# The **apxproof** package[*]
# Proofs in Appendix

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## 1   Usage

TODO

## 2   Implementation

```
1 \RequirePackage{fancyvrb}
2 \RequirePackage{ifthen}
3 \RequirePackage{environ}
4 \RequirePackage{bibunits}
5 \let\proof\undefined
6 \let\endproof\undefined
7 \RequirePackage{amsthm}
8 \RequirePackage{etoolbox}
9 \RequirePackage{ifmtarg}
10 \RequirePackage{stack}
11
12 \makeatletter
13 \newwrite\axp@proofsfile
14 \immediate\openout\axp@proofsfile=\jobname.axp
15 \immediate\write\axp@proofsfile{%
16   \noexpand\makeatletter
17   \noexpand\let\noexpand\proof\noexpand\apxold@proof
18   \noexpand\let\noexpand\endproof\noexpand\endapxold@proof
19 }
20 \def\FVB@VerbatimOut{%
21   \@bsphack
22   \begingroup
23     \FV@UseKeyValues
24     \FV@DefineWhiteSpace
```

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[*]This document corresponds to apxproof v1.0.0, dated 2016/10/27.

```
25     \def\FV@Space{\space}%
26     \FV@DefineTabOut
27     \def\FV@ProcessLine{\immediate\write\axp@proofsfile}%
28     \let\FV@FontScanPrep\relax
29     \let\@noligs\relax
30     \FV@Scan}
31 \def\FVE@VerbatimOut{\endgroup\@esphack}
32
33 \let\apxold@proof\proof
34 \let\endapxold@proof\endproof
35
36 \newtoggle{apx@seenreptheorem}
37
38 \newenvironment{appendixproof}
39   {%
40     \axp@writesection
41     \immediate\write\axp@proofsfile{%
42       \noexpand\begin{apxold@proof}%
43     }%
44     \VerbatimOut
45   }
46   {%
47     \endVerbatimOut
48     \immediate\write\axp@proofsfile{%
49       \noexpand\end{apxold@proof}%
50     }%
51     \global\togglefalse{apx@seenreptheorem}%
52   }
53
54 \renewenvironment{proof}
55   {%
56     \iftoggle{apx@seenreptheorem}{%
57       \appendixproof
58     }{%
59       \apxold@proof
60     }%
61   }
62   {%
63     \iftoggle{apx@seenreptheorem}{%
64       \endappendixproof
65     }{%
66       \endapxold@proof
67     }%
68   }
69
70 \let\inlineproof\apxold@proof
71 \let\endinlineproof\endapxold@proof
72
73 \let\nestedproof\apxold@proof
74 \let\endnestedproof\endapxold@proof
```

```
75
76 \newcommand{\appendixrefname}{References for the Appendix}
77
78 \AtEndDocument{%
79   \clearpage\onecolumn\appendix
80   \begin{bibunit}[alpha]%
81   \immediate\closeout\axp@proofsfile\input{\jobname.axp}%
82   \renewcommand{\refname}{\appendixrefname}%
83   \putbib
84   \end{bibunit}%
85 }
86
87 \let\apxold@bibliography\bibliography
88 \renewcommand\bibliography[1]{%
89   \defaultbibliography{#1}%
90   \apxold@bibliography{#1}%
91 }
92
93 \newcounter{axp@rpcounter}
94 \newcounter{axp@seccounter}
95
96 \newcommand{\newtheoremrep}[2]{%
97   \newtheorem*{axp#1rp}{#2}%
98   \expandafter\let\csname #1\endcsname\undefined
99   \expandafter\let\csname c@#1\endcsname\undefined
100   \newtheorem{#1}{#2}%
101   \NewEnviron{#1rep}[1][]{%
102     \addtocounter{axp@rpcounter}{1}%
103     \begin{#1}[##1]\label{axp@r\roman{axp@rpcounter}}\BODY\end{#1}%
104     \global\toggletrue{apx@seenreptheorem}%
105     \global\expandafter\let\csname rplet\roman{axp@rpcounter}\endcsname\BODY%
106     \axp@writesection%
107     \immediate\write\axp@proofsfile{%
108       \noexpand\begin{axp#1rp}[\noexpand\ref{axp@r\roman{axp@rpcounter}}}\@ifnotempty{##1}{\n
109       \noexpand\let\noexpand\label\noexpand\@gobble%
110       \expandafter\noexpand\csname rplet\roman{axp@rpcounter}\endcsname\noexpand\end{axp#1rp
111     }
112   }
113 }
114
115 \def\apx@sectitle{}
116
117 \let\apxold@section\section
118 \def\section{\@ifstar\@section{\@dblarg\@@section}}
119 \def\@section#1{%
120   \global\edef\apx@sectitle{#1}%
121   \apxold@section*{#1}%
122   \addtocounter{axp@seccounter}{1}%
123   \label{axp@s\roman{axp@seccounter}}%
124 }
```

3

```latex
125 \def\@@section[#1]#2{%
126   \global\edef\apx@sectitle{#1}%
127   \apxold@section{#1}%
128   \addtocounter{axp@seccounter}{1}%
129   \label{axp@s\roman{axp@seccounter}}%
130 }
131
132 \newcommand\axp@writesection{%
133   \ifx\apx@sectitle\empty
134   \else
135     \immediate\write\axp@proofsfile{\noexpand\def\noexpand\tmp{\noexpand\ref{axp@s\roman{axp
136     (\apx@sectitle)}}%
137     \global\def\apx@sectitle{}%
138   \fi
139 }
140
141 \newenvironment{proofsketch}
142   {\vskip3pt\noindent\emph{Proof sketch.} }
143   {\hfill\qed\vskip3pt}
144
145 \newenvironment{toappendix}
146   {\axp@writesection\VerbatimOut}
147   {\endVerbatimOut}
148
149 \ifdefined\@acmtitlebox
150   \newtheoremstyle{mystyle}%
151     {3pt}
152     {3pt}
153     {\itshape}
154     {}
155     {\scshape}
156     {.}
157     {.5em}
158     {}
159   \theoremstyle{mystyle}
160
161   \newcommand{\refname}{REFERENCES}
162   \patchcmd{\thebibliography}{References}{\protect\refname}{}{}
163   \patchcmd{\thebibliography}{References}{\protect\refname}{}{}
164
165   \renewcommand{\appendixrefname}{REFERENCES FOR THE APPENDIX}
166 \fi
167
168 \def\thmhead#1#2#3{%
169   \thmname{#1}\thmnumber{\@ifnotempty{#1}{ }\@upn{#2}}%
170   \thmnote{ #3}}
171
172 \makeatother
```

# Change History

# References for the Appendix

[BP98]  Sergey Brin and Lawrence Page. The anatomy of a large-scale hypertextual Web search engine. *Computer Networks*, 30(1–7):107–117, April 1998.

[sit08]  sitemaps.org. Sitemaps XML format. `http://www.sitemaps.org/protocol.php`, February 2008.