

## GUIDE

### *International Journal of Computer Mathematics*— $\text{\LaTeX}$ 2 $\epsilon$ style guide for authors (Style 2 + References Style S)

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This guide is for authors who are preparing papers for the Taylor & Francis journal *International Journal of Computer Mathematics* (*gCOM*) using the  $\text{\LaTeX}$  2 $\epsilon$  document preparation system and the Class file `gCOM2e.cls`, which is available via the journal homepage on the Taylor & Francis website (see Section 8). Authors planning to submit their papers in  $\text{\LaTeX}$  2 $\epsilon$  are advised to use `gCOM2e.cls` as early as possible in the creation of their files.

**Keywords:** submission instructions; source file coding; environments; references citation; fonts; numbering (**Authors: Please provide up to five keywords taken from terms used in your manuscript**)

**AMS Subject Classification:** F1.1; F4.3 (... for example; authors are requested to provide some AMS Subject Classification codes and/or some CR Category numbers, and/or some MCS codes, and/or some Computing Classification System codes)

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## 1. Introduction

All manuscript submissions from authors to *International Journal of Computer Mathematics* (*gCOM*) should be made online via the Manuscript Central site (<http://mc.manuscriptcentral.com/gcom>) – see Section 1.2. Submissions should be converted to a standard format such as Word or PDF, and these files should be uploaded together with the source files in Microsoft® Word or L<sup>A</sup>T<sub>E</sub>X 2<sub>ε</sub> together with any associated graphics files.

The layout design for *gCOM* has been implemented as a L<sup>A</sup>T<sub>E</sub>X 2<sub>ε</sub> Class file. The *gCOM* Class file is based on `article.cls`. Commands that differ from the standard L<sup>A</sup>T<sub>E</sub>X 2<sub>ε</sub> interface, or which are provided in addition to the standard interface, are explained in this guide. This guide is not a substitute for the L<sup>A</sup>T<sub>E</sub>X 2<sub>ε</sub> manual itself.

This guide can be used as a template for composing an article for submission by cutting, pasting, inserting and deleting text as appropriate, using the LaTeX environments provided (e.g. `\begin{equation}`, `\begin{corollary}`).

**Please note that the index following the abstract in this guide is provided for information only. An index is not required in submitted papers.**

### 1.1 The *gCOM* document style

The use of L<sup>A</sup>T<sub>E</sub>X 2<sub>ε</sub> document styles allows a simple change of style (or style option) to transform the appearance of your document. The *gCOM*2e Class file preserves the standard L<sup>A</sup>T<sub>E</sub>X 2<sub>ε</sub> interface such that any document that can be produced using the standard L<sup>A</sup>T<sub>E</sub>X 2<sub>ε</sub> `article` style can also be produced with the *gCOM* style. However, the measure (or width of text) is narrower than the default for `article`, therefore line breaks will change and long equations may need re-formatting.

When your article appears in the print edition of the *gCOM* journal, it is typeset in Monotype Times. As most authors do not own this font, it is likely that the page make-up will change with the change of font. For this reason, we ask authors to ignore details such as slightly long lines, page stretching, or figures falling out of synchronization with their citations in the text, because these details will be dealt with during proofing. Similarly, it is unnecessary to spend time addressing warnings in the .log file—if your .tex file compiles to produce a .dvi file that correctly reflects how you wish your paper to appear when printed, such warnings will not prevent your source files being imported into the typesetter’s program.

### 1.2 Submission of L<sup>A</sup>T<sub>E</sub>X 2<sub>ε</sub> articles to the journal

All submissions should be made online at the *International Journal of Computer Mathematics* Manuscript Central site (<http://mc.manuscriptcentral.com/gcom>). New users should first create an account. Once a user is logged onto the site, submissions should be made via the Author Centre. Submission of manuscripts created using L<sup>A</sup>T<sub>E</sub>X 2<sub>ε</sub> should be converted to PDF format, and the PDF version should be uploaded in addition to the original L<sup>A</sup>T<sub>E</sub>X 2<sub>ε</sub> source files and graphics files. General Instructions for Authors may be found at <http://www.tandf.co.uk/journals/authors/gcomauth.asp>. Appropriate gaps should be left for figures, for which original electronic files should be supplied. Authors should ensure that their figures are suitable (in terms of lettering size, etc.) for the reductions they intend.

Only ‘open-source’ L<sup>A</sup>T<sub>E</sub>X 2<sub>ε</sub> should be used, not proprietary systems such as TCI LaTeX or Scientific WorkPlace. Similarly, Class files such as REVTeX4 that

produce a document in the style of a different publisher and journal should not be used for preference.

Authors who wish to incorporate Encapsulated PostScript artwork directly in their articles can do so by using Tomas Rokicki's EPSF macros (which are supplied with the DVIPS PostScript driver). See Section 2.1, which also demonstrates how to treat landscape pages. Please remember to supply any additional figure macros you use with your article in the preamble before `\begin{document}`. Authors should not attempt to use implementation-specific `\special`'s directly.

Ensure that any author-defined macros are gathered together in the source file, just before the `\begin{document}` command.

Please note that, if serious problems are encountered with the coding of a paper (missing author-defined macros, for example), it may prove necessary to divert the paper to conventional typesetting, i.e. it will be re-keyed.

## 2. Using the *gCOM* Class file

If the file `gCOM2e.cls` is not already in the appropriate system directory for  $\text{\LaTeX} 2_{\epsilon}$  files, either arrange for it to be put there, or copy it to your working folder. The *gCOM* document style is implemented as a complete document style, *not* a document style option. In order to use the *gCOM* style, replace '`article`' by '`gCOM2e`' in the `\documentclass` command at the beginning of your document:

```
\documentclass{article}
```

is replaced by

```
\documentclass{gCOM2e}
```

In general, the following standard document style options should *not* be used with the *gCOM* style:

- (1) `10pt`, `11pt`, `12pt`—unavailable;
- (2) `oneside` (no associated style file)—`oneside` is the default;
- (3) `leqno` and `titlepage`—should not be used;
- (4) `singlecolumn`—is not necessary as it is the default style.

### 2.1 Landscape pages

If a table or illustration is too wide to fit the standard measure, it must be turned, with its caption, through  $90^\circ$  anticlockwise. Landscape illustrations and/or tables can be produced directly using the *gCOM2e* style file using `\usepackage{rotating}` after `\documentclass{gCOM2e}`. The following commands can be used to produce such pages.

```
\setcounter{figure}{2}
\begin{sidewaysfigure}
\centerline{\epsfbox{fig1.eps}}
\caption{This is an example of figure caption.}
\label{landfig}
\end{sidewaysfigure}

\setcounter{table}{0}
\begin{sidewaystable}
\tbl{The Largest Optical Telescopes.}
\begin{tabular}{@{}l}
\end{tabular}
\end{sidewaystable}
```

```

      .
      .
      .
\end{tabular}\label{tab1}
\end{sidewaystable}

```

Before any float environment, use the `\setcounter` command as above to fix the numbering of the caption. Subsequent captions will then be automatically renumbered accordingly.

### 3. Additional features

In addition to all the standard  $\text{\LaTeX} 2_{\epsilon}$  design elements, *gCOM* style includes a separate command for specifying short versions of the authors' names and the journal title for running headlines on the left-hand (verso) and right-hand (recto) pages, respectively (see Section 4.4). In general, once you have used this additional `gCOM2e.cls` feature in your document, do not process it with a standard  $\text{\LaTeX} 2_{\epsilon}$  style file.

#### 3.1 Footnotes to article titles and authors' names

On the title page, the `\thanks` command may be used to produce a footnote to either the title or authors' names.

Footnote symbols should be used in the order: † (coded as `\dagger`), ‡ (`\ddagger`), § (`\S`), ¶ (`\P`), || (`\I`), †† (`\dagger\dagger`), ‡‡ (`\ddagger\ddagger`), §§ (`\S\S`), ¶¶ (`\P\P`), ||| (`\I\I\I`).

Note that footnotes to the text will automatically be assigned the superscript symbols 1, 2, 3,... by the Class file, beginning afresh on each page.<sup>1</sup>

The title, author(s) and affiliation(s) should be followed by the `\maketitle` command.

#### 3.2 Abstracts

At the beginning of your article, the title should be generated in the usual way using the `\maketitle` command. Immediately following the title you should include an abstract. The abstract should be enclosed within an `abstract` environment. For example, the titles for this guide were produced by the following source code:

```

\title{International Journal of Computer Mathematics: \LaTeX\ style %
guide for authors}

\author{Taylor \& Francis Limited, 4 Park Square,
Milton Park, Abingdon, OX14 4RN, UK} \received{v3.6 released September 2008}

\maketitle
\begin{abstract}

```

---

<sup>1</sup>These symbols will be changed to the style of the journal by the typesetter during preparation of your proofs.

This guide is for authors who are preparing papers for the Taylor & Francis journal `{\em International Journal of Computer Mathematics}` (`{\it gCOM}`), using the `\LaTeXe` document preparation system and the Class file `{\tt gCOM2e.cls}`, which is available via the journal homepage on the Taylor & Francis website (see Section~\ref{FTP}). Authors planning to submit their papers in `\LaTeXe` are advised to use `{\tt gCOM2e.cls}` as early as possible in the creation of their files. `\end{abstract}`

(Please note that the percentage signs at the ends of lines that quote source code in this document are not part of the coding but have been inserted to achieve line wrapping at the appropriate points.)

### 3.3 Lists

The *gCOM* style provides numbered and unnumbered lists using the `enumerate` environment and bulleted lists using the `itemize` environment.

The enumerated list numbers each list item with arabic numerals:

- (1) first item
- (2) second item
- (3) third item

Alternative numbering styles can be achieved by inserting a redefinition of the number labelling command after the `\begin{enumerate}`. For example, the list

- (i) first item
- (ii) second item
- (iii) third item

was produced by:

```
\begin{enumerate}
  \item[(i)] first item
  \item[(ii)] second item
  \item[(iii)] third item
\end{enumerate}
```

Unnumbered lists are also provided using the `enumerate` environment. For example,

- First unnumbered indented item without label.
- Second unnumbered item.
- Third unnumbered item.

was produced by:

```
\begin{enumerate}
  \item[] First unnumbered indented item...
  \item[] Second unnumbered item.
  \item[] Third unnumbered item.
\end{enumerate}
```

Bulleted lists are provided using the `itemize` environment. For example,

- First bulleted item
- Second bulleted item
- Third bulleted item

was produced by:

```
\begin{itemize}
\item First bulleted item
\item Second bulleted item
\item Third bulleted item
\end{itemize}
```

#### 4. Some guidelines for using standard features

The following notes may help you achieve the best effects with the gCOM2e Class file.

##### 4.1 Sections

L<sup>A</sup>T<sub>E</sub>X 2<sub>ε</sub> provides five levels of section headings and they are all defined in the gCOM2e Class file:

- (1) `\section`
- (2) `\subsection`
- (3) `\subsubsection`
- (4) `\paragraph`
- (5) `\subparagraph`

Numbering is automatically generated for section, subsection, subsubsection and paragraph headings. If you need additional text styles in the headings, see the examples in Section 5.

##### 4.2 Illustrations (figures)

The *gCOM* style will cope with most positioning of your illustrations and you should not normally use the optional positional qualifiers of the `figure` environment, which would override these decisions. See ‘Instructions for Authors’ in the journal’s homepage on the Taylor & Francis website for how to submit artwork (<http://www.tandf.co.uk/journals/authors/gcomauth.asp>). Figure captions should be below the figure itself, therefore the `\caption` command should appear after the figure. For example, Figure 1 with caption and sub-captions is produced using the following commands:

```
\begin{figure}
\begin{center}
\subfigure[] {
\resizebox*{5cm}{!}{\includegraphics{senu_gr1.eps}}} %
\subfigure[] {
\resizebox*{5cm}{!}{\includegraphics{senu_gr2.eps}}} %
\caption{\label{fig2} Example of a two-part figure with individual %
sub-captions showing that all lines of figure captions range left.}%
\label{sample-figure}
\end{center}
\end{figure}
```

The control sequences `\epsfig{}`, `\subfigure{}` and `\includegraphics{}` require `epsfig.sty`, `subfigure.sty` and `graphicx.sty`. These are called by the Class file

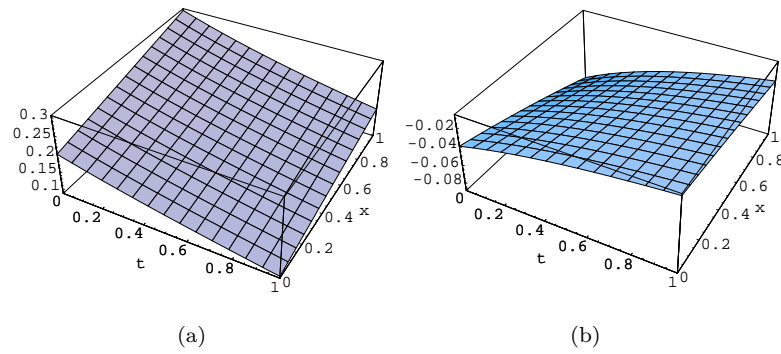


Figure 1. Example of a two-part figure with individual sub-captions showing that all lines of figure captions range left.

Table 1. Radio-band beaming model parameters for FSRQs and BL Lacs.

Class <sup>a</sup>	$\gamma_1$	$\gamma_2^b$	$\langle \gamma \rangle$	$G$	$f$	$\theta_c$
BL Lacs	5	36	7	-4.0	$1.0 \times 10^{-2}$	$10^\circ$
FSRQs	5	40	11	-2.3	$0.5 \times 10^{-2}$	$14^\circ$

<sup>a</sup>This is not as accurate, owing to numerical error.

<sup>b</sup>An example table footnote to show the text turning over when a long footnote is inserted.

gCOM2e.cls and are included with the LaTeX package for this journal for convenience.

To ensure that figures are correctly numbered automatically, the `\label{}` command should be inserted just after `\caption{}`

### 4.3 Tables

The *gCOM* style will cope with most positioning of your tables and you should not normally use the optional positional qualifiers of the `table` environment, which would override these decisions. The table caption appears above the body of the table in *gCOM* style, therefore the `\tbl` command should appear before the body of the table.

The `tabular` environment can be used to produce tables with single thick and thin horizontal rules, which are allowed, if desired. Thick rules should be used at the head and foot only and thin rules elsewhere.

Commands to redefine quantities such as `\arraystretch` should be omitted. For example, table 1 is produced using the following commands. Note that `\rm` will produce a roman character in math mode. There are also `\bf` and `\it`, which produce bold face and text italic in math mode.

```
\begin{table}
  \tbl{Radio-band beaming model parameters
        for {FSRQs and BL Lacs.}}
{\begin{tabular}{@{}lcccccc}\toprule
  Class$\sim{\rm a}$
  & $\gamma_1$ & $\gamma_2\sim{\rm b}$
  & $\langle \gamma \rangle$ & $G$
  & $f$ & $\theta_c$ \\
  \colrule
  BL Lacs & 5 & 36 & 7 & -4.0$
```

```

        & $1.0\times 10^{-2}$ & 10$\circ$ \\
FSRQs & 5 & 40 & 11 & $-2.3$ \\
        & $0.5\times 10^{-2}$ & 14$\circ$ \\
\botrule
\end{tabular}}
\tabnote{$^{\rm a}$}This is not as accurate, owing to
        numerical error.}
\tabnote{$^{\rm b}$}An example table footnote to show the
        text turning over when a long footnote is inserted.}%
        \label{symbols}
\end{table}

```

To ensure that tables are correctly numbered automatically, the `\label{}` command should be inserted just before `\end{table}`.

#### 4.4 Running headlines

In *gCOM* style, the authors' names and the title of the journal are used throughout the article as running headlines at the top of alternate pages. An abbreviated list of authors' names in italic format appears on even-numbered pages (versos)—e.g. '*J. Smith and P. Jones*', or '*J. Smith et al.*' for three or more authors—and the abbreviated journal title in italic format is used on odd-numbered pages (rectos). To achieve this, the `\markboth` command is used. The running headlines for this guide were produced using the following code: `\markboth{Taylor & Francis and I.T. Consultant}{International Journal of Computer Mathematics}`. The `\pagestyle` and `\thispagestyle` commands should *not* be used.

#### 4.5 Maths environments

The *gCOM* style provides for the following maths environments.

LEMMA 4.1 *More recent algorithms for solving the semidefinite programming relaxation are particularly efficient, because they explore the structure of the MAX-CUT.*

THEOREM 4.2 *More recent algorithms for solving the semidefinite programming relaxation are particularly efficient, because they explore the structure of the MAX-CUT.*

COROLLARY 4.3 *More recent algorithms for solving the semidefinite programming relaxation are particularly efficient, because they explore the structure of the MAX-CUT.*

PROPOSITION 4.4 *More recent algorithms for solving the semidefinite programming relaxation are particularly efficient, because they explore the structure of the MAX-CUT.*

*Proof* More recent algorithms for solving the semidefinite programming relaxation are particularly efficient, because they explore the structure of the MAX-CUT. ■

*Remark 1* More recent algorithms for solving the semidefinite programming relaxation are particularly efficient, because they explore the structure of the MAX-CUT problem.

*Algorithm 1* More recent algorithms for solving the semidefinite programming relaxation are particularly efficient, because they explore the structure of the MAX-



CUT problem.

These were produced by:

```
\begin{lemma}
More recent algorithms for solving the semidefinite
programming relaxation are particularly efficient,
because they explore the structure of the MAX-CUT.
\end{lemma}

\begin{theorem}
...
...
\end{theorem}

\begin{corollary}
...
...
\end{corollary}

\begin{proposition}
...
...
\end{proposition}

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

\begin{remark}
...
...
\end{remark}

\begin{algorithm}
...
...
\end{algorithm}
```

## 4.6 *Typesetting mathematics*

### 4.6.1 *Displayed mathematics*

The *gCOM* style will set displayed mathematics centred on the measure without equation numbers, provided that you use the  $\text{\LaTeX} 2_{\epsilon}$  standard control sequences open ( $\lceil$ ) and close ( $\rceil$ ) square brackets as delimiters. The equation

$$\sum_{i=1}^p \lambda_i = \text{trace}(\mathbf{S}) \quad i \in \mathbb{R}$$

was typeset in the *gCOM* style using the commands

```
\[
\sum_{i=1}^p \lambda_i = {\rm trace}({\textrm{\bf S}})\quad
i\in {\mathbb R}
\].
```

For those of your equations that you wish to be automatically numbered sequentially throughout the text, use the `equation` environment, e.g.

$$\sum_{i=1}^p \lambda_i = \text{trace}(\mathbf{S}) \quad i \in \mathbb{R} \quad (1)$$

was typeset using the commands

```
\begin{equation}
\sum_{i=1}^p \lambda_i = {\rm trace}({\textrm{\bf S}})\quad
i\in {\mathbb R}
\end{equation}
```

Part numbers for sets of equations may be generated using the `subequations` environment, e.g.

$$\varepsilon \rho w_{tt}(s, t) = N[w_s(s, t), w_{st}(s, t)]_s, \quad (2a)$$

$$w_{tt}(1, t) + N[w_s(1, t), w_{st}(1, t)] = 0, \quad (2b)$$

which was generated using the control sequences

```
\begin{subequations} \label{subeqnexample}
\begin{equation}
\varepsilon \rho w_{tt}(s, t)
=
N[w_s(s, t), w_{st}(s, t)]_s,
\label{subeqnpart}
\end{equation}
\begin{equation}
w_{tt}(1, t) + N[w_s(1, t), w_{st}(1, t)] = 0,
\end{equation}
\end{subequations}
```

This is made possible by the package `subeqn`, which is called by the `Class` file. If you put the `\label{}` just after the `\begin{subequations}` line, references will be to the collection of equations, ‘(2)’ in the example above. Or, like the example code above, you can reference each equation individually—e.g. ‘(2a)’.

#### 4.6.2 Bold math italic symbols

To get bold math italic you can use `\bm`, which works for all sizes, e.g.

```
\sffamily
\begin{equation}
{\rm d}({\bm s}_{t_{{\bm u}}}) = \langle {\bm \alpha}({\sf \textbf{L}}) \rangle \%
[{\rm RM}({\bm X}_y + {\bm s}_t) - {\rm RM}({\bm x}_y)]^2 \rangle
\end{equation}
\normalfont
```

produces

$$d(\mathbf{s}_{t_u}) = \langle \boldsymbol{\alpha}(\mathbf{L})[RM(\mathbf{X}_y + \mathbf{s}_t) - RM(\mathbf{x}_y)]^2 \rangle \quad (3)$$

Note that subscript, superscript, subscript to subscript, etc. sizes will take care of themselves and are italic, not bold, unless coded individually. `\bm` produces the same effect as `\boldmath`. `\sffamily... \normalfont` allows upright sans serif fonts to be created in math mode by using the control sequence `\sf`.

#### 4.6.3 Bold Greek

Bold lowercase as well as uppercase Greek characters can be obtained by `\bm \gamma`, which gives  $\boldsymbol{\gamma}$ , and `\bm \Gamma`, which gives  $\boldsymbol{\Gamma}$ .

#### 4.6.4 Upright lowercase Greek characters and the upright partial derivative sign

Upright lowercase Greek characters can be obtained with the Class file by inserting the letter ‘u’ in the control code for the character, e.g. `\umu` and `\upi` produce  $\mu$  (used, for example, in the symbol for the unit microns— $\mu\text{m}$ ) and  $\pi$  (the ratio of the circumference to the diameter of a circle). Similarly, the control code for the upright partial derivative  $\partial$  is `\upartial`.

### 4.7 Acknowledgements

An unnumbered section, e.g. `\section*{Acknowledgement(s)}`, should be used for thanks, grant details, etc. and placed before any Notes or References sections.

### 4.8 Notes

An unnumbered section, e.g. `\section*{Note(s)}`, may be inserted after any Acknowledgements and before any References section.

### 4.9 Appendices

Appendices should be set after the references, beginning with the command `\appendices` followed by the command `\section` for each appendix title, e.g.

```
\appendices
\section{This is the title of the first appendix}
\section{This is the title of the second appendix}
```

produces

Appendix A. This is the title of the first appendix  
Appendix B. This is the title of the second appendix

Subsections, equations, theorems, figures, tables, etc. within appendices will then be automatically numbered as appropriate.

### 4.10 References

#### 4.10.1 References cited in the text

References cited in the text should be quoted by their number as they are listed in the alphabetical References list towards the end of the document (e.g. [32], [5, 6, 14], [21–55], not [21]–[55]). To produce the References list, the bibliographic

data about each reference item should be listed in the `thebibliography` environment in alphabetical order. Each bibliographical entry has a key, which is assigned by the author and used to refer to that entry in the text. In this document, the key `glov00` in the citation form `\cite{glov00}` produces ‘[6]’, and the keys `ed84` and `ARR03` in the citation form `\cite{ed84,ARR03}` produce ‘[1, 4]’. The citation for a range of bibliographic entries (e.g. ‘[2, 3, 5, 7–12]’) will automatically be produced by `\cite{aiex02,doniz00,fzf88,GHGsoft,HudQ97,lam86,mtw73,neu83,fwp88}`. Optional notes may be included at the end of a citation by the use of square brackets, e.g. `\cite[see][and references therein]{fzf88}` produces ‘[see 5, and references therein]’.

#### 4.10.2 The list of references

The following listing shows some references prepared in the style of the journal; note that references with more than ten authors begin with the first ten authors’ initials and surnames followed by ‘et al.’; references having the same author(s) are listed chronologically, beginning with the earliest, using three em-dashes instead of repeating the author list in the second and subsequent references.

### References

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`\end{thebibliography}`

Each entry takes the form:

`\bibitem{key} Bibliography entry`

where `key` is the tag that is to be used as an argument for the `\cite{}` command. `Bibliography entry` should be the material that is to appear in the bibliography, suitably formatted.

Instead of including ‘thebibliography’ environment in the main source file of their article, authors may include the lines

`\bibliographystyle{gCOM}`  
`\bibliography{gCOMguide}`

where the references list should appear, where `gCOM.bst` is the BiBTeX style file for this journal and `gCOMguide.bib` is the database of bibliographic details for the references section (both included with the `gCOM LaTeX style guide` package). `gCOMguide.bib` can be used as a template for creating your database, which can be used with any of your future papers. The  $\text{\LaTeX 2}_{\epsilon}$  source file of a particular paper will extract from the `.bib` file only those references that are cited in that paper and listed in the references section of it. Thus

`\bibliographystyle{gCOM}`  
`\bibliography{gCOMguide}`

produces:

## References

- [1] R.M. Aiex, *Conjectured statistics for the  $q, t$ -Catalan numbers*, Advances in Math. 208 (2003), pp. 13–26.
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Table 2. *gCOM* macros.

<code>\markboth{short author(s) list}{journal title}</code>	short author(s) list and journal title in running heads (verso/recto, resp.)
<code>\thanks{title-page footnote to article title or author}</code>	e.g. ‘Corresponding author. E-mail: A.N. Author@uiowa.edu’
<code>\begin{abstract}...\end{abstract}</code>	for abstract on titlepage
<code>\bm{math and symbols}</code>	bold italic <i><b>math and symbols</b></i>
<code>\bi{text}</code>	bold italic <i><b>text</b></i>
<code>\sf{text or upright symbols in math mode}</code>	sans serif text or upright symbols in math mode

Note that only 12 of the 13 bibitems in the .bib file have appeared in the above references list because these are the only 12 cited in the text of this guide.

#### 4.11 *gCOM* macros

Table 2 gives a list of macros for use with *gCOM*. The list displays each macro’s code and a description/demonstration of its function.

### 5. Example of a section heading with SMALL CAPS, lowercase, *italic*, and bold Greek such as $\kappa$

The following code shows how to achieve this section head:

```
\section{Example of section heading with\\*
  {\fontencoding{T1}\scshape\lowercase{small caps}},
  \lowercase{lowercase}, {\bi italic},
  and bold\\* Greek such as
  ${\bm\kappa}$}\label{headings}
```

## 6. *gCOM* journal style

The notes given here relate to common style errors found in *gCOM* manuscripts, but are *not* intended to be exhaustive.

### 6.1 *Punctuation*

When deciding where to add commas, it may be helpful to read through the sentence and note where the natural ‘pauses’ occur. The needs of readers for whom English is not a first language should be borne in mind when punctuating long sentences. For example, consider the following sentence as it appeared in *gCOM*: ‘When we do not limit ourselves by constraints arising from the choice of an initial fluctuation spectrum, structures in an open universe, including the peculiar velocity structure, can be reproduced in a flat Lemaître universe for a large part of their evolution.’ Now consider the same sentence without commas: ‘When we do not limit ourselves by constraints arising from the choice of an initial fluctuation spectrum structures in an open universe including the peculiar velocity structure can be reproduced in a flat Lemaître universe for a large part of their evolution.’

## 6.2 Spelling

Please use British spelling—e.g. centre not center, labelled not labeled. The following style regarding -ise, -yse and -ize spellings is used: -ise—devise, surprise, comprise, revise, exercise; -yse—analyse; -ize: recognize, criticize, minimize, emphasize, organize.

## 6.3 Hyphens, n-rules, m-rules and minus signs

- (i) Hyphens (one dash in  $\text{T}_{\text{E}}\text{X}/\text{L}^{\text{A}}\text{T}_{\text{E}}\text{X} 2_{\varepsilon}$ ). *gCOM* uses hyphens for compound adjectives (e.g. low-density gas, least-squares fit, two-component model) but not for complex units or ranges, which could become cumbersome (e.g.  $15 \text{ km s}^{-1}$  feature,  $100\text{--}200 \text{ }\mu\text{m}$  observations).
- (ii) n-rules (two dashes in  $\text{T}_{\text{E}}\text{X}/\text{L}^{\text{A}}\text{T}_{\text{E}}\text{X} 2_{\varepsilon}$ ). These are used (a) to denote a range (e.g.  $1.6\text{--}2.2 \text{ }\mu\text{m}$ ); and (b) to denote the joining of two words of equal standing (e.g. Kolmogorov–Smirnov test, Herbig–Haro object).
- (iii) The m-rule (three dashes in  $\text{T}_{\text{E}}\text{X}/\text{L}^{\text{A}}\text{T}_{\text{E}}\text{X} 2_{\varepsilon}$ ) is used in *gCOM* as an alternative to parentheses (e.g. ‘the results—assuming no temperature gradient—are indicative of ...’).
- (iv) The minus sign (one dash in  $\text{T}_{\text{E}}\text{X}/\text{L}^{\text{A}}\text{T}_{\text{E}}\text{X} 2_{\varepsilon}$ ) is produced automatically in math mode by use of a single dash, e.g.

$$y_i \in \{-1, 1\} \quad \forall i \in V \quad (4)$$

where  $|-V| = A^2 + B^2$

is produced by

```
\begin{equation}
y_{\{i\}} \in \{-1, 1\} \quad \forall i \in V
\end{equation}
\noindent where  $|-V|=A^2+B^2$ 
```

## 6.4 References

It is important to use the correct reference style, details of which can be found in Section 4.10 above.

## 6.5 Maths fonts

Scalar variables should be mediumface italic (e.g. *s* for speed); vectors should be bold italic (e.g. ***v*** for velocity); matrices should be bold roman (upright) (e.g. **A**), and tensors should be bold upright sans serif (e.g. **L**). Differential d, partial differential  $\partial$ , complex i, exponential e, superscript T for ‘transpose’, sin, cos, tan, log, etc., should all be roman. Openface, or ‘blackboard’, fonts can be used, for example, for the integers  $\mathbb{Z}$  and the reals  $\mathbb{R}$ . Sub/superscripts that are physical variables should be italic, while those that are labels should be roman (e.g.  $C_p$ ,  $T_{\text{eff}}$ ). Displayed equations should have end-of-line punctuation appropriate to the running text sentence of which they form a part.



## 7. Troubleshooting

Authors may from time to time encounter problems with the preparation of their papers in L<sup>A</sup>T<sub>E</sub>X 2<sub>ε</sub>. The appropriate action to take will depend on the nature of the problem – the following is intended to act as a guide.

- (i) If the problem is with L<sup>A</sup>T<sub>E</sub>X 2<sub>ε</sub> itself, rather than with the actual macros, please refer to the appropriate handbooks for initial advice.<sup>1</sup> If the solution cannot be found, and you suspect that the problem lies with the macros, then please contact Taylor & Francis ([latex.helpdesk@tandf.co.uk](mailto:latex.helpdesk@tandf.co.uk)).
- (ii) Problems with page make-up (e.g. large spaces between paragraphs, or under headings or figures; uneven columns; figures/tables appearing out of order): please do *not* attempt to remedy these yourself using ‘hard’ page make-up commands – the typesetter will correct such problems. (You may, if you wish, draw attention to particular problems when submitting the final version of your paper.)
- (iii) If a required font is not available at your site, allow T<sub>E</sub>X to substitute the font and specify which font you require in the covering letter accompanying your file(s).

### 7.1 Fixes for coding problems

This guide has been designed to minimize the need for user-defined macros to create special symbols. Authors are urged, wherever possible, to use the following coding rather than to create their own. This will minimize the danger of author-defined macros being accidentally ‘over-ridden’ when the paper is typeset in Times (see Section 4.6, ‘Typesetting mathematics’ above). In cases where it is essential to create your own macros, these should be displayed in the preamble of the source file before `\begin{document}`.

- (i) Fonts in section headings and paper titles. The following are examples of styles that sometimes prove difficult to code.

#### *Paper titles:*

##### **Generalized Flory theory at $\delta > 50^\circ$**

is produced by

```
\title{Generalized Flory theory at
      ${\bm\delta} > {\bfseries 50}^\circ$}
```

##### **Ion–ion correlations in H II regions**

is produced by

```
\title{Ion--ion correlations in H\,{\sc ii} regions}
```

- (ii) n-rules, m-rules, hyphens and minus signs (see Section 6.3 for correct usage). To create the correct symbols in the sentence

---

<sup>1</sup>T<sub>E</sub>X: Knuth, D., 1986, *The T<sub>E</sub>X book* (New York: Addison–Wesley); L<sup>A</sup>T<sub>E</sub>X 2<sub>ε</sub>: Lamport, L., 1985, *L<sup>A</sup>T<sub>E</sub>X 2<sub>ε</sub> User’s Guide and Reference Manual* (New York: Addison–Wesley).

The high-resolution observations were made along a line at an angle of  $-15^\circ$  (East from North) from the axis of the jet—which runs North–South

you would use the following code:

The high-resolution observations were made along a line at an angle of  $-15^\circ$  (East from North) from the axis of the jet---which runs North--South

- (iii) Fonts in superscripts and subscripts. Subscripts and superscripts will automatically come out in the correct font and size in a math environment (e.g. enclosed by ‘\$’ delimiters in running text or within  $\backslash[\dots\backslash]$  or the ‘equation’ environment for displayed equations). You can create the output  $\mathbf{k}_x$  by typing  $\backslash\{\bm k_x\}$ . If the subscripts or superscripts need to be other than italic, they should be coded individually—see (vi) below.
- (iv) Calligraphic letters (uppercase only). Normal calligraphic can be produced with  $\backslash\mathrm{cal}$  as usual (in math mode).
- (v) Automatic scaling of brackets. The codes  $\backslash\mathrm{left}$  and  $\backslash\mathrm{right}$  should be used to scale brackets automatically to fit the equation being set. For example, to get

$$v = x \left( \frac{N + 2}{N} \right)$$

use the code

```
\[
  v = x \left( \frac{N+2}{N} \right)
\]
```

- (vi) Roman font in equations. It is often necessary to make some symbols roman in an equation (e.g. units, non-variable subscripts). For example, to get the following output:

$$\sigma \simeq (r/13 \text{ } h^{-1} \text{ Mpc})^{-0.9}, \quad \omega = \frac{N - N_s}{N_R}$$

you should use:

```
\[
  \sigma \simeq (r/13~h^{-1}
  ~{\rm Mpc})^{-0.9}, \quad \omega
  =\frac{N-N_{\rm s}}{N_{\rm R}}
\]
```

## 8. Obtaining the gCOM2e Class file

### 8.1 Via the Taylor & Francis website

This Guide for Authors and the gCOM2e.cls Class file may be obtained via the Instructions for Authors on the Taylor & Francis homepage for the journal (<http://www.tandf.co.uk/journals/titles/00207160.asp>).

Please note that the Class file calls up the following open-source LaTeX packages, which will, for convenience, unpack with the downloaded Guide for Authors and Class file: amsbsy.sty, amsfons.sty, amsmath.sty, amssymb.sty, epsfig.sty, graph-icx.sty, rotating.sty and subfigure.sty.

## **8.2 Via e-mail**

This Guide for Authors, the Class file and the associated open-source LaTeX packages are also available by e-mail. Requests should be addressed to `latex.helpdesk@tandf.co.uk` clearly stating for which journal you require the Guide for Authors and/or Class file.