SUBMITTING A PAPER IN ELECTRONIC FORM TO THE APPLIED PROBABILITY JOURNALS

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Abstract

This short document explains how to use the Applied Probability LaTeX class file. It also gives some brief advice on style.

1. Introduction

In recent years TeX and its various flavours, particularly LaTeX, have become widely used by the mathematical community. To respond to this development, the Applied Probability Trust has produced a LaTeX class file for authors preparing a paper for *Advances in Applied Probability* or the *Journal of Applied Probability*. Authors using this class file should derive several benefits. In particular, the production process will be quicker and proofs should be free from typographical errors introduced at the typesetting stage. Please note, however, that submission in LaTeX is *not* a *requirement* for acceptance. The Trust will continue to accept conventional typescripts and papers produced using other word processing packages. Authors who do not use LaTeX are encouraged to obtain the Trust's earlier publication, *The Author's Guide to the Applied Probability Journals* [3] from the Applied Probability editorial office (the address of the editorial office is given at the foot of this page). The *Guide* contains advice on how to prepare a conventional typescript for submission to the Applied Probability journals.

We prefer papers to be written using LaTeX 2_ε, which is now the 'standard' version of LaTeX. We will accept the source code of papers written with an older version of LaTeX, with TeX itself, or with one of the other flavours. However, the macros described in this document are designed for use with LaTeX 2_ε, and at present we will only support LaTeX 2_ε files.

Before describing the Applied Probability class file, four points are in order.

First, this document is *not* a tutorial on how to use LaTeX 2_ε. Such tutorials already exist (see, for example, [1]). Knuth's book [2] remains a useful reference, even for users of LaTeX.

Second, we strongly encourage all authors to use *generic* markup rather than *layout* markup. Generic markup simply means indicating the logical components of your paper: the title, the references, the various sections and so on. Layout markup means adding specific commands that define the visual appearance of the paper. When using generic markup the layout commands are placed in a separate style file. Thus, it is always better to use a generic markup command such as

```
\section{This is a section heading}
```

rather than a series of layout commands such as

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** Email address: d.cruickshank@sheffield.ac.uk

```
\vspace*{10pt}
\noindent{\bf 1.\quad This is a section heading}
\bigskip
```

From the point of view of the author, generic markup has several advantages over layout markup. In the example above, for instance, it is quite possible that the author using layout commands might inadvertently give different layout commands for different section headings. This could result in inconsistent section headings, or ambiguous section numbering. The author using layout commands has more to type. Furthermore, the author using layout commands must constantly be aware of the visual appearance of the document, rather than devoting full attention to what is important: the content of the document.

From the point of view of the AP office, generic markup is advantageous because it quickly enables us to re-use the information contained in your paper in different ways (for instance, we can quickly extract abstracts and place them on-line). Furthermore, it saves us from the time-consuming job of re-formatting a paper written using visual markup that is inappropriate to the AP journals.

Third, the class file issues a `\baselinestretch` command that increases the spacing between lines. This may not look too pleasing (and Knuth wrote TEX, after all, 'for the creation of beautiful books'), but the extra spacing is important: it gives room for our referees to make comments on the manuscript, and it gives room for our technical editors to edit the manuscript. Therefore, at least one copy of the submission should have this extra spacing. If you want to print a single-space version of your manuscript, issue a

```
\renewcommand{\baselinestretch}{1}
```

command in the preamble.

Finally, the class file assumes that you will be using Computer Modern fonts, since these are the most common fonts available with LATEX. When your paper appears in one of the AP journals, however, Times fonts will have been used for both text and mathematics. The conversion from Computer Modern to Times will be done in the editorial office.

2. The Applied Probability Trust files

The Applied Probability LATEX package consists of three main files: (i) the Applied Probability public class file, `aptpub.cls`, (ii) a simple template to help authors prepare their papers using our class file, `template.tex`, (iii) our BIBTEX style file, `apt.bst` and (iv) this document, `guide.pdf`.

In the following sections we describe how to use the macros defined in the Applied Probability class file.

3. Preamble

The preamble is the part of the LATEX input file preceding the `\begin{document}` command. The first line in the preamble to your document (in fact, the first uncommented line in your source code) *must* be

```
\documentclass{aptpub}
```

This command invokes the Applied Probability class file, which is based upon the standard LATEX `article` class.

To specify the running heads of your article, use the commands

```
\authornames{AUTHOR NAMES}
\shorttitle{Short title}
```

in the preamble. The command `\authornames` defines the author names that will appear as the running head on even-numbered pages. Put the author names that you wish to appear on the running head within the brackets. If the paper has three or more authors, you may have to use '*ET AL.*'. The command `\shorttitle` defines the shortened version of the title that will appear as the running head on odd-numbered pages. If you do not redefine these commands, a default running head is generated. Note that the Applied Probability journals have space for a maximum of 90 characters (including spaces) in the running head.

If you have defined any commands or environments in your paper, please put the relevant code in the preamble. A typical preamble might look like this:

```
\documentclass{aptpub}

\renewcommand{\authornames}{JOE BLOGGS \emph{ET AL.}}
\renewcommand{\shorttitle}{Transition functions}
\newcommand{\mtf}{Markov transition function}
\newcommand{\rhs}{right-hand side}
```

4. Title page

The largest logical unit of your document is the document itself. Thus, the text of every paper must start with a

```
\begin{document}
```

command, and end with an

```
\end{document}
```

command. Directly following the `\begin{document}` command are the commands that typeset the title page. (Note that there is no need to issue a `\maketitle` command.) The first such command is `\title{}`. If you wish, you may enter the text of your title in a mixture of uppercase and lowercase letters: the `\title{}` command automatically sets the title in bold uppercase letters. (When choosing a title for your paper, please note that it should be descriptive but not too lengthy: it should not take the place of the abstract!)

The names and addresses of authors should follow the title. If you are the sole author of the paper, write your name and address using the following commands:

```
\author[Affiliation]{Name}
\address{Full address}
```

The term in square brackets is the author's affiliation at the time when the research described in the paper was carried out. It is usually the name of a University or similar institution. The full address is given with the `\address` command. The following is a typical example:

```
\author[University of Sheffield]{A. Brown}
\address{Department of Mathematics and Statistics,
         The University, Sheffield, S3 7RH, UK}
```

A common problem arises when an author cannot decide which form of his name he wishes to use. If you are A. BROWN in one paper, ANTHONY J. BROWN in a second paper and TONY BROWN in a third, you may well appear in indices as three people: A. BROWN, A. J. BROWN and T. BROWN.

If the paper has more than one author, use `\authorone`, `\authortwo`, and so on. After each author, use the appropriate address command (these commands are called `\addressone`, `\addresstwo`, `\addressthree` and so on). The following example should make this clear:

```
\authorone[University of Sheffield]{A. Brown}
\addressone{Department of Mathematics and Statistics,
            The University, Sheffield, S3 7RH, UK}

\authortwo[University of Bath]{C. Green}
\addresstwo{Department of Mathematics, University of
            Bath, Claverton Down, Bath, BA2 2AY, UK}

\authorthree[University of California]{D. Black}
\addressthree{Department of Statistics, University
              of California, Los Angeles, CA, USA}

\authorone[University of Sheffield]{E. White}
```

The abstract of your paper should be placed in the `abstract` environment:

```
\begin{abstract}
       The text of your abstract goes here.
\end{abstract}
```

The abstract should be short (preferably 4–10 lines) and as non-mathematical as possible. Displayed mathematics should not appear in the abstract.

Following the abstract, you should supply a list of keywords; these should be as specific as possible, with each keyword separated by a semicolon. Use the

```
\keywords{}
```

command.

Each paper should also be supplied with appropriate primary and secondary classification numbers according to the 2000 Mathematics Subject Classification, which can be found at http://www.ams.org/msc/ and in the 1999 Annual Index of *Mathematical Reviews*). Use the

```
\ams{}{}
```

command, with the primary number in the first set of brackets and the secondary number(s) in the second set of brackets. The numbers should be separated by a semicolon.

Commands for a typical preamble and title page are given in Appendix A. The required commands are also given in the file `template.tex`.

5. The organisation of your paper

5.1. Sections and subsections

Unless your paper is very short, you should divide it into logical sections using the `\section`, `\subsection` and `\subsubsection` commands.

Within a section it may be necessary to list various paragraphs or statements in some way, e.g. (a), (b), (c) or (i), (ii), (iii). The usual LaTeX list structures should be used in this case. It is good style to be consistent in your usage: do not use letters in one section, roman numerals in another section and bullets in a third section.

5.2. Equations

LaTeX automatically numbers displayed equations, unless you issue a `\nonumber` command or use one of the starred environments. *Please only number an equation if you refer to it somewhere in the text.*

Equations are numbered sequentially throughout the document (in the form (1), (2), (3), ..., and so on). If you want to have equations numbered within sections, i.e. have equation numbers of the form (1.1), (1.2), ..., (2.1), (2.2), ..., you should put the following command in the preamble to your document:

```
\numberwithin{equation}{section}
```

In general, LaTeX does an excellent job of typesetting mathematics. Unless there is a good reason to do so, please do not override LaTeX defaults, add extra space around operators, or otherwise complicate the setting of your mathematics.

5.3. Theorems, lemmas, etc.

When writing theorems, please use the LaTeX

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

construction. This has the usual advantages of logical markup versus visual markup. The Applied Probability class file defines similar theorem environments for lemmas, definitions, problems, corollaries, examples, remarks and propositions. The full list of environments is as follows:

```
\begin{theorem}     ...   \end{theorem}
\begin{lemma}       ...   \end{lemma}
\begin{definition}  ...   \end{definition}
\begin{problem}     ...   \end{problem}
\begin{corollary}   ...   \end{corollary}
\begin{example}     ...   \end{example}
\begin{remark}      ...   \end{remark}
\begin{proposition} ...   \end{proposition}
```

Note that these environments are independently incremented throughout the document (for example, the numbering would go Theorem 1, Lemma 1, Theorem 2, Example 1 rather than Theorem 1, Lemma 2, Theorem 3, Example 4). If you prefer to have theorem-like environments to be numbered by section, with each environment counter returning to zero at the beginning of a new section, use the following commands:

```
\begin{thm}   ...   \end{thm}
\begin{lem}   ...   \end{lem}
```

```
\begin{defn}  ...   \end{defn}
\begin{prob}  ...   \end{prob}
\begin{cor}   ...   \end{cor}
\begin{ex}    ...   \end{ex}
\begin{rem}   ...   \end{rem}
\begin{prop}  ...   \end{prop}
```

The class file also provides a 'proof' environment:

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

Again, using such an environment gives the usual advantages of logical markup.

This environment sets off the proof from the rest of the text with a one-line space before and after the proof. This space should be sufficient; it is not the style of the Applied Probability journals to end a proof with 'QED' or with a symbol. If you think it necessary, you can add 'This completes the proof', or some similar phrase.

The proof environment starts with the word 'Proof' in italics. You may want to name the proof in some way; for instance, you may want the proof to start with the words '*Proof of Theorem 1*'. This is done with an optional argument, as in the following example:

```
\begin{proof}[Proof of Theorem 1]
    ... Text of the proof...
\end{proof}
```

6. Figures

If your paper contains one or more figures, you should issue the `\Fig{}` command at the appropriate places in the text; the argument is simply the figure caption. The `\Fig{}` command uses the `\figure` environment and draws a centred box. (`\hFig{}` is the same, but with the `[h]` specifier.) You should aim for a diagram of about the depth of this box. However, the size of this box is *not necessarily* an indication of the final size of your figure: it is simply an indication to the editor that a figure will occupy some space nearby. This is illustrated in Figure 1.

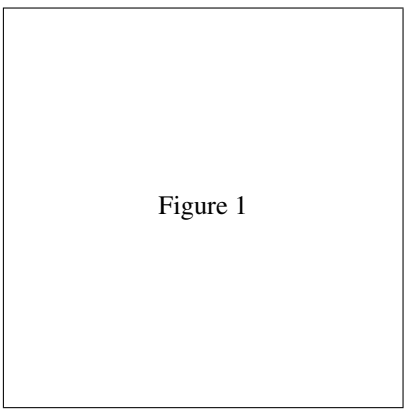

Figure 1: This box indicates that a drawing or photograph will be placed here. The final size of the diagram may be larger or smaller than the box.

Table 1: A simple three-column table.

	a	b
x	1.12	0.11
y	10.34	0.2

We prefer figures to be provided in electronic form, for example, in encapsulated Postscript (.eps) format or drawn with one of the LaTeX drawing packages. However, some authors prefer to provide hard copies of their figures on A4 paper. These hard copies are photoreduced to an appropriate size by our printer, and inserted by hand into the proofs. You should supply original printer output or original line drawings; these will always reproduce better than photocopies. Original artwork need not be submitted until the paper is accepted for publication.

Note that our editorial office is not equipped for technical drawing. It is your responsibility to supply artwork in a form suitable for reproduction; we will *not* redraw figures.

7. Tables

Use the standard LaTeX `tabular` environment to set tables. Note that you should not insert vertical lines between columns. The following simple example shows how a three-column right-aligned table should be set.

```
\begin{table}
\begin{center}
\caption{A simple three-column table.}
\begin{tabular}{rrr}
   \hline
       &  $a$ & $b$ \\
   \hline
   $x$ & 1.12 & 0.11\\
   $y$ & 10.34 & 0.2\\
   \hline
\end{tabular}
\end{table}
\end{center}
```

Note that the `tabular` environment has been placed inside a `table` environment. This keeps the tabular material together and allows text to flow around that material. (The two environments are distinct. A `tabular` environment allows material to be aligned in columns; a `table` environment is a logical document element that identifies its contents as belonging together and lets the contents float jointly.)

8. References

The Applied Probability journals accept two forms of citation in the text: citation by number and citation by name and date. Either system is acceptable, but please do not use a mixture of the two systems in one paper. Van Leunen [4] argues convincingly that citation by number encourages better writing than an author–date style. For this reason, `apt.bst` supports the citation by number style only.

The entries in the list of references should appear in *alphabetical order*. If you use the name-and-date system of citation, you should not number the items in the list.

Please take some care to format the list of references in the manner used by the Applied Probability journals. Failure to do this increases the processing time of your paper, and may lead to the introduction of errors at the production stage.

References to journal papers should consist of the following elements in the following order:

- Surname, Initials. This should be in small caps. Example: REIMAN, A. can be produced with `{\sc Reiman, A.}`
- Year (in parentheses). Followed by a full stop. Example: (1988).
- Title of paper. Only the first letter should be capitalised, unless some of the words were capitalised in the original paper. The title should end with a full stop. Example: On the Ewens sampling formula.
- Journal title. This should be in italic. Only standard abbreviations should be used (see Appendix B). Example: *Adv. Appl. Prob.*
- Volume number. This should be in bold, and it should be followed by a comma. Example: **6,**
- Page numbers. Give the first and last page number of the paper, separated by an en rule (not a hyphen). End the reference with a full stop. Example: 336–358.

References to books are very similar. The book title should be italicised, and each major word in the title should be capitalised. Please include the publisher, and their address.

References to other types of publication (technical reports, preprints, theses, and so on) take a similar form: Name (year). Title, Type of publication, Institution. Please remember to include the institution where the work was published.

A typical reference list might take the following form:

```
\begin{thebibliography}{3}

\bibitem{B88}
{\sc Ball, K. and Chain, H.} (1988). \emph{Kurtosis: A
Critical Review}, 2nd~edn. John Wiley, New York.

\bibitem{Bo78}
{\sc Boyd, W.} (1978). Hyperbolic distributions.
Res. Rept, University of Boston.

\bibitem{Bo99}
{\sc Boyd, W.} (1999). More hyperbolic distributions.
To appear in \emph{J. Appl. Prob.}

\bibitem{LL90}
{\sc Little, S and Large, E.} (1990).  An analogue of
the mean value theorem.  In \emph{Reliability Theory},
ed. H. Drudge.  Springer, Berlin, pp. 101--115.
```

```
\bibitem{Sic92}
{\sc Sichel, H.~S., Kleingeld, W.~J. and Assibey, W.}
(1992). Minification processes with discrete
marginals. \emph{Adv. Appl. Prob.} {\bf 24,} 91--99.

\end{thebibliography}
```

For those of you who use BibTeX, the style file `apt.bst` will automatically format your references in the correct manner. It supports the following entry types: `article`, `book`, `inproceedings`, `incollection`, `phdthesis` and `mastersthesis`.

9. General points

9.1. Submission of papers

Authors should send *three copies* of their submissions to the editorial office in Sheffield.

It is the general policy of the journals to publish papers which have been accepted within 15 months of the date of receipt of the accepted version. Authors receive 50 free offprints of their paper (even where there a paper has joint authors, these are all sent to the corresponding author); additional reprints are provided at cost.

9.2. The editorial process

When your paper is accepted for publication you will receive a letter from the editorial office in Sheffield informing you in which issue of the *Journal of Applied Probability* or *Advances in Applied Probability* it will appear. At this point you will be asked to e-mail the source code of your paper. You may also be asked to supply anything that is obviously missing from the original manuscript (for instance, keywords, classification numbers or artwork).

Please indicate clearly on the manuscript any places where the source code might differ from the manuscript. The version published will be the version of the manuscript approved by the referees, and any changes to the source code subsequent to this will not be published without referee approval.

9.3. Copyright

The copyright of all papers published in the *Journal of Applied Probability* or *Advances in Applied Probability* is vested in the Applied Probability Trust.

To ensure that copyright of papers in the Applied Probability journals is formally transferred to the Trust, all authors are requested to sign and return a simple form which will be sent to them when a paper is accepted for publication. In the case of papers with joint authorship, *each* author must sign and return a form. Delay in publication may result if completed forms are not received in the editorial office by the date specified.

The Trust has an agreement with the Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923, USA, to cover copying (other than 'fair-use' copying as defined in the United States Copyright Law). A corresponding agreement for the UK is administered via the Copyright Licensing Agency. The appearance of the code at the top of the first page of a paper in the journals indicates the Trust's consent that copies of the paper may be made for personal or internal use, or for the personal or internal use of specific clients. However, this consent is given on the condition that the copier pay the stated per-copy fee through the Copyright Clearance Center for copying beyond that permitted by Sections 107 or 108 of the United States Copyright Law. This consent does not extend to other kinds of copying, such as copying

for general distribution, for advertising or promotional purposes, for creating new collective works, or for resale.

9.4. The Applied Probability Trust web page

The Trust's Web page, http:/www.appliedprobabiliy.org/, contains details of forthcoming papers in the *Journal of Applied Probability* and *Advances in Applied Probability*, as well as indices of published material.

The Web page is also the place to obtain the most up-to-date version of this document, as well as the other files in the Applied Probability Trust LaTeX package.

Appendix A. Preamble and title page of a typical paper

The following commands are typical of what should appear at the top of a paper submitted to one of the Applied Probability journals:

```
\documentclass{aptpub}

\authornames{A. BROWN ET AL.}
\shorttitle{Transition functions}
\newcommand{\xvec}{\ensuremath{x_1,\ldots,x_n}}

\begin{document}

\title{Large deviations and the Bayesian estimation of
       higher-order Markov transition functions}

\authorone[University of Sheffield]{A. Brown}
\addressone{Department of Mathematics and Statistics,
            The University, Sheffield, S3 7RH, UK}

\authortwo[University of Bath]{C. Green}
\addresstwo{Department of Mathematics, University of
            Bath, Claverton Down, Bath, BA2 2AY, UK}

\authorone[University of Sheffield]{E. White}

\begin{abstract}
  Using a linear-algebraic method we obtain spectral
  representations of the transition probability
  matrices for completely general continuous-time
  Markov chains with finite state space.
\end{abstract}

\keywords{Markov chains; extreme value theory}
\ams{60F10}{60J10; 62F15; 62M05}
```

Appendix B. Some commands for commonly referenced journals

The following commands are defined in the class file. They may help reduce the amount of typing required when preparing a reference list. Note that the definitions of these commands put the title into italics, and add an italic correction. There is no need for you to do this as well. This is by no means an exhaustive list of journal titles, but most of the relevant journals should be here.

\AAP	*Adv. Appl. Prob.*
\ADM	*Ann. Discrete Math.*
\AM	*Acta Math.*
\AMM	*Amer. Math. Monthly*
\AMS	*Ann. Math. Statist.*
\AP	*Ann. Prob.*
\AS	*Amer. Statistician*
\ApS	*Appl. Statist.*
\AnS	*Ann. Statist.*
\ASM	*Acta Sci. Math.*
\B	*Biometrika*
\BAMS	*Bull. Amer. Math. Soc.*
\BIMA	*Bull. Inst. Math. Appl.*
\CB	*Comput. Bull.*
\CJ	*Comput. J.*
\CCERO	*Cahiers Centre Etudes Rech. Opérat.*
\CJS	*Canad. J. Statist.*
\CMA	*Comput. Math. Appl.*
\CMP	*Commun. Math. Phys.*
\CPAM	*Commun. Pure Appl. Math.*
\CS	*Commun. Statist.*
\CRA	*C. R. Acad. Sci. Paris*
\DE	*Differential Equns*
\DMJ	*Duke Math. J.*
\E	*Econometrica*
\IETAC	*IEEE Trans. Automatic Control*
\IETC	*IEEE Trans. Commun.*
\IETIT	*IEEE Trans. Inf. Theory*
\IETR	*IEEE Trans. Rel.*
\IJC	*Int. J. Control*
\IJGT	*Int. J. Game Theory*
\IJM	*Israel J. Math.*
\JASA	*J. Amer. Statist. Soc.*
\JAM	*J. Appl. Mech.*
\JAMS	*J. Austral. Math. Soc.*
\JAP	*J. Appl. Prob.*
\JDE	*J. Differential Equns*
\JET	*J. Econom. Theory*
\JIMA	*J. Inst. Math. Appl.*
\JISA	*J. Indian Statist. Assoc.*
\JLMS	*J. London Math. Soc.*
\JMA	*J. Multivar. Anal.*
\JMAA	*J. Math. Anal. Appl.*
\JMB	*J. Math. Biol.*
\JMP	*J. Math. Phys.*
\JOTA	*J. Optimization Theory Appl.*
\JPE	*J. Political Econ.*
\JRSS	*J. R. Statist. Soc.*
\JS	*J. SIAM*
\JSCS	*J. Statist. Comput. Simulation*
\JSR	*J. Statist. Res.*
\JTB	*J. Theoret. Biol.*
\JTSA	*J. Time Series Anal.*
\MAMS	*Mem. Amer. Math. Soc.*
\MB	*Math. Biosci.*
\MC	*Math. Comput.*
\MF	*Math. Finance*
\MN	*Math. Nachr.*
\MOR	*Math. Operat. Res.*
\MS	*Management Sci.*
\NMJ	*Nagoya Math. J.*
\N	*Nature*
\NRLQ	*Naval Res. Logist. Quart.*
\OR	*Operat. Res.*
\ORQ	*Operat. Res. Quart.*
\PTRF	*Prob. Theory Rel. Fields*

\PTRS	*Phil. Trans. R. Soc.*	\Sa	*Sankhyā*
\PAMS	*Proc. Amer. Math. Soc.*	\SJAM	*SIAM J. Appl. Math.*
\PCPS	*Proc. Camb. Phil. Soc.*	\SJMA	*SIAM J. Math. Anal.*
\PLMS	*Proc. London Math. Soc.*	\SN	*Statist. Neerlandica*
\PNAS	*Proc. Nat. Acad. Sci. USA*	\SPA	*Stoch. Proc. Appl.*
\PRS	*Proc. R. Soc.*	\SR	*SIAM Rev.*
\QAM	*Quart. Appl. Math.*	\TAMS	*Trans. Amer. Math. Soc.*
\QS	*Queueing Systems*	\TPA	*Theory Prob. Appl.*
\RES	*Rev. Econ. Stud.*	\TPB	*Theoret. Popn Biol.*
\RISI	*Rev. Int. Statist. Inst.*		
\RSA	*Rev. Statist. Appl.*	\ZW	*Z. Wahrscheinlichkeitsth.*

References

[1] Goossens, M., Mittelbach, F. and Samarin, A. (1994). *The LaTeX Companion*. Addison-Wesley, Reading, MA.
[2] Knuth, D. E (1986). *The TeXbook*. Addison-Wesley, Reading, MA.
[3] Lyle, K. M (1979). *The Author's Guide to the Applied Probability Journals*. Applied Probability Trust, Sheffield.
[4] Van Leunen, M.-C (1979). *A Handbook for Scholars*. Knopf, New York.