INSTRUCTIONS FOR PRODUCING CAMERA-READY MANUSCRIPT USING LATEX FOR PUBLICATION IN CLAWAR CONFERENCE PROCEEDINGS

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This is the LaTeX template for papers to be published by the CLAWAR Association Ltd. - this template is based on the template of World Scientific Publishing Co. Pte. Ltd. This is where the abstract should be placed. It should consist of one paragraph giving a concise summary of the material in the article below. Replace the title, authors, and addresses with your own title, authors, and addresses. You may have as many authors and addresses as you like. It is preferable not to use footnotes in the abstract or the title; the acknowledgments of funding bodies etc. are to be placed in a separate section at the end of the text.

1. Using Other Packages

The class file loads the packages `amsfonts`, `amsmath`, `amssymb`, `chapterbib`, `cite`, `dcolumn`, `epsfig`, `rotating` and `url` at startup. Please try to limit your use of additional packages as they often introduce incompatibilities. This problem is not specific to the CLAWAR styles; it is a general LaTeX problem. Check this article to see whether the required functionality is already provided by the CLAWAR class file. If you do need additional packages, send them along with the paper. In general, you should use standard LaTeX commands as much as possible.

2. Layout

To facilitate our processing of your article, please give easily identifiable structure to the various parts of the text by making use of the usual LaTeX commands or by using your own commands defined in the preamble, rather than by using explicit layout commands, such as `\hspace`, `\vspace`, `\large`, `\centering`, etc. Also, do not redefine the page-layout parameters.

3. User Defined Macros

User defined macros should be placed in the preamble of the article, and not at any other place in the document. Such private definitions, i.e. definitions made using the commands `\newcommand`, `\renewcommand`, `\newenvironment` or `\renewenvironment`, should be used with great care. Sensible, restricted usage of private definitions is encouraged. Large macro packages and definitions that are not used in this example article should be avoided. Please do not change the existing environments, commands and other standard parts of LaTeX.

3.1. *Input used to produce this paper*

```
\documentclass{CLAWAR}
\begin{document}
\title{INSTRUCTIONS FOR PRODUCING...}
\author{FIRST AUTHOR$^*$ and SECOND AUTHOR}
\address{University Department, ...}
\begin{abstract}
This article explains how to ...
\end{abstract}
\keywords{Style file; \LaTeX, ...}
\bodymatter
\section{Using Other Packages}
The class file has ...
\bibliographystyle{CLAWAR}
\bibliography{CLAWAR-sample}
\end{document}
```

4. Sectional Units

Sectional units are obtained with the usual LaTeX commands `\section`, `\subsection`, `\subsubsection` and `\paragraph`.

5. Section

This is just an example.

5.1. *Subsection*

This is just an example.

5.1.1. *Subsubsection*

This is just an example.

Paragraph This is just an example.

Unnumbered Section

Unnumbered sections can be obtained by using `\section*`.

6. Lists of Items

Lists are broadly classified into four major categories that can be used as desired by the author:

(a) Numbered list.
(b) Lettered list.
(c) Unnumbered list.
(d) Bulleted list.

6.1. *Numbered and lettered list*

(1) The `\begin{arabiclist}[]` command is used for the arabic number list (arabic numbers appearing within parenthesis), e.g., (1), (2), etc.

(2) The `\begin{romanlist}[]` command is used for the roman number list (roman numbers appearing within parenthesis), e.g., (i), (ii), etc.

(3) The `\begin{Romanlist}[]` command is used for the cap roman number list (cap roman numbers appearing within parenthesis), e.g., (I), (II), etc.

(4) The `\begin{alphlist}[]` command is used for the alphabetic list (alphabets appearing within parenthesis), e.g., (a), (b), etc.

(5) The `\begin{Alphlist}[]` command is used for the cap alphabetic list (cap alphabets appearing within parenthesis), e.g., (A), (B), etc.

Note: For all the above mentioned lists (with the exception of alphabetic list), it is obligatory to enter the last entry's number in the list within the square bracket, to enable unit alignment.

6.2. *Bulleted and unnumbered list*

The `\begin{itemlist}` command is used for the bulleted list.

The `\begin{unnumlist}` command is used for creating the unnumbered list with the turnovers hangindent by 1 pica.

Lists may be laid out with each item marked by a dot:

- item one
- item two
- item three.

Items may also be numbered with lowercase Roman numerals:

(i) item one
(ii) item two

    (a) lists within lists can be numbered with lowercase Roman letters
    (b) second item.

(iii) item three
(iv) item four.

7. Theorems and Definitions

Input:

```
\begin{theorem}
We have $\# H^2 (M \supset N) < \infty$ for an inclusion ...
\end{theorem}
```

Output:

Theorem 7.1. *We have $\#H^2(M \supset N) < \infty$ for an inclusion $M \supset N$ of factors of finite index.*

Input:

```
\begin{theorem}[Longo, 1998]
For a given $Q$-system...
\[
N = \{x \in N; T x = \gamma (x) T, T x^* = \gamma (x^*) T\},
\]
```

```
and $E_\Xi (\cdot) = T^* \gamma (\cdot) T$ gives ...
\end{theorem}
```

Output:

Theorem 7.2 (Longo, 1998). *For a given Q-system...*

$$N = \{x \in N; Tx = \gamma(x)T, Tx^* = \gamma(x^*)T\},$$

and $E_\Xi(\cdot) = T^*\gamma(\cdot)T$ gives a conditional expectation onto N.

The following environments are available by default with CLAWAR document styles:

Environment	Heading	Sample output
algorithm	Algorithm	**Algorithm 1.1.** This is a test.
answer	Answer	**Answer 1.1.** This is a test.
assertion	Assertion	**Assertion 1.1.** This is a test.
assumption	Assumption	**Assumption 1.1.** This is a test.
case	Case	**Case 1.1.** This is a test.
claim	Claim	**Claim 1.1.** *This is a test.*
comment	Comment	**Comment 1.1.** This is a test.
condition	Condition	**Condition 1.1.** This is a test.
conjecture	Conjecture	**Conjecture 1.1.** *This is a test.*
convention	Convention	**Convention 1.1.** This is a test.
corollary	Corollary	**Corollary 1.1.** *This is a test.*
criterion	Criterion	**Criterion 1.1.** This is a test.
definition	Definition	**Definition 1.1.** This is a test.
example	Example	**Example 1.1.** This is a test.
lemma	Lemma	**Lemma 1.1.** *This is a test.*
notation	Notation	**Notation 1.1.** This is a test.
note	Note	**Note 1.1.** This is a test.
observation	Observation	**Observation 1.1.** This is a test.
problem	Problem	**Problem 1.1.** *This is a test.*
proposition	Proposition	**Proposition 1.1.** *This is a test.*
question	Question	**Question 1.1.** *This is a test.*
remark	Remark	**Remark 1.1.** This is a test.
solution	Solution	**Solution 1.1.** This is a test.
step	Step	**Step 1.1.** This is a test.
summary	Summary	**Summary 1.1.** This is a test.
theorem	Theorem	**Theorem 1.1.** *This is a test.*

LaTeX provides \newtheorem to create new theorem environments. To add theorem-type environments to an article, use

```
\newtheorem{example}{Example}[section]
\let\Examplefont\upshape
\def\Exampleheadfont{\bfseries}

\begin{example}
We have $\# H^2 (M \supset N) < ...
\end{example}
```

For details see the LaTeX user manual.[1,2]

7.1. *Proofs*

The CLAWAR document styles also provide a predefined proof environment for proofs. The proof environment produces the heading 'Proof' with appropriate spacing and punctuation. It also appends a 'Q.E.D.' symbol, □, at the end of a proof, e.g.,

```
\begin{proof}
This is just an example.
\end{proof}
```

to produce

Proof. This is just an example. □

The proof environment takes an argument in curly braces, which allows you to substitute a different name for the standard 'Proof'. If you want to display, 'Proof of Lemma', then write e.g.

```
\begin{proof}[Proof of Lemma]
This is just an example.
\end{proof}
```

produces

Proof of Lemma. This is just an example. □

8. Programs and Algorithms

Fragments of computer programs and descriptions of algorithms should be prepared as if they were normal text. Use the same fonts for keywords, variables, etc., as in the text; do not use small typeface sizes to make program fragments and algorithms fit within the margins set by the document style. An example with only the tabbing environment and one new definition:

```
\newcommand{\keyw}[1]{{\bf #1}}

\begin{tabbing}

\quad \=\quad \=\quad \kill
\keyw{for} each $x$ \keyw{do} \\
\> \keyw{if} extension$(p, x)$ \\
\> \> \keyw{then} $E:=E\cup\{x\}$\\
\keyw{return} $E$

\end{tabbing}
```

Output:

for each x **do**
  if extension(p, x)
    then $E := E \cup \{x\}$
return E

9. Mathematical Formulas

Inline: For in-line formulas use \(... \) or $ ... $. Avoid built-up constructions, for example fractions and matrices, in in-line formulas. Fractions in inline can be typed with a solidus, e.g. x+y/z=0.

Display: For numbered display formulas, use the displaymath environment:

```
\begin{equation}
...
\label{aba:eqno}
\end{equation}
```

And for unnumbered display formulas, use \[... \]. For numbered displayed, one-line formulas always use the equation environment. Do not use $$ ... $$.

For example, the input for:

$$\mu(n, t) = \frac{\sum\limits_{i=1}^{\infty} 1(d_i < t, N(d_i) = n)}{\int\limits_{\sigma=0}^{t} 1(N(\sigma) = n)d\sigma}. \tag{1}$$

is:

```
\begin{equation}
\mu(n, t) =
\frac{\sum\limits^\infty_{i=1}1 (d_i < t, N(d_i) = n)}
{\int\limits^t_{\sigma=0}1 (N(\sigma)=n)d\sigma}.\label{aba:eq1}
\end{equation}
```

For displayed multi-line formulas, use the `eqnarray` environment. For example,

```
\begin{eqnarray}
\zeta\mapsto\hat{\zeta}&=&a\zeta+b\eta\label{aba:appeq2}\\
\eta\mapsto\hat{\eta}&=&c\zeta+d\eta\label{aba:appeq3}
\end{eqnarray}
```

produces:

$$\zeta \mapsto \hat{\zeta} = a\zeta + b\eta \tag{2}$$
$$\eta \mapsto \hat{\eta} = c\zeta + d\eta \tag{3}$$

Superscripts and subscripts that are words or abbreviations, as in σ_{low}, should be typed as roman letters, with \(\sigma_{\mathrm{low}}\) instead of σ_{low} done with \(\sigma_{low}\).

For geometric functions, e.g. exp, sin, cos, tan, etc., please use the macros \sin, \cos, \tan. These macros give proper spacing in mathematical formulas.

It is also possible to use the $\mathcal{AMS}$-LaTeX package,[2] which can be obtained from the $\mathcal{AMS}$ and various TeX archives.

10. Floats

10.1. *Tables*

Put tables and figures in text using the table and figure environments, and position them near the first reference of the table or figure in the text. Please avoid long captions in figures and tables.

Input:

```
\begin{table}
\tbl{Comparison of acoustic for frequencies for piston-cylinder
problem.}
```

```
{\begin{tabular}{@{}cccc@{}}\toprule
Piston mass & Analytical frequency & TRIA6-$S_1$ model & ...\\
& (Rad/s) & (Rad/s) \\\colrule
1.0\hphantom{00}&\hphantom{0}281.0&\hphantom{0}280.81&0.07 \\
0.1\hphantom{00}&\hphantom{0}876.0&\hphantom{0}875.74&0.03 \\
0.01\hphantom{0}&2441.0&2441.0\hphantom{0}&0.0\hphantom{0} \\
0.001 & 4130.0 & 4129.3\hphantom{0}& 0.16\\\botrule
\end{tabular}}
\begin{tabnote}
$^{\text a}$ Sample table footnote.\\
\end{tabnote}\label{aba:tbl1}
\end{table}
```

Output:

Table 1.   Comparison of acoustic for frequencies for piston-cylinder problem.

Piston mass	Analytical frequency (Rad/s)	TRIA6-S_1 model (Rad/s)	% Error[a]
1.0	281.0	280.81	0.07
0.1	876.0	875.74	0.03
0.01	2441.0	2441.0	0.0
0.001	4130.0	4129.3	0.16

Note: [a] Sample table footnote.

Very large figures and tables should be placed on a separate page by themselves. Landscape tables and figures can be typeset with the following environments:

- `sidewaystable` and
- `sidewaysfigure`.

Example:

```
\begin{sidewaystable}
\tbl{Positive values of ...}
{\begin{tabular}{@{}cccccccccc@{}}
\toprule\\
$f_0$ &$\lambda_0$ &$\alpha_0$...
\end{tabular}}
\label{aba:tbl2}
\end{sidewaystable}
```

By using `\tbl` command in table environment, long captions will be justified to the table width while the short or single line captions are centered. `\tbl{table caption}{tabullar environment}`.

For most tables, the horizontal rules are obtained by:

toprule	one rule at the top
colrule	one rule separating column heads from data cells
botrule	one bottom rule
Hline	one thick rule at the top and bottom of the tables with multiple column heads

To avoid the rules sticking out at either end of the table, add `@{}` before the first and after the last descriptors, e.g. @llll@. Please avoid vertical rules in tables. But if you think the vertical rule is a must, you can use the standard LaTeX `tabular` environment.

Headings which span for more than one column should be set using `\multicolumn{#1}{#2}{#3}` where `#1` is the number of columns to be spanned, `#2` is the argument for the alignment of the column head which may be either c — for center alignment; l — for left alignment; or r — for right alignment, as desired by the users. Use c for column heads as this is the WS style and `#3` is the heading.

For the footnotes in the table environment the command is `{\begin{tabnote}<text>\end{tabnote}}`.

Tables should have a uniform style throughout the proceedings volume. It does not matter how you place the inner lines of the table, but we would prefer the border lines to be of the style as shown in our sample tables. For the inner lines of the table, it looks better if they are kept to a minimum.

10.2. *Figures*

A figure is inserted using the following commands:

```
\begin{figure}[htbp]
\centering
\includegraphics[width=2.5in]{clawar_2k19_logo.png}
\caption{CLAWAR 2019 conference logo.}
\label{Figure:Logo_CLAWAR}
\end{figure}
```


Fig. 1.   CLAWAR 2019 conference logo.

Adjust the scaling of the figure until it is correctly positioned.

11. Cross-references

Use `\label` and `\ref` for cross-references to equations, figures, tables, sections, subsections, etc., instead of plain numbers. Every numbered part to which one wants to refer, should be labeled with the instruction `\label`. For example:

```
\begin{equation}
\mu(n, t) =
\frac{\sum\limits^\infty_{i=1}1 (d_i < t, N(d_i) = n)}
{\int\limits^t_{\sigma=0}1 (N(\sigma)=n)d\sigma}.\label{aba:eq1}
```

```
\end{equation}
```

With the instruction `\ref` one can refer to a numbered part that has been labeled:

```
..., see also Eq. (\ref{aba:eq1})
```

The `\label` instruction should be typed

- immediately after (or one line below), but not inside the argument of a number-generating instruction such as `\section` or `\caption`, e.g.: `\caption{ ... caption ... }\label{aba:fig1}`.
- roughly in the position where the number appears, in environments such as an equation,
- labels should be unique, e.g., equation 1 can be labeled as `\label{aba:eq1}`, where 'aba' is author's initial and 'eq1' the equation number.

Some useful shortcut commands.

Shortcut command	Equivalent TeX command	Output
In the middle of a sentence:		
`\eref{aba:eq1}`	Eq. (`\ref{aba:eq1}`)	Eq. (1)
`\sref{aba:sec1}`	Sec. `\ref{aba:sec1}`	Sec. 1
`\fref{Figure:Logo_CLAWAR}`	Fig. `\ref{Figure:Logo_CLAWAR}`	Fig. 1
`\tref{aba:tbl1}`	Table `\ref{aba:tbl1}`	Table 1
At the starting of a sentence:		
`\Eref{aba:eq1}`	Equation (`\ref{aba:eq1}`)	Equation (1)
`\Sref{aba:sec1}`	Section `\ref{aba:sec1}`	Section 1
`\Fref{Figure:Logo_CLAWAR}`	Figure `\ref{Figure:Logo_CLAWAR}`	Figure 1
`\Tref{aba:tbl1}`	Table `\ref{aba:tbl1}`	Table 1

12. Citations

We have used `\bibitem` to produce the bibliography. Citations in the text use the labels defined in the bibitem declaration, e.g., the first paper by Jarlskog[3] is cited using the command `\cite{jarl88}`. Bibitem labels should be unique.

For multiple citations use `\cite{1,2}`, instead of `\cite{1}`, `\cite{2}`.

When the reference forms part of the sentence, it should not be typed in superscripts, e.g.: "One can show from Ref. 3 that ...", "See Refs. 1 and 2 for more details." This is done using the LaTeX command: "`Ref.~\refcite{name}`".

13. Footnotes

Footnotes are denoted by a Roman letter superscript in the text. Footnotes can be used as

Input:

```
... total.\footnote{Sample footnote text.}
```

Output:
... in total.[a]

14. References

References are to be listed in the order cited in the text in Arabic numerals. BIBTEX users, please use the supplied bibliography style file `CLAWAR.bst` for references. Non BIBTEX users can list down their references in the following pattern.

---

[a]Sample footnote text.

```
\begin{thebibliography}{9}
\bibitem{jarl88} C. Jarlskog, in {\it CP Violation} (World
        Scientific, Singapore, 1988).

\bibitem{lamp94} L. Lamport, {\it \LaTeX, A Document
        Preparation System}, 2nd edition (Addison-Wesley,
        Reading, Massachusetts, 1994).

\bibitem{ams04} \AmS-\LaTeX{} Version 2 User's Guide (American
        Mathematical Society, Providence, 2004).

\bibitem{best03} B.~W. Bestbury, {\em J. Phys. A} {\bf 36},
        1947 (2003).
\end{thebibliography}
```

14.1. *BIBTEXing*

Sample output using `CLAWAR` bibliography style file:

BIBTEX Database entry type	Sample citation
article	... text.[4–6]
proceedings	... text.[7]
inproceedings	... text.[8]
book	... text.[3,9]
edition	... text.[10]
editor	... text.[11]
series	... text.[12]
tech report	See Refs. 13 and 14 for more details
unpublished	... text.[15]
phd thesis	... text.[16]
masters thesis	... text.[17]
incollection	... text.[18]
misc	... text.[19]

If you use the BIBTEX program to maintain your bibliography, you do not use the `thebibliography` environment. Instead, you should include

```
\bibliographystyle{CLAWAR}
\bibliography{CLAWAR-sample}
```

where `CLAWAR` refers to a file `CLAWAR.bst`, which defines how your references will look.

The argument to `\bibliography` refers to the file `CLAWAR.bib`, which should contain your database in BIBTEX format. Only the entries referred to via `\cite` will be listed in the bibliography.

Acknowledgments

Acknowledgments to funding bodies etc. may be placed in a separate section at the end of the text, before the Appendices. This should not be numbered, so use `\section*{Acknowledgments}`.

Appendix A. About the Appendix

It is preferable to have no appendices in a short article, but if it is necessary, then simply use as

```
\appendix{About the Appendix}
Appendices should be...
\begin{equation}
\mu(n, t) = \frac{\sum^\infty_{i=1} 1(d_i < t, N(d_i) = n)}
{\int^t_{\sigma=0} 1(N(\sigma) = n)d\sigma}. \label{aba:app1}
\end{equation}
\subappendix{Appendix Sectional Units}
Sectional units are...
```

Appendices should come before the References.

Table A1. Macros available for tables/figures.

Environment name	Purpose
figure	Figures
sidewaysfigure	Landscape figures
table	Tables
sidewaystable	Landscape tables
Horizantal rules	Purpose
\toprule	One rule at the top
\colrule	One rule separating column heads from data cells
\botrule	One bottom rule
\Hline	One thick rule at the top and bottom of the tables with multiple column heads

Number displayed equations occurring in the Appendix in this way, e.g. (A.1), (A.2), etc.

$$ds^2 = dt^2 - a_i^2 \tag{A.1}$$

Appendix A.1. *Appendix Sectional Units*

Where two or more appendices are used, number them alphabetically.

Sectional units are obtained with the LaTeX commands:

- \appendix
- \subappendix.

Unnumbered appendix sections can be obtained using `\section*`.

References

1. L. Lamport, *LaTeX, A Document Preparation System*, 2nd edn. (Addison-Wesley, Reading, MA, 1994).
2. AMS, *AMS-LaTeX Version 2 User's Guide* (American Mathematical Society, Providence, 2004). http://www.ams.org/tex/amslatex.html.
3. C. Jarlskog, *CP Violation* (World Scientific, Singapore, 1988).
4. B. W. Bestbury, *J. Phys. A* **36**, 1947 (2003).
5. P. X. Deligne and B. H. Gross, *C. R. Math. Acad. Sci. Paris* **335**, 877 (2002).

Table A2.   Macros available for use in text.

Macro name	Purpose
`\title{#1}`	Article title
`\author{#1}`	List of all authors
`\address{#1}`	Address of author
`\begin{abstract}...\end{abstract}`	Abstract
`\keywords{#1}`	Keywords
`\bodymatter`	Start body text
`\section{#1}`	Section heading
`\subsection{#1}`	Subsection heading
`\subsubsection{#1}`	Subsubsection heading
`\section*{#1}`	Unnumbered Section head
`\begin{itemlist}`	Start bulleted lists
`\end{itemlist}`	End bulleted lists
`\begin{arabiclist}`	Start arabic lists (1, 2, 3...)
`\end{arabiclist}`	End arabic lists
`\begin{romanlist}`	Start roman lists (i, ii, iii...)
`\end{romanlist}`	End roman lists
`\begin{Romanlist}`	Start roman lists (I, II, III...)
`\end{Romanlist}`	End roman lists
`\begin{alphlist}`	Start alpha lists (a, b, c...)
`\end{alphlist}`	End alpha lists
`\begin{Alphlist}`	Start alpha lists (A, B, C...)
`\end{Alphlist}`	End alpha lists
`\begin{proof}`	Start of Proof
`\end{proof}`	End of Proof
`\begin{theorem}`	Start of Theorem
`\end{theorem}`	End of Theorem (See Page 4 for list of other Math environments)
`\appendix{#1}`	Appendix Section heading
`\subappendix{#1}`	Appendix Subsection heading
`\begin{thebibliography}{#1}`	Start of numbered reference list
`\bibitem{#1}`	Reference item in numbered style
`\end{thebibliography}`	End of numbered reference list
`\bibliographystyle{#1}`	To include BIBTEX style file
`\bibliography{#1}`	To include BIBTEX database

6. J. M. Landsberg and L. Manivel, *Adv. Math.* **171**, 59 (2002), http://www.url.com/triality.html.

7. G. H. Weiss (ed.), *Contemporary Problems in Statistical Physics* (SIAM, Philadelphia, 1994).

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9. L. F. Richardson, *Arms and Insecurity* (Boxwood, Pittsburg, 1960).

10. R. V. Churchill and J. W. Brown, *Complex Variables and Applications*, 5th edn. (McGraw-Hill, 1990).

11. F. Benhamou and A. Colmerauer (eds.), *Constraint Logic Programming, Selected Research* (MIT Press, 1993).

12. D. W. Baker and N. L. Carter, *Seismic Velocity Anisotropy Calculated for Ultramafic Minerals and Aggregates*, in *Flow and Fracture of Rocks*, eds. H. C. Heard, I. V. Borg, N. L. Carter and C. B. Raleigh, Geophys. Mono., Vol. 16 (Am. Geophys. Union, 1972), pp. 157–166.

13. J. D. Hobby, *A User's Manual for MetaPost*, Tech. Rep. 162, AT&T Bell Laboratories (Murray Hill, New Jersey, 1992).

14. B. W. Kernighan, *PIC—A Graphics Language for Typesetting*, Computing Science Technical Report 116, AT&T Bell Laboratories (Murray Hill, New Jersey, 1984).

15. H. C. Heard, I. V. Borg, N. L. Carter and C. B. Raleigh, VoQS: Voice Quality Symbols, Revised to 1994, (1994).

16. M. E. Brown, An interactive environment for literate programming, PhD thesis, Texas A&M University, (TX, USA, 1988), pp. ix + 102.

17. G. S. Lodha, Quantitative interpretation of ariborne electromagnetic response for a spherical

model, Master's thesis, University of Toronto (1974).

18. D. Jones, The term 'phoneme', in *Phonetics in Linguistics: A Book of Reading*, eds. W. E. Jones and J. Laver (Longman, London, 1973) pp. 187–204.

19. B. Davidsen, Netpbm (1993), `ftp://ftp.wustl.edu/graphics/graphics/packages/NetPBM`.