

A guide for authors preparing their accepted manuscript for JOLT

Joseph Fourier and Marin X. van Mersenne jun.

Communicated by Emmy Noether

Abstract. Here is the abstract. Abstracts should stand on their own, and not contain any bibliographical reference.

Mathematics Subject Classification 2020: 10X99, 14A12, 11L05

Key Words and Phrases: isotriviality, log-selfishness, Gauß law

Dedicated to YYY on the occasion of their 70th birthday

The aim of this document is to be at the same time a manual and a sample of a `.tex` file prepared in the class `mersenne.cls` for submissions accepted for publication. The class `mersenne` uses `amsart.cls`, and implements (among other things) the layout of the journal. Therefore all authors already at ease with the classes of the AMS should find it easy to adapt their source to `mersenne.cls`. It should be noted that the `amsthm`, `amsmath`, and `amsfont` packages are loaded by `amsart` and therefore by `mersenne`, and that the `amscd` and `amssymb` packages are compatible but not loaded by default.

To compile this document (and later your article based on the same class), the easiest way is to use LaTeXmk, either within your L^AT_EX environment or on the command line as

```
latexmk -pdf sample.tex
```

which will take care of running `pdflatex`, `biber` and the rest as many times as needed.

1. Preamble

1.1. Metadata

As you can see in the source file of this document, all “metadata” like keywords, subject numbers, authors, affiliations, email (and url) should be in the relevant field. Have a look at this document’s preamble (including the comments) for more details, it has been overloaded for this purpose. Do note that that unused fields should be removed instead of simply left empty. E.g. if an author has no middle name, `\middlename{}` should be removed.

Remark. If your article isn’t in English, we refer you to the other sample `sample_fr.tex` for the additionnal metadata.

J. Fourier was partially supported by the Revolutionary Committee. M. X. van Mersenne was partially supported by a special grant for Junior Woodchucks JW#3731

1.2. Packages and commands

Since many commands are defined in our class file, and since it is important that the result of compiling each article is uniform, we ask all authors to refrain from using `\let` and `\renewcommand` in the preamble. Likewise, every command or package which might modify the general layout, like `\setlength` or `{fourier}` or the like should be avoided. Unused commands and packages should also be commented/removed, as they can still affect the compilation.

2. Theorems and theorem-like environments

In order to maintain uniformity about labelling and numbering of theorems and theorem-like environments, many environments are already defined by the class. This means that, unlike what you might be used to doing, you *should not* insert a list of commands like

```
\theoremstyle{plain}
\newtheorem{theorem}{Theorem}
\newtheorem{lemma}{Lemma}
...
\theoremstyle{remark}
\newtheorem{remark}{Remark}
```

at the beginning of the file. But most probably in your document you have already a bunch of occurrences of

```
\begin{thm}
  If  $\sim xyz=0$  and  $\sim x \neq 0$  and  $\sim y \neq 0$  then  $\sim z=0$ .
\end{thm}
```

and we are going to discuss how you can adapt your source file. The list of all environments which are defined in the class is in Section 2.1 below.

- (1) If the kind of environment (say, Proposition) already exists in the class and has the same name as in your file (in this case **prop** or **proposition**), then you don't have to do anything, and the outcomes will be as intended:

Proposition 2.1. *A statement.*

- (2) If, for instance, you called your Theorem environment **satz**, so that a typical command in your source file is

```
\begin{satz}
  This template will prove useful.
\end{satz}
```

then you will receive an error. In this case you should replace the line in your preamble which reads

```
\newtheorem{satz}{Theorem}
or
\newtheorem{satz}{Theorem}[section]
or
\newtheorem{satz}[lemma]{Theorem}
```

simply by the line

`\equalenv{satz}{theo}`

where the first argument is the name *you* gave to the environment, and the second is the name of the environment in the class (see Section 2.1).

Alternatively, you can also replace all the `\begin{satz}... \end{satz}` by `\begin{theo}... \end{theo}`, which does exactly the same thing.

- (3) If you want to use an environment which does not belong to the list in Section 2.1 (say, for instance, that you want an environment `Subsublemma`, called by the command `\begin{sslmma}`) you need to modify the definition so that it reads

```
\theoremstyle{plain} % or {definition}
\newtheorem{sslmma}[allthms]{Subsublemma}
```

A subsublemma will then look like this:

Subsublemma 2.2. *It works.*

It also uses the same counter `allthms` as the others theorems.

Alternatively, if your environment is only used a few times, you can instead use the environment `enonce` (or its unnumbered version `enonce*`) to define it only *locally*. For instance,

```
\begin{enonce*}{Main Theorem}
The main (unnumbered) statement of this article.
\end{enonce*}
%
\begin{enonce}[definition]{Notation-Convention}
This is in the definition style, and it follows
the allthms numbering.
\end{enonce}
```

which produces

Main Theorem. *The main (unnumbered) statement of this article.*

Notation-Convention 2.3. This is in the definition style, and it follows the `allthms` numbering.

- (4) If you want to restate a theorem already stated, please do not use the package `thmtools` as it will create conflicts. Instead, you can use `enonce*` as described in (3) with the reference to the original theorem for its name, and paste the original text: this permits in particular to modify the original text, which can be useful but is to be used with caution. For instance, we use it to restate Proposition 2.1, which was first stated on the previous page.

Let us now recall our key proposition, by typing

```
\begin{enonce*}{Proposition-\ref{prop:1}}
A statement.
\end{enonce*}
```

which produces

Proposition 2.1. *A statement.*

Finally, of course, it is highly recommended that you either delete or at least comment out all of your definitions which fall into categories (1) and (2).

2.1. Mersenne’s theorems environments

All theorems share a single counter, which is continual on the whole article. The rationale of the naming scheme is to use the 4 first letters of the English label, adding a “s” in a few cases. The printed labels will change automatically with the language set in the `\documentclass`. Some theorems already have aliases, created using `\equalenv` in our class files.

English label	environment name	style
Corollary	<code>coro</code> <i>alias</i> : corollary, Corollary	plain
Lemma	<code>lemm</code> <i>alias</i> : lemma, Lemma	plain
Proposition	<code>prop</code> <i>alias</i> : proposition, Proposition	plain
Theorem	<code>theo</code> <i>aliases</i> : thm, theorem, Theorem	plain
Conjecture	<code>conj</code> <i>alias</i> : conjecture, Conjecture	plain
Definition	<code>defi</code> <i>alias</i> : definition, Definition	definition
Example	<code>exam</code>	definition
Examples	<code>exams</code>	definition
Exercice	<code>exer</code> <i>alias</i> : Exercice	definition
Exercices	<code>exers</code> <i>alias</i> : Exercices	definition
Notation	<code>nota</code>	definition
Notations	<code>notas</code>	definition
Problem	<code>prob</code> <i>alias</i> : Problem	definition
Problems	<code>probs</code> <i>alias</i> : Problems	definition
Remark	<code>rema</code> <i>alias</i> : remark, Remark	definition
Remarks	<code>remas</code> <i>alias</i> : Remarks	definition

All the “4 letters” theorems have an unnumbered version (e.g. `theo*`). Those variantes only exist for the “4 letters” names, not for the aliases; there is no `thm*`.

Theorem 2.4. *Corollaries, Lemmas, Propositions, and Theorems look like this: bold upright heading and counter, italic text.*

Definition 2.5. Conjectures, Definitions, Examples, Exercices, Notations, Problems, and Remarks look like this: bold upright heading and counter, roman text.

Remark (Optional argument). All theorems can have an optional argument. Be mindful that you need to protect any closing square bracket in the argument, as it will be otherwise interpreted as the end of the argument.

E.g. `\begin{theo}[see~{\cite[Thm. 9.5]{Ser98}}]`.

3. Figures

If you want to insert figures, you should resize them in a way that they don’t creep into the margins (and this, after having checked that `geometry` is disabled and that you are not using a smaller font or larger margins, otherwise they won’t creep into *your* margins but will in JOLT’s). If this is not possible, you should rotate them so that they appear in landscape mode. It is important to insert figures in



FIGURE 1. A figure. Note that the caption of a figure should be below the image(s), while the caption of a table should be above its content.

a figure environment, by using `\begin{figure}` and `\end{figure}`. This allows you, at the same time, to add a caption and to get the figure numbers, so that you can insert a `\label{fig:mynicefigure}` and refer to it. What is more important, it allows the figure to *float*, so to move around for best typographical results. It is not a good practice, in general, to force \LaTeX to insert figures *precisely* where you want, so please refrain from adding the option `[H]` which forces \LaTeX to do so: some fine-tuning of figures placement can be discussed at a later stage of production. These advices also applies to tables and algorithms.

4. Miscellaneous \TeX hints

We gather here some hints which might be useful when preparing your article.

- the package `amsmath`, which is automatically loaded, provides the command `\eqref{}` which has the advantage of automatically inserting parenthesis around the number generated by `\ref{}`. So, `\eqref{local.lemma}` is preferred to `(\ref{local.lemma})`.
- \LaTeX commands and mathematical symbols in titles should be endowed with a plain text replacement for the PDF reader, to be displayed correctly in the reader's index. We use the command `texorpdfstring`, which takes the usual command as its first argument, and a plain text substitution for the PDF reader. For instance, the title of this section was typeset as

```
\section{\texorpdfstring{Miscellaneous \TeX\ }{\TeX }hints}
```

- As a last hint, let us stress once more that \TeX does an excellent job in placing spaces and organizing layout, so each time you use a spacing-command like `\;` or `\medskip` please double-check that this is a good idea. This applies in particular to figures, cf. Section 3. On the other hand, since it is allowed to go at the line when it considers it useful, it is good practice to use `~` before a digit, a single mathematical symbol, or a reference, in order to avoid having the symbol go on a line all alone: so, write

we let `~k` be the unique even prime number.

5. The bibliography

The bibliography style used for JOLT is `mersenne-plain`. All authors are asked to prepare their bibliography in a *separate* `.bib` file. If your file is called `mynicebib.bib` then you should put this file in the same folder as the `.tex` file and finish your document with the lines

```
\bibliography{mynicebib}
\end{document}
```

which is precisely the way this very sample file finishes. Of course, you will need to upload the `.bib` file along with the `.tex` for our production. Please try to keep your `.bib` file as simple as possible. You can clean it using programs such as `bibtol` in order to remove unused entries. Do not use the `\bibliographystyle` command as it is already contained in the class.

Creating the `.bib` file is quite standard; one easy way of doing so is by choosing your favourite database (for example MathSciNet or Zentralblatt) and find the `bibtex` string corresponding to the work you want to quote: then, copy-paste it. Here, some remarks are in order. First of all, the `\note{}` field is sometimes abusively used by these databases. For instance, the `bibtex` entry for Matoušek's *Thirty-three miniatures* reads

```
@book{Mat10Wrong,
  AUTHOR = {Matou\v{s}ek, Ji\v{r}\'\i},
  TITLE = {Thirty-three miniatures},
  SERIES = {Student Mathematical Library},
  VOLUME = {53},
  NOTE = {Mathematical and algorithmic applications
    of linear algebra},
  PUBLISHER = {American Mathematical Society, Providence, RI},
  YEAR = {2010},
  PAGES = {x+182},
  ISBN = {978-0-8218-4977-4},
  MRCLASS = {15-01 (05A10 05C70)},
  MRNUMBER = {2656313},
  MRREVIEWER = {Torsten\ Sander},
  DOI = {10.1090/stml/053},
  URL = {https://doi.org/10.1090/stml/053},
}
```

and you can easily find what went wrong by looking at the entry [\[Mat10a\]](#) in the bibliography of this file. The entry [\[Mat10b\]](#) is correct, and it is typeset as follows (note that the accents were also changed to follow the BibTeX syntax):

```
@book{Mat10Right,
  AUTHOR = {Matou{\v s}ek, Ji{\v r}{\'i}},
  TITLE = {Thirty-three miniatures. {M}athematical and
    algorithmic applications of linear algebra},
  SERIES = {Student Mathematical Library},
  VOLUME = {53},
  PUBLISHER = {American Mathematical Society, Providence, RI},
  YEAR = {2010},
  PAGES = {x+182},
```

```

ISBN = {978-0-8218-4977-4},
MRNUMBER = {2656313},
DOI = {10.1090/stml/053},
}

```

Another reference for a book is [Die17], an example for a journal article is [Sey81] and an example for a doctoral thesis is [Sch84].

Speaking about bibliography, you could look at how the entry [GGS20] is typeset in the `sample.bib` file; it gives instruction on how to obtain upper-case and accents, because if you simply write in a bibliographical entry

```

title={Moderate deviations of subgraph counts in the
      Erd\H{o}s-R{\e}nyi random graphs  $\{G(n,m)\}$ 
      and  $\{G(n,p)\}$ },

```

the result will be

Moderate deviations of subgraph counts in the erdős-rényi random graphs $G(n, m)$ and $G(n, p)$.

We stress here that our policy is that, as in the title, we prefer all common English nouns to be lower-case even if in the original title the author or publisher followed a different style, as for reference [Bab15].

Another useful command is the field `eprint`: you can see it in action in reference [Bab15]. The entry, which is “only” an arXiv submission, was typeset (in the `.bib` file, as usual!) as

```

@unpublished{Bab15,
  author = {Babai, L\{'a}szl\{'o}},
  title = {Graph isomorphism in quasipolynomial time},
  year = {2015},
  eprint = {1512.03547}
}

```

(you can check it by yourself in the `sample.bib` file) so that you see what `eprint` does. On a one hand, it prepends `https://arxiv.org/abs/` to the reference number (which was the only typeset argument) and, on the other, it creates a clickable link. In case the repository hosting the preprint is not the arXiv, you need to specify the prefix of the repository with `archiveprefix = {}` (this will replace the url of the arXiv with that of the repository). You can also use `archive = {}` for providing a repository name, but this is not displayed in the reference list. For instance, reference [Bui+07] was typeset as

```

@unpublished{BHLM07,
  TITLE = {Algorithmic aspects of a general modular
           decomposition theory},
  AUTHOR = {Bui-Xuan, Binh-Minh and Habib, Michel
           and Limouzy, Vincent and de Montgolfier, Fabien},
  year = {2007},
  eprint = {hal-00111235v2},
  archiveprefix = {HAL},
  archive = {https://hal.archives-ouvertes.fr}
}

```

For all electronic resources that have a url but don't belong to any "repository" like the arXiv or HAL (for which the previous paragraph applies), the two useful fields `url` and `urldate` are available. Their aim should be self-explanatory: for instance, the entry [Ham10] referring to a paper available on MathOverflow was typeset as

```
@unpublished{Ham10,
  title = {What is the minimal size of a partial order that
           is universal for all partial orders of size  $n$ ?},
  author = {Joel David Hamkins},
  date = {2010-05-25},
  howpublished = {MathOverflow},
  url = {https://mathoverflow.net/q/25874},
  urldate = {2024-01-26},
  year={2010},
}
```

In a reference with type `@article`, `@inproceedings` or `@incollection` (which serves to cite an article within a book, e.g. [Alo13]), the field `doi` has priority over `url`. In other words, `url` is printed only if `doi` is not filled. For instance, both fields are filled in reference [Păt08], while only the field `url` is filled in reference [Lok08].

Finally, there is a trend in electronic publishing to endow papers with a unique ID rather than continuous page numbering to precisely locate papers within a journal. This is handled through the field `eid`, with the possible addition of the `pagetotal` field. The field `pages` should not be used for these papers. See entry MoTa10 in the file `sample.bib` and [MT10].

Acknowledgements

The authors wish to thank the whole community for their tremendous support in writing this pamphlet, as well as the entire department of the Interstellar Mathematical Department for providing freezing but panoramic work conditions.

References

- [Alo13] Noga Alon, *Paul Erdős and probabilistic reasoning*, in "Erdős centennial", Bolyai Soc. Math. Stud., no. 25, János Bolyai Math. Soc., Budapest, 2013, pp. 11–33. https://doi.org/10.1007/978-3-642-39286-3_1.
- [Bab15] László Babai, *Graph isomorphism in quasipolynomial time*, 2015. arXiv: [1512.03547](https://arxiv.org/abs/1512.03547).
- [Bui+07] Binh-Minh Bui-Xuan, Michel Habib, Vincent Limouzy, and Fabien de Montgolfier, *Algorithmic aspects of a general modular decomposition theory*, 2007. HAL: [hal-00111235v2](https://hal.archives-ouvertes.fr/hal-00111235v2).
- [Die17] Reinhard Diestel, *Graph theory*, 5th edition, Grad. Texts Math., no. 173, Berlin: Springer, 2017.
- [GGS20] Christina Goldschmidt, Simon Griffiths, and Alex Scott, *Moderate deviations of subgraph counts in the Erdős-Rényi random graphs $G(n, m)$ and $G(n, p)$* , Trans. Amer. Math. Soc. **373** (2020), no. 8, pp. 5517–5585. <https://doi.org/10.1090/tran/8117>.
- [Ham10] Joel David Hamkins, *What is the minimal size of a partial order that is universal for all partial orders of size n ?*, May 25, 2010, MathOverflow. <https://mathoverflow.net/q/25874> (accessed on January 26, 2024).

- [Knu84] Donald E. Knuth, *The T_EXbook*, Addison Wesley Professional: Massachusetts, 1984.
- [Lok08] Daniel Lokshtanov, *Wheel-free deletion is W[2]-hard*, in “Parameterized and exact computation”, Lecture Notes in Comput. Sci., no. 5018, Springer, Berlin, 2008, pp. 141–147. https://doi.org/10.1007/978-3-540-79723-4_14.
- [Mat10a] Jiří Matoušek, *Thirty-three miniatures*, Student Mathematical Library, no. 53, American Mathematical Society, Providence, RI, 2010, x+182 pages. <https://doi.org/10.1090/stml/053>. Mathematical and algorithmic applications of linear algebra.
- [Mat10b] Jiří Matoušek, *Thirty-three miniatures. Mathematical and algorithmic applications of linear algebra*, Student Mathematical Library, no. 53, American Mathematical Society, Providence, RI, 2010, x+182 pages.
- [MT10] Robin A. Moser and Gábor Tardos, *A constructive proof of the general Lovász local lemma*, J. ACM **57** (2010), no. 2, article no. 11 (15 pages).
- [Păt08] Mihai Pătraşcu, *Succincter*, in “Proceedings of the 2008 49th Annual IEEE Symposium on Foundations of Computer Science”, FOCS ’08, IEEE Computer Society: USA, 2008, pp. 305–313. <https://doi.org/10.1109/FOCS.2008.83>.
- [Sch84] Edward R. Scheinerman, *Intersection classes and multiple intersection parameters of graphs*, PhD thesis, Princeton University, 1984.
- [Sey81] Paul D. Seymour, *Nowhere-zero 6-flows*, J. Comb. Theory, Ser. B **30** (1981), pp. 130–135.

Joseph Fourier (Corresponding author), Université de Grenoble, Institut Moi-même, BP74, 38402 SMH Cedex (France); fourier@fourier.edu.fr

Marin X. van Mersenne jun., University of Paris, Dept. of pure and applied mathematics, 2400 Clarksville st., Paris, TX 75460 (USA); and Université de Grenoble, Institut Moi-même, BP74, 38402 SMH Cedex (France); mersenne@fourier.edu.fr; myotheremail@fourier.edu.fr

0000-0000-0000-0000

https://en.wikipedia.org/wiki/Marin_Mersenne

Current address: Mathdoc, Bâtiment CETA, 150, rue de la Chimie, CS 40700, 38058 Grenoble Cedex 9 (France)