

# theorem-keys package

version 0.0.1 $\alpha$

[github.com/mbertucci47/theorem-keys](https://github.com/mbertucci47/theorem-keys)

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## Abstract

An expl3-implementation of a key-value interface to `amsthm`, implementing most of the functionality provided by `thmtools`. Full of bugs and incomplete. Don't use it for anything important!

**Warning!** In addition to being a completely unreliable package, the documentation is just a skeleton! For full details look at the package code.

## 1 Load-time Options

`overload` (initially unset)

Redefines `\newtheorem` to internally use the theorem-keys machinery. The syntax remains the same.

`thmtools-compat` (initially unset)

For compatibility with `thmtools` syntax. Currently defines the `\declaretheoremstyle`, `\declaretheorem`, and `\listoftheorems` commands and the `restatable` environment.

`store-all` (initially unset)

Tells theorem-keys to grab the body of each theorem so it can later be printed with `\ListOfThms[print-body]`. Note that this means a theorem body *cannot* contain verbatim material.

## 2 Global Options

`\ThmKeysSet{<options>}`

`restate-counters`={<comma-list of counters>} (initially {equation})

The counters whose values are preserved when a theorem is restated.

`continues-code`=<code with #1> (initially continuing from p.\, \pageref{#1})

`qed-symbol`=<symbol> (initially \openbox)

Redefines `\qedsymbol` to be <symbol>.

## 3 Theorem Styles

`\NewThmStyle{<name>}{<options>}`

This is theorem-keys' version of `thmtools'` `\declaretheoremstyle[<options>]{<name>}`. Since it makes little sense to define a style with no keys, we've made the <options> argument mandatory.

### 3.1 Keys inherited from thmtools

The following keys have the same meaning and syntax as the corresponding thmtools keys.

`spaceabove`= $\langle length \rangle$  (initially `\topsep`)

`spacebelow`= $\langle length \rangle$  (initially `\topsep`)

`bodyfont`= $\langle font\ declarations \rangle$  (initially `\itshape`)

`headindent`= $\langle length \rangle$  (initially `0pt`)

`headfont`= $\langle font\ declarations \rangle$  (initially `\bfseries`)

`headpunct`= $\langle code \rangle$  (initially `{.}`)

`postheadspace`= $\langle length \rangle$  (initially 5pt plus 1pt minus 1pt)

Do not use this with the `break` key.

`break` (initially unset)

Do not use this with the `postheadspace` key.

`notefont`= $\langle font\ declarations \rangle$  (initially `\fontseries\mddefault\upshape`)

`notebraces`= $\{\langle left\ brace \rangle\}\{\langle right\ brace \rangle\}$  (initially `{\{ }\}`)

`headstyle`=`margin`|`swapnumber`| $\langle code\ using\ \backslash NAME, \backslash NUMBER, and \backslash NOTE \rangle$

Alias `headstyle`. Within  $\langle code \rangle$ , the commands `\NAME`, `\NUMBER`, and `\NOTE` correspond to the formatted parts of the theorem head.

### 3.2 Keys added by theorem-keys

`inherit-style`= $\langle style\ name \rangle$  (initially unset)

Inherit the keys of any style declared with `\NewThmStyle`<sup>P.1</sup>. Additionally, the three styles predefined by amsthm are possible values: `plain`, `definition`, and `remark`.

## 4 Declaring Theorems

`\NewThm`{ $\langle env\ name \rangle$ }[ $\langle options \rangle$ ]

Defines a theorem environment  $\langle env\ name \rangle$  which itself takes a few options (see section 5). You can also declare multiple theorems at once by replacing  $\langle env\ name \rangle$  with a comma-list of names, e.g. `\NewThm{theorem,lemma,proposition}[ $\langle options \rangle$ ]`

```
% preamble
\NewThm{mytheorem}[name=Some Name]

% document
\begin{mytheorem}[a note]
Some text
\end{mytheorem}

\begin{mytheorem}[name=heading,label=foo]
Some more text
\end{mytheorem}

\ref{foo}
```

**Some Name 1** (a note). *Some text*

**Some Name 2** (heading). *Some more text*

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## 4.1 Keys inherited from thmtools

`name`= $\langle display name \rangle$  (initially title-cased  $\langle env name \rangle$ )  
Aliases `title` and `heading`.

`numbered`=`true`|`false` (default `true`, initially `true`)  
For compatibility with thmtools, also accepts the values `yes` and `no`.

`parent`= $\langle counter \rangle$  (initially unset)  
Aliases `numberwithin` and `within`.

`sibling`= $\langle counter \rangle$  (initially unset)  
Aliases `numberlike` and `sharenumber`.

`style`= $\langle style name \rangle$  (initially unset)

`preheadhook`= $\langle code \rangle$  (initially unset)  
`postheadhook`= $\langle code \rangle$  (initially unset)  
`prefoothook`= $\langle code \rangle$  (initially unset)  
`postfoothook`= $\langle code \rangle$  (initially unset)

Details in [section 7](#).

`refname`= $\langle ref name \rangle$  or  $\{\langle singular name \rangle, \langle plural name \rangle\}$  (initially  $\langle display name \rangle$ )  
If a single string, then the name used by `hyperref`'s `\autoref` and `cleveref`'s `\cref`. If two strings separated by a comma, then the second string is the plural form used by `\cref`.

`Refname`= $\langle ref name \rangle$  or  $\{\langle singular name \rangle, \langle plural name \rangle\}$  (initially  $\langle display name \rangle$ )  
Same as `refname` but for `\Autoref` (not yet implemented!) and `\Cref`.

`qed`= $\langle symbol \rangle$  (default `\openbox`, initially unset)

## 4.2 Keys added by theorem-keys

`tcolorbox`= $\{\langle tcolorbox options \rangle\}$  (initially unset)

## 5 Keys available to theorem environments

`label`= $\langle label name \rangle$  (initially unset)

`note`= $\langle text \rangle$  (initially unset)  
Alias `name`.

`continues`= $\langle label name \rangle$  (initially unset)

`store`= $\langle csnam e \rangle$  (initially unset)  
Alias `restate`. Defines a command `\langle csnam e \rangle` that can be used to restate the theorem, including the body text, later in the document.

## 6 Listing Theorems

`\ListOfThms`[ $\langle options \rangle$ ]

`\ThmKeysListSet`{ $\langle options \rangle$ }

## 6.1 Keys inherited from thmtools

<code>numwidth=&lt;length&gt;</code>	(initially 2.3em)
<code>ignore={&lt;comma-list of env names&gt;}</code>	(initially unset)
<code>show={&lt;comma-list of env names&gt;}</code>	(initially all theorems)
<code>onlynamed={&lt;comma-list of env names&gt;}</code>	(initially unset)
<code>ignoreall</code>	(initially unset)
<code>showall</code>	(initially set)
<code>title=&lt;text&gt;</code>	(initially List of Theorems)
<code>swapnumber=true false</code>	(initially false)

## 6.2 Keys added by theorem-keys

<code>title-code=&lt;code with #1&gt;</code>	(initially <code>\section*{#1}</code> )
If <code>\chapter</code> is defined, then initially this is instead <code>\chapter*{#1}</code> .	
<code>no-title</code>	(initially unset)
<code>print-body</code>	(initially unset)
Instead of listing the theorem headings, the theorems are restated with their body text.	

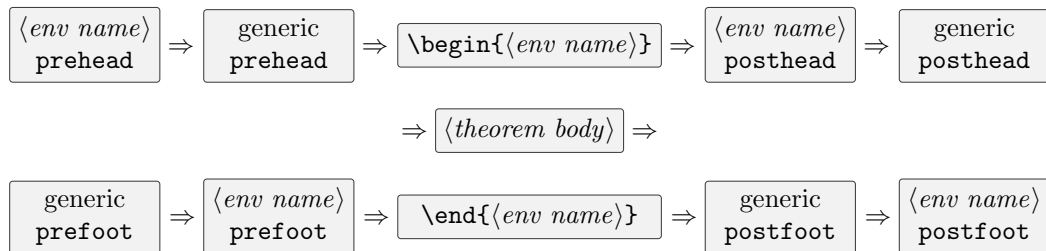
## 7 Theorem Hooks

```

\AddToTheoremPreHeadHook[<env name>]{<code>}
\AddToTheoremPostHeadHook[<env name>]{<code>}
\AddToTheoremPreFootHook[<env name>]{<code>}
\AddToTheoremPostFootHook[<env name>]{<code>}

```

As in thmtools, the order of hooks is as follows:



In thmtools, the `prefoot` and `postfoot` hooks always prepend code, i.e. the code

```

\addtotheorempostfoothook{A}
\addtotheorempostfoothook{B}

```

results in BA after the theorem. With `theorem-keys`, code is added in the order declared, meaning

```

\AddToTheoremPostFootHook{A}
\AddToTheoremPostFootHook{B}

```

results in AB after the theorem. This is the behavior of the L<sup>A</sup>T<sub>E</sub>X kernel hooks that `theorem-keys` uses under the hood.

Right now, code added using the hook keys `preheadhook`<sup>P.3</sup>, etc. is outermost, meaning executed first in `prehead` and `posthead` and last in `prefoot` and `postfoot`. This may change if I think of good reasons to do so...

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