1 Introduction

At times, it makes sense to set out a set of numbered premises and conclusions. This document explains how to set up your pre-amble to satisfy the following desiderata.

- The premises should be numbered with small roman numerals, i.e., (i), (ii), . . .
- The numbering should be fully functional, i.e., you should be able to refer back to the premises and conclusions using \texttt{ref tags}.
- You should be able to mark conclusions with some symbol, such as $\therefore$.
- You should be able to modify the numbering either with primes on the premises, or with symbols prefixed to the arguments.

2 The Preamble

Add the following definitions into your preamble. (* indicates a linebreak you should remove.)

\begin{verbatim}
\newcommand{\premise}[1][]{
  \renewcommand{\theenumi}{#1\roman{enumi}}
  \renewcommand{\labelenumi}{(#\theenumi)}
}
\newcommand{\conclusion}*
{\renewcommand{\labelenumi}{$\therefore(#\theenumi)$}}
\newcommand{\normal}{\renewcommand*{\theenumi}{\arabic{enumi}}}
\newcommand{\premisep}[1][]*
{\renewcommand{\theenumi}{\arabic{enumi}}}\end{verbatim}
Note that the \textit{therefore} symbol $\therefore$ is provided by the amssymb package. In order to get the full effect, you need to call that package in your preamble, as well.

3 Examples

3.1 Simple Arguments

\begin{enumerate}
\item Socrates is mortal. \label{item:1}
\item All animals are mortal. \label{item:2}
\item Socrates is an animal. \label{item:3}
\end{enumerate}

One might have thought that \eqref{item:1} and \eqref{item:2} entail \eqref{item:3}.

Note here especially that, though the $\therefore$ precedes the number of the conclusion, when you refer to the conclusion using the ref-tag, the reference doesn’t have the $\therefore$ in it.
3.2 Arguments With Primed Premises

However, a much more promising approach replaces (\ref{item:2}) with (\ref{item:4}), yielding the argument.

\begin{enumerate}
\item Socrates is mortal.
\item All mortals are animals.
\label{item:4}
\item Socrates is an animal.
\end{enumerate}

However, a much more promising approach replaces (ii) with (ii''), yielding the argument.

(i) Socrates is mortal.
(ii'') All mortals are animals.
\therefore (iii) Socrates is an animal.

3.3 Arguments with Prefixes

A different argument is offered here, where the intermediate conclusion (\ref{item:7}) had to be drawn.

\begin{enumerate}
\item $p \rightarrow q$.
\label{item:5}
\item $p$.
\label{item:6}
\item $q$.
\label{item:7}
\item $q \rightarrow r$.
\label{item:8}
\item $r$.
\label{item:9}
\end{enumerate}

A different argument is offered here, where the intermediate conclusion (A-iii) had to be drawn.

(A-i) $p \rightarrow q$.
(A-ii) $p$.
\therefore (A-iii) $q$.
(A-iv) $q \rightarrow r$.
\therefore (A-v) $r$. 