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TEMPLATE FILE FOR PREPARING ARTICLES FOR STATISTICA

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1. INTRODUCTION

This is a sample document that illustrates the style file statistica.cls for formatting LaTeX submissions to STATISTICA. You can use it as a template for your own paper. statistica.cls is primarily built upon the class statsoc.cls of the Royal Statistical Society. This class depends on some packages for its proper functioning, almost all such packages are part of any standard LaTeX installation. Some other packages need to be installed in order to use this style file. Furthermore, users are free to make use of AMS math packages such as amsmath.sty, amsfonts.sty. All these packages work in tandem with statistica.cls without problems. On the contrary, the packages amsthm.sty and amssymb.sty are not compatible with statistica.cls. The bundle of STATISTICA style files includes:

1. statistica.cls the LaTeX document class
2. template.tex source file of this document
3. template.pdf pdf file of this document
4. statistica.bst the BiBTeX style file
5. bibdatabase.bib the BiBTeX data base file that contains the references of this document.

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2. USAGE

The class should be loaded with the command:

```
\documentclass[<options>]{statistica}
```

where the `options` can be the following:

- `final`: default option which formats the document for submission to STATISTICA.
- `garafonts`: requires the `\mathdesign` package and uses the `urw-garamond` fonts. To be used by the editorial office. You do not need this option unless you would like to see how your manuscript would appear in its production version.

Before preparing a paper for submission, please examine a recent issue carefully and follow that arrangement of sections, formulae, references, tables, etc. closely. In particular please note the points given below. The preparation for press of a paper that is technically acceptable, but which does not follow these requirements, would involve the editors in a large amount of work, so it may be necessary to return such a manuscript for reformatting, leading to a delay in publication.

3. ADDRESS

For each author please give at least one address, including a department, city and country.

4. STYLE

English sentences containing mathematical expressions or displayed formulae should be punctuated in the usual way: in particular please check carefully that all displayed expressions are correctly punctuated. Displayed expressions should be preceded by a colon only if grammatically warranted.

Words in common terms such as central limit theorem or Brownian motion are capitalized only if they are derived from proper names: thus bootstrap, lasso and mean square error rather than Bootstrap, Lasso, and Mean Square Error.

5. REFERENCES

Use of BiBTEX is strongly encouraged. For author's convenience there is a bibliography style file statistica.bst to be used with this document. BiBTEX users do not have to worry about the bibliography style to use. Alternatively, references can be listed in the `thebibliography` environment. Each reference is a `\bibitem`; each `\bibitem` is identified by a label, by which it can be cited in the text. In connection with cross-referencing

and possible future hyperlinking it is not a good idea to collect more than one literature item in one `\bibitem`. With the statistica.bst style file the literature can be cited as follows:

- Parenthetical: `\citep{Ken68}` produces (Kendall, 1968).
- Textual: `\citet{Ken68}` produces Kendall (1968).
- An affix and part of a reference: `\citep[see e.g.][for a discussion]{Bar72}` produces (see e.g. Barlow *et al.*, 1972,for a discussion).
- Multiple textual citations: `\citet{Ken68,Pea82,Bar71}` produces Kendall (1968); Pearson (1982); Bartholomew (1971).
- Multiple parenthetical citations: `\citep{Ken68,Pea82,Bar71}` produces (Kendall, 1968; Pearson, 1982; Bartholomew, 1971).

Alternatively, one can use the environment `thebibliography`.

6. MATHEMATICS

6.1. Theorem-like environments

You can use the following commands for theorem-like environments, as shown in Table 1. For instance:

TABLE 1
Commands for theorem-like environments.

Command	Environment
`thm`	Theorem
`cor`	Corollary
`lem`	Lemma
`claim`	Claim
`axiom`	Axiom
`conj`	Conjecture
`fact`	Fact
`hypo`	Hypothesis
`assum`	Assumption
`prop`	Proposition
`crit`	Criterion
`defn`	Definition
`exmp`	Example
`rem`	Remark
`prob`	Problem
`prin`	Principle
`alg`	Algorithm

DEFINITION 1. *Suppose $\mathscr{S}$ is a bounded closed convex subset of a real or complex Hilbert space $\mathscr{H}$, equipped with the relative weak topology. The set of all continuous functions $f : \mathscr{S} \to \mathscr{H}$, where both spaces are equipped with the weak topology, is denoted by $C(\mathscr{S}, \mathscr{H})$. Similarly, $C(\mathscr{S}, [0,1])$ stands for the set of all weakly-continuous functions $f : \mathscr{S} \to [0,1]$.*

THEOREM 2. *Here goes the theorem text. Here goes the theorem text. Here goes the theorem text. Here goes the theorem text. Here goes the theorem text. Here goes the theorem text.*

PROOF. Here goes the proof. Here goes the proof. Here goes the proof. Here goes the proof. □

REMARK 3. *Recall that a bounded closed convex subset $\mathscr{S}$ in a Hilbert space is weakly compact. Observe also that a bounded linear operator $A \in \mathbf{B}(\mathscr{H})$ is in $C(\mathscr{S}, \mathscr{H})$. Whenever we say that A is in $C(\mathscr{S}, \mathscr{H})$, we actually refer to the restriction of the operator $A \in \mathbf{B}(\mathscr{H})$ to the subset $\mathscr{S} \subset \mathscr{H}$.*

For examples on the coding of mathematics in TEXsee the many excellent books on the topic, e.g. Knuth (1986); Lamport (1994). Simple displayed equations are formatted as follows:

$$\sum_{i=1}^{n} i = \frac{n(n+1)}{2} \tag{1}$$

Equations can be referenced by means of the command `\ref`. One instance is given above in Eq. (1).

THEOREM 4. *Text of the theorem.*

PROOF. Proof of the theorem. □

7. FLOATS

7.1. Figures

Figures are a common source of delay during production, usually because elementary guidelines have not been respected. All the elements of a graph, including axis labels, should be large enough to be read easily, so the graph should be given a shape that will use the page space well. The use of large symbols, such as $\times$, for points should be avoided. If both axes of a panel show the same quantities, the panel should usually be square. Many graphs are made using the statistical environment R (R Core Team, 2013). If so, they should be made at roughly the size at which they will appear in the journal. Usually graphs reduced from A4 or US page sizes must be remade to ensure their legibility. Check that all the axes are labelled correctly and include units of measurement. Axis

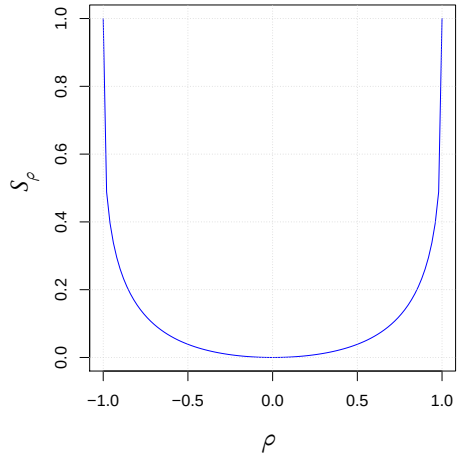

Figure 1 – Caption of the figure. Use the package *psfrag* for substituting the labels of the plot with LaTeX lettering in eps files. See the file *template(psfrag).pdf* for an example.

labels should have the format 'Difference of loglikelihoods': only the initial letter of the first word is upper-case.

Please submit figures in grayscale wherever possible. STATISTICA publishes in colour online, but care should be taken to ensure that any colours chosen will be distinguishable when printed in black and white. Figures should be referred to consecutively by number. Use of the LaTeX `\label` and `\ref` commands to refer to figures and tables helps to reduce errors and so is preferred. Always refer to figures without abbreviations, e.g. Figure 1 is a reference to a figure.

Figure files can be in one of the formats recognized by LaTeX, these include encapsulated postscript format (`eps`) (if standard LaTeXis used) or other formats such as `pdf, png, tiff, jpeg` that are compatible with more recent versions of LaTeXsuch as pdfLaTeXthat can produce a pdf file straight away. Figures must be included where they should appear, do not force the placement of the figure. The caption should be placed under it[2], see Figure 1. Authors are encouraged to use the optional LaTeX package `psfrag` for substituting the labels of the plots with LaTeX lettering in `eps` files. In order to obtain the results uncomment the `\usepackage{psfrag}` plus the relevant commands in the preamble.

[2] The caption should give a brief description of the contents of a figure or table, but its interpretation should be left to the text.

7.2. *Tables*

Tables should be referred to consecutively by number, e.g. Table 2. Table is not abbreviated to Tab and layouts that have to be printed sideways should be avoided if possible. For this reason tables should not be more than 92 characters wide, including decimal points and brackets (1 character), and minus and other signs and spaces (at least 2 characters). Vertical rules are **not** used in tables, which should be arranged to be clear without them. The caption of the table should be placed above it.

Often tables can be improved by multiplying all the entries by a power of ten, so that 0.002 and 0.02 become 2 and 20 respectively, for example; this will often both save space and convey the message of the table more effectively. Very often tables containing results of Monte Carlo simulations use more digits than can be justified by the size of the simulation, and space can be gained and clarity improved by appropriate rounding. Standard errors or some other measure of precision should be given for Monte Carlo results.

TABLE 2
This is the caption of the table.

	a	b	c	d	e
Row 1	0.00	0.11	0.03	1.81	0.79
Row 2	0.11	0.00	1.47	0.95	0.95
Row 3	0.03	1.47	0.00	0.53	1.24
Row 4	1.81	0.95	0.53	0.00	0.45
Row 5	0.79	0.95	1.24	0.45	0.00

ACKNOWLEDGEMENTS

Acknowledgements should appear after the body of the paper but before any appendices and be as brief as possible subject to politeness. Information, such as contract numbers, of no interest to readers, must be excluded.

APPENDIX

A. PROOFS

The appendix should be placed after the acknowledgements and before the references. Long proofs or mathematical derivations should be placed here.

B. SUPPLEMENTARY INFORMATION

The appendix is also the place to put additional information regarding simulations, computational details, etc.

REFERENCES

R. E. BARLOW, D. J. BARTHOLOMEW, J. M. BREMNER, H. BRUNK (1972). *Statistical Inference Under Order Restrictions*. John Wiley & Sons, New York.

D. J. BARTHOLOMEW (1971). *A comparison of frequentist and bayesian approaches to inference with prior knowledge*. In V. P. GODAMBE, D. A. SPROTT (eds.), *Foundations of Statistical Inference*, Holt, Rinehart and Winstons, Toronto, pp. 325–339.

M. G. KENDALL (1968). *On the future of Statistics – a second look (with discussion)*. Journal of the Royal Statistical Society, series A, 131, no. 2, pp. 182–204.

K. PEARSON (1982). *The grammar of science*. Walter Scott, London.

R CORE TEAM (2013). *R: A Language and Environment for Statistical Computing*. R Foundation for Statistical Computing, Vienna, Austria. URL `http://www.R-project.org/`.

SUMMARY

The abstract must be a single paragraph summary which should not contain formulae or symbols. The summary contains bibliographic references only if they are essential. It should indicate results rather than describe the contents of the paper: for example, 'A simulation study is performed' should be replaced by a more informative phrase such as 'Simulation shows that our estimator has smaller mean square error than its main competitors.'

Keywords: Keyword 1; Keyword 2; Keyword 3