

Horrors in L^AT_EX: How to misuse L^AT_EX and make a *copy editor* unhappy*

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1 Introduction

In the past I have been in charge of producing several volumes of proceedings of mathematical conferences. For each of them the task was to reshape the papers sent by authors in L^AT_EX format.

One paper was written with a well-known word processor; with a printed copy and the file saved as “text only”, the article was put into L^AT_EX in less time than others which claimed to be already L^AT_EX. And were not. Not completely, at least.

Thus I had the idea to collect some of the most significant examples, in order to warn users from the most common mistakes and horrors. A version of this collection of horrors is available on the net.¹ In this paper, derived from a talk at the G_UIT Meeting 2004, I would like to present some examples in slightly different form. Some of them are new.

All examples are faithfully reproduced, in many cases also the original line breaks in the input are maintained; some have been modified to remain in the margins for this journal. I have only masked names and affiliations. With [...] I indicate the omission of some lines in the manuscript.

2 Recent news?

A paper received in 2003 started as follows:

```
Original input
\documentstyle[12pt,twoside,xy]{article}
\input{amssymb.sty}
```

More than ten years ago, June 1994, the command `\documentclass` was introduced, as it can be easily checked. Would you think that users have become aware of this? Apparently not. Not to speak about `\usepackage`.

Of course, the correct syntax is

```
Correct input
\documentclass[12pt,twoside]{article}
\usepackage{amssymb}
\usepackage{xy}
```

The command `\documentstyle` has been maintained only for compatibility with old files. Moreover, the vast majority of those documents can be easily modified to exploit the new functions.

Sadly, in 2004 I received the following file.

* A version of this paper was presented at the G_UIT Meeting, Pisa (Italy), October 9, 2004.

¹ In Italian, at <http://profs.sci.univr.it/~gregorio/orrori.pdf>

```
Original input
\documentstyle[12pt,leqno]{article}
%\oddsidemargin -1.5mm
%\evensidemargin -1.5mm
\textwidth 5.5in
\textheight 7.1in
\newtheorem{de}{Definition}
\newtheorem{th}{Theorem}
\newtheorem{pro}{Proposition}
\begin{document}
%\vspace*{0.81in}
\centerline{\bf
$\^{\ast}$-IDENTITIES IN MATRIX SUPERALGEBRAS}
\vspace*{0.08truein}
\centerline{\bf WITH SUPERINVOLUTION $\^{\ast}$}}
\vspace{0.2in}
\centerline{XXXXXXXX XXXXXXXX XXXXXXXX}
\footnote{Partially supported by Grant
MM1106/2001 of the XXXXXXXX Foundation
for Scientific Research.}
\centerline{Centre of Mathematics and Informatics}

\centerline{University of XXXXXX "X.XXXXXX"}

\centerline{7017 XXXXXX, XXXXXXXX}

\centerline{email: xxxxxxx@xxx.xx.xxxx.xx}

\date{}
\vspace{0.3in}
%\baselineskip 18pt
{\bf Abstract.} In the paper the notion of
[...]
matrix algebras with symplectic involution.
\\
\vspace{0.2in}

{\bf I. Basic notions}
```

In order to modify the type block of a document, some high level packages are available; for example `geometry`. Avoid also “hand made” environments and sectional commands.

And, please, don’t use `\\` to terminate paragraphs; vertical space commands such as `\vspace` or `\medskip` should always go *between* paragraphs. And don’t put `\vspace` commands in documents you are sending for subsequent copy editing.

3 One author writes, the other one reads

```
Original input
\documentclass[10pt,bezier]{article}
```

I cannot imagine how it is possible for an author to sternly ignore, at every compilation, the message:

```
LaTeX Warning: Unused global option(s):
[bezier].
```

without taking the simple measure of erasing that word.

4 Even Plain T_EX had `\beginsection`

```
Original input
\vspace{3ex}

\begin{center}
{\large \bf 2. Preliminaries on coalgebras, comodules
```

and the associated pseudocompact algebras}
`\end{center}`

`\vspace{2ex}`

Is the command `\section` an unknown beast? If one wants to escape the automatic numbering (though I don't know why one should), it is easy enough to write `\section*` or

`\setcounter{secnumdepth}{-2}`

which is even better.

L^AT_EX has several sectional commands which take care automatically of spacing and numbering details. If you want to modify these details, please use packages such as `sectsty` or `titlesec`. The copy editor will see the definitions in the preamble and take the proper actions.

5 Better with L^AT_EX or Wordstar™?

Original input
 Let R be a finite p -ring whose additive group is

```

$$R^{(+)} = \langle x_1 \rangle \oplus \langle x_2 \rangle \oplus \dots \oplus \langle x_n \rangle$$

where

$$\langle x_i \rangle \cong C(p^{e_i})$$

 $(1 \leq i \leq n)$ , and
 $e_1 \leq e_2 \leq \dots \leq e_n$ 
is a nondecreasing sequence of positive integers.
We can write
```

```

$$(1) \quad \sum_{j=1}^n \alpha_{ijk} x_j \pmod{p^{e_j}}$$

 $(1 \leq i, k \leq n)$ ,
where  $\alpha_{ijk}$  are integers such that
[...]
```

```

$$(5) \quad \sum_{k=1}^n \alpha_{rki} \alpha_{kjs} \equiv \sum_{k=1}^n \alpha_{iks} \alpha_{rjk} \pmod{p^{e_j}}$$

 $(1 \leq i, j, r, s \leq n)$ .
```

Conversely, let p be a prime, and

```

$$G = \langle x_1 \rangle \oplus \langle x_2 \rangle \oplus \dots \oplus \langle x_n \rangle$$

an additive group, where
[...]
```

Yes, this is part of a paper I received. Really. It vaguely resembles L^AT_EX, but actually it is not. This author is trying to imitate the use of a (probably expensive) *word processor*. The only sure thing is that the result is equally awful. I have omitted points (2), (3), and (4) which are similar to (1) and (5).

Notice the arbitrary new lines, the command `\displaystyle`, the rendering of the “mod” relation.

Don't use `\displaystyle`; if you really think that summation limits on the side are disturbing, the easiest way is to write `\sum\limits`. But keep

in mind that this spoils the balance of the page. For the “mod” relation, `amsmath` has useful commands (the first is available in standard L^AT_EX):

`\pmod: a \equiv b \pmod{c}` gives $a \equiv b \pmod{c}$;

`\mod: a \equiv b \mod{c}` gives $a \equiv b \pmod{c}$;

`\pod: a \equiv b \pod{c}` gives $a \equiv b \pmod{c}$.

6 How not to write

Original input
`\begin{thm}` Let R be a PVMD. Then R is a GK-domain if and only if $\mathcal{D}(R) = \{(P_1 \dots P_r)_t, J, \dots, \text{invertible}, \text{ideal}, \text{and}, P_1, \dots, P_r, \text{pairwise}, \text{comaximal}, \text{prime}, \text{ideals}\}$.
`\end{thm}`

Some confusion here! Apart from the use of the obsolete command `\rm` to write in roman the statement of the theorem, the spacing is arbitrary, with a forced new line *inside a math formula* (look closely). Notice also the obsolete construction `\cal D` and the random use of `\,` commands.

Correct input
`\begin{thm}` Let R be a PVMD. Then R is a GK-domain if and only if $\mathcal{D}(R)$ is the set of ideals of the form $(P_1 \dots P_r)_t$, where J is a t -invertible t -ideal, and P_1, \dots, P_r are pairwise t -comaximal prime t -ideals.
`\end{thm}`

It was not only an example of terrible mathematical writing. Search for clarity, above all. Some more words for the mathematically inclined: avoid overlong descriptions of sets, where the reader has to try hard in order to find the exit. Better say: “let X be the set...”.

Parentheses in a math paper should always be upright. Most publisher have special fonts for this, so it is not necessary to write `\textup{}` all the time. A good copy editor is usually able to spot and correct them, in any case.

7 Help!

Original input
`{\bf Proof:}` Let $g \in G_H = B + \sum\limits_{b \in B} y_b^{-1} R_{\{b\}} y_b^{-1}$. Then there exist a finite subset N of B , $k \in \mathbb{N}$, $a \in B$, $\lambda \in N$, $n \leq k$ such that $\sum\limits_{b \in N} (g^b + \sum\limits_{b \in N} y_b^{-1} R_{\{b\}} y_b^{-1})^k$. Since $y_b^{-1} R_{\{b\}} y_b^{-1} \subseteq B$ this expression reduces to $\sum\limits_{b \in B} (g^b + \sum\limits_{b \in N} y_b^{-1} R_{\{b\}} y_b^{-1})^k$ for some $a \in B$, $\lambda \in N$, $b' \in B$.

```
Putting $N=\{\b\in N',\}, a_{\b\not=0}\
(N\not=\emptyset\text{ for } g \notin B)$ the
conclusion of the lemma follows since
$[y_{\b}]_{\}\cap[y_{\b'}]_{\}$ is
finite for $\b\not=\b'$ by
Corollary~\ref{predcor}~(iii). $\hfill{\square}$
```

I wanted to reproduce a pretty large extract of this paper just to show how it is possible to write unthinkable things.

It seems the author is sufficiently acquainted with L^AT_EX to know the difference between `\notin` and `\not\in` (which must not be used); however the same author ignores the existence of the `displaymath` environment and emulates it with a complicated construction with `\centerline` (an unsupported command).

Another horror is worth noting: this author has the habit to use “shorthands” for the greek letters (`\b` stands for `\beta` and so on; see later on). This has the consequence of obfuscating the code, making it difficult to spot things on the manuscript, especially when a “b” and a “\b” are near to each other.

For the mathematically inclined: please note

```
Original input
\b\in B,\, k\in w,\, a_{\b,n}\in R_{\b}
\ (\b\in N',\,n\leq k)$
```

where *five* separated formulas are joined into one! Keep every formula segregated in the proper way.

I find particularly exhilarating the following:

```
Original input
Putting $N=\{\b\in N',\}, a_{\b\not=0}\
(N\not=\emptyset\text{ for } g \notin B)$ the
[...]
```

which, of course, should have been written

```
Correct input
Putting $N=\{\beta\in N' \mid a_{\beta\not=0}\}$
($N\not=\emptyset$ for $g \notin B$), the\ldots
```

The relation symbol `\mid` is unknown to most authors, it seems.

8 I'm drowning!

```
Original input
\item Let $$ be the Diophantine monoid\
$$ = \{ x\in N^3\mid 2x_1 + 5x_2 = 3x_3\}$.\\
As already seen, $$ is generated by \
$g_1 = (3, 0, 2),\ g_2 = (0, 3, 5),\
$g_3 = (1, 2, 4),\ g_4 = (2, 1, 3)$.\
One verifies easily that representation by $g_1$
and $g_2$ is unique and the Cale representations
of $g_3$ and $g_4$ by base $Q = \{g_1, g_2\}$ are\
$3g_3 = g_1 + 2g_2\ \mbox{and}\ 3g_4 = 2g_1 + g_2$.\
It follows that $k = 2,\ l = 4$ and $m = 3,\
m'_1 = m'_2 = 3,\ m'_3 = m'_4 = 1$.
```

The author is in total havoc: arbitrary spacing, unseparated formulas, chaotically forced new lines. All in a single `\item` in a list. When you send a pa-

per for subsequent typesetting, don't worry about “Overfull hbox” messages; it is the task of the copy editor to reshape the paper for the final format. Concentrate on the writing, not on the form. But try to write correct code, first of all.

9 Is it L^AT_EX?

```
Original input
%% THIS IS A LATEX FILE
\documentclass[10pt]{article}

\newtheorem{thm}{Theorem}[section]
\newtheorem{cor}[thm]{Corollary}
\newtheorem{lem}[thm]{Lemma}
\newtheorem{prop}[thm]{Proposition}
\newtheorem{ex}[thm]{Example}
\newtheorem{rem}[thm]{Remark}
\baselineskip=14pt \hspace=5in
\vsizer=8in \voffset=5truemm
\hfuzz=10pt
\def\ind{\hspace 0.125in\relax}
\parindent=0pt
\pagestyle{plain}
```

This file announces itself as a L^AT_EX document. We can easily see this is a lie. Let's see how it goes along.

```
Original input
\begin{document}

\title { \large FACTORIZATION OF DIVISORIAL IDEALS \
IN A GENERALIZED KRULL DOMAIN} \medskip

\author{\bf Xxxx Xx Xxxxxxxx\
\smallskip \
\rm \
\small Department of Mathematics\
\small Xxxxxxx xxx Xxxxxxxx xx Xxxxxxxx \
\small X.X. Xxx 000, Xxxx Xxxxxx, Xxxxxx\
\small \texttt{\small xxxxxxxx@xxxxx.xx.xx}\}

\date{ }

\maketitle

\bigskip
\null \hspace 6cm {\it Dedicated to Robert W. Gilmer}\
\vskip0.66in
```

A simple center environment could have saved the trouble with the dedication: why set 6 cm of space without knowing the line width? And why mix imperial and metric systems? Recall that AMS classes have a `\dedicatory` command to be given before `\maketitle`.

It is difficult to find so many horrors in such a little space, you will be thinking. Well, no: someone is able to do better, we'll see. However, here is the beginning of the paper.

```
Original input
\section{normalsize INTRODUCTION}
\ind Dedekind domains are characterized as the class
of Pr\^ufer domains in which each nonzero ideal is a
finite product of prime ideals. The PVMD-analogue
of this factorization property holds for
```

[...]
 property for ideals in Krull domains to generalized Krull domains, in the same spirit of a work on generalized Dedekind domains by Gabelli and Popescu [8]. \par
 \ind A generalized Krull domain (GK-domain for short) is a PVMD such that $P \neq (P^2)_t$, for each t -prime ideal P , and each nonzero principal ideal has only finitely many minimal t -primes (cf. [5, Theorem 3.9]). GK-domains of t -dimension one coincide with the class of Krull domains. For more details see [5].\par

Apparently the author doesn't like that the first paragraph after a section title is not indented. So a wonderful idea came to his mind.

Original input

```
\def\ind{\hskip 0.125in\relax}
\parindent0pt
```

This is the wonderful idea! Writing \par everywhere and beginning all paragraphs with \ind. Where does the \hskip 0.125in\relax come from, I don't know. Let's see how one could have achieved a 'slightly better' result:

Correct input

```
\usepackage[indentfirst]
```

Notice also the error in cf. [5, Theorem 3.9] which should be written with the automatic commands and the non-breaking space:

Correct input

```
cf.~\cite[Theorem~3.9]{a-label}
```

But these are subtleties.

10 A touch of class

Original input

```
\title[\tiny\upshape\rmfamily Modules induced from
a normal subgroup of prime index]{}

\begin{center}\large\sfamily\mdseries
  Modules induced from a normal subgroup
  of prime index
\end{center}

\author{\sfamily X.\,X. Xxxxxx}
```

Trying to modify the typesetting of their documents is common among authors. This piece of evidence is hilarious.

11 Definition frenzy

Original input

```
\def\Ass{\rm Ass }
\def\alpha{}
\def\l{\lambda}
```

These are only a few definitions set by an author. We all know, of course, that they are all wrong. Some times ago, an author who used to redefine \c wrote to me asking to solve a problem: the name of an author in the bibliography required a cedilla

and, strangely, it appeared that there was no way to make L^AT_EX do this.

“Wait! Writing \alpha is too long!” objects the author. The answers to this objection can be: (1) use a smart editor; (2) the L^AT_EX source file is more readable. Emacs is not the only smart editor, there are many on every platform and some of them are free. For GNU/Linux there is Kile.

Regarding the definitions, consult a manual in order to find the better way to set them; for a “log” type operator, use the amsmath package and the command \DeclareMathOperator:

Correct input

```
\DeclareMathOperator{\Ass}{Ass}
```

I should say that this operator is common in Commutative Algebra: it denotes the set of ‘associated ideals’. It is not correct to define an operator like that as \textrm{Ass }, because the spacing is excessive and in some cases wrong; compare \log x and \log(xy).

A paper I worked on recently had 250 lines of various definitions. Only 38 remained. When you send a work to others, ensure to erase from the preamble all unused commands. Most of all, ensure that all loaded packages are included in the standard distributions, otherwise send them along with the paper.

12 Theorems

Original input

```
\newtheorem{satz}{Theorem}[section]
\newtheorem{prop}[satz]{Proposition}
\newtheorem{cor}[satz]{Corollary}
\newtheorem{lem}[satz]{Lemma}
\newtheorem{rem}[satz]{Remark}
\newtheorem{ex}[satz]{Example}
\newtheorem{exas}[satz]{Examples}

\newcommand{\Bth}[1]{\smallskip \begin{satz}
  \label{#1} \begin{rm}}
\newcommand{\Eth}{\end{rm} \end{satz}}

\newcommand{\Bcor}[1]{\smallskip \begin{cor}
  \label{#1} \begin{rm}}
\newcommand{\Ecor}{\end{rm} \end{cor} \medskip}

\newcommand{\Bex}[1]{\smallskip \begin{ex}
  \label{#1} \begin{rm}}
\newcommand{\Eex}{\nolinebreak $\Box$ \end{rm}
  \end{ex} \medskip}
[...]
```

There should be some obscure reasons why a \medskip is needed after a corollary, but not after a theorem. And to impose a completely useless \smallskip before a statement. There were similar definitions of pseudo-environments for the other kinds of statements.

A common typographical practice is to set statements of theorems in italics, in order to distinguish

them visually from the normal text: they are important and ought to be found easily. It is acceptable, of course, that someone prefers to set them in upright roman type. This author, at least, groups every definition in the preamble, so that the copy editor can easily change the format.

However, the point of this example is not only the format of the statements. What is the difference in typing between

```
\Bth{mylabel}
$2+2=4$.
```

```
\Eth
and
```

```
\begin{satz}\label{mylabel}
$2+2=4$.
\end{satz}
```

excluding from consideration the number of characters? I see many advantages to the second form. For instance, you can search your document for labels using a well defined key (i.e., `\label`). I am not a fan of completely structured documents *à la* XML, though they have their importance; but a typed paper is not the same as an XML document. With properly used environments, you add structure to the document and so it becomes easier to thumb through it.

A smart text editor is able to produce a skeleton of any environment you need with only a few keystrokes.

‘What about the upright type?’ you ask. Well, using `amsthm` or `ntheorem` it is very easy.

```
_____ Correct input _____
\usepackage{amsthm}
\theoremstyle{definition}
\newtheorem{satz}{Theorem}
\newtheorem{ex*}[satz]{Example}
\newenvironment{ex}{\begin{ex*}}{\qed\end{ex*}}
```

There is also a solution, a bit more complex, if you want to be able to say also `\qedhere` in an ex environment.

```
\makeatletter
\newenvironment{ex}
  {\pushQED{\qed}\begin{ex*}}
  {\popQED\end{ex*}\@endpfalse}
\makeatother
```

13 This author knows what to do!

```
_____ Original input _____
% Number math displays as subsections
%
\renewcommand{\theequation}{\thesubsubsection}
\newcommand{\eqlabel}[1]{%
  \refstepcounter{subsubsection} \label{#1} }
% Recall: \eqref{A} refers to the equation
% labeled "A", with the label A enclosed
% in parentheses.
```

```
%% Number displayed statements as
%% subsections
\newcommand{\dsp}{
  \refstepcounter{subsubsection}
  \begin{trivlist}
  \item[](\thesubsubsection)
  \hangindent=2em \hangafter 1 }
%%
\newcommand{\ndsp}{\end{trivlist} \smallskip}
%% Usage:
%% \dsp \label{unforgettable}
%% <text to be displayed with equation-number>
%% \ndsp
```

No, he doesn't. The above excerpt resembles a professional L^AT_EX program, but its purpose was only to number equations inside sections. You can achieve the same result far more easily and simply with the `amsmath` package and

```
_____ Correct input _____
\numberwithin{equation}{section}
```

Don't overuse the sectional commands; and also don't use subsections if you don't have subsections!

To be honest, the article contained also

```
_____ Original input _____
\newtheorem{Theorem}[subsection]{Theorem}
\newtheorem{Lemma}[subsection]{Lemma}
```

and so on, so it had subsections! Of course, it is easier to achieve the same result with

```
_____ Correct input _____
\newtheorem{Theorem}{Theorem}[section]
\newtheorem{Lemma}{Lemma}[Theorem]
\numberwithin{equation}{Theorem}
```

For the `dsp` environment, a very easy replacement could be

```
_____ Correct input _____
\newenvironment{dsp}
  {\refstepcounter{equation}\begin{trivlist}
  \item[](\theequation)}
  {\end{trivlist}}
```

It is not advisable to tamper with `\hangindent` and `\hangafter` if you don't know what you are doing. The spacing chosen by the author was arbitrary, to say the least.

14 Groups

```
_____ Original input _____
\newcommand{\supp}[1]{%
  \mbox{$\left[ \, , #1\, , \right]$}}
\newcommand{\suppl}[1]{%
  \mbox{$\left[ \, , #1\, , \right]_\lambda$}}
\newcommand{\suppa}[1]{%
  \mbox{$\left[ \, , #1\, , \right]_A$}}
\newcommand{\norm}[1]{%
  \mbox{$\parallel\! \! #1 \! \! \parallel$}}
\newcommand{\norma}[1]{%
  \mbox{$\parallel\! \! #1 \! \! \parallel_A$}}
```

The purpose of putting all these things inside a `\mbox` is an unconceivable mystery. Note the astounding weirdness of using a relation symbol such as `\parallel` instead of the correct delimiter `\|`. If the definition is without `\left` and `\right`, it would be better to use the pair `\lVert` — `\rVert` available with `amsmath`.

More: all variation must be defined in abstract terms, so that it is sufficient to change only one of them, if needed.

```

Correct input
\newcommand{\supp}[1]{\left[#1\right]}
\newcommand{\suppl}[1]{\supp[#1]_\lambda}
\newcommand{\suppa}[1]{\supp[#1]_A}
\newcommand{\norm}[1]{\left|#1\right|}
\newcommand{\norma}[1]{\norm[#1]_A}

```

15 Uniformity

```

Original input
\{\gbar = g+U: g\in G\}

$\supp{g}=\{(\a,i)\in\1\times\rho\,
  \, \, g_{\a,i}\ne 0\}$

$$G^{\a}=\{df \{g\in G, \, \, \norm{g}<\a \} \} \ (\a<1).$$

```

These three excerpts didn't show in the same page, but they were *in one and the same paper*. Three different notations are used to denote one and the same thing.

Don't do this yourself, try to be consistent. It can be convenient to define a suitable command, for example

```

\newcommand{\set}[2]{\{\, #1 \mid #2 \, \}}

```

16 Two consecutive paragraphs

```

Original input
Recall [ComRo, page 5] that a Tychonoff space is called  $\omega$ -compact provided every its countable subset lies in a compact subspace.

```

```

Recall  $\mbox{\rm[U1, p. 39]}$  that a topological ring  $\mathbb{R}$  is said to be  $\text{\textit{left countably linearly compact}}$  if:

```

I'm not blaming the use of the English language, of course. You can spot strange ways of inserting similar objects, in this case bibliographical citations. The use of `\cite` allows for avoiding the problem that I think was at the origin of the mysterious `\mbox{\rm. . .}`: the fact that in statements of theorems, the citation (when done by hand) comes up in italics. Verify, as an exercise, that `\cite` yields the citation in roman.

```

Correct input
Recall that a Tychonoff space is called  $\omega$ -compact  $\text{\textit{[ComRo]}}$  when each of its countable subsets lies in a compact subspace.

```

```

Recall that a topological ring  $\mathbb{R}$  is said to be

```

```

\emph{left countably linearly compact}~\cite[p.~39]{U1} if ...

```

Don't forget the non-breakable space; use `\emph` instead of explicit font change commands.

17 Bibliographies

```

Original input
\section*{References}

\begin{itemize}

\item[[{CR90}]] C.W.\,Curtis and I.\,Reiner, Methods of Representation Theory: with Applications to Finite Groups and Orders, Vol. 1, Classic Library Edn, John Wiley and Sons, 1990.

```

The `thebibliography` environment does what the author painfully wants to achieve by hand and much more better, because it sets up a list taking into account the width of the label given as an argument.

Note the pathetic `[[{CR90}]]` and the arbitrary spacing between initials and surnames. I prefer to space normally the initials, others recommend a thin space. Act consistently.

```

Correct input
\begin{thebibliography}{CR90}

\bibitem[CR90]{CR90} C. W. Curtis and I. Reiner, Methods of Representation Theory: with Applications to Finite Groups and Orders, Vol. 1, Classic Library Edition, John Wiley and Sons, 1990.

```

Another bibliography.

```

Original input
\bibitem{HKK} C.Y.Hong, N.K.Kim and T.K.Kwak, Ore extensions of Baer and p.p.-rings, {\it J. Pure Appl. Algebra}{\bf 151}(2000), 215-226.
\bibitem{J}S.J.\/{o}ndrup, p.p.rings and finitely generated flat ideals, {\it Proc.Amer.Soc.} {28}(1971), 431-435.

```

Line 1: Fortunately, it is rare to see similar things. Write `C.\,Y. Hong`, if you prefer, but definitely put a space between initials and surname.

Line 3: In the frenzy of font changing the spaces are lost. Perhaps, using `\textbf` instead of the obsolete `\bf`, it wouldn't have happened.

Line 4: We can't understand what the command `\/` is there for; the name of the cited author is "Jøndrup"; probably the author said to himself: "The slash is a kind of accent, it should be done with a slash, shouldn't it?" No.

Line 6: Inconsistent spacing; the name of the journal is wrong; the number intervals must be denoted with the en dash.

```

Correct input
\bibitem{HKK}
C. Y. Hong, N. K. Kim and T. K. Kwak, Ore extensions of Baer and p.p.-rings, \emph{J. Pure Appl. Algebra}{\textbf{151}}~(2000), 215--226.

```

```
\bibitem{J}
S. J{\o}ndrup, p.p.rings and finitely generated flat
ideals, \emph{Proc. Amer. Math. Soc.}
\textbf{28}^~(1971), 431--435.
```

18 Inventing hot water

```
Original input
\newenvironment{demo}{\par\noindent
{\bf Proof.}}{\$rule{4pt}{8pt}$\par}
```

A variation on the theme of proofs. Don't reinvent the wheel—use `amsthm` which also provides the command `\qedhere` to solve the puzzling situations when a proof ends with a displayed equation.²

The proposed definition is *completely wrong*:

1. it doesn't set vertical space before and after the environment.
2. it uses obsolete commands;
3. puts a black mark after the last full stop in the proof, with an awful effect.

19 Inventing lukewarm water

```
Original input
A distance $d$ for $G$ is said to be faithful,
if the following (*) is satisfied.
```

```
\vspace{1ex}
(*) \ \ \ If $d(\alpha, \alpha') = 0$, then
$G_{\alpha}$ and
$G_{\alpha'}$ are isomorphic.
```

```
\vspace{1ex}
As a matter of form, at least one faithful distance
always exists.
```

What to say about this gem? The author is puzzled with a condition to which he doesn't want to give a name, but a symbol. Use `amsmath`.

```
Correct input
A distance $d$ for $G$ is said to be faithful, if
the following~\thetag{*} is satisfied.
\begin{equation}\tag{*}
\text{If $d(\alpha, \alpha') = 0$, then $G_{\alpha}$
and $G_{\alpha'}$ are isomorphic.}
\end{equation}
```

Such a label can be referred to in abstract way with `\thetag{*}`; the document class will provide the correct parentheses around the symbol. You can also assign a `\label` to the equation and use `\ref` or `\eqref`.

² This is an occasion to remember Michael J. Downes, esteemed developer of AMS- \LaTeX ; we all miss him.

20 Inventing cold water

```
Original input
\def\yi{\mbox{\rm (i) \hspace{0.3em}}}
\def\yii{\mbox{\rm (ii) \hspace{0.3em}}}
\def\yiii{\mbox{\rm (iii) \hspace{0.3em}}}
\def\yiv{\mbox{\rm (iv) \hspace{0.3em }}}
\def\yv{\mbox{\rm (v) \hspace{0.3em }}}
%
\def\ya{\mbox{\rm (a) \hspace{0.3em}}}
\def\yb{\mbox{\rm (b) \hspace{0.3em}}}
\def\yc{\mbox{\rm (c) \hspace{0.3em}}}
\def\yd{\mbox{\rm (d) \hspace{0.3em}}}
\def\ye{\mbox{\rm (e) \hspace{0.3em}}}
```

The author defines by hand the list making commands. Enough said.

21 The search for perfection

```
Original input
\section{\protect\bigskip Introduction}

Original input
\section{$\bigskip\mathbf{Introduction}$}
```

The two examples are drawn from different documents. Their authors wanted to increase the spacing between the title and the text of the section. Clearly they did it in a terrible way; the second example is ridiculous. What a surprise when compiling also the table of contents!

These decisions are best left to the document class, in particular if you are sending the paper for subsequent copy editing. If you feel that the spacing is not satisfying for your personal taste and for personal documents, then use packages such as `sectsty` or `titlesec`.

22 Nirvana

```
Original input
\title{Semigroup$!\$ Rings$!\$ that$!\$
are$!\$ Inside$!\$ Factorial\!
$!\$and$!\$ their$!\$ Cale$!\$
Representation}
```

Lo giuro sul mio onore. This is a quotation from Mozart's "Don Giovanni", libretto by Lorenzo Da Ponte, Act I, Scene 4. But it is that scoundrel Don Giovanni who says that, the reader will object. Yes, but trust me that the example is real, I still keep it religiously.

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