The **apxproof** package

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Abstract

This package facilitates the writing of scientific article with proofs deferred to the appendix.

1 Usage

TODO

2 Implementation

```
1 \RequirePackage{fancyvrb}
2 \RequirePackage{ifthen}
3 \RequirePackage{environ}
4 \RequirePackage{bibunits}
5 \@ifpackageloaded{amsthm}{}{%
6   \let\proof\undefined
7   \let\endproof\undefined
8 }
9 \RequirePackage{amsthm}
10 \RequirePackage{etoolbox}
11 \RequirePackage{kvoptions}
12
13 \makeatletter
14
15 \SetupKeyvalOptions{
16   family=AXP,
17   prefix=AXP@
18 }
19
20 \DeclareStringOption[append]{appendix}
21
22 \ProcessLocalKeyvalOptions*
23
24 \ifthenelse{\equal{\AXP@appendix}{append}}{
```

```latex
25   \message{apxproof: Appendix material appended to the document}
26 }{\ifthenelse{\equal{\AXP@appendix}{strip}}{
27   \message{apxproof: Appendix material stripped}
28 }{\ifthenelse{\equal{\AXP@appendix}{inline}}{
29   \message{apxproof: Appendix material inlined within the document}
30 }{
31   \errmessage{Error: unsupported option appendix=\AXP@appendix for
32   package apxproof}
33 }}}

34

35 \newcommand\newtheoremrep[1]{%
36   \@oparg{\axp@newtheoremrep{#1}}[]%
37 }

38

39 \ifthenelse{\equal{\AXP@appendix}{inline}}{
40   \def\axp@newtheoremrep#1[#2]#3{%
41     \expandafter\let\csname #1\endcsname\undefined
42     \expandafter\let\csname c@#1\endcsname\undefined
43     \newtheorem{#1}[#2]{#3}%
44     \NewEnviron{#1rep}[1][]{%
45       \begin{#1}[##1]\BODY\end{#1}%
46     }
47   }
48   \newenvironment{toappendix}{}{}
49   \let\inlineproof\proof
50   \let\endinlineproof\endproof
51   \let\nestedproof\proof
52   \let\endnestedproof\endproof
53   \let\appendixproof\proof
54   \let\endappendixproof\endproof
55   \let\noproofinappendix\relax
56   \let\nosectionappendix\relax
57 }{
58   \newwrite\axp@proofsfile
59   \immediate\openout\axp@proofsfile=\jobname.axp
60   \immediate\write\axp@proofsfile{%
61     \noexpand\makeatletter
62     \noexpand\let\noexpand\proof\noexpand\axpold@proof
63     \noexpand\let\noexpand\endproof\noexpand\endaxpold@proof
64     \noexpand\let\noexpand\section\noexpand\axpold@section
65   }
66   \def\FVB@VerbatimOut{%
67     \@bsphack
68     \begingroup
69       \FV@UseKeyValues
70       \FV@DefineWhiteSpace
71       \def\FV@Space{\space}%
72       \FV@DefineTabOut
73       \def\FV@ProcessLine{\immediate\write\axp@proofsfile}%
74       \let\FV@FontScanPrep\relax
```

```latex
75        \let\@noligs\relax
76        \FV@Scan}
77  \def\FVE@VerbatimOut{\endgroup\@esphack}
78
79  \let\axpold@proof\proof
80  \let\endaxpold@proof\endproof
81
82  \newtoggle{axp@seenreptheorem}
83
84  \def\noproofinappendix{%
85    \global\togglefalse{axp@seenreptheorem}%
86  }
87
88  \newenvironment{appendixproof}
89    {%
90      \axp@writesection
91      \immediate\write\axp@proofsfile{%
92        \noexpand\begin{axpold@proof}%
93      }%
94      \VerbatimOut
95    }
96    {%
97      \endVerbatimOut
98      \immediate\write\axp@proofsfile{%
99        \noexpand\end{axpold@proof}%
100       }%
101       \noproofinappendix
102     }
103
104  \renewenvironment{proof}
105    {%
106      \iftoggle{axp@seenreptheorem}{%
107        \appendixproof
108      }{%
109        \axpold@proof
110      }%
111    }
112    {%
113      \iftoggle{axp@seenreptheorem}{%
114        \endappendixproof
115      }{%
116        \endaxpold@proof
117      }%
118    }
119
120  \let\inlineproof\axpold@proof
121  \let\endinlineproof\endaxpold@proof
122
123  \let\nestedproof\axpold@proof
124  \let\endnestedproof\endaxpold@proof
```

3

```
125
126    \def\@getcl@ss#1.cls#2\relax{\def\@currentclass{#1}}
127    \def\@getclass{\expandafter\@getcl@ss\@filelist\relax}
128    \@getclass
129
130    \newcommand{\appendixrefname}{References for the Appendix}
131    \newcommand{\appendixbibliographystyle}{alpha}
132    \newcommand{\appendixbibliographyprelim}{%
133      \ifthenelse{\equal{\@currentclass}{lipics}}{%
134        \global\let\oldbiblabel\@biblabel
135        \def\@biblabel{\hspace*{-2em}\small\oldbiblabel}%
136      }{}
137    }
138
139    \ifthenelse{\equal{\AXP@appendix}{append}}{
140      \AtEndDocument{%
141        \clearpage\onecolumn\appendix
142        \appendixbibliographyprelim
143        \begin{bibunit}[\appendixbibliographystyle]%
144        \immediate\closeout\axp@proofsfile\input{\jobname.axp}%
145        \renewcommand{\refname}{\appendixrefname}%
146        \putbib
147        \end{bibunit}%
148      }
149    }{}
150
151    \let\axpold@bibliography\bibliography
152    \renewcommand\bibliography[1]{%
153      \defaultbibliography{#1}%
154      \axpold@bibliography{#1}%
155    }
156
157    \newcounter{axp@rpcounter}
158    \newcounter{axp@seccounter}
159
160    \def\axp@newtheoremrep#1[#2]#3{%
161      \newtheorem*{axp@#1rp}{#3}%
162      \expandafter\let\csname #1\endcsname\undefined
163      \expandafter\let\csname c@#1\endcsname\undefined
164      \newtheorem{#1}[#2]{#3}%
165      \NewEnviron{#1rep}[1][]{%
166        \addtocounter{axp@rpcounter}{1}%
167        \begin{#1}[##1]\label{axp@r\roman{axp@rpcounter}}\BODY\end{#1}%
168        \global\toggletrue{axp@seenreptheorem}%
169        \global\expandafter\let\csname rplet\roman{axp@rpcounter}\endcsname\BODY%
170        \axp@writesection%
171        \immediate\write\axp@proofsfile{%
172          \noexpand\begin{axp@#1rp}[\noexpand\ref{axp@r\roman{axp@rpcounter}}]\@ifnotempty{##1}
173          \noexpand\let\noexpand\label\noexpand\@gobble%
174          \expandafter\noexpand\csname rplet\roman{axp@rpcounter}\endcsname\noexpand\end{axp@#
```

4

```
175        }
176      }
177    }
178
179    \def\axp@sectitle{}
180
181    \let\axpold@section\section
182    \def\section{\@ifstar\@section\@@section}
183    \def\@section#1{%
184      \global\edef\axp@sectitle{#1}%
185      \axpold@section*{#1}%
186      \addtocounter{axp@seccounter}{1}%
187      \label{axp@s\roman{axp@seccounter}}%
188    }
189    \def\@@section#1{%
190      \global\edef\axp@sectitle{#1}%
191      \axpold@section{#1}%
192      \addtocounter{axp@seccounter}{1}%
193      \label{axp@s\roman{axp@seccounter}}%
194    }
195    \ifdefined\@acmtitlebox
196      \def\section{\@ifstar\@section{\@dblarg{\@@section}}}
197      \def\@@section#1#2{%
198        \global\edef\axp@sectitle{#2}%
199        \axpold@section{#2}%
200        \addtocounter{axp@seccounter}{1}%
201        \label{axp@s\roman{axp@seccounter}}%
202      }
203    \fi
204
205    \newcommand{\nosectionappendix}{
206      \global\def\axp@sectitle{}%
207    }
208
209    \newcommand\axp@writesection{%
210      \ifx\axp@sectitle\empty
211      \else
212        \immediate\write\axp@proofsfile{\noexpand\def\noexpand\tmp{\noexpand\ref{axp@s\roman{a
213        (\axp@sectitle)}}%
214        \nosectionappendix
215      \fi
216    }
217
218    \newenvironment{toappendix}
219      {\axp@writesection\VerbatimOut}
220      {\endVerbatimOut}
221
222    \ifdefined\@acmtitlebox
223      \newtheoremstyle{mystyle}%
224        {3pt}
```

```
225        {3pt}
226        {\itshape}
227        {}
228        {\scshape}
229        {.}
230        {.5em}
231        {}
232     \theoremstyle{mystyle}
233
234     \newcommand{\refname}{REFERENCES}
235     \patchcmd{\thebibliography}{References}{\protect\refname}{}{}
236     \patchcmd{\thebibliography}{References}{\protect\refname}{}{}
237
238     \renewcommand{\appendixrefname}{REFERENCES FOR THE APPENDIX}
239   \fi
240 }
241
242 \newenvironment{proofsketch}
243   {\vskip3pt\noindent\emph{Proof sketch.} }
244   {\hfill\qed\vskip3pt}
245
246 \def\thmhead#1#2#3{%
247   \thmname{#1}\thmnumber{\@ifnotempty{#1}{ }\@upn{#2}}%
248   \thmnote{ #3}}
249
250 \makeatother
```