langle Key\ words\rangle}
\altkeywords{\altkeywords} in the other language (French or
   English)}
  \operatorname{translator}\{\langle Firstname\ Lastname\rangle\}
  \del{dedication} \del{dedication} \
\maketitle
  \tableofcontents \langle if \ needed \rangle
\mainmatter
Main body of the text
\backmatter
Bibliography, index, etc.
\end{document}
```

Remarks

 If there are many authors, or if an author has more than one address, one may type as many

```
\label{eq:author} $$ \address {\address}$ \email{\email address}$ \urladdr{\WWW address}$
```

commands as needed, in the right order of course.

- All data introduced before the \maketitle command will be used for different purposes: back cover, advertisement, electronic abstracts, data banks. It is therefore important that no personal macro is used in the corresponding fields.
- Do not hesitate to be prolix when filling the field \subjclass. One may consult for instance the web site

```
http://www.ams.org/msc/
```

5. Class options

These options are entered the following way:

 $\documentclass[\langle option1, option2, ... \rangle] \{smfbook or smfart\}$

Default options are indicated with a star.

5.1. Usual options

- (★) a4paper, A4 printing
- letterpaper, US Letter printing, to make easier the typesetting of documents in the United States
- draft, preliminary draft, overfull hboxes are shown by black rules;
- (\star) legno, equation numbers on the left
- reqno, equation numbers on the right
- (\star) 10pt, normal character size = 10 points
- 11pt, normal character size = 11 points
- 12pt, normal character size = 12 points

5.2. Language of the text

- (★) francais, if the main language of the text is French
- english, if it is English.
- **5.3.** Remark. Do not mix up the francais or english options of the SMF class with the francais or english options of babel: the latter has to be entered as indicated in the example of § 4.

6. Sectioning commands

As in any LATEX $2_{\mathcal{E}}$ class, some commands are devoted to the sectioning of the document:

The table of contents is inserted automatically with \tableofcontents.

The macro

\appendix

starts the appendix.

The bibliography is entered as usual,

```
\begin{the bibliography} { \langle longest\ label \rangle } \\ \langle Bibliography\ entries \rangle \\ \\ \begin{the bibliography} \\ \begin{the bibliogra
```

The use of BibTeX is recommended, see for example [1, Appendix B] and [10] for an introduction. The BibTeX styles smfplain.bst and smfalpha.bst may be obtained on the web site http://smf.emath.fr/ of the SMF. The bibliography is then entered as follows

```
\bibliographystyle{smfplain or smfalpha} \bibliography{myfile.bib}
```

if myfile.bib is the BIBTEX data file.

7. Presentation of theorems

Theorems are typeset thanks to the package amsthm. For details, we refer to its documentation [5]. One should use such environments in a *systematic* way for statements and proofs.

7.1. Theorem styles. — Three styles of theorems are defined: plain, definition and remark. The two last are identical and only differ from the first one in that the text of the statement is in straight letters instead of italics. All \newtheorem(*) commands should be introduced clearly in the preamble.

The \newtheorem command creates or uses some counter in order to define the numbering of the corresponding environment.

Use the **\newtheorem*** command to get nonnumbered theoremlike environments, e.g.

```
\newtheorem*{curveselectionlemma}{Curve Selection Lemma}
```

Different kinds of numberings may also be introduced in the preamble, e.g. for propositions numbered alphabetically:

```
\newtheorem{theoremalph}{Proposition}
\def\thetheoremalph{\Alph{theoremalph}}.
```

7.2. Proof environment. — The proof environment

```
\begin{proof} ...\end{proof}
```

allows a standard presentation of proofs, beginning with "Proof" and ending with the traditional small box \square .

It is possible to change the word "Proof" as in:

 $\begin{proof}[Idea of proof] ... \end{proof} which shows$

Idea of proof. — Exercise for the interested reader.

8. The smfthm.sty package

This section describes the smfthm.sty package. Its use is not mandatory.

8.1. Theoremlike environments. — Some theoremlike environments are defined. They use one and the same counter.

Style	Macro LATEX	Nom français	English name
plain	theo	Théorème	Theorem
	prop	Proposition	Proposition
	conj	Conjecture	Conjecture
	coro	Corollaire	Corollary
	lemm	Lemme	Lemma
definition	defi	Définition	Definition
remark	rema	Remarque	Remark
	exem	Exemple	Example

One uses them e.g. as follows:

\begin{theo}[Wiles]
If \$n\geq 3\$ and if \$x\$, \$y\$, \$z\$ are integers
such that \$x^n+y^n=z^n\$, then \$xyz=0\$.
\end{theo}

Theorem 8.1 (Wiles). — If $n \ge 3$ and if x, y, z are integers such that $x^n + y^n = z^n$, then xyz = 0.

- **8.2.** Fixing the choice of the numbering. The way of numbering the statements is defined by the following commands, which have to been entered *before* the \begin{document}:
 - \NumberTheoremsIn{\(\langle\) counter name\(\rangle\)}, indicates the level at which the statement numbers are reset to zero, (section for instance); the counter smfthm is then defined;
 - \NumberTheoremsAs{\(\langle\) counter name\(\rangle\)}, allows the statement counter to be one of the usual sectioning counters (e.g. section, subsection, paragraph, etc.);
 - \SwapTheoremNumbers, to put the statement number before the statement name, as in "1.4. Theorem"
 - \NoSwapTheoremNumbers, the converse, e.g. "Theorem 3.1"

The default options of the package are

\NumberTheoremsIn{section}\NoSwapTheoremNumbers

which means that the counter smfthm is defined and reset at the beginning of every section and that the statement numbers, which take the form

section number.value of the counter smfthm are written after the statement name.

8.3. Generic statement. — The enonce environment allows one to typeset a generic theorem whose name changes on demand, e.g.:

```
\begin{enonce}{Assumption}\\ \langle \dots \rangle\\ \begin{enonce}\\
```

typesets an 'Assumption', numbered as it should be.

The **enonce** environment uses the *plain* theorem style, but one can change this style by putting another style inside brakets, e.g.:

```
\begin{enonce}[remark]{Key remark}\\ \langle \dots \rangle\\ \begin{enonce}\\
```

Finally, there exists a corresponding enonce* environment.

8.4. Other statements. — The author may introduce other kinds of theoremlike environments as explained in §7.1. Notice, however, that in order to introduce environments numbered as the ones of smfthm.sty, one uses enonce:

9. Adapting a manuscript from another dialect

If you already have typed your manuscript in PLAIN TEX, or in LATEX 2.09, or in LATEX 2_{ε} , but with another class, and if you want to adapt it to the SMF classes, this paragraph will give you some hints.

9.1. From another Late Σ 2 ε class. — If it is an AMS class, you'll have very little to do: for an article written in English for instance, replace

```
\documentstyle[12pt,leqno]{amsart} with
```

\documentstyle[leqno,english]{smfart}

You'll need to enter another abstract (altabstract) and another title (alttitle), in French if your text is in English and in English otherwise.

The inverse transformation (SMF \rightarrow AMS) can be done in a similar way.

If it is a standard class (article ou book), things are a bit more complicated. Be careful to type the abstracts *before* the \maketitle; some mathematical formulas might not work properly, but the AMS packages offer such a variety of uses, that it should not be very difficult to do.

- **9.2. From LaTeX2.09.** In this case, you'll have to make the adjustments described in the previous paragraph, and also those needed by the LaTeX2.09—LaTeX 2_{ε} mutation. A priori, it should mostly concern the font faces commands and the conforming to the *New Font Selection Scheme* (NFSS).
- 9.3. From Plain TeX. In this case, you have to take up your manuscript again, and replace title, theorems, sectioning and bibliographical commands, by the adequate ones, refering to the LaTeX 2_{ε} user's guide and the recommendations above. We bring your attention to the automatic numbering of paragraphs and theoremlike environments: it might differ from the original one. Pay similar attention to your references. The macros Plain TeX uses to change the typefaces are most often ineffective in LaTeX 2_{ε} , so you'll have to adapt them too. Concerning mathematics, few changes are needed, except for aligned equations and matrices.

Literature and sources

- [1] L. LAMPORT. LaTeX: A Document Preparation System. Second edition. Addison-Wesley, 1994.
- [2] M. GOOSSENS, F. MITTELBACH, A. SAMARIN. The LaTeX Companion. Addison-Wesley, 1993.
- [3] M. GOOSSENS, S. RAHTZ AND F. MITTELBACH. The LaTeX Graphics Companion: Illustrating Documents With TeX and Postscript. Tools and Techniques for Computer Typesetting Series, Addison-Wesley, 1996.
- [4] The Not So Short Introduction to LaTeX2e, T. OETIKER, H. PARTL, I. HYNA, E. SCHLEGL, http://www.loria.fr/tex/general/flshort2e.dvi
- [5] AMS-LaTeX version 1.2 User's Guide, http://www.loria.fr/tex/ctan-doc/macros/latex/packages/amslatex/amsldoc.dvi
- [6] Babel, a multilingual package for use with LATEX's standard document classes, J. Braams, http://www.loria.fr/tex/ctan-doc/macros/latex/packages/babel/babel.dvi
- [7] The epsfig package, S. RAHTZ, http://www.loria.fr/tex/ctan-doc/macros/latex/packages/graphics/epsfig.dvi
- [8] The graphics package, D. CARLISLE, S. RAHTZ, http://www.loria.fr/tex/ctan-doc/macros/latex/packages/graphics/graphics.dvi
- [9] The graphicx package, D. CARLISLE, S. RAHTZ, http://www.loria.fr/tex/ctan-doc/macros/latex/packages/graphics/graphicx.dvi
- [10] Hypatia's Guide to BibTeX, http://hypatia.dcs.qmw.ac.uk/html/bibliography.html
- [11] Xy-pic User's Guide, K. ROSE, R. MOORE, http://www.loria.fr/tex/graph-pack/doc-xypic/xyguide.dvi

The most recent versions of macros files and of their documentations are also available by anonymous ftp on the CTAN sites (Comprehensive TeX Archive Network) In the United States, one may use the address ftp.shsu.edu; the sites ftp.loria.fr or ftp.jussieu.fr in France, ftp.tex.ac.uk in England, and ftp.dante.de in Germany also hold the archive.

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