

L^AT_EX 2_ε Document Styles for the University of Southampton File version v2.2, dated 2019/03/12

Edward Longman with prior work by Steve R. Gunn

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1 Quickstart

This guide assumes you have installed MiKTeX or TeX live distributions. It also requires having the program “make” for producing the templates again.

The folder labelled tex-mf should be installed in your local tex files source or whatever your tex distro uses.

The Templates have been built for the Department of Electronics and Computer Science in the Faculty of Engineering and Physical Science at the University of Southampton.

The basic settings for University, Faculty and School are explained in Section 6

If a user only wishes to change the file for their thesis it is probably easier to navigate to the class file labeled uosthesis and change the department and faculty naming there. This will be located in the subdirectory where you unzipped the files under tex/latex/uosdocs/

2 Description

These L^AT_EX 2_ε document classes are designed to produce thesis, mini-thesis, progress, project, report, GDP report and GDP summary report documents which conformed to the University of Southampton guidelines of April 2001. They were updated in Jan 2019 to conform to changes in those guidelines. Specifically copy-right and authorship declaration changes. They are based on the document class `book`, but modify some of its layout decisions. An article class is also provided which is based on the document class `article`.

3 The DOCSTRIP modules

The following modules are used in the implementation to direct DOCSTRIP when generating the external files:

thesis	produce the <code>uosthesis</code> document class
minithesis	produce the <code>uosminithesis</code> document class
progress	produce the <code>uosprogress</code> document class
project	produce the <code>uosproject</code> document class
report	produce the <code>uosreport</code> document class
article	produce the <code>uosarticle</code> document class
gdp	produce the <code>uosgdp</code> document class
gdpsummary	produce the <code>uosgdpsummary</code> document class
testthesis	produce an example thesis
testminithesis	produce an example minithesis
testprogress	produce an example progress
testproject	produce an example project
testreport	produce an example report
testarticle	produce an example article
testgdp	produce an example GDP report
testgdpsummary	produce an example GDP summary report
introduction	produce an example introduction chapter
conclusions	produce an example conclusions chapter
appendix	produce an example appendix chapter
figure	produce an example figure file
definitions	produce an example definitions file
references	produce an example references file
bst	produce a bibliography style file
driver	produce a documentation driver file

4 Implementation

The checksum is to determine if there has been a truncation in the file during transmission over a network

The class has a custom option to define what colours should be used for links. This option defines `sotoncolour` to use UoS palette colours. Colour Code taken from <http://edshare.soton.ac.uk/10481>

All options are passed on to the `book` or `article` class.

```
1 <{*thesis | minithesis | progress | project | report | article | gdp | gdpsummary}>
```

```
\baseclass
```

```
2 %% ----- Class/Formating Adjustment -----
3 %% Adjust the book class to match the requirements
4 %% Set spacing, line and paragraph options
5 %% Set LaTeX builder options (work break penalties etc.)
6 <{*thesis | minithesis | progress | project | report | gdp | gdpsummary}>
7 \def\baseclass{book}
8 </thesis | minithesis | progress | project | report | gdp | gdpsummary>
9 <{*article}>
10 \def\baseclass{article}
11 </article>

12 \RequirePackage{xcolor}
13 \colorlet{linkBlue}{blue}
14 \colorlet{custGray}{gray}
15 \colorlet{chapRed}{red}
```

```

16 \DeclareOption{sotoncolour}{
17 \definecolor{sotonMarineBlue}{RGB}{1,67,89} % Soton marine blue (P 7469C)
18 \definecolor{sotonGrey}{RGB}{153,153,166} % Soton grey (P 443C)
19 \definecolor{sotonRed}{RGB}{171,18,16} % Soton Red (P 484C)
20 \colorlet{linkBlue}{sotonMarineBlue}
21 \colorlet{custGray}{sotonGrey}
22 \colorlet{chapRed}{sotonRed}
23 }
24 \DeclareOption*{\PassOptionsToClass{\CurrentOption}{\baseclass}}

```

`\@checkoptions` Before we can process the options we must deal with a small problem. That is, we want to change the default options of the `book` or `article` class to `a4paper` and `11pt` or `12pt` but the macro `\ProcessOptions` used by the `book` or `article` class processes the options in the order specified in the file. Because `a4paper` is the first of the paper sizing options it will be overridden by any user defined option. But the same is not true of the font size option `11pt` or `12pt`. To remedy this we define a macro `\@checkoptions{<default>}{<option-list>}` which checks to see if any options in `<option-list>` have been specified and if not adds `<default>` to the option list.

```

25 \def\@checkoptions#1#2{
26   \edef\@curroptions{\@optionlist{\@currname.\@current}}
27   \@tempswafalse
28   \@tfor\@this:=#2\do{
29     \@expandtwoargs\in@{,\@this,}{,\@curroptions,}
30     \ifin@ \@tempswatrue \@break@tfor \fi
31     \let\@this\@empty
32     \if@tempswa \else \PassOptionsToClass{#1}{\baseclass}\fi
33 }

```

With this macro at our disposal we can continue to process the options

```

34 (*thesis | minithesis | progress | report | article | gdp | gdpsummary)
35 \@checkoptions{11pt}{10pt}{11pt}{12pt}
36 \thesis | minithesis | progress | report | article | gdp | gdpsummary)
37 (*project)
38 \@checkoptions{12pt}{10pt}{11pt}{12pt}
39 \project)
40 \PassOptionsToClass{a4paper}{\baseclass}
41 \ProcessOptions\relax

```

and load the `book` or `article` document class with `A4` as the default paper size.

```

42 \LoadClass{\baseclass}

```

4.1 Banner

`\bhrule` Provide a function to produce a banner on the output making the location of the current section simpler.

```

43 \newcommand\bhrule{\typeout{-----}}
44 \newcommand\btypeout[1]{\bhrule\typeout{\space #1}\bhrule}

```

4.2 Date

`\today` This macro uses the \TeX primitives `\month`, `\day` and `\year` to provide the date of the \LaTeX -run in a suitable format.

```
45 <*thesis>
46 \def\today{\ifcase\month\or
47   January\or February\or March\or April\or May\or June\or
48   July\or August\or September\or October\or November\or December\fi
49   \space \number\year}
50 </thesis>
```

5 Document Layout

5.1 Font

```
51 %% \usepackage[T1]{fontspec}
52 %   Set font for copyright statement body text
53 \usepackage[defaultsans]{droidsans}
54 %   Set a particular style of font for the thesis. A font that has smallcaps
55 \usepackage{mathpazo}
56 %%\usepackage[T1]{fontenc} %This may not be necessary for english only text
```

5.2 Spacing

Load the `setspace` package so that spacing can easily be set. The text in all three styles is set to one and a half spacing, paragraphs not indented, and a newline between paragraphs.

```
57 \usepackage{setspace}
58 <thesis | minithesis | progress | project | report | gdp | gdpsummary>\onehalfspacing
59 <article>\singlespacing
60 \setlength{\parindent}{0pt}
61 \setlength{\parskip}{2.0ex plus0.5ex minus0.2ex}
```

5.3 Margins

Load the `vmargin` package to setup the page dimensions.

```
62 \usepackage{vmargin}
63 <*thesis | minithesis | progress | project | report | gdp | gdpsummary>
64 \setmarginsrb          { 1.5in} % left margin
65                        { 0.6in} % top margin
66                        { 1.0in} % right margin
67                        { 0.8in} % bottom margin
68                        { 20pt}  % head height
69                        {0.25in} % head sep
70                        { 9pt}   % foot height
71                        { 0.3in} % foot sep
72 </thesis | minithesis | progress | project | report | gdp | gdpsummary>
73 <*article>
74 \setmarginsrb          { 0.8in} % left margin
75                        { 0.6in} % top margin
76                        { 0.8in} % right margin
77                        { 0.8in} % bottom margin
78                        { 20pt}  % head height
```

```

79 {0.25in} % head sep
80 { 9pt} % foot height
81 { 0.3in} % foot sep
82 </article>

```

5.4 Breaks

Control how pages and lines are broken.

```

83 \raggedbottom
84 \setlength{\topskip}{1\topskip \@plus 5\p@}
85 \doublehyphendemerits=10000 % No consecutive line hyphens.
86 \brokenpenalty=10000 % No broken words across columns/pages.
87 \widowpenalty=9999 % Almost no widows at bottom of page.
88 \clubpenalty=9999 % Almost no orphans at top of page.
89 \interfootnotelinepenalty=9999 % Almost never break footnotes.

```

5.5 Fancy Page Headers

Setup the the default fancy page headers with an underlined header containing chapter, name and page number.

```

90 \usepackage{fancyhdr}
91 % Help from https://texblog.org/2007/11/07/headerfooter-in-latex-with-fancyhdr/#comment-4783
92 \fancyhead[LE]{\textrm\thepage}
93 \fancyhead[LO]{\fancyplain{}{\textsl{\rightmark}}}}
94 \fancyhead[RE]{\fancyplain{}{\textsl{\leftmark}}}}
95 \fancyhead[RO]{\textrm\thepage}
96 \head{}\lfoot{}\rfoot{}\cfoot{}
97 \pagestyle{fancy}
98 \fancypagestyle{plain}{
99   \fancyhf{}
100   \fancyhead[OR]{\thepage}
101   \renewcommand{\headrulewidth}{0pt}
102 }

```

`\chaptermark` Redefine `chaptermark` and `sectionmark` to set up the correct header name and
`\sectionmark` produce a banner on the output making the location of messages simpler.
`\subsectionmark` The `\btypeout` command is for console logging where chapters start
`\chapapp` expands to "Chapter" or "Appendix"

```

103 <thesis | minithesis | progress | project | report | gdp>
104 \renewcommand{\chaptermark}[1]{\btypeout{\thechapter.\space #1}\markboth{\chaptername\ \thechapter}{\thepage}}
105 \renewcommand{\sectionmark}[1]{\markright{\thesection.\hspace{1em}#1}}
106 \renewcommand{\subsectionmark}[1]{}
107 </thesis | minithesis | progress | project | report | gdp>
108 <*article>
109 \renewcommand{\sectionmark}[1]{\btypeout{\thesection\hspace{1em}}\markboth{}{\thesection.\hspace{1em}#1}}
110 \renewcommand{\subsectionmark}[1]{}
111 \renewcommand{\subsubsectionmark}[1]{}
112 </article>
113 \gdpsummary\markboth{GDP Summary Report}{GDP Summary Report}

```

`\cleardoublepage` Redefine `cleardoublepage` to remove headers from blank pages in twosided documents.

```

114 \def\cleardoublepage{\clearpage\if@twoside \ifodd\c@page\else
115 \hbox{}
116 \thispagestyle{empty}
117 \newpage
118 \if@twocolumn\hbox{}\newpage\fi\fi\fi}

```

`\cleartoeven` Define `cleartoeven` to remove headers from blank pages and force to even page for appendix or index.

```

119 \def\cleartoeven{\clearpage\if@twoside \ifodd\c@page
120 \hbox{}
121 \thispagestyle{empty}
122 \newpage
123 \if@twocolumn\hbox{}\newpage\fi\fi\fi}

```

5.6 Mathematics

Load the `amsmath` packages, so we can do some serious math, and setup the theorem environments.

```

124 %% ----- Figure/Table/Equation/Listing Styling -----
125 %% Set the styling for non text elements of the document
126 \usepackage{amsmath,amsfonts,amssymb,amscd,amsthm,xspace}
127 \theoremstyle{plain}
128 \newtheorem{example}{Example}[chapter]
129 \newtheorem{theorem}{Theorem}[chapter]
130 \newtheorem{lemma}{Lemma}[chapter]
131 \newtheorem{proposition}{Proposition}[chapter]
132 \newtheorem{axiom}{Axiom}[chapter]
133 \newtheorem{definition}{Definition}[chapter]
134 \newtheorem{remark}{Remark}[chapter]
135 \newtheorem{corollary}{Corollary}[chapter]
136 \newtheorem{lemma}{Lemma}[chapter]
137 \newtheorem{proposition}{Proposition}[chapter]
138 \newtheorem{axiom}{Axiom}[chapter]
139 \newtheorem{definition}{Definition}[chapter]
140 \newtheorem{remark}{Remark}[chapter]
141 \newtheorem{corollary}{Corollary}[chapter]
142 \newtheorem{lemma}{Lemma}[chapter]
143 \newtheorem{proposition}{Proposition}[chapter]

```

5.7 Captions

`\fref` Load the `caption` package to improve formatting of captions, and provide short
`\tref` referencing commands.

```

\eref 144 \usepackage[justification=centerlast,font=small,labelfont=sc]{caption}
\cref 145 \setlength{\captionmargin}{20pt}
\sref 146 \newcommand{\fref}[1]{Figure~\ref{#1}}
\aref 147 \newcommand{\tref}[1]{Table~\ref{#1}}
148 \newcommand{\eref}[1]{Equation~\ref{#1}}
149 \newcommand{\cref}[1]{Chapter~\ref{#1}}
150 \newcommand{\sref}[1]{Section~\ref{#1}}
151 \newcommand{\aref}[1]{Appendix~\ref{#1}}

```

5.8 Float Placement

`\topfraction` Preventing figures from appearing on a page by themselves. L^AT_EX's figure placement algorithm is quite biased in favour of putting figures on a page by themselves, instead of on the top of a page with some text below it. Fortunately, the parameters of the algorithm can be changed. The main problem is that L^AT_EX per default only allows a part of the top of a text-page (70%) to contain figures, and requires at least 20% of a page to be text when text and figures share a page. These parameters should be set to more reasonable values, for example 85% and 10%.

```
152 \renewcommand{\topfraction}{0.85}
153 \renewcommand{\bottomfraction}{.85}
154 \renewcommand{\textfraction}{0.1}
155 \renewcommand{\dbltopfraction}{.85}
```

`\floatpagefraction` This helps, but sometimes L^AT_EX puts a figure on a page by itself, although it would fit perfectly well on the top of a page. This happens when the figure will not fit on the page where it was defined. L^AT_EX then attempts to put it on a figures-only page before it attempts to put it at the top of the next page. A page may contain figures alone if the figure(s) use at least half the page. To prevent half-empty pages this limit should probably be increased to around 75%.

```
156 \renewcommand{\floatpagefraction}{0.75}
157 \renewcommand{\dblfloatpagefraction}{.75}
```

Be careful not to make `floatpagefraction` larger than `topfraction`, then you risk to produce a figure that can neither go on the top of a text page, nor on a page by itself. If that happens, the figure and all later figures will be postponed until next time a `clearpage` is executed (typically at the end of a chapter or the end of the document). This will also happen if a figure is too large to fit on a page.

```
158 \setcounter{topnumber}{9}
159 \setcounter{bottomnumber}{9}
160 \setcounter{totalnumber}{20}
161 \setcounter{dbltopnumber}{9}
```

5.9 Graphics

Load the `graphicx` package, so we can include pictures easily. Load the `epstopdf`, so that eps files are automatically converted to pdf when pdfL^AT_EX is used. This requires a version of *epstopdf* to be installed on you system. You can find a windows version at

<http://www.ctan.org/tex-archive/support/epstopdf/epstopdf.exe>.

```
162 \usepackage{graphicx}
163 \usepackage{epstopdf}
```

5.10 Subfigures and subtables

Load the `subcaption` package, so we can include subfigures easily.

```
164 \usepackage[] {subcaption}
165 \usepackage{booktabs}
166 \usepackage{rotating}
```

5.11 Listings

Load the listings package, so we can include listings easily.

```
167 \usepackage{listings}
168 % \usepackage{lstpatch}
169 \lstset{captionpos=b,
170         frame=tb,
171         basicstyle=\scriptsize\ttfamily,
172         showstringspaces=false,
173         keepspaces=true}
174 \lstdefinestyle{matlab} {
175     language=Matlab,
176     keywordstyle=\color{blue},
177     commentstyle=\color[rgb]{0.13,0.55,0.13}\em,
178     stringstyle=\color[rgb]{0.7,0,0} }
```

5.12 Hyperlinks

Load the hyperref package to provide hyperlinks in pdf and dvi documents.

```
179 \usepackage[pdfpagemode={UseOutlines},bookmarks=true,bookmarksopen=true,
180     bookmarksopenlevel=0,bookmarksnumbered=true,hypertextnames=false,
181     colorlinks,linkcolor={linkBlue},citecolor={linkBlue},urlcolor={linkBlue},
182     pdfstartview={FitV},unicode,breaklinks=true]{hyperref}
183 \pdfstringdefDisableCommands{
184     \let\\\space
185 }
```

6 Internal Names

<p><code>\supervisor</code></p> <p><code>\examiner</code></p> <p><code>\degree</code></p> <p><code>\authors</code></p> <p><code>\addresses</code></p> <p><code>\university</code></p> <p><code>\UNIVERSITY</code></p> <p><code>\department</code></p> <p><code>\DEPARTMENT</code></p> <p><code>\group</code></p> <p><code>\GROUP</code></p> <p><code>\faculty</code></p> <p><code>\FACULTY</code></p> <p><code>\subject</code></p> <p><code>\keywords</code></p>	<p>The various elements of the documents are defined as control sequences to make it easy to customize this style for other parts of the University. When the command is run the other terms are defined by the args.</p> <p>The examiner and supervisor commands can be pluralised so that it can print "Supervisors:". This is with an optional argument. [s] which will add and "s" to the word "Supervisor"</p> <p>186 %% ----- Organisational Structure -----</p> <p>187 \newcommand*\supervisor{2} [] {\def\supname{#2}\def\supplural{#1}}</p> <p>188 \newcommand*\examiner{2} [] {\def\examname{#2}\def\examplural{#1}}</p> <p>189 \newcommand*\degree{1} {\def\degreename{#1}}</p> <p>190 \newcommand*\authors{1} {\def\authornames{#1}}</p> <p>191 \newcommand*\qualifications{1} {\def\quals{#1}}</p> <p>192 \newcommand*\addresses{1} {\def\addressnames{#1}}</p> <p>193 \newcommand*\doi{1} {\def\doicode{#1}}</p> <p>194 \newcommand*\volume{2} {\def\volno{#1}\def\volof{#2}}</p> <p>195 \newcommand*\orcidid{1} {\def\orcid{#1}}</p> <p>196 \newcommand*\university{1} {\def\univname{#1}}</p> <p>197 \newcommand*\UNIVERSITY{1} {\def\UNIVNAME{#1}}</p> <p>198 \newcommand*\department{1} {\def\deptname{#1}}</p> <p>199 \newcommand*\DEPARTMENT{1} {\def\DEPTNAME{#1}}</p> <p>200 \newcommand*\group{1} {\def\groupname{#1}}</p> <p>201 \newcommand*\GROUP{1} {\def\GROUPNAME{#1}}</p>
--	---


```

202 \newcommand*{\faculty}[1]{\def\facname{#1}}
203 \newcommand*{\FACULTY}[1]{\def\FACNAME{#1}}
204 \newcommand*{\subject}[1]{\def\subjectname{#1}}
205 \newcommand*{\keywords}[1]{\def\keywordnames{#1}}

\supname The internal names of the elements are set to defaults appropriate to the Depart-
\examname ment of Electronics and Computer Science.
\degreename By running these commands at the top of your tex file it will overwrite the
\authornames defaults.
\univname 206 %% ----- Organisational Structure -----
\UNIVNAME 207 \doi{}
\deptname 208 \supervisor {}
\DEPTNAME 209 \examiner {}
\groupname 210 \degree {}
\GROUPNAME 211 \authors {}
\facname 212 \qualifications{}
\FACNAME 213 \orcidid{}
\volume{}{}
\subjectname 214 \volume{}{}
\keywordnames 215 \university {\texorpdfstring{\href{http://www.southampton.ac.uk}
216 {University of Southampton}}
217 {University of Southampton}}
218 \UNIVERSITY {\MakeUppercase{\univname}}
219 \department {School of Electronics and Computer Science}
220 \DEPARTMENT {\MakeUppercase{\deptname}}
221 \group {Cyber Physical Systems Group}
222 \GROUP {\MakeUppercase{\groupname}}
223 \faculty {Faculty of Engineering and Physical Science}
224 \FACULTY {\MakeUppercase{\facname}}
225 \addresses {}
226 \subject {}
227 \keywords {}

```

7 Special Pages

7.1 Title Page

```

\maketitle Setup an appropriate title page and pdf strings if we are using pdfLATEX.
The
global
let
@title
@empty has been removed
Possibly the relax statement also needs to be removed
228 <{*thesis | minithesis | progress | project | report | gdp | gdpsummary}>
229 % Start by Adding meta data to the produced document
230 \usepackage{titling}
231 \AtBeginDocument{
232 \hypersetup{pdftitle={\thetitle}}
233 \hypersetup{pdfsubject={\subjectname}}
234 \hypersetup{pdfauthor={\authornames}}
235 \hypersetup{pdfkeywords={\keywordnames}}
236 }

```

```

237 %    Define the title page layout
238 \renewcommand\maketitle{
239   \btypeout{Title Page}
240   \thispagestyle{empty}
241   \begin{titlepage}
242     \let\footnotesize\small
243     \let\footnoterule\relax
244     \let \footnote \thanks
245     \setcounter{footnote}{0}
246     \null\vfil
247     \vskip 60\p@
248     \begin{center}
249       \setlength{\parskip}{0pt}
250       {\scshape\LARGE\textbf{\univname}\par}
251       %% TODO: Change all the descriptions to italic like the Thesis one
252 <thesis | minithesis | progress | project | gdp | gdpsummary>
253       \bigskip
254       {\large \facname \par}
255 </thesis | minithesis | progress | project | gdp | gdpsummary>
256 <thesis | minithesis | progress | project>
257       {\large \deptname \par}
258 </thesis | minithesis | progress | project>
259       \vfill
260 <minithesis>
261       {\large A mini-thesis submitted for transfer from}
262       {\large MPhil to PhD \par}
263 </minithesis>
264 <progress>
265       {\large A progress report submitted for continuation}
266       {\large towards a PhD \par}
267 </progress>
268 <project>
269       {\large A project report submitted for the}
270       {\large award of \par \degreename \par}
271 </project>
272 <gdp>
273       {\large A group design project report submitted for}
274       {\large the award of \par \degreename \par}
275 </gdp>
276 <gdpsummary>
277       {\large A group design project summary report submitted}
278       {\large for the award of \par \degreename \par}
279 </gdpsummary>
280 <minithesis | progress | project | gdp | gdpsummary>
281       \vfill
282       {\normalsize Supervisor\supplural: \supname \par}
283       {\normalsize Examiner\examplural: \examname \par}
284       \vfill
285       \hspace{6mm}\parbox[t][51mm][s]{89mm}{
286         \center
287         \vfill
288         {\large \bf \@title \par}
289         \vfill
290         {\normalsize \textit{by} \textbf{authornames} \par}

```

```

291      \vfill
292      {\normalsize \@date \par}
293      \vfill
294  }
295  \parbox[t][95mm][s]{89mm}{
296  </minithesis | progress | project | gdp | gdpsummary>
297  <*thesis | report>
298      {\huge \bf \@title \par
299  }
300      \ifthenelse{equal{\doicode}{}}{
301      {}
302      {\smallskip DOI: \href{http://orcid.org/\doicode}{\doicode}\par}
303      \ifthenelse{equal{\volno}{}}{
304      {}
305      {\smallskip Volume \volno{} of \volof}
306      \vfill
307      {\LARGE \textit{by} \par}
308      \smallskip
309      {\LARGE \textbf{authornames}
310      \ifthenelse{equal{\quals}{}}{
311      {}
312      {\par\LARGE
313      \quals}
314      \par}
315      \ifthenelse{equal{\orcid}{}}{
316      {}
317      {\smallskip
318      ORCID: \href{http://orcid.org/\orcid}{\orcid}}
319
320      \vfill
321  <*thesis>
322      {\large \textit{A thesis for the degree of} \par}
323      {\large \textit{Doctor of Philosophy} \par}
324  </thesis>
325  <*report>      {\large \textit{Technical Report} \par}
326      \bigskip
327  \bigskip
328      {\large \facname \par}
329      {\large \deptname \par}
330  </report>
331      \bigskip
332      \bigskip
333      \bigskip
334      {\Large \@date \par}
335      \bigskip
336  </thesis | report>
337      \end{center}
338      \par
339      \@thanks
340      \vfil\null
341  \end{titlepage}
342  \setcounter{footnote}{0}%
343  \global\let\thanks\relax
344  \global\let\maketitle\relax

```

```

345 \global\let\@thanks\@empty
346 \global\let\@author\@empty
347 \global\let\@date\@empty
348 \global\let\title\relax
349 \global\let\author\relax
350 \global\let\date\relax
351 \global\let\and\relax
352 \cleardoublepage
353 }
354 </thesis | minithesis | progress | project | report | gdp | gdpsummary>
355 <*article>
356 \if@titlepage
357 \renewcommand\maketitle{
358 \btypeout{Title Page}
359 \markboth{\authornames}{\@title}
360 \begin{titlepage}
361 \thispagestyle{empty}
362 \let\footnotesize\small
363 \let\footnoterule\relax
364 \let \footnote \thanks
365 \null\vfil
366 \vskip 60\p@
367 \begin{center}
368 {\LARGE \@title \par}
369 \vskip 3em
370 {\large \lineskip .75em
371 \begin{tabular}[t]{c} \authornames \end{tabular}
372 \par}
373 \vskip 1em
374 {\large \lineskip .5em
375 \begin{tabular}[t]{c} \addressnames \end{tabular}
376 \par}
377 \vskip 1.5em
378 {\large \@date \par}
379 \if\keywordnames
380 \else
381 \quotation
382 \vskip 1.5em
383 {\noindent \normalsize
384 \textbf{Keywords:}
385 \textit{\keywordnames}
386 \par}
387 \endquotation
388 \fi
389 \end{center}
390 \par
391 \@thanks
392 \vfil\null
393 \end{titlepage}
394 \setcounter{footnote}{0}
395 \global\let\thanks\relax
396 \global\let\maketitle\relax
397 \global\let\@maketitle\relax
398 \global\let\@thanks\@empty

```

```

399 \global\let\@author\@empty
400 \global\let\@date\@empty
401 \global\let\title\relax
402 \global\let\author\relax
403 \global\let\date\relax
404 \global\let\and\relax
405 }
406 \else
407 \renewcommand\maketitle{
408 \btypeout{Title Page}
409 \markboth{\authornames}{\@title}
410 \thispagestyle{empty}
411 \par
412 \begingroup
413 \renewcommand\thefootnote{\@fnsymbol\c@footnote}
414 \def\@makefnmark{
415 \rlap{\@textsuperscript{\normalfont\@thefnmark}}
416 }
417 \long\def\@makefntext##1{
418 \parindent 1em\noindent \hb@xt@1.8em
419 {\hss\@textsuperscript{\normalfont\@thefnmark}}##1
420 }
421 \if@twocolumn
422 \ifnum \col@number=\@ne
423 \maketitle
424 \else
425 \twocolumn[\maketitle]%
426 \fi
427 \else
428 \newpage
429 % Prevent figures from going at top of page.
430 \global\@topnum\z@
431 \maketitle
432 \fi
433 \thispagestyle{plain}\@thanks
434 \endgroup
435 \setcounter{footnote}{0}%
436 \global\let\thanks\relax
437 \global\let\maketitle\relax
438 \global\let\@maketitle\relax
439 \global\let\@thanks\@empty
440 \global\let\@author\@empty
441 \global\let\@date\@empty
442 \global\let\title\relax
443 \global\let\author\relax
444 \global\let\date\relax
445 \global\let\and\relax
446 }
447 \def\@maketitle{
448 \newpage
449 \null
450 \vskip 2em
451 \begin{center}
452 \let \footnote \thanks

```

```

453     {\LARGE \@title \par}
454     \vskip 1.5em
455     {\large \lineskip .5em
456       \begin{tabular}[t]{c} \authornames \end{tabular}
457     \par}
458     \vskip 0.7em
459     {\large \lineskip .5em
460       \begin{tabular}[t]{c} \addressnames \end{tabular}
461     \par}
462     \vskip 1em
463     {\large \@date}
464   \end{center}
465   \par
466   \vskip 1.5em
467 }
468 \fi
469 \</article>

```

7.2 Abstract Page

`\abstract` Setup an appropriate abstract page.

```

470 <{*thesis | minithesis | progress | project | report | gdp}>
471 \newenvironment{abstract}
472 {
473   \btypeout{Abstract Page}
474   \thispagestyle{empty}
475   \null\vfil
476   \begin{center}
477     \setlength{\parskip}{0pt}
478     {\textsc\normalsize \univname \par}
479     \bigskip
480     {\underline{Abstract} \par}
481     \bigskip
482     {\textsc\normalsize \facname \par}
483 <{*thesis | minithesis | progress | project | report}>
484     {\textsc\normalsize \deptname \par}
485 </thesis | minithesis | progress | project | report>
486     \bigskip
487 <{*thesis}>
488     {\normalsize \underline{Doctor of Philosophy}\par}
489 </thesis>
490 <{*minithesis}>
491     {\normalsize \underline{A mini-thesis submitted for transfer from MPhil to PhD}\par}
492 </minithesis>
493 <{*progress}>
494     {\normalsize \underline{A progress report submitted for continuation towards a PhD}\par}
495 </progress>
496 <{*project}>
497     {\normalsize \underline{A project report submitted for the award of \degreename}\par}
498 </project>
499 <{*gdp}>
500     {\normalsize \underline{A group design project report submitted for the award of \degreename}\par}
501 </gdp>

```

```

502 \bigskip
503 {\normalsize\bf \@title \par}
504 \medskip
505 {\normalsize by \authornames \par}
506 \bigskip
507 \end{center}
508 }
509 {
510 \vfil\vfil\vfil\null
511 \cleardoublepage
512 }
513 </thesis | minithesis | progress | project | report | gdp>
514 <*article>
515 \if@titlepage
516 \renewenvironment{abstract}{
517 \titlepage
518 \null\vfil
519 \@beginparpenalty\@lowpenalty
520 \begin{center}
521 \bfseries \abstractname
522 \@endparpenalty\@M
523 \end{center}
524 \begin{itshape}
525 \noindent
526 }
527 {
528 \par
529 \end{itshape}
530 \if\keywordnames
531 \else
532 \quote
533 \vskip 1.5em
534 {\noindent \normalsize
535 \textbf{Keywords:}
536 \textit{\keywordnames}}
537 \par}
538 \endquote
539 \fi
540 \vfil\null\endtitlepage
541 }
542 \else
543 \renewenvironment{abstract}{
544 \if@twocolumn
545 \section*{\abstractname}
546 \else
547 \small
548 \begin{center}
549 {\bfseries \abstractname\vspace{-.5em}\vspace{\z@}}
550 \end{center}
551 \quote
552 \fi
553 \begin{itshape}
554 }
555 {

```

```

556     \end{itshape}
557     \if\keywordnames
558     \else
559         \vskip 1.5em
560         {\noindent \normalsize
561             \textbf{Keywords:}
562             \textit{\keywordnames}
563         \par}
564     \fi
565     \if@twocolumn\else\endquote\fi
566 }
567 \fi
568 \</article>

```

7.3 Contents Pages

7.3.1 Add to Table of Contents

`\addtotoc` Get a better list of contents package

Ensures numbering for sub-subsections in the table of contents, and provide for 6 levels to appear in toc. Define `addtotoc` to enable adding elements to the toc at chapter level, using a dummy counter to fix bookmarks in pdfL^AT_EX.

```

569 \<thesis | minithesis | progress | project | report | gdp | article>
570 \usepackage[nottoc]{tocbibind} % Put the Lists, Glossary, Biblog and Idx in the conten
571 \addtocounter{secnumdepth}{1}
572 \setcounter{tocdepth}{6}
573 \newcounter{dummy}
574 \newcommand\addtotoc[1]{
575 \refstepcounter{dummy}
576 \<thesis | minithesis | progress | project | report | gdp>
577 \addcontentsline{toc}{chapter}{#1}}
578 \</thesis | minithesis | progress | project | report | gdp>
579 \<*article>
580 \addcontentsline{toc}{section}{#1}}
581 \</article>

```

7.3.2 Table of Contents

`\tableofcontents` Adjust line and paragraph spacing.

```

582 \renewcommand\tableofcontents{
583 \hypersetup{linkcolor=black}}
584 \btypeout{Table of Contents}
585 \begin{spacing}{1}{
586     \setlength{\parskip}{1pt}
587     \if@twocolumn
588         \@restonecoltrue\onecolumn
589     \else
590         \@restonecolfalse
591     \fi
592 \<thesis | minithesis | progress | project | report | gdp>
593     \chapter*{\contentsname
594 \</thesis | minithesis | progress | project | report | gdp>
595 \<*article>

```



```

596 \section*{\contentsname
597 </article>
598 \mkboth{
599 \MakeUppercase\contentsname}{\MakeUppercase\contentsname}}
600 \@starttoc{toc}
601 \if@restonecol\twocolumn\fi
602 <thesis | minithesis | progress | project | report | gdp> \cleardoublepage
603 }\end{spacing}
604 }

```

7.3.3 List of Figures

`\listoffigures` Adjust line and paragraph spacing.

```

605 \renewcommand\listoffigures{
606 \addtotoc{\listfigurename}
607 \begin{spacing}{1}{
608 \setlength{\parskip}{1pt}
609 \if@twocolumn
610 \@restonecoltrue\onecolumn
611 \else
612 \@restonecolfalse
613 \fi
614 <*thesis | minithesis | progress | project | report | gdp>
615 \chapter*{\listfigurename
616 </thesis | minithesis | progress | project | report | gdp>
617 <*article>
618 \section*{\listfigurename
619 </article>
620 \mkboth{\MakeUppercase\listfigurename}
621 {\MakeUppercase\listfigurename}}
622 \@starttoc{lof}
623 \if@restonecol\twocolumn\fi
624 <*thesis | minithesis | progress | project | report | gdp>
625 \cleardoublepage
626 </thesis | minithesis | progress | project | report | gdp>
627 }\end{spacing}
628 }

```

7.3.4 List of Tables

`\listoftables` Adjust line and paragraph spacing.

```

629 \renewcommand\listoftables{
630 \addtotoc{\listtablename}
631 \begin{spacing}{1}{
632 \setlength{\parskip}{1pt}
633 \if@twocolumn
634 \@restonecoltrue\onecolumn
635 \else
636 \@restonecolfalse
637 \fi
638 <*thesis | minithesis | progress | project | report | gdp>
639 \chapter*{\listtablename
640 </thesis | minithesis | progress | project | report | gdp>

```

```

641 <{*article>
642     \section*{\listtablename
643 </article>
644     \@mkboth{
645         \MakeUppercase\listtablename}{\MakeUppercase\listtablename}}
646     \@starttoc{lot}
647     \if@restonecol\twocolumn\fi
648 <{*thesis | minithesis | progress | project | report | gdp>
649     \cleardoublepage
650 </thesis | minithesis | progress | project | report | gdp>
651 }<end{spacing}>
652 }

```

7.4 List of Symbols

`\listsymbolname` Provide a `listofsymbols` command to produce a list of symbols,

`\listofsymbols`

```

653 <{*thesis | minithesis | progress | report | article>
654 \newcommand\listsymbolname{Definitions and Abbreviations}
655 </thesis | minithesis | progress | report | article>
656 <{*project | gdp>
657 \newcommand\listsymbolname{List of Symbols}
658 </project | gdp>
659 \usepackage{longtable}
660 \newcommand\listofsymbols[2]{
661 \btypeout{\listsymbolname}
662 \addtotoc{\listsymbolname}
663 <{*thesis | minithesis | progress | project | report | gdp>
664     \chapter*{\listsymbolname
665 </thesis | minithesis | progress | project | report | gdp>
666 <{*article>
667     \section*{\listsymbolname
668 </article>
669     \@mkboth{
670         \MakeUppercase\listsymbolname}{\MakeUppercase\listsymbolname}}
671 \begin{longtable}[c]{#1}#2\end{longtable}\par
672 <{*thesis | minithesis | progress | project | report | gdp>
673     \cleardoublepage
674 </thesis | minithesis | progress | project | report | gdp>
675 }
676 </thesis | minithesis | progress | project | report | gdp | article>

```

7.5 Declaration of Authorship

`\authorshipdeclaration` Taken from Modified Template by Lovell 9.3

TODO: Consider a separate dissertation class for non technical?

TODO: Provide extra argument for putting the date into the Declaration

TODO: make slightly different declarations for theses and projects

This Authorship macro takes one argument for the case of People who have published part of their thesis already (perhaps in a paper).

xifthen else package used for the `isempty` command

```

677 <{*thesis | minithesis | progress | report | article>
678 \usepackage{xifthen}

```

```

679 \newcommand\authorshipdeclaration[1]{
680 \btypeout{Declaration of Authorship}
681 \addtotoc{Declaration of Authorship}
682 \thispagestyle{plain}
683 \null\vfil
684 \vskip 60\p@
685 \begin{center}{\Large\bf Declaration of Authorship \par}\end{center}
686 I declare that this thesis and the work presented in it is my own and has
687 been generated by me as the result of my own original research.
688
689 I confirm that:
690
691 \begin{enumerate}
692 \item This work was done wholly or mainly while in candidature for a research degree at this U
693 \item Where any part of this thesis has previously been submitted for a degree or any other qu
694 \item Where I have consulted the published work of others, this is always clearly attributed;
695 \item Where I have quoted from the work of others, the source is always given. With the except
696 \item I have acknowledged all main sources of help;
697 \item Where the thesis is based on work done by myself jointly with others, I have made clear
698
699 \ifthenelse{\isempty{#1}}
700 {\item None of this work has been published before submission}
701 {\item Parts of this work have been published as: #1}
702 \end{enumerate}
703
704 \vspace{15.0mm}
705 \begin{minipage}[t]{0.7\textwidth}
706 Signed:.....
707 \end{minipage}%
708 \begin{minipage}[t]{0.3\textwidth}
709 Date:.....
710 \end{minipage}
711 \vfil\vfil\null
712 \cleardoublepage
713 }
714 </thesis | minithesis | progress | report | article>

```

7.6 Copyright Statement

\copyrightDeclaration This standard Copyright statement is to be included for a thesis submission to University of Southampton Digital Repository

```

715 <*thesis>
716 \usepackage[export]{adjustbox} % for Soton logo alignment
717 \newcommand\copyrightDeclaration[1]{
718
719 \btypeout{Copyright declaration}
720 \thispagestyle{plain}
721
722 \hspace{-1.5in}\hspace{2.5cm}\begin{minipage}{17cm}
723 \null\vfil
724 \includegraphics[width=6cm,right]{UoSLogo.png}
725
726 \vskip 60\p@

```

```

727 \begin{center}{\selectfont\huge
728 \textcolor{custGray}{University of Southampton Research Repository}\par}
729 \end{center}
730 \vspace{1cm}
731
732 {\fontfamily{fds}\selectfont
733
734 \noindent Copyright \textcopyright~ and Moral Rights for this thesis and, where
735 applicable, any accompanying data are retained by the author and/or other
736 copyright owners. A copy can be downloaded for personal non-commercial research
737 or study, without prior permission or charge. This thesis and the accompanying
738 data cannot be reproduced or quoted extensively from without first obtaining
739 permission in writing from the copyright holder/s. The content of the thesis
740 and accompanying research data (where applicable) must not be changed in any
741 way or sold commercially in any format or medium without the formal permission
742 of the copyright holder/s.
743
744 \vspace{0.5cm}
745
746 When referring to this thesis and any accompanying data, full bibliographic
747 details must be given, e.g.
748
749 \vspace{0.5cm}
750
751 Thesis: Author (Year of Submission) "Full thesis title", University of
752 Southampton, name of the University Faculty or School or Department,
753 PhD Thesis, pagination.
754
755 \vspace{0.5cm}
756
757 Data: Author (Year) Title. URI [dataset]}
758 \end{minipage}
759 \vfil\vfil\null
760 \cleardoublepage
761 }
762
763 \usepackage{lastpage} % counts the full number of pages
764
765 </thesis>

```

7.7 Acknowledgements

\acknowledgements Thank someone!

```

766 \newcommand\acknowledgements[1]{
767 \btypeout{Acknowledgements}
768 \addtotoc{Acknowledgements}
769 <thesis | minithesis | progress | project | report | gdp>
770 \thispagestyle{plain}
771 \null\vfil
772 \vskip 60\p@
773 \begin{center}{\Large\bf Acknowledgements \par}\end{center}
774 {\normalsize #1}
775 \vfil\vfil\null

```

```

776 \cleardoublepage
777 </thesis | minithesis | progress | project | report | gdp>
778 <*article>
779 \section*{Acknowledgements}
780 {\normalsize #1}
781 </article>
782 }

```

7.8 Dedicatory

`\dedicatory` Dedicate the document to someone!

```

783 \newcommand\dedicatory[1]{
784 \btypeout{Dedicatory}
785 <*thesis | minithesis | progress | project | report | gdp>
786 \thispagestyle{plain}
787 \null\vfil
788 \vskip 60\p@
789 \begin{center}{\Large \sl #1}\end{center}
790 \vfil\null
791 \cleardoublepage
792 </thesis | minithesis | progress | project | report | gdp>
793 }

```

8 Parts

`\frontmatter` Define `frontmatter`, `mainmatter`, `backmatter` for the article class and rename the
`\mainmatter` bibliography to something that makes more sense.

```

\backmatter
794 <*article>
795 \newcommand\frontmatter{ }
796 \newcommand\mainmatter{ }
797 \newcommand\bibname{References}
798 \newcommand\backmatter{}
799 </article>

800 </thesis | minithesis | progress | project | report | article | gdp | gdpsummary>

```

9 Example Documents

```

801 <*testthesis>
802 \documentclass[sotoncolour]{uosthesis}      % Use the Thesis Style with custom link colour
803 </testthesis>
804 <*testminithesis>
805 \documentclass[sotoncolour]{uosminithesis}   % Use the minithesis Style with custom link colour
806 </testminithesis>
807 <*testprogress>
808 \documentclass[sotoncolour]{uosprogress}     % Use the progress Style with custom link colour
809 </testprogress>
810 <*testproject>
811 \documentclass[sotoncolour]{uosproject}      % Use the Project Style with custom link colour
812 </testproject>
813 <*testreport>

```

```

814 \documentclass[sotoncolour]{uosreport}      % Use the Report Style with custom link colour
815 \end{document}
816 \begin{document}
817 \documentclass[sotoncolour]{uosarticle}      % Use the Article Style with custom link colour
818 \end{document}
819 \begin{document}
820 \documentclass[sotoncolour]{uosgdp}          % Use the GDP Report Style with custom link colour
821 \end{document}
822 \begin{document}
823 \documentclass[sotoncolour]{uosgdpsummary}   % Use the GDP Summary Report Style with custom link colour
824 \end{document}
825 (*testthesis | testminithesis | testprogress | testproject | testreport | testarticle | testgdp | testgdpsummary)
826 \graphicspath{{../Figures/}}               % Location of your graphics files
827 \usepackage{natbib}                         % Use Natbib style for the refs.
828 (*testthesis | testminithesis | testproject | testreport | testgdp)
829 \usepackage{bibentry}                       % Use bibentry for prepublished works
830 \nobibliography*                            % Use bibentry for prepublished works
831 \usepackage{attrib}                         % Use the attrib package for quotations
832 \end{document}
833 \hypersetup{colorlinks=true}                % Set to false for black/white printing
834 \input{Definitions}                         % Include your abbreviations
835 %% -----
836 %% -----THESIS/DOC INFORMATION -----
837 \department {School of [Insert school]}
838 \DEPARTMENT {\MakeUppercase{\deptname}}
839 \group      {[Group name]}
840 \GROUP      {\MakeUppercase{\groupname}}
841 \faculty    {Faculty of [Insert faculty]}
842 \FACULTY    {\MakeUppercase{\facname}}
843 \title      {An Investigation into \dots}
844 (*testthesis)
845 \authors    {Insert name, for example, Sarah Alison Watson} % Use of Soton Email advised, us
846 \end{document}
847 (*testminithesis | testprogress | testproject | testreport | testarticle | testgdp | testgdpsummary)
848 \authors    {\texorpdfstring
849              {\href{mailto:S.A.Watson@soton.ac.uk}{Name and email, for example, Sarah Alison W
850              {Name and email, for example, Sarah Alison Watson}
851              }
852 \end{document}
853 \addresses  {\groupname\\deptname\\univname}
854 \date      {\today}
855 (*testminithesis | testprogress | testproject | testgdp | testgdpsummary)
856 % \supervisor[s] {Mr Beavis and Mrs S Supervisor}
857 \supervisor {Mr Beavis}
858 % \examiner[s] {Dr Butthead and Dr A.N. Other}
859 \examiner  {Dr Butthead}
860 \end{document}
861 (*testproject)
862 \degree     {BEng Electronic Engineering}
863 \end{document}
864 (*testgdp | testgdpsummary)
865 \degree     {Master of Engineering}
866 \end{document}
867 %% Optional Fields

```

```

868 <testthesis|testminithesis|testprogress> \qualifications{MEng PhD}
869 (*testthesis)
870 \orcidid{0000-0002-1825-0097}
871 \doi{10.1002/0470841559.ch1}
872 \volume{n}{m} %Optional Volume Numbering Volume n of m
873 </testthesis>
874 \subject {}
875 \keywords {}
876
877 \begin{document}
878 %% ----- FRONT MATTER ORGANISATION -----
879 (*testthesis)
880 \pagenumbering{gobble} % removes page number
881 \copyrightDeclaration{} % !!! Comment this line when printing the hardcopy !!!
882 </testthesis>
883 \frontmatter
884 \maketitle
885 </testthesis|testminithesis|testprogress|testproject|testreport|testarticle|testgdp|testgdpsummary>
886 (*testthesis|testminithesis|testprogress|testproject|testreport|testarticle|testgdp)
887 \begin{abstract}
888 This work is all about \dots
889 (*testthesis|testminithesis|testprogress)
890 There are broad instructions for this template entitled: How to use the University of Southamp
891
892 There is no prescribed font, you should use a font appropriate to your discipline. See Produ
893 </testthesis|testminithesis|testprogress>
894 \end{abstract}
895 (*testthesis|testminithesis|testprogress|testproject|testreport|testgdp)
896 \tableofcontents
897 \listoffigures
898 \listoftables
899 %% The List of listings does not, by default, appear in the ToC, so....
900 \addtotoc{Listings}
901 \lstlistoflistings
902 (*testthesis|testminithesis|testproject|testreport|testgdp)
903 %% ----- AUTHORSHIP DECLARATION/ ACKNOW. / DEDICATORY -----
904 %% Either include citations like below (as many as required spaced with commas or 'and').
905 %% \bibentry command must be used here with prepublished papers
906 % https://www.stefaanlippens.net/bibentry/
907 \authorshipdeclaration{\bibentry{Gunn:2001:pdflatex}, \bibentry{Lovell:2011:updated} and \bib
908 %% Or state no citations like below
909 %% \authorshipdeclaration{}
910 %% -----
911 \acknowledgements{Thanks to no one.}
912 \dedicatory{To \dots}
913 </testthesis|testminithesis|testproject|testreport|testgdp>
914 %%Lightweight Definitions and Abbreviations see package:nomencl for alternative
915 %% Include if relevant to discipline
916 \listofsymbols{ll}{\$ & The weight vector\$\$ & If relevant to discipline}
917 </testthesis|testminithesis|testprogress|testproject|testreport|testgdp>
918 </testthesis|testminithesis|testprogress|testproject|testreport|testarticle|testgdp>
919 (*testthesis|testminithesis|testprogress|testproject|testreport|testarticle|testgdp|testgdpsummary)
920 \mainmatter
921 %% ----- MAIN MATTER (CONTENT) -----

```

```

922 </testthesis | testminithesis | testprogress | testproject | testreport | testarticle | testgdp | testgdpsummary>
923 < *testthesis | testminithesis | testprogress | testproject | testreport | testgdp>
924 \include{Introduction}
925 \include{Conclusions}
926 \begin{lstlisting}[caption=Without a title it doesn't appear in the table]
927 This is a test listing
928
929 It has several lines
930 That
931 say not much at all
932 \end{lstlisting}
933 \appendix
934 \include{AppendixA}
935 \backmatter
936 < *testthesis | testminithesis | testprogress>
937 \chapter{Glossary [if relevant]}
938 </testthesis | testminithesis | testprogress>
939 \chapter{References}
940 To use list of references as well as the bibliography section use the \texttt{multibbl} package
941 \bibliographystyle{uos}
942 \bibliography{UOS}
943 < *testthesis | testminithesis | testprogress>
944 \chapter{Index [if relevant]}
945 </testthesis | testminithesis | testprogress>
946 </testthesis | testminithesis | testprogress | testproject | testreport | testgdp>
947 < *testgdpsummary>
948 \section*{Introduction}
949 \section*{Objectives}
950 \section*{Resources}
951 \section*{Constraints}
952 \section*{Approaching the task}
953 \section*{Team Organisation}
954 \section*{Important Results}
955 \section*{Conclusions}
956 \section*{Recommendations}
957 </testgdpsummary>
958 < *introduction>
959 \chapter{Introduction} \label{Chapter:Introduction}
960 </introduction>
961 < *testarticle>
962 \section{Introduction} \label{Section:Introduction}
963 </testarticle>
964 < *introduction | testarticle>
965 You probably found all the files from \cite{Gunn:2001:pdflatex}.
966 \tref{Table:tabex} illustrates the results of my work.
967 \begin{table}[!htb]
968 \centering
969 \begin{tabular}{cc}
970 \toprule
971 \textbf{Training Error} & \textbf{Testing Error}\\
972 \midrule
973 0 &  $\infty$ \\
974 \bottomrule
975 \end{tabular}

```



```

976 \caption{The Results}
977 \label{Table:tabex}
978 \end{table}
979
980 \fref{Figure:figex} shows why this is the case.
981 \begin{figure}[!htb]
982 \centering
983 \includegraphics[width=8cm]{figure}
984 \caption{A colourful picture.}
985 \label{Figure:figex}
986 \end{figure}
987
988 This page shows you a subfigure example in \fref{Figure:figsubex}.
989 \begin{figure}[!htb]
990 \centering
991 \subcaptionbox{The left caption}{
992 \includegraphics[width=4.2cm]{figure}
993 \label{Figure:figsubex:left}
994 }
995 \subcaptionbox{The right caption}{
996 \includegraphics[width=4.2cm]{figure}
997 \label{Figure:figsubex:right}
998 }
999 \caption{A doubly colourful picture.}
1000 \label{Figure:figsubex}
1001 \end{figure}
1002 Lorem ipsum dolor sit amet, consectetur adipiscing elit. Donec rutrum sodales ligula, ac aliquam
1003
1004 \section{A Section of a chapter}
1005 Nulla molestie velit sed dui ullamcorper viverra. Fusce placerat vulputate lacus eu consequat.
1006
1007 \subsection{Some quotes}
1008
1009 Nam egestas felis euismod erat tincidunt ornare. Nulla hendrerit tempor purus ac consequat. Aliquam
1010 \begin{quote}
1011 Lorem ipsum dolor sit amet, consectetur adipiscing elit. Donec rutrum sodales ligula, ac aliquam
1012 \end{quote}
1013
1014 Pellentesque sodales lobortis feugiat. Vivamus volutpat mauris id odio aliquam maximus sed sit
1015 \begin{quote}
1016 The \verb|\attrib| macro attributes block elements, for example when citing
1017 a reference after a block quotation.
1018 \attrib{\cite{attribpackage}}
1019 \end{quote}
1020
1021 Donec vitae massa nisi. Praesent sed sollicitudin urna. Suspendisse vitae cursus tortor. In eu
1022 \</introduction|testarticle>
1023 \<conclusions>
1024 \chapter{Conclusions} \label{Chapter: Conclusions}
1025 \</conclusions>
1026 \<testarticle>
1027 %% -----
1028 \section{Conclusions} \label{Section: Conclusions}
1029 \</testarticle>

```

```

1030 <*conclusions | testarticle>
1031 It works.
1032 </conclusions | testarticle>
1033 <*testarticle>
1034 \acknowledgements{Thanks to no one.}
1035 \backmatter
1036 \appendix
1037 \bibliographystyle{uos}
1038 \bibliography{UOS}
1039 </testarticle>
1040 <*appendix | testarticle>
1041 <*appendix>
1042 \chapter{Stuff} \label{Chapter:Stuff}
1043 </appendix>
1044 <*testarticle>
1045 %% -----
1046 \section{Stuff} \label{Section:Stuff}
1047 </testarticle>
1048 The following gets in the way of the text....
1049 </appendix | testarticle>
1050 <*testthesis | testminithesis | testprogress | testproject | testreport | testarticle | testgdp | testgdpsummary>
1051 \end{document}
1052 %% -----
1053 </testthesis | testminithesis | testprogress | testproject | testreport | testarticle | testgdp | testgdpsummary>

```

9.1 Example Figure

```

1054 <*figure>
1055 %%BoundingBox: 0 150 600 650
1056 %%EndComments
1057 0.0 setlinewidth
1058 /length 0.1 def
1059 /width 0.02 def
1060 /hsvcircle {
1061   gsave
1062     /h 0.0 def
1063     0 4 360 {
1064       pop
1065       gsave
1066       0.5 0.0 translate
1067       newpath
1068       0.0 0.0 moveto
1069       length 0.0 lineto
1070       length width lineto
1071       0.0 width lineto
1072       closepath
1073       h 1.0 1.0 sethsbcolor
1074       fill
1075       grestore
1076       /h h 4 360 div add def
1077       4 rotate
1078     } for
1079   grestore
1080 } def
1081 0.0 setlinewidth

```

```

1082 0.0 setgray
1083 300 400 translate
1084 500 500 scale
1085 30 rotate
1086 1.0 0.7 scale
1087 -30 rotate
1088 hsvcircle
1089 0.8 0.8 scale
1090 hsvcircle
1091 0.8 0.8 scale
1092 hsvcircle
1093 0.8 0.8 scale
1094 hsvcircle
1095 0.8 0.8 scale
1096 hsvcircle
1097 0.8 0.8 scale
1098 hsvcircle
1099 0.8 0.8 scale
1100 hsvcircle
1101 showpage
1102 </figure>

```

9.2 Definitions File

```

1103 <*definitions>
1104 \newcommand{\BibTeX}{\rm B\kern-.05em{\sc i\kern-.025em b}\kern-.08em T\kern-.1667em\lower.7
1105
1106 %% People
1107 \newcounter{address}
1108 \setcounter{address}{1}
1109 \renewcommand{\theaddress}{\textsuperscript{\fnsymbol{address}}}
1110 \newcommand{\address}[1]{\refstepcounter{address}\theaddress#1\\}
1111 \newcommand{\Name}[3]{\texorpdfstring{\href{mailto:#3}{#2}#1}{#2}\xspace}
1112 \newcommand{\SteveRGunn}[1]{\Name{#1}{Steve R. Gunn}{S.R.Gunn@ecs.soton.ac.uk}}
1113
1114 %% Dingbats
1115 \newcommand{\tick}{\ding{51}}
1116 \newcommand{\cross}{\ding{55}}
1117
1118 %% Calculus
1119 \newcommand{\pd}[2]{\ensuremath{\frac{\partial #1}{\partial #2}}\xspace}
1120 \newcommand{\fd}[2]{\ensuremath{\frac{d #1}{d #2}}\xspace}
1121 \newcommand{\dint}{\ensuremath{\int\!\!\!\int}\xspace}
1122 \newcommand{\tint}{\ensuremath{\int\!\!\!\int\!\!\!\int}\xspace}
1123
1124 %% Math Sets
1125 \newcommand{\Q}[1]{\ensuremath{\mathbb{#1}}\xspace}
1126 \newcommand{\R}{\Q{R}}
1127
1128 %% Matrix, Vector
1129 \newcommand{\V}[1]{\ensuremath{\boldsymbol{#1}}\xspace}
1130 \newcommand{\M}[1]{\ensuremath{\boldsymbol{#1}}\xspace}
1131 \newcommand{\0}{\V{0}}
1132 \newcommand{\1}{\V{1}}
1133 \newcommand{\I}{\M{I}}

```

```

1134
1135 %% Math Functions
1136 \newcommand{\F}[1]{\ensuremath{\mathrm{#1}}\xspace}
1137 \newcommand{\sgn}{\F{sgn}}
1138 \newcommand{\tr}{\F{trace}}
1139 \newcommand{\diag}{\F{diag}}
1140
1141 %% Math Names
1142 \newcommand{\N}[1]{\ensuremath{\mathit{#1}}\xspace}
1143
1144 %% Data
1145 \newcommand{\mc}[1]{\ensuremath{\mathcal{#1}}\xspace}
1146 \newcommand{\Hyp}{\mc{H}}
1147 \newcommand{\D}{\mc{D}}
1148
1149 %% Kernel
1150 \newcommand{\K}{\M{K}}
1151 \newcommand{\eins}{\texorpdfstring{\ensuremath{\epsilon}}{\textepsilon}-insensitive\xspace}
1152 \newcommand{\e}{\ensuremath{\epsilon}\xspace}
1153 \newcommand{\Bxi}{\ensuremath{\boldsymbol{\xi}}\xspace}
1154 \newcommand{\Kanova}{\ensuremath{\mathit{K}_{\text{ANOVA}}}\xspace}
1155 \newcommand{\Kspline}{\ensuremath{\mathit{K}_{\text{spline}}}\xspace}
1156
1157 %% Bayesian
1158 \newcommand{\MP}{\ensuremath{\mathit{\scriptscriptstyle M}\hspace{-1.5pt}\mathcal{P}}\xspace}
1159 \newcommand{\ML}{\ensuremath{\mathit{\scriptscriptstyle M}\hspace{-1.5pt}\mathcal{L}}\xspace}
1160 \newcommand{\Qw}{\ensuremath{Q_{\w}(\w)}\xspace}
1161 \newcommand{\Qa}{\ensuremath{Q_{\Ba}(\Ba)}\xspace}
1162 \newcommand{\Qb}{\ensuremath{Q_{\beta}(\beta)}\xspace}
1163 \newcommand{\wMPab}{\ensuremath{w_{\MP|\bar{\Ba},\bar{\beta}}}\xspace}
1164 \newcommand{\wMP}{\ensuremath{w_{\MP}}\xspace}
1165 \newcommand{\yMP}{\ensuremath{y_{\MP}}\xspace}
1166 \newcommand{\BaMP}{\ensuremath{\Ba_{\hspace{1pt}\MP}}\xspace}
1167 \newcommand{\aMP}{\ensuremath{\alpha_{\hspace{1pt}\MP}}\xspace}
1168 \newcommand{\bMP}{\ensuremath{\beta_{\hspace{1pt}\MP}}\xspace}
1169 \newcommand{\Sab}{\ensuremath{M_{\Sigma}(\bar{\Ba},\bar{\beta})}\xspace}
1170 \newcommand{\Ba}{\ensuremath{\boldsymbol{\alpha}}\xspace}
1171 \newcommand{\Bb}{\ensuremath{\boldsymbol{\beta}}\xspace}
1172 \newcommand{\Bm}{\ensuremath{\boldsymbol{\mu}}\xspace}
1173 \newcommand{\BL}{\ensuremath{\boldsymbol{\Lambda}}\xspace}
1174 \newcommand{\BPhi}{\ensuremath{\boldsymbol{\Phi}}\xspace}
1175 \newcommand{\SMP}{\ensuremath{M_{\Sigma}(\MP)}\xspace}
1176
1177 \newcommand{\Pa}{\ensuremath{P(\alpha|\mathcal{H})}\xspace}
1178 \newcommand{\Pb}{\ensuremath{P(\beta|\mathcal{H})}\xspace}
1179 \newcommand{\Pab}{\ensuremath{P(\alpha,\beta|\mathcal{H})}\xspace}
1180 \newcommand{\Pw}{\ensuremath{P(w|\mathcal{H})}\xspace}
1181 \newcommand{\PD}{\ensuremath{P(D|\mathcal{H})}\xspace}
1182 \newcommand{\PwIa}{\ensuremath{P(w|\alpha,\mathcal{H})}\xspace}
1183 \newcommand{\PDIwb}{\ensuremath{P(D|w,\beta,\mathcal{H})}\xspace}
1184 \newcommand{\PDwab}{\ensuremath{P(D,w,\alpha,\beta|\mathcal{H})}\xspace}
1185 \newcommand{\PDIw}{\ensuremath{P(D|w,\mathcal{H})}\xspace}
1186 \newcommand{\PwID}{\ensuremath{P(w|D,\mathcal{H})}\xspace}
1187 \newcommand{\PwabID}{\ensuremath{P(w,\alpha,\beta|D,\mathcal{H})}\xspace}

```

```

1188
1189 \newcommand{\PanH}{\ensuremath{P(\alpha)}\xspace}
1190 \newcommand{\PbnH}{\ensuremath{P(\beta)}\xspace}
1191 \newcommand{\PabnH}{\ensuremath{P(\alpha,\beta)}\xspace}
1192 \newcommand{\PwnH}{\ensuremath{P(w)}\xspace}
1193 \newcommand{\PDnH}{\ensuremath{P(D)}\xspace}
1194 \newcommand{\PwIanH}{\ensuremath{P(w|\alpha)}\xspace}
1195 \newcommand{\PDIwnH}{\ensuremath{P(D|w,\beta)}\xspace}
1196 \newcommand{\PDwabnH}{\ensuremath{P(D,w,Ba,\beta)}\xspace}
1197 \newcommand{\PDIwnH}{\ensuremath{P(D|w)}\xspace}
1198 \newcommand{\PwIDnH}{\ensuremath{P(w|D)}\xspace}
1199 \newcommand{\PwabIDnH}{\ensuremath{P(w,\alpha,\beta|D)}\xspace}
1200
1201 \newcommand{\PDwBab}{\ensuremath{P(D,w,Ba,\beta|\mathcal{H})}\xspace}
1202 \newcommand{\PwIBa}{\ensuremath{P(w|Ba,\mathcal{H})}\xspace}
1203 \newcommand{\PBab}{\ensuremath{P(Ba,\beta|\mathcal{H})}\xspace}
1204 \newcommand{\PwBabID}{\ensuremath{P(w,Ba,\beta|D,\mathcal{H})}\xspace}
1205
1206 \newcommand{\PBanH}{\ensuremath{P(Ba)}\xspace}
1207 \newcommand{\PwIBanH}{\ensuremath{P(w|Ba)}\xspace}
1208
1209 %% Snakes
1210 \newcommand{\Esnake}{\ensuremath{\mathit{E}_{\text{snake}}}\xspace}
1211 \newcommand{\Eimage}{\ensuremath{\mathit{E}_{\text{image}}}\xspace}
1212 \newcommand{\Econt}{\ensuremath{\mathit{E}_{\text{cont}}}\xspace}
1213 \newcommand{\Ecurv}{\ensuremath{\mathit{E}_{\text{curv}}}\xspace}
1214 \newcommand{\Eint}{\ensuremath{\mathit{E}_{\text{int}}}\xspace}
1215 \newcommand{\Eext}{\ensuremath{\mathit{E}_{\text{ext}}}\xspace}
1216 \newcommand{\Eterm}{\ensuremath{\mathit{E}_{\text{term}}}\xspace}
1217 \newcommand{\Eline}{\ensuremath{\mathit{E}_{\text{line}}}\xspace}
1218 \newcommand{\Edge}{\ensuremath{\mathit{E}_{\text{edge}}}\xspace}
1219 \newcommand{\Econ}{\ensuremath{\mathit{E}_{\text{con}}}\xspace}
1220 \newcommand{\Eangle}{\ensuremath{\mathit{E}_{\text{angle}}}\xspace}
1221 \newcommand{\Elshape}{\ensuremath{\mathit{E}_{\text{lshape}}}\xspace}
1222 \newcommand{\Eedgedir}{\ensuremath{\mathit{E}_{\text{edgedir}}}\xspace}
1223 \newcommand{\Emodel}{\ensuremath{\mathit{E}_{\text{model}}}\xspace}
1224 \newcommand{\wte}{\ensuremath{\mathit{w}_{\text{term}}}\xspace}
1225 \newcommand{\wli}{\ensuremath{\mathit{w}_{\text{line}}}\xspace}
1226 \newcommand{\wed}{\ensuremath{\mathit{w}_{\text{edge}}}\xspace}
1227 \newcommand{\wco}{\ensuremath{\mathit{w}_{\text{con}}}\xspace}
1228
1229
1230 %% Environments
1231 \newcounter{alg}
1232 \newenvironment{algorithm}[1]
1233 {
1234     \stepcounter{alg}
1235     \begin{table}[htb]
1236     \centering
1237     \begin{tabular}[t]{l}
1238     \hline&
1239     \multicolumn{2}{l}{\bf Algorithm \arabic{alg}: #1}&&
1240     \end{tabular}
1241     &

```

```

1242 \hline
1243 \end{tabular}
1244 \end{table}
1245 }
1246 </definitions>

```

9.3 References File

```

1247 <*references>
1248 @MISC{Gunn:2001:pdflatex,
1249   author =      {S.R. Gunn},
1250   title =       {PDFLaTeX Instructions},
1251   year =        {2001},
1252   url =         {http://www.ecs.soton.ac.uk/~srg/softwaretools/document/}
1253 }
1254 @MISC{Lovell:2011:updated,
1255   author =      {C. J. Lovell},
1256   title =       {Updated templates},
1257   year =        {2011}
1258 }
1259 @MISC{Gunn:2011:updated2,
1260   author =      {S.R. Gunn and C. J. Lovell},
1261   title =       {Updated templates reference 2},
1262   year =        {2011}
1263 }
1264 @MISC{attribpackage,
1265   author =      {Matt Swift},
1266   title =       {The attrib LaTeX package
1267 attribution of block elements (Frankenstein's hat)},
1268   year =        {1999},
1269   url =         {http://cs.brown.edu/about/system/managed/latex/doc/attrib.pdf}
1270 }
1271
1272 </references>

```

9.4 Bibliography Style File

```

1273 <*bst>
1274 %% File: 'uos.bst'
1275 %% A modification of 'plainnat.bst' for use with natbib package
1276 %%
1277 %% Copyright 1993-1999 Patrick W Daly
1278 %% Max-Planck-Institut für Astronomie
1279 %% Max-Planck-Str. 2
1280 %% D-37191 Katlenburg-Lindau
1281 %% Germany
1282 %% E-mail: daly@linmpi.mpg.de
1283 %%
1284 %% This program can be redistributed and/or modified under the terms
1285 %% of the LaTeX Project Public License Distributed from CTAN
1286 %% archives in directory macros/latex/base/lppl.txt; either
1287 %% version 1 of the License, or any later version.
1288 %%
1289 %% Includes field URL for Internet addresses
1290 %%
1291 ENTRY

```

```

1292 { address
1293     author
1294     booktitle
1295     chapter
1296     edition
1297     editor
1298     howpublished
1299     institution
1300     isbn
1301     issn
1302     journal
1303     key
1304     month
1305     note
1306     number
1307     organization
1308     pages
1309     publisher
1310     school
1311     series
1312     title
1313     type
1314     url
1315     volume
1316     year
1317 }
1318 {}
1319 { label extra.label sort.label short.list }
1320
1321 INTEGERS { output.state before.all mid.sentence after.sentence after.block }
1322
1323 FUNCTION {init.state.consts}
1324 { #0 'before.all :=
1325   #1 'mid.sentence :=
1326   #2 'after.sentence :=
1327   #3 'after.block :=
1328 }
1329
1330 STRINGS { s t }
1331
1332 FUNCTION {output.nonnull}
1333 { 's :=
1334   output.state mid.sentence =
1335   { ", " * write$ }
1336   { output.state after.block =
1337     { add.period$ write$
1338       newline$
1339       "\newblock " write$
1340     }
1341     { output.state before.all =
1342       'write$
1343       { add.period$ " " * write$ }
1344       if$
1345     }

```

```

1346         if$
1347         mid.sentence 'output.state :=
1348     }
1349     if$
1350     s
1351 }
1352
1353 FUNCTION {output}
1354 { duplicate$ empty$
1355     'pop$
1356     'output.nonnull
1357     if$
1358 }
1359
1360 FUNCTION {output.check}
1361 { 't :=
1362     duplicate$ empty$
1363     { pop$ "empty " t * " in " * cite$ * warning$ }
1364     'output.nonnull
1365     if$
1366 }
1367
1368 FUNCTION {fin.entry}
1369 { add.period$
1370     write$
1371     newline$
1372 }
1373
1374 FUNCTION {new.block}
1375 { output.state before.all =
1376     'skip$
1377     { after.block 'output.state := }
1378     if$
1379 }
1380
1381 FUNCTION {new.sentence}
1382 { output.state after.block =
1383     'skip$
1384     { output.state before.all =
1385         'skip$
1386         { after.sentence 'output.state := }
1387         if$
1388     }
1389     if$
1390 }
1391
1392 FUNCTION {not}
1393 { { #0 }
1394     { #1 }
1395     if$
1396 }
1397
1398 FUNCTION {and}
1399 { 'skip$

```



```

1400     { pop$ #0 }
1401   if$
1402 }
1403
1404 FUNCTION {or}
1405 {   { pop$ #1 }
1406     'skip$
1407   if$
1408 }
1409
1410 FUNCTION {new.block.checka}
1411 { empty$
1412   'skip$
1413   'new.block
1414   if$
1415 }
1416
1417 FUNCTION {new.block.checkb}
1418 { empty$
1419   swap$ empty$
1420   and
1421   'skip$
1422   'new.block
1423   if$
1424 }
1425
1426 FUNCTION {new.sentence.checka}
1427 { empty$
1428   'skip$
1429   'new.sentence
1430   if$
1431 }
1432
1433 FUNCTION {new.sentence.checkb}
1434 { empty$
1435   swap$ empty$
1436   and
1437   'skip$
1438   'new.sentence
1439   if$
1440 }
1441
1442 FUNCTION {field.or.null}
1443 { duplicate$ empty$
1444   { pop$ "" }
1445   'skip$
1446   if$
1447 }
1448
1449 FUNCTION {emphasize}
1450 { duplicate$ empty$
1451   { pop$ "" }
1452   { "{\em " swap$ * "}" * }
1453   if$

```

```

1454 }
1455
1456 INTEGERS { nameptr namesleft numnames }
1457
1458 FUNCTION {format.names}
1459 { 's :=
1460   #1 'nameptr :=
1461   s num.names$ 'numnames :=
1462   numnames 'namesleft :=
1463   { namesleft #0 > }
1464   { s nameptr "{ff~}{vv~}{ll}{, jj}" format.name$ 't :=
1465     nameptr #1 >
1466     { namesleft #1 >
1467       { ", " * t * }
1468       { numnames #2 >
1469         { ", " * }
1470         'skip$
1471         if$
1472         t "others" =
1473         { " et~al." * }
1474         { " and " * t * }
1475         if$
1476       }
1477       if$
1478     }
1479     't
1480     if$
1481     nameptr #1 + 'nameptr :=
1482     namesleft #1 - 'namesleft :=
1483   }
1484   while$
1485 }
1486
1487 FUNCTION {format.key}
1488 { empty$
1489   { key field.or.null }
1490   { "" }
1491   if$
1492 }
1493
1494 FUNCTION {format.authors}
1495 { author empty$
1496   { "" }
1497   { author format.names }
1498   if$
1499 }
1500
1501 FUNCTION {format.editors}
1502 { editor empty$
1503   { "" }
1504   { editor format.names
1505     editor num.names$ #1 >
1506     { ", editors" * }
1507     { ", editor" * }

```

```

1508         if$
1509     }
1510     if$
1511 }
1512
1513 FUNCTION {format.isbn}
1514 { isbn empty$
1515     { "" }
1516     { new.block "ISBN " isbn * }
1517     if$
1518 }
1519
1520 FUNCTION {format.issn}
1521 { issn empty$
1522     { "" }
1523     { new.block "ISSN " issn * }
1524     if$
1525 }
1526
1527 %FUNCTION {format.url}
1528 %{ url empty$
1529 %     { "" }
1530 %     { new.block "URL \url{" url * "}" * }
1531 %     if$
1532 %}
1533 %
1534 %FUNCTION {format.title}
1535 %{ title empty$
1536 %     { "" }
1537 %     { title "t" change.case$ }
1538 %     if$
1539 %}
1540 FUNCTION {format.url}
1541 { ""
1542 }
1543
1544 FUNCTION {format.title}
1545 { title empty$
1546     { "" }
1547     { url empty$
1548         { title "t" change.case$ }
1549         { "\href{" url * "}{ " * title "t" change.case$ * "}" * }
1550         if$
1551     }
1552     if$
1553 }
1554
1555
1556 FUNCTION {format.full.names}
1557 {'s :=
1558     #1 'nameptr :=
1559     s num.names$ 'numnames :=
1560     numnames 'namesleft :=
1561     { namesleft #0 > }

```

```

1562 { s nameptr
1563   "{vv~}{ll}" format.name$ 't :=
1564   nameptr #1 >
1565   {
1566     namesleft #1 >
1567     { ", " * t * }
1568     {
1569       numnames #2 >
1570       { ", " * }
1571       'skip$
1572       if$
1573       t "others" =
1574       { " et~al." * }
1575       { " and " * t * }
1576       if$
1577     }
1578     if$
1579   }
1580   't
1581   if$
1582   nameptr #1 + 'nameptr :=
1583   namesleft #1 - 'namesleft :=
1584   }
1585 while$
1586 }
1587
1588 FUNCTION {author.editor.full}
1589 { author empty$
1590   { editor empty$
1591     { "" }
1592     { editor format.full.names }
1593     if$
1594   }
1595   { author format.full.names }
1596   if$
1597 }
1598
1599 FUNCTION {author.full}
1600 { author empty$
1601   { "" }
1602   { author format.full.names }
1603   if$
1604 }
1605
1606 FUNCTION {editor.full}
1607 { editor empty$
1608   { "" }
1609   { editor format.full.names }
1610   if$
1611 }
1612
1613 FUNCTION {make.full.names}
1614 { type$ "book" =
1615   type$ "inbook" =

```

```

1616 or
1617     'author.editor.full
1618     { type$ "proceedings" =
1619         'editor.full
1620         'author.full
1621     if$
1622     }
1623 if$
1624 }
1625
1626 FUNCTION {output.bibitem}
1627 { newline$
1628   "\bibitem[" write$
1629   label write$
1630   ")" make.full.names duplicate$ short.list =
1631     { pop$ }
1632     { * }
1633   if$
1634   "]" * write$
1635   cite$ write$
1636   "]" write$
1637   newline$
1638   ""
1639   before.all 'output.state :=
1640 }
1641
1642 FUNCTION {n.dashify}
1643 { 't :=
1644   ""
1645   { t empty$ not }
1646   { t #1 #1 substring$ "-" =
1647     { t #1 #2 substring$ "--" = not
1648       { "--" *
1649         t #2 global.max$ substring$ 't :=
1650       }
1651       { { t #1 #1 substring$ "-" = }
1652         { "-" *
1653           t #2 global.max$ substring$ 't :=
1654         }
1655       while$
1656     }
1657     if$
1658   }
1659   { t #1 #1 substring$ *
1660     t #2 global.max$ substring$ 't :=
1661   }
1662   if$
1663 }
1664 while$
1665 }
1666
1667 FUNCTION {format.date}
1668 { year duplicate$ empty$
1669   { "empty year in " cite$ * warning$

```

```

1670     pop$ "" }
1671     'skip$
1672   if$
1673   month empty$
1674     'skip$
1675     { month
1676       " " * swap$ *
1677     }
1678   if$
1679   extra.label *
1680 }
1681
1682 FUNCTION {format.btitle}
1683 { title emphasize
1684 }
1685
1686 FUNCTION {tie.or.space.connect}
1687 { duplicate$ text.length$ #3 <
1688   { "~" }
1689   { " " }
1690   if$
1691   swap$ * *
1692 }
1693
1694 FUNCTION {either.or.check}
1695 { empty$
1696   'pop$
1697   { "can't use both " swap$ * " fields in " * cite$ * warning$ }
1698   if$
1699 }
1700
1701 FUNCTION {format.bvolume}
1702 { volume empty$
1703   { "" }
1704   { "volume" volume tie.or.space.connect
1705     series empty$
1706     'skip$
1707     { " of " * series emphasize * }
1708     if$
1709     "volume and number" number either.or.check
1710   }
1711   if$
1712 }
1713
1714 FUNCTION {format.number.series}
1715 { volume empty$
1716   { number empty$
1717     { series field.or.null }
1718     { output.state mid.sentence =
1719       { "number" }
1720       { "Number" }
1721       if$
1722       number tie.or.space.connect
1723       series empty$

```

```

1724         { "there's a number but no series in " cite$ * warning$ }
1725         { " in " * series * }
1726         if$
1727     }
1728     if$
1729 }
1730 { "" }
1731 if$
1732 }
1733
1734 FUNCTION {format.edition}
1735 { edition empty$
1736     { "" }
1737     { output.state mid.sentence =
1738         { edition "l" change.case$ " edition" * }
1739         { edition "t" change.case$ " edition" * }
1740         if$
1741     }
1742     if$
1743 }
1744
1745 INTEGERS { multiresult }
1746
1747 FUNCTION {multi.page.check}
1748 { 't :=
1749     #0 'multiresult :=
1750     { multiresult not
1751         t empty$ not
1752         and
1753     }
1754     { t #1 #1 substring$
1755         duplicate$ "-" =
1756         swap$ duplicate$ "," =
1757         swap$ "+" =
1758         or or
1759         { #1 'multiresult := }
1760         { t #2 global.max$ substring$ 't := }
1761         if$
1762     }
1763     while$
1764     multiresult
1765 }
1766
1767 FUNCTION {format.pages}
1768 { pages empty$
1769     { "" }
1770     { pages multi.page.check
1771         { "pages" pages n.dashify tie.or.space.connect }
1772         { "page" pages tie.or.space.connect }
1773         if$
1774     }
1775     if$
1776 }
1777

```

```

1778 FUNCTION {format.vol.num.pages}
1779 { volume field.or.null
1780   number empty$
1781   'skip$
1782   { "\penalty0 (" number * ")" * *
1783     volume empty$
1784     { "there's a number but no volume in " cite$ * warning$ }
1785     'skip$
1786     if$
1787   }
1788   if$
1789   pages empty$
1790   'skip$
1791   { duplicate$ empty$
1792     { pop$ format.pages }
1793     { ":\penalty0 " * pages n.dashify * }
1794     if$
1795   }
1796   if$
1797 }
1798
1799 FUNCTION {format.chapter.pages}
1800 { chapter empty$
1801   'format.pages
1802   { type empty$
1803     { "chapter" }
1804     { type "1" change.case$ }
1805     if$
1806     chapter tie.or.space.connect
1807     pages empty$
1808     'skip$
1809     { ", " * format.pages * }
1810     if$
1811   }
1812   if$
1813 }
1814
1815 FUNCTION {format.in.ed.booktitle}
1816 { booktitle empty$
1817   { "" }
1818   { editor empty$
1819     { "In " booktitle emphasize * }
1820     { "In " format.editors * ", " * booktitle emphasize * }
1821     if$
1822   }
1823   if$
1824 }
1825
1826 FUNCTION {empty.misc.check}
1827 { author empty$ title empty$ howpublished empty$
1828   month empty$ year empty$ note empty$
1829   and and and and and
1830   key empty$ not and
1831   { "all relevant fields are empty in " cite$ * warning$ }

```



```

1832     'skip$
1833   if$
1834 }
1835
1836 FUNCTION {format.thesis.type}
1837 { type empty$
1838   'skip$
1839   { pop$
1840     type "t" change.case$
1841   }
1842   if$
1843 }
1844
1845 FUNCTION {format.tr.number}
1846 { type empty$
1847   { "Technical Report" }
1848   'type
1849   if$
1850   number empty$
1851   { "t" change.case$ }
1852   { number tie.or.space.connect }
1853   if$
1854 }
1855
1856 FUNCTION {format.article.crossref}
1857 { key empty$
1858   { journal empty$
1859     { "need key or journal for " cite$ * " to crossref " * crossref *
1860       warning$
1861       ""
1862     }
1863     { "In {\em " journal * "\/}" * }
1864     if$
1865   }
1866   { "In " key * }
1867   if$
1868   " \cite{" * crossref * "}" *
1869 }
1870
1871 FUNCTION {format.book.crossref}
1872 { volume empty$
1873   { "empty volume in " cite$ * "'s crossref of " * crossref * warning$
1874     "In "
1875   }
1876   { "Volume" volume tie.or.space.connect
1877     " of " *
1878   }
1879   if$
1880   editor empty$
1881   editor field.or.null author field.or.null =
1882   or
1883   { key empty$
1884     { series empty$
1885       { "need editor, key, or series for " cite$ * " to crossref " *

```

```

1886             crossref * warning$
1887             "" *
1888         }
1889         { "{\em " * series * "\/}" * }
1890     if$
1891 }
1892 { key * }
1893 if$
1894 }
1895 'skip$
1896 if$
1897 ", \citet{" * crossref * "}" *
1898 }
1899
1900 FUNCTION {format.incoll.inproc.crossref}
1901 { editor empty$
1902   editor field.or.null author field.or.null =
1903   or
1904   { key empty$
1905     { booktitle empty$
1906       { "need editor, key, or booktitle for " cite$ * " to crossref " *
1907         crossref * warning$
1908         ""
1909       }
1910       { "In {\em " booktitle * "\/}" * }
1911     if$
1912   }
1913   { "In " key * }
1914   if$
1915 }
1916 { "In " }
1917 if$
1918 " \citet{" * crossref * "}" *
1919 }
1920
1921 FUNCTION {article}
1922 { output.bibitem
1923   format.authors "author" output.check
1924   author format.key output
1925   new.block
1926   format.title "title" output.check
1927   new.block
1928   crossref missing$
1929   { journal emphasize "journal" output.check
1930     format.vol.num.pages output
1931     format.date "year" output.check
1932   }
1933   { format.article.crossref output.nonnull
1934     format.pages output
1935   }
1936   if$
1937   format.issn output
1938   format.url output
1939   new.block

```

```

1940  note output
1941  fin.entry
1942 }
1943
1944 FUNCTION {book}
1945 { output.bibitem
1946   author empty$
1947   { format.editors "author and editor" output.check
1948     editor format.key output
1949   }
1950   { format.authors output.nonnull
1951     crossref missing$
1952     { "author and editor" editor either.or.check }
1953     'skip$
1954     if$
1955   }
1956   if$
1957   new.block
1958   format.btitle "title" output.check
1959   crossref missing$
1960   { format.bvolume output
1961     new.block
1962     format.number.series output
1963     new.sentence
1964     publisher "publisher" output.check
1965     address output
1966   }
1967   { new.block
1968     format.book.crossref output.nonnull
1969   }
1970   if$
1971   format.edition output
1972   format.date "year" output.check
1973   format.isbn output
1974   format.url output
1975   new.block
1976   note output
1977   fin.entry
1978 }
1979
1980 FUNCTION {booklet}
1981 { output.bibitem
1982   format.authors output
1983   author format.key output
1984   new.block
1985   format.title "title" output.check
1986   howpublished address new.block.checkb
1987   howpublished output
1988   address output
1989   format.date output
1990   format.isbn output
1991   format.url output
1992   new.block
1993   note output

```

```

1994   fin.entry
1995 }
1996
1997 FUNCTION {inbook}
1998 { output.bibitem
1999   author empty$
2000     { format.editors "author and editor" output.check
2001       editor format.key output
2002     }
2003     { format.authors output.nonnull
2004       crossref missing$
2005         { "author and editor" editor either.or.check }
2006         'skip$
2007       if$
2008     }
2009   if$
2010   new.block
2011   format.btitle "title" output.check
2012   crossref missing$
2013     { format.bvolume output
2014       format.chapter.pages "chapter and pages" output.check
2015       new.block
2016       format.number.series output
2017       new.sentence
2018       publisher "publisher" output.check
2019       address output
2020     }
2021     { format.chapter.pages "chapter and pages" output.check
2022       new.block
2023       format.book.crossref output.nonnull
2024     }
2025   if$
2026   format.edition output
2027   format.date "year" output.check
2028   format.isbn output
2029   format.url output
2030   new.block
2031   note output
2032   fin.entry
2033 }
2034
2035 FUNCTION {incollection}
2036 { output.bibitem
2037   format.authors "author" output.check
2038   author format.key output
2039   new.block
2040   format.title "title" output.check
2041   new.block
2042   crossref missing$
2043     { format.in.ed.booktitle "booktitle" output.check
2044       format.bvolume output
2045       format.number.series output
2046       format.chapter.pages output
2047       new.sentence

```

```

2048     publisher "publisher" output.check
2049     address output
2050     format.edition output
2051     format.date "year" output.check
2052 }
2053 { format.incoll.inproc.crossref output.nonnull
2054     format.chapter.pages output
2055 }
2056 if$
2057 format.isbn output
2058 format.url output
2059 new.block
2060 note output
2061 fin.entry
2062 }
2063
2064 FUNCTION {inproceedings}
2065 { output.bibitem
2066     format.authors "author" output.check
2067     author format.key output
2068     new.block
2069     format.title "title" output.check
2070     new.block
2071     crossref missing$
2072     { format.in.ed.booktitle "booktitle" output.check
2073         format.bvolume output
2074         format.number.series output
2075         format.pages output
2076         address empty$
2077         { organization publisher new.sentence.checkb
2078             organization output
2079             publisher output
2080             format.date "year" output.check
2081         }
2082         { address output.nonnull
2083             format.date "year" output.check
2084             new.sentence
2085             organization output
2086             publisher output
2087         }
2088     }
2089 }
2090 { format.incoll.inproc.crossref output.nonnull
2091     format.pages output
2092 }
2093 if$
2094 format.isbn output
2095 format.url output
2096 new.block
2097 note output
2098 fin.entry
2099 }
2100
2101 FUNCTION {conference} { inproceedings }

```

```

2102
2103 FUNCTION {manual}
2104 { output.bibitem
2105   format.authors output
2106   author format.key output
2107   new.block
2108   format.btitle "title" output.check
2109   organization address new.block.checkb
2110   organization output
2111   address output
2112   format.edition output
2113   format.date output
2114   format.url output
2115   new.block
2116   note output
2117   fin.entry
2118 }
2119
2120 FUNCTION {mastersthesis}
2121 { output.bibitem
2122   format.authors "author" output.check
2123   author format.key output
2124   new.block
2125   format.title "title" output.check
2126   new.block
2127   "Master's thesis" format.thesis.type output.nonnull
2128   school "school" output.check
2129   address output
2130   format.date "year" output.check
2131   format.url output
2132   new.block
2133   note output
2134   fin.entry
2135 }
2136
2137 FUNCTION {misc}
2138 { output.bibitem
2139   format.authors output
2140   author format.key output
2141   title howpublished new.block.checkb
2142   format.title output
2143   howpublished new.block.checka
2144   howpublished output
2145   format.date output
2146   format.issn output
2147   format.url output
2148   new.block
2149   note output
2150   fin.entry
2151   empty.misc.check
2152 }
2153
2154 FUNCTION {phdthesis}
2155 { output.bibitem

```

```

2156 format.authors "author" output.check
2157 author format.key output
2158 new.block
2159 format.btitle "title" output.check
2160 new.block
2161 "PhD thesis" format.thesis.type output.nonnull
2162 school "school" output.check
2163 address output
2164 format.date "year" output.check
2165 format.url output
2166 new.block
2167 note output
2168 fin.entry
2169 }
2170
2171 FUNCTION {proceedings}
2172 { output.bibitem
2173   format.editors output
2174   editor format.key output
2175   new.block
2176   format.btitle "title" output.check
2177   format.bvolume output
2178   format.number.series output
2179   address output
2180   format.date "year" output.check
2181   new.sentence
2182   organization output
2183   publisher output
2184   format.isbn output
2185   format.url output
2186   new.block
2187   note output
2188   fin.entry
2189 }
2190
2191 FUNCTION {techreport}
2192 { output.bibitem
2193   format.authors "author" output.check
2194   author format.key output
2195   new.block
2196   format.title "title" output.check
2197   new.block
2198   format.tr.number output.nonnull
2199   institution "institution" output.check
2200   address output
2201   format.date "year" output.check
2202   format.url output
2203   new.block
2204   note output
2205   fin.entry
2206 }
2207
2208 FUNCTION {unpublished}
2209 { output.bibitem

```

```

2210 format.authors "author" output.check
2211 author format.key output
2212 new.block
2213 format.title "title" output.check
2214 format.url output
2215 new.block
2216 note "note" output.check
2217 format.date output
2218 fin.entry
2219 }
2220
2221 FUNCTION {default.type} { misc }
2222
2223
2224 MACRO {jan} {"January"}
2225
2226 MACRO {feb} {"February"}
2227
2228 MACRO {mar} {"March"}
2229
2230 MACRO {apr} {"April"}
2231
2232 MACRO {may} {"May"}
2233
2234 MACRO {jun} {"June"}
2235
2236 MACRO {jul} {"July"}
2237
2238 MACRO {aug} {"August"}
2239
2240 MACRO {sep} {"September"}
2241
2242 MACRO {oct} {"October"}
2243
2244 MACRO {nov} {"November"}
2245
2246 MACRO {dec} {"December"}
2247
2248
2249
2250 MACRO {acmcs} {"ACM Computing Surveys"}
2251
2252 MACRO {acta} {"Acta Informatica"}
2253
2254 MACRO {cacm} {"Communications of the ACM"}
2255
2256 MACRO {ibmjrd} {"IBM Journal of Research and Development"}
2257
2258 MACRO {ibmsj} {"IBM Systems Journal"}
2259
2260 MACRO {ieeese} {"IEEE Transactions on Software Engineering"}
2261
2262 MACRO {ieeetc} {"IEEE Transactions on Computers"}
2263

```



```

2264 MACRO {ieeetcad}
2265 {"IEEE Transactions on Computer-Aided Design of Integrated Circuits"}
2266
2267 MACRO {ipl} {"Information Processing Letters"}
2268
2269 MACRO {jacm} {"Journal of the ACM"}
2270
2271 MACRO {jcss} {"Journal of Computer and System Sciences"}
2272
2273 MACRO {scp} {"Science of Computer Programming"}
2274
2275 MACRO {sicomp} {"SIAM Journal on Computing"}
2276
2277 MACRO {tocs} {"ACM Transactions on Computer Systems"}
2278
2279 MACRO {tods} {"ACM Transactions on Database Systems"}
2280
2281 MACRO {tog} {"ACM Transactions on Graphics"}
2282
2283 MACRO {toms} {"ACM Transactions on Mathematical Software"}
2284
2285 MACRO {toois} {"ACM Transactions on Office Information Systems"}
2286
2287 MACRO {toplas} {"ACM Transactions on Programming Languages and Systems"}
2288
2289 MACRO {tcs} {"Theoretical Computer Science"}
2290
2291
2292 READ
2293
2294 FUNCTION {sortify}
2295 {
2296   's :=
2297   "1" change.case$
2298 }
2299
2300 INTEGERS { len }
2301
2302 FUNCTION {chop.word}
2303 {
2304   's :=
2305   'len :=
2306   s #1 len substring$ =
2307   { s len #1 + global.max$ substring$ }
2308   's
2309   if$
2310 }
2311
2312 FUNCTION {format.lab.names}
2313 {
2314   's :=
2315   s #1 "{vv~}{ll}" format.name$
2316   s num.names$ duplicate$
2317   #2 >
2318   { pop$ " et~al." * }
2319   { #2 <
2320     'skip$

```

```

2318         { s #2 "{ff }{vv }{ll}{ jj}" format.name$ "others" =
2319             { " et~al." * }
2320             { " and " * s #2 "{vv~}{ll}" format.name$ * }
2321         if$
2322     }
2323     if$
2324 }
2325 if$
2326 }
2327
2328 FUNCTION {author.key.label}
2329 { author empty$
2330     { key empty$
2331         { cite$ #1 #3 substring$ }
2332         'key
2333     if$
2334     }
2335     { author format.lab.names }
2336 if$
2337 }
2338
2339 FUNCTION {author.editor.key.label}
2340 { author empty$
2341     { editor empty$
2342         { key empty$
2343             { cite$ #1 #3 substring$ }
2344             'key
2345         if$
2346         }
2347         { editor format.lab.names }
2348     if$
2349     }
2350     { author format.lab.names }
2351 if$
2352 }
2353
2354 FUNCTION {author.key.organization.label}
2355 { author empty$
2356     { key empty$
2357         { organization empty$
2358             { cite$ #1 #3 substring$ }
2359             { "The " #4 organization chop.word #3 text.prefix$ }
2360         if$
2361         }
2362         'key
2363     if$
2364     }
2365     { author format.lab.names }
2366 if$
2367 }
2368
2369 FUNCTION {editor.key.organization.label}
2370 { editor empty$
2371     { key empty$

```

```

2372     { organization empty$
2373       { cite$ #1 #3 substring$ }
2374       { "The " #4 organization chop.word #3 text.prefix$ }
2375     if$
2376   }
2377   'key
2378   if$
2379 }
2380 { editor format.lab.names }
2381 if$
2382 }
2383
2384 FUNCTION {calc.short.authors}
2385 { type$ "book" =
2386   type$ "inbook" =
2387   or
2388   'author.editor.key.label
2389   { type$ "proceedings" =
2390     'editor.key.organization.label
2391     { type$ "manual" =
2392       'author.key.organization.label
2393       'author.key.label
2394     if$
2395   }
2396   if$
2397 }
2398 if$
2399 'short.list :=
2400 }
2401
2402 FUNCTION {calc.label}
2403 { calc.short.authors
2404   short.list
2405   "("
2406   *
2407   year duplicate$ empty$
2408   short.list key field.or.null = or
2409     { pop$ "" }
2410     'skip$
2411   if$
2412   *
2413   'label :=
2414 }
2415
2416 FUNCTION {sort.format.names}
2417 { 's :=
2418   #1 'nameptr :=
2419   ""
2420   s num.names$ 'numnames :=
2421   numnames 'namesleft :=
2422     { namesleft #0 > }
2423     { nameptr #1 >
2424       { " " * }
2425       'skip$

```

```

2426     if$
2427     s nameptr "{vv{ } }{ll{ }}{ ff{ }}{ jj{ }}" format.name$ 't :=
2428     nameptr numnames = t "others" = and
2429     { "et al" * }
2430     { t sortify * }
2431     if$
2432     nameptr #1 + 'nameptr :=
2433     namesleft #1 - 'namesleft :=
2434     }
2435     while$
2436 }
2437
2438 FUNCTION {sort.format.title}
2439 { 't :=
2440   "A " #2
2441   "An " #3
2442   "The " #4 t chop.word
2443   chop.word
2444   chop.word
2445   sortify
2446   #1 global.max$ substring$
2447 }
2448
2449 FUNCTION {author.sort}
2450 { author empty$
2451   { key empty$
2452     { "to sort, need author or key in " cite$ * warning$
2453       ""
2454     }
2455     { key sortify }
2456   }
2457   if$
2458   { author sort.format.names }
2459   if$
2460 }
2461
2462 FUNCTION {author.editor.sort}
2463 { author empty$
2464   { editor empty$
2465     { key empty$
2466       { "to sort, need author, editor, or key in " cite$ * warning$
2467         ""
2468       }
2469       { key sortify }
2470     }
2471     if$
2472     { editor sort.format.names }
2473   }
2474   if$
2475   { author sort.format.names }
2476   if$
2477 }
2478
2479 FUNCTION {author.organization.sort}

```

```

2480 { author empty$
2481     { organization empty$
2482         { key empty$
2483             { "to sort, need author, organization, or key in " cite$ * warning$
2484                 ""
2485             }
2486             { key sortify }
2487         if$
2488     }
2489     { "The " #4 organization chop.word sortify }
2490 if$
2491 }
2492 { author sort.format.names }
2493 if$
2494 }
2495
2496 FUNCTION {editor.organization.sort}
2497 { editor empty$
2498     { organization empty$
2499         { key empty$
2500             { "to sort, need editor, organization, or key in " cite$ * warning$
2501                 ""
2502             }
2503             { key sortify }
2504         if$
2505     }
2506     { "The " #4 organization chop.word sortify }
2507 if$
2508 }
2509 { editor sort.format.names }
2510 if$
2511 }
2512
2513 FUNCTION {presort}
2514 { calc.label
2515     label sortify
2516     " "
2517     *
2518     type$ "book" =
2519     type$ "inbook" =
2520     or
2521     'author.editor.sort
2522     { type$ "proceedings" =
2523         'editor.organization.sort
2524         { type$ "manual" =
2525             'author.organization.sort
2526             'author.sort
2527         if$
2528     }
2529     if$
2530 }
2531 if$
2532 " "
2533 *

```

```

2534 year field.or.null sortify
2535 *
2536 " "
2537 *
2538 title field.or.null
2539 sort.format.title
2540 *
2541 #1 entry.max$ substring$
2542 'sort.label :=
2543 sort.label *
2544 #1 entry.max$ substring$
2545 'sort.key$ :=
2546 }
2547
2548 ITERATE {presort}
2549
2550 SORT
2551
2552 STRINGS { longest.label last.label next.extra }
2553
2554 INTEGERS { longest.label.width last.extra.num number.label }
2555
2556 FUNCTION {initialize.longest.label}
2557 { "" 'longest.label :=
2558   #0 int.to.chr$ 'last.label :=
2559   "" 'next.extra :=
2560   #0 'longest.label.width :=
2561   #0 'last.extra.num :=
2562   #0 'number.label :=
2563 }
2564
2565 FUNCTION {forward.pass}
2566 { last.label label =
2567   { last.extra.num #1 + 'last.extra.num :=
2568     last.extra.num int.to.chr$ 'extra.label :=
2569   }
2570   { "a" chr.to.int$ 'last.extra.num :=
2571     "" 'extra.label :=
2572     label 'last.label :=
2573   }
2574   if$
2575   number.label #1 + 'number.label :=
2576 }
2577
2578 FUNCTION {reverse.pass}
2579 { next.extra "b" =
2580   { "a" 'extra.label := }
2581   'skip$
2582   if$
2583   extra.label 'next.extra :=
2584   extra.label
2585   duplicate$ empty$
2586   'skip$
2587   { "{\natexlab{" swap$ * "}}" * }

```

```

2588 if$
2589 'extra.label :=
2590 label extra.label * 'label :=
2591 }
2592
2593 EXECUTE {initialize.longest.label}
2594
2595 ITERATE {forward.pass}
2596
2597 REVERSE {reverse.pass}
2598
2599 FUNCTION {bib.sort.order}
2600 { sort.label 'sort.key$ :=
2601 }
2602
2603 ITERATE {bib.sort.order}
2604
2605 SORT
2606
2607 FUNCTION {begin.bib}
2608 { preamble$ empty$
2609   'skip$
2610   { preamble$ write$ newline$ }
2611   if$
2612   "\begin{thebibliography}{ number.label int.to.str$ * "}" *
2613   write$ newline$
2614   "\expandafter\ifx\csname natexlab\endcsname\relax\def\natexlab#1{#1}\fi"
2615   write$ newline$
2616   "\expandafter\ifx\csname url\endcsname\relax" write$ newline$
2617   " \def\url#1{{\tt #1}}\fi" write$ newline$
2618 }
2619
2620 EXECUTE {begin.bib}
2621
2622 EXECUTE {init.state.consts}
2623
2624 ITERATE {call.type$}
2625
2626 FUNCTION {end.bib}
2627 { newline$
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