

# keytheorems package

version 0.0.8 $\gamma$

[github.com/mbertucci47/keytheorems](https://github.com/mbertucci47/keytheorems)

Matthew Bertucci

June 5, 2024

## Abstract

An experimental `expl3`-implementation of a key-value interface to `amsthm`, implementing most of the functionality provided by `thmtools`. Likely contains many bugs; use at your own risk!

## Contents

<b>1</b>	<b>Dependencies</b>	<b>1</b>
<b>2</b>	<b>Global Options</b>	<b>1</b>
<b>3</b>	<b>Defining Theorems</b>	<b>2</b>
3.1	Keys available to theorem environments . . . . .	3
3.2	Keys inherited from <code>thmtools</code> . . . . .	4
3.3	Keys added by <code>keytheorems</code> . . . . .	6
<b>4</b>	<b>Theorem Styles</b>	<b>7</b>
4.1	Keys inherited from <code>thmtools</code> . . . . .	7
4.2	Keys added by <code>keytheorems</code> . . . . .	8
<b>5</b>	<b>Restating Theorems</b>	<b>8</b>
<b>6</b>	<b>Listing Theorems</b>	<b>9</b>
6.1	Keys inherited from <code>thmtools</code> . . . . .	9
6.2	Keys added by <code>keytheorems</code> . . . . .	10
6.3	Adding code to list of theorems . . . . .	11
<b>7</b>	<b>Theorem Hooks</b>	<b>11</b>
<b>8</b>	<b>Implementation</b>	<b>12</b>
	<b>Index</b>	<b>50</b>

## 1 Dependencies

Without using the `tcolorbox`<sup>P.6</sup> or `tcolorbox-no-titlebar`<sup>P.7</sup> options, the package loads the `aliascnt`, `amsthm`, `refcount`, and `translations` packages.

## 2 Global Options

`\keytheoremset{<options>}`

Every key in this section can be given as a package option with `\usepackage[<options>]{keytheorems}` or in `\keytheoremset{<options>}`, with the exception that `continues-code`<sup>P.2</sup> can only be used in the latter.

**overload** (initially unset)

Redefines `\newtheorem` to internally use the `keytheorems` machinery. The syntax remains the same.

**thmtools-compat** (initially unset)

For compatibility with `thmtools` syntax. Currently defines the following commands:

thmtools command	keytheorems replacement
<code>\declaretheorem</code>	<code>\newkeytheorem</code>
<code>\declaretheoremstyle</code>	<code>\newkeytheoremstyle</code> <sup>→ P. 7</sup>
<code>\listoftheorems</code>	<code>\listofkeytheorems</code> <sup>→ P. 9</sup>
<code>\addtotheoremheadhook</code>	
<code>\addtotheoremheadhook</code>	
<code>\addtotheoremfoothook</code>	<code>\addtotheoremhook</code> <sup>→ P. 11</sup>
<code>\addtotheoremfoothook</code>	
<code>restatable</code> environment	<code>store</code> <sup>→ P. 3</sup> key

Also defined are the `shaded` and `thmbox` keys, implemented internally with `tcolorbox` rather than the `shadethm` and `thmbox` packages, respectively.

**store-all** (initially unset)

Tells `keytheorems` to grab the body of each theorem so it can later be printed with the `print-body`<sup>→ P. 10</sup> option of `\listofkeytheorems`<sup>→ P. 9</sup>. Note that this means a theorem body *cannot* contain verbatim material.

**restate-counters**= $\langle$ *comma-list of counters* $\rangle$  (initially `{equation}`)

Additional counters whose values are preserved when a theorem is restated. This key does not reset the list, so you don't need to include `equation` in  $\langle$ *comma-list* $\rangle$ .

**continues-code**= $\langle$ *code with #1* $\rangle$  (initially `\GetTranslation{keythms_continues}\pageref{#1}`)

The code used to typeset the note produced by the `continues`<sup>→ P. 3</sup> key. If English or an unknown language is used, defaults to `continuing from p.\, \pageref{#1}`. Currently (likely inaccurate!) translations exist for French, German, and Spanish.

**qed-symbol**= $\langle$ *symbol* $\rangle$  (initially `\openbox`)

Redefines `\qedsymbol` to be  $\langle$ *symbol* $\rangle$ .

**auto-translate**=`true|false` (default `true`, initially `true`)

If `false`, `keytheorems` does not automatically translate the title text for `\listofkeytheorems`<sup>→ P. 9</sup> and the note produced by the `continues`<sup>→ P. 3</sup> key. These texts can be manually customized with the `title`<sup>→ P. 10</sup> and `continues-code` keys, respectively.

### 3 Defining Theorems

**\newkeytheorem** $\{$  $\langle$ *env name* $\rangle$  $\} [$  $\langle$ *options* $\rangle$  $]$

Defines a theorem environment  $\langle$ *env name* $\rangle$  which itself takes a few options (see subsection 3.1). You can also declare multiple theorems at once by replacing  $\langle$ *env name* $\rangle$  with a comma-list of names, e.g. `\newkeytheorem{theorem, lemma, proposition} [options]`.

By default, the theorem's printed name is a title-cased  $\langle$ *env name* $\rangle$ . This can be changed with the `name`<sup>→ P. 4</sup> key. All  $\langle$ *options* $\rangle$  are described in subsections 3.2 and 3.3.

```
% preamble
\newkeytheorem{theorem}

% document
\begin{theorem}
Some text
\end{theorem}
```

**Theorem 1.** *Some text*

### 3.1 Keys available to theorem environments

As in `amsthm`, theorems can take an optional argument that contains a note or heading.

```
\begin{theorem}[some heading]
Some text
\end{theorem}
```

**Theorem 2** (some heading). *Some text*

Alternatively, the optional argument may contain any of the following keys.

`note=<text>` (initially unset)

Alias `name`. This is the key-value equivalent of the optional argument described above. This syntax, however, allows the argument to contain other keys.

```
\begin{theorem}[some heading]
Some text
\end{theorem}
\begin{theorem}[note=another heading]
Some more text
\end{theorem}
```

**Theorem 3** (some heading). *Some text*

**Theorem 4** (another heading). *Some more text*

`short-note=<text>` (initially unset)

Alias `short-name`. This replaces the value of `note` when displayed in `\listofkeytheorems`<sup>P.9</sup>.

`label=<label name>` (initially unset)

This is the key-value equivalent of `\begin{theorem} \label{<label name>}`.

```
\begin{theorem}[label=foo]
Some text
\end{theorem}
\ref{foo}
```

**Theorem 5.** *Some text*

5

`continues*=<label name>` (initially unset)

Pick up a theorem where you left off. The theorem number remains the same. The printed text can be customized with the `continues-code`<sup>P.2</sup> option. The starred version also copies the theorem note, if it exists.

```
\begin{theorem}[continues=foo]
\dots and some more text.
\end{theorem}
```

**Theorem 5** (continuing from p. 3). ... *and some more text.*

`store=<tag>` (initially unset)

Alias `restate`. Stores the the theorem to be restated at any point in the document with `\getkeytheorem`<sup>P.8</sup>.

```
\begin{theorem}[store=blub]
A theorem worth restating.
\end{theorem}
More brilliant mathematics.
\getkeytheorem{blub}
```

**Theorem 6.** *A theorem worth restating.*

More brilliant mathematics.

**Theorem 6.** *A theorem worth restating.*

A theorem given this key *cannot* contain verbatim material or other unexpected catcodes, such as a `tikz-cd` diagram. The latter issue can be averted with the `ampersand-replacement` key.

```

% preamble
\usepackage{tikz}
\usetikzlibrary{cd}

% document
\begin{lemma}[store=diagram]
Some commutative diagram:
\[\begin{tikzcd}[ampersand
\rightarrow replacement=\&
X\times_S Y \ar[r] \ar[d] \& X \ar[d]
\rightarrow \& \\
Y \ar[r] \& S
\end{tikzcd}\]
\end{lemma}
\dots
\getkeytheorem{diagram}

```

**Lemma 7.** *Some commutative diagram:*

$$\begin{array}{ccc}
 X \times_S Y & \longrightarrow & X \\
 \downarrow & & \downarrow \\
 Y & \longrightarrow & S
 \end{array}$$

...

**Lemma 7.** *Some commutative diagram:*

$$\begin{array}{ccc}
 X \times_S Y & \longrightarrow & X \\
 \downarrow & & \downarrow \\
 Y & \longrightarrow & S
 \end{array}$$

`listhack=true|false`

(initially false)

Meant only to be used with the `break`<sup>P.8</sup> style key for a theorem starting with a list. Compare:

```

% preamble
\newkeytheoremstyle{breaksty}{break}
\newkeytheorem{observation}[style=breaksty]

% document
\begin{observation}
\begin{enumerate}
\item First item
\end{enumerate}
\end{observation}

\begin{observation}[listhack=true]
\begin{enumerate}
\item First item
\end{enumerate}
\end{observation}

```

**Observation 1.** *1. First item*

**Observation 2.**

*1. First item*

Note that the value `true` must be explicitly set so that `listhack` is not interpreted as the note text.

`seq=<name>`

(initially unset)

Adds the theorem to a custom sequence `<name>` that can then be listed with `\listofkeytheorems[seq=<name>]`. See `seq`<sup>P.10</sup> for more details.

### 3.2 Keys inherited from thmtools

These are the `[<options>]` available to `\newkeytheorem`. Except for `name` and `style`<sup>P.5</sup>, each key below can also be used in `\newkeytheoremstyle`<sup>P.7</sup>. For more description, see the `thmtools` package.

`name=<display name>`

(initially title-cased `<env name>`)

Aliases `title` and `heading`.

```

% preamble
\newkeytheorem{mythm}[name=Some Name]

% document
\begin{mythm}
Some text
\end{mythm}

```

**Some Name 1.** *Some text*

`numbered=true|false|unless-unique` (default `true`, initially `true`)

For compatibility with `thmtools`, also accepts the values `yes`, `no`, and `unless unique`.

```
% preamble
\newkeytheorem{theorem}[
  name=Theorem, numbered=false
]

% document
\begin{theorem*}
An unnumbered theorem.
\end{theorem*}
```

**Theorem.** *An unnumbered theorem.*

`parent=<counter>` (initially unset)

Aliases `numberwithin` and `within`.

```
% preamble
\newkeytheorem{conjecture}[parent=section]

% document
\begin{conjecture}
The first number is the section.
\end{conjecture}
```

**Conjecture 3.1.** *The first number is the section.*

`sibling=<counter>` (initially unset)

Aliases `numberlike` and `sharenumber`.

```
% preamble
\newkeytheorem{lemma}[sibling=theorem]

% document
\begin{lemma}
This shares its counter with
\texttt{theorem}.
\end{lemma}
```

**Lemma 8.** *This shares its counter with theorem.*

`style=<style name>` (initially unset)

Accepts any `<style name>` defined by `\newkeytheoremstyle`<sup>P.7</sup>, as well as any of the predefined `amsthm` styles: `plain`, `definition`, and `remark`.

```
% preamble
\newkeytheorem{remark}[style=remark]

% document
\begin{remark}
Some text
\end{remark}
```

*Remark 1.* Some text

`preheadhook=<code>` (initially unset)

`postheadhook=<code>` (initially unset)

`prefoothook=<code>` (initially unset)

`postfoothook=<code>` (initially unset)

Details in section 7.

```

% preamble
\newkeytheorem{test}[
  preheadhook=PREHEAD,
  postheadhook=POSTHEAD,
  prefoothook=PREFOOT,
  postfoothook=POSTFOOT
]

% document
\begin{test}
Some text
\end{test}

```

PREHEAD

**Test 1.** *POSTHEAD*Some text *PREFOOT*

POSTFOOT

**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` and `\Cref`. Note that `\Autoref` is defined by `keytheorems`, but requires `hyperref` to work.

```

% preamble
\newkeytheorem{prop}[
  name=Proposition,
  refname={proposition,propositions},
  Refname={Proposition,Propositions}
]

% document
\begin{prop}[label=abc]
Some text
\end{prop}
\begin{prop}[label=def]
Some more text
\end{prop}
\begin{theorem}
Consider \cref{abc,def}.
\Autoref{abc} \dots
\end{theorem}

```

**Proposition 1.** *Some text*

**Proposition 2.** *Some more text*

**Theorem 9.** *Consider propositions 1 and 2. Proposition 1 ...*

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

Adds  $\langle$ symbol $\rangle$  to the end of the theorem body. If no value is given, the symbol  $\square$  is used.

```

% preamble
\newkeytheorem{example}[qed]
\newkeytheorem{solution}[qed=$\clubsuit$]

% document
\begin{example}
Some text
\end{example}
\begin{solution}
Some more text
\end{solution}

```

**Example 1.** *Some text*



**Solution 1.** *Some more text*



### 3.3 Keys added by keytheorems

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

This key specifies that the theorem be placed inside a `tcolorbox` environment with  $\langle$ options $\rangle$ . The theorem head is typeset as a `tcolorbox` title; to avoid this see `tcolorbox-no-titlebar`<sup>P.7</sup>.

```

% preamble
\tcbset{
  defstyle/.style={
    arc=0mm,
    colback=blue!5!white,
    colframe=blue!75!black
  },
}
\newkeytheorem{corollary}[tcolorbox]
\newkeytheorem{definition}[
  style=definition,
  tcolorbox={defstyle}
]

% document
\begin{corollary}
Some text
\end{corollary}
\begin{definition}
Some more text
\end{definition}

```

**Corollary 1.**

*Some text*

**Definition 1.**

Some more text

`tcolorbox-no-titlebar={\langle tcolorbox options \rangle}`

(initially unset)

Same usage as `tcolorbox`<sup>→P.6</sup> but the theorem head is typeset as usual, not as a `tcolorbox` title.

```

% preamble
\newkeytheorem{boxcor}[
  tcolorbox-no-titlebar={
    colback=red!10
  },
  name=Corollary,sibling=corollary
]

% document
\begin{boxcor}
Some text
\end{boxcor}

```

**Corollary 2.** *Some text*

## 4 Theorem Styles

`\newkeytheoremstyle{\langle name \rangle}{\langle options \rangle}`

This is `keytheorems`' version of `thmtools`' `\declaretheoremstyle[\langle options \rangle]{\langle name \rangle}`. Since it makes little sense to define a style with no keys, we've made the `\langle options \rangle` argument mandatory. Note that unlike `amsthm`'s `\newtheoremstyle`, this command will error if a style has already been defined. To overwrite an existing style, there is the analogous `\renewkeytheoremstyle`. For completeness, there is also `\declarekeytheoremstyle` and `\providekeytheoremstyle`.



For the AMS classes `amsart`, `amsbook`, and `amsproc`, as well as the `amsart`-based `acmart`, the initial key values are slightly different than what's below in order to match those class's defaults.

### 4.1 Keys inherited from `thmtools`

The following keys have the same meaning and syntax as the corresponding `thmtools` keys. In addition to the list below, most of the keys available to `\newkeytheorem`<sup>→P.2</sup> can be used in `\newkeytheoremstyle`.

`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.

## 4.2 Keys added by keytheorems

`inherit-style`= $\langle style\ name \rangle$  (initially unset)  
Inherit the keys of any style declared with `\newkeytheoremstyle`<sup>P.7</sup>. Additionally, the three styles predefined by `amsthm` are possible values: `plain`, `definition`, and `remark`.

## 5 Restating Theorems

When a theorem is given the `store`<sup>P.3</sup> key, the contents of the theorem are saved and written to a `.thlist` file. At the start of the next run, this file is input at the beginning of the document and allows you to retrieve the stored theorems at any point, before or after the original theorem.

`\getkeytheorem`[ $\langle property \rangle$ ]{ $\langle tag \rangle$ }

Retrieves the theorem given the key `store`= $\langle tag \rangle$ . An optional  $\langle property \rangle$  can be given to retrieve only the corresponding part of the theorem. Currently only the property `body` is implemented, which retrieves the (unformatted) body of the theorem.

```
\getkeytheorem{mytag}
```

```
\begin{example}[store=mytag]
```

```
Fascinating example.
```

```
\end{example}
```

```
\getkeytheorem[body]{mytag}
```

**Example 2.** *Fascinating example.* ☐

**Example 2.** *Fascinating example.* ☐

Fascinating example.

`\IfRestatingTF`{ $\langle true\ code \rangle$ }{ $\langle false\ code \rangle$ }

Executes  $\langle true\ code \rangle$  if being retrieved with `\getkeytheorem` and  $\langle false\ code \rangle$  if in the original theorem.

```
\begin{example}[store=hmm]
```

```
I am the
```

```
\IfRestatingTF{restated}{original}
```

```
example!
```

```
\end{example}
```

```
\getkeytheorem{hmm}
```

**Example 3.** *I am the original example!* ☐

**Example 3.** *I am the restated example!* ☐



## 6 Listing Theorems

`\listofkeytheorems[\langle options \rangle]`

`\keytheoremset{\langle options \rangle}`

	List of Theorems
<code>\listofkeytheorems</code>	1 Theorem . . . . . 2
	2 Theorem (some heading) . . . . 2
	3 Theorem (some heading) . . . . 3
	4 Theorem (another heading) . . . 3
	5 Theorem . . . . . 3
	5 Theorem (continuing from p. 3) 3
	6 Theorem . . . . . 3
	7 Lemma . . . . . 3
	1 Observation . . . . . 4
	2 Observation . . . . . 4
	1 Some Name . . . . . 4
	Theorem . . . . . 4
	3.1 Conjecture . . . . . 5
	8 Lemma . . . . . 5
	1 Remark . . . . . 5
	1 Test . . . . . 5
	1 Proposition . . . . . 6
	2 Proposition . . . . . 6
	9 Theorem . . . . . 6
	1 Example . . . . . 6
	1 Solution . . . . . 6
	1 Corollary . . . . . 6
	1 Definition . . . . . 6
	2 Corollary . . . . . 7
	2 Example . . . . . 8
	3 Example . . . . . 8

### 6.1 Keys inherited from thmtools

`numwidth=\langle length \rangle` (initially 2.3em)

`ignore={\langle comma-list of env names \rangle}` (initially unset)

`show={\langle comma-list of env names \rangle}` (initially all theorems)

`onlynamed={\langle comma-list of env names \rangle}` (initially unset)

`ignoreall` (initially unset)

<pre> \listofkeytheorems[ignoreall,show=theorem] \listofkeytheorems[   ignoreall, show=conjecture,   title=List of Conjectures ] </pre>	<div> <div>List of Theorems</div> <div> 1 Theorem . . . . . 2  2 Theorem (some heading) . . . 2  3 Theorem (some heading) . . . 3  4 Theorem (another heading) . 3  5 Theorem . . . . . 3  5 Theorem (continuing from  p. 3) . . . . . 3  6 Theorem . . . . . 3  9 Theorem . . . . . 6 </div> </div> <div> <div>List of Conjectures</div> <div> 3.1 Conjecture . . . . . 5 </div> </div>
-----------------------------------------------------------------------------------------------------------------------------------------	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

`showall` (initially set)

`title=<text>` (initially `\GetTranslation{keythms_listof_title}`)  
 Defaults to “List of Theorems” if English or an unknown language is used. Currently French, German, and Spanish have (likely inaccurate!) translations. A translation can be added with a GitHub pull request or manually with `\DeclareTranslation{<lang>}{keythms_listof_title}{<text>}`.

`swapnumber=true|false` (initially false)

## 6.2 Keys added by keytheorems

`onlynumbered={<comma-list of env names>}` (initially unset)

Similar to `onlynamed`<sup>→P.9</sup>, but lists only those theorems which are numbered. This is useful if you’d like to exclude things like unnumbered definitions and remarks from the list of theorems.

`seq=<name>` (initially unset)

Used to list only the theorems added to the custom sequence `<name>` with the `seq`<sup>→P.4</sup> theorem key. This is the only way to fully customize which theorems appear in the list of theorems.

`title-code=<code with #1>` (initially `\section*{#1}`)

If `\chapter` is defined, then initially this is instead `\chapter*{#1}`.

`no-title` (initially unset)

Suppresses the title of the list of theorems. Useful for custom ordering of the list.

<pre> \keytheoremset{ignoreall} \listofkeytheorems[show=example] \listofkeytheorems[show=solution,no-title] </pre>	<div> <div>List of Theorems</div> <div> 1 Example . . . . . 6  2 Example . . . . . 8  3 Example . . . . . 8  1 Solution . . . . . 6 </div> </div>
--------------------------------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------------------------------------------------------------------------

`note-code=<code with #1>` (initially `{ #1}`)

Formats the optional note in the list of theorems.

`print-body` (initially unset)

Instead of listing the theorem headings, the theorems are restated with their body text. Not very useful without the `store-all`<sup>→P.2</sup> load-time option.

`no-continues=true|false` (initially false)

Suppresses the printing of theorems given the `continues`<sup>→P.3</sup> key in the list of theorems.

`no-chapter-skip=true|false` (initially `false`)

By default a small vertical space is inserted between each chapter’s chunk of theorems. Setting this key to `true` removes this space.

`chapter-skip-length=<dimension>` (initially 10pt)

Controls the amount of space inserted between chunks.

## 6.3 Adding code to list of theorems

There are analogous commands to `\addcontentsline` and `\addtocontents` for adding entries or arbitrary code to the list of theorems.



You *must* use these commands rather than the aforementioned because the `.thlist` file is also used to define restated theorems and cannot contain unexpected code.

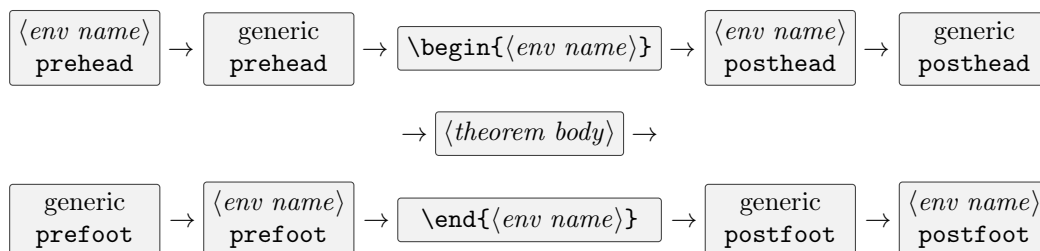
`\addtheoremcontentsline{<level>}{<text>}`

`\addtotheoremcontents{<code>}`

## 7 Theorem Hooks

`\addtotheoremhook[<env name>]{<hook name>}{<code>}`

`<hook name>` can be `prehead`, `posthead`, `prefoot`, `postfoot`, or `restated`. If no `<env name>` is given, the `<code>` is added to the “generic” hook, i.e. applied to all theorems. As in `thmtools`, the order of hooks is as follows:



The `restated` hook is applied at the start of theorems retrieved with `\getkeytheorem`, before the `prehead` hook. This can be useful for disabling commands such as `\footnote` in the restated theorems, e.g.

```

\addtotheoremhook{restated}{%
  \renewcommand\footnote[2][]{}%
}

```

By default, `keytheorems` disables the `\label` and `\RecordProperties` commands in restated theorems.

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

```

\addtotheoremhook{postfoot}{A}
\addtotheoremhook{postfoot}{B}

```

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

```

\addtotheoremhook{postfoot}{A}
\addtotheoremhook{postfoot}{B}

```

results in AB after the theorem. This is the behavior of the  $\text{\LaTeX}$  kernel hooks that `keytheorems` uses under the hood.

Right now, code added using the hook keys `preheadhook`<sup>P.5</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...

## 8 Implementation

```

1  \NeedsTeXFormat{LaTeX2e}[2024/06/01]
2  \ProvidesExplPackage{keytheorems}{2024-05-24}{0.0.8gamma}{l3keys interface to amsthm}
3
4  %% TESTING
5  % \debug_on:n { all }
6  %% END TESTING
7
8  \RequirePackage{aliascnt} % for sibling theorems
9  \RequirePackage{amsthm}
10 % ~ ams classes have way of ignoring this so don't need to check if they're loaded
11 \RequirePackage{refcount} % for \getrefnumber
12 \RequirePackage{translations} % for translating "List of Theorems"
13
14 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
15 %% Error Messages %%
16 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
17
18 \msg_new:nnn { keytheorems } { thmtools-before }
19 {
20     keytheorems~is~not~compatible~with~thmtools.~
21     Try~replacing~\protect\usepackage{thmtools}~with~
22     \protect\usepackage[thmtools-compat]{keytheorems}.
23 }
24 \msg_new:nnn { keytheorems } { thmtools-after }
25 {
26     keytheorems~is~not~compatible~with~thmtools.~
27     This~will~not~work~as~you~think!~
28     Try~replacing~\protect\usepackage{thmtools}~with~
29     \protect\usepackage[thmtools-compat]{keytheorems}.
30 }
31 \msg_new:nnn { keytheorems } { no-stored-theorem }
32 {
33     No~stored~theorem~'#1'~found!~
34     Try~compiling~again.~If~that~doesn't~work,~
35     check~the~spelling~of~'#1'.
36 }
37 \msg_new:nnn { keytheorems } { undefined-thm-hook }
38 {
39     No~theorem~hook~'#1'.~Check~the~spelling.~
40     Should~be~one~of~'prehead',~'posthead',~'prefoot',~'postfoot',~or~'restated'.
41 }
42 \msg_new:nnn { keytheorems } { no-Autorefname }
43 {
44     No~Autorefname~for~'#1'.
45 }
46 \msg_new:nnn { keytheorems } { thmstyle-undefined }
47 {
48     Theorem~style~'#1'~undefined.~
49     Use~\protect\newkeytheoremstyle\space instead.
50 }
51 \msg_new:nnn { keytheorems } { thmstyle-defined }
52 {
53     Theorem~style~'#1'~already~defined.~
54     Use~\protect\renewkeytheoremstyle\space instead.
55 }
56

```

```

57 % Error if thmtools loaded since compilation hangs.
58 % If thmtools loaded after, produce warning.
59 \IfPackageLoadedTF { thmtools }
60 {
61   \msg_fatal:nn { keytheorems } { thmtools-before }
62 }
63 {
64   \hook_gput_code:nnn { package/thmtools/before } { . }
65   {
66     \msg_warning:nn { keytheorems } { thmtools-after }
67   }
68 }
69
70 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
71 %%% Declare Variables %%%
72 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
73
74 \tl_new:N \l__keythms_tmpa_tl
75
76 \bool_new:N \g__keythms_listof_writefile_bool
77 \bool_gset_false:N \g__keythms_listof_writefile_bool
78 \bool_new:N \l__keythms_thm_numbered_bool
79 \bool_new:N \l__keythms_thm_unlessunique_bool
80 \bool_new:N \l__keythms_thmuse_listhack_bool
81 \bool_new:N \l__keythms_thmuse_restating_bool
82 \clist_new:N \g__keythms_restatecounters_clist
83 \clist_new:N \l__keythms_thmstyle_savedkeys_clist
84 \iow_new:N \g__keythms_listof_stream
85 \prop_new:N \g__keythms_thmnames_prop
86 \prop_new:N \g__keythms_thmuse_othercounters_prop
87 \prop_new:N \l__keythms_restate_counters_prop
88 \tl_new:N \l__keythms_thm_currentthmstyle_tl
89 \tl_new:N \l__keythms_thm_defaultkeys_tl
90 \tl_new:N \l__keythms_thm_envname_tl
91 \tl_new:N \l__keythms_thmstyle_defaultkeys_tl
92 \tl_new:N \l__keythms_thmstyle_lnotebrace_tl
93 \tl_new:N \l__keythms_thmstyle_rnotebrace_tl
94 \tl_new:N \l__keythms_thmuse_envname_tl
95 \tl_new:N \g__keythms_thmuse_temprestatedata_tl
96
97 \newcounter{keythms_restate_dummyctr}
98 \cs_gset:Npn \theHkeythms_restate_dummyctr
99   { restate.\arabic{keythms_restate_dummyctr} }
100 \cs_gset:Npn \thekeythms_restate_dummyctr { }
101 \newcounter{keythms_continues_dummyctr}
102 \cs_gset:Npn \theHkeythms_continues_dummyctr
103   { continues.\arabic{keythms_continues_dummyctr} }
104 \cs_gset:Npn \thekeythms_continues_dummyctr { }
105 \newcounter{keythms_unnumbered_dummyctr}
106 \cs_gset:Npn \theHkeythms_unnumbered_dummyctr
107   { unnumbered.\arabic{keythms_unnumbered_dummyctr} }
108 \cs_gset:Npn \thekeythms_unnumbered_dummyctr { }
109
110 \cs_generate_variant:Nn \hook_gput_code:nnn { nnV }
111 \cs_generate_variant:Nn \keys_precompile:nnN { nv, nVc }
112
113 % for detecting AMS classes
114 \prg_new_conditional:Npnn \keythms_if_amsclass: { T, TF }

```

```

115 {
116   \IfClassLoadedTF { amsart } { \prg_return_true: }
117   {
118     \IfClassLoadedTF { amsbook } { \prg_return_true: }
119     {
120       \IfClassLoadedTF { amsproc } { \prg_return_true: }
121       { \prg_return_false: }
122     }
123   }
124 }
125
126 %%%%%%%%%%%
127 %% Styles %%
128 %%%%%%%%%%%
129
130 % \__keythms_thmstyle_setbraces:nn { <left brace> } { <right brace> }
131 \cs_new_protected:Npn \__keythms_thmstyle_setbraces:nn #1#2
132 {
133   \tl_set:Nn \l__keythms_thmstyle_lnotebrace_tl { #1 }
134   \tl_set:Nn \l__keythms_thmstyle_rnotebrace_tl { #2 }
135 }
136 \cs_new:Npn \keythms_thmstyle_savethmkey_reqval:n #1
137 {
138   \clist_put_right:No \l__keythms_thmstyle_savedkeys_clist
139   { \l_keys_key_str = { #1 } }
140 }
141 \cs_new:Npn \keythms_thmstyle_savethmkey_optval:n #1
142 {
143   \tl_if_empty:NTF \l_keys_value_tl
144   {
145     \clist_put_right:No \l__keythms_thmstyle_savedkeys_clist
146     { \l_keys_key_str }
147   }
148   {
149     \clist_put_right:No \l__keythms_thmstyle_savedkeys_clist
150     { \l_keys_key_str = { #1 } }
151   }
152 }
153
154 \keys_define:nn { keytheorems/thmstyle }
155 {
156   spaceabove .tl_set:N = \l__keythms_thmstyle_spaceabove_tl,
157   spacebelow .tl_set:N = \l__keythms_thmstyle_spacebelow_tl,
158   bodyfont .tl_set:N = \l__keythms_thmstyle_bodyfont_tl,
159   headindent .tl_set:N = \l__keythms_thmstyle_headindent_tl,
160   headfont .tl_set:N = \l__keythms_thmstyle_headfont_tl,
161   headpunct .tl_set:N = \l__keythms_thmstyle_headpunct_tl,
162   postheadspace .tl_set:N = \l__keythms_thmstyle_postheadspace_tl,
163   break .meta:n = { postheadspace = \newline }, % add error if postheadspace set
164   break .value_forbidden:n = true,
165   notefont .tl_set:N = \l__keythms_thmstyle_notefont_tl,
166   notebraces .code:n = \exp_after:wN \__keythms_thmstyle_setbraces:nn #1,
167   headstyle .choice:,
168   headstyle / margin .code:n =
169   {
170     \cs_set:Nn \keythms_thmstyle_headcmd:nnn
171     { \makebox[Opt][r]{\NUMBER\ }\NAME\NOTE }
172   },

```

```

173 headstyle / swapnumber .code:n =
174 {
175     \cs_set:Nn \keythms_thmstyle_headcmd:nnn { \NUMBER\ \NAME\NOTE }
176 },
177 headstyle / unknown .cs_set:Np = \keythms_thmstyle_headcmd:nnn #1#2#3,
178 headformat .meta:n = { headstyle = #1 },
179 inherit-style .choice:,
180 inherit-style / plain .meta:n = {},
181 inherit-style / definition .meta:n = { bodyfont = \normalfont },
182 inherit-style / remark .meta:n =
183 {
184     headfont = \itshape,
185     bodyfont = \normalfont,
186     spaceabove = 0.5\topsep,
187     spacebelow = 0.5\topsep,
188 },
189 % thm keys that are saved for later
190 numbered .code:n = \keythms_thmstyle_savethmkey_optval:n { #1 },
191 parent .code:n = \keythms_thmstyle_savethmkey_reqval:n { #1 },
192 numberwithin .code:n = \keythms_thmstyle_savethmkey_reqval:n { #1 },
193 within .code:n = \keythms_thmstyle_savethmkey_reqval:n { #1 },
194 sibling .code:n = \keythms_thmstyle_savethmkey_reqval:n { #1 },
195 numberlike .code:n = \keythms_thmstyle_savethmkey_reqval:n { #1 },
196 sharenumber .code:n = \keythms_thmstyle_savethmkey_reqval:n { #1 },
197 preheadhook .code:n = \keythms_thmstyle_savethmkey_reqval:n { #1 },
198 postheadhook .code:n = \keythms_thmstyle_savethmkey_reqval:n { #1 },
199 prefoothook .code:n = \keythms_thmstyle_savethmkey_reqval:n { #1 },
200 postfoothook .code:n = \keythms_thmstyle_savethmkey_reqval:n { #1 },
201 qed .code:n = \keythms_thmstyle_savethmkey_optval:n { #1 },
202 tcolorbox .code:n = \keythms_thmstyle_savethmkey_optval:n { #1 },
203 tcolorbox-no-titlebar .code:n = \keythms_thmstyle_savethmkey_optval:n { #1 },
204 }
205
206 \cs_new_protected:Nn \keythms_thmstyle_thmname:n { \thmname{#1} }
207 \cs_new_protected:Nn \keythms_thmstyle_thmnumber:n { \thmnumber{#1} }
208 \cs_new_protected:Nn \keythms_thmstyle_thmnote:n { \thmnote{#1} }
209
210 %% NOTE: if these are used, user is in charge of spacing with \NAME and \NUMBER
211 %% QUESTION: should these be moved into def of \newkeytheoremstyle?
212 \cs_new:Npn \NAME { \keythms_thmstyle_thmname:n { ##1 } }
213 \cs_new:Npn \NUMBER
214 {
215     \keythms_thmstyle_thmnumber:n { \textup { ##2 } }
216 }
217 \cs_new:Npn \NOTE
218 {
219     \keythms_thmstyle_thmnote:n
220     { ~ \group_begin: % group so notefont doesn't affect headpunct
221         \exp_not:V \l__keythms_thmstyle_notefont_tl
222         \l__keythms_thmstyle_lnotebrace_tl ##3 \l__keythms_thmstyle_rnotebrace_tl
223         \group_end:
224     }
225 }
226
227 \cs_new:Npn \keythms_thmstyle_headcmd_default:nnn #1#2#3
228 {
229     \keythms_thmstyle_thmname:n { #1 }
230     \keythms_thmstyle_thmnumber:n

```

```

231     { \tl_if_empty:nF { #1 } { ~ } \exp_not:N \textup { #2 } }
232     % ~ this \tl_if_empty has no effect...
233 \keythms_thmstyle_thmnote:n
234 { ~ \group_begin: % group so notefont doesn't affect headpunct
235     \exp_not:V \l__keythms_thmstyle_notefont_tl
236     \l__keythms_thmstyle_lnotebrace_tl #3 \l__keythms_thmstyle_rnotebrace_tl
237     \group_end:
238 }
239 }
240
241 %%% <SURELY A BETTER WAY>
242 \cs_new_protected:Npn \__keythms_thmstyle_definekeylist:nn #1#2
243 {
244     \clist_const:cn { c__keythms_thmstyle_defaultkeys_ #1 _clist } { #2 }
245 }
246
247 \cs_new_protected:Npn \__keythms_thmstyle_setdefaultkeys:n #1
248 {
249     \keys_precompile:nvN { keytheorems/thmstyle }
250     { c__keythms_thmstyle_defaultkeys_ #1 _clist }
251     \l__keythms_thmstyle_defaultkeys_tl
252 }
253
254 \__keythms_thmstyle_definekeylist:nn { default }
255 {
256     spaceabove    = \topsep,
257     spacebelow    = \topsep,
258     bodyfont      = \itshape,
259     headindent    = 0pt,
260     headfont      = \bfseries,
261     headpunct     = {.),
262     postheadspace = 5pt plus 1pt minus 1pt,
263     notefont      = \fontseries\mddefault\upshape,
264     notebraces    = {({}{)},
265     headstyle     = \keythms_thmstyle_headcmd_default:nnn{#1}{#2}{#3},
266 }
267 \__keythms_thmstyle_definekeylist:nn { amsart }
268 {
269     spaceabove    = .5\baselineskip plus .2\baselineskip minus .2\baselineskip,
270     spacebelow    = .5\baselineskip plus .2\baselineskip minus .2\baselineskip,
271     bodyfont      = \itshape,
272     headindent    = 0pt,
273     headfont      = \bfseries,
274     headpunct     = {.),
275     postheadspace = 5pt plus 1pt minus 1pt,
276     notefont      = \fontseries\mddefault\upshape,
277     notebraces    = {({}{)},
278     headstyle     = \keythms_thmstyle_headcmd_default:nnn{#1}{#2}{#3},
279 }
280 \__keythms_thmstyle_definekeylist:nn { amsproc }
281 {
282     spaceabove    = .5\baselineskip plus .2\baselineskip minus .2\baselineskip,
283     spacebelow    = .5\baselineskip plus .2\baselineskip minus .2\baselineskip,
284     bodyfont      = \itshape,
285     headindent    = \parindent,
286     headfont      = \scshape,
287     headpunct     = {.),
288     postheadspace = 5pt plus 1pt minus 1pt,

```



```

289     notefont      = \fontseries\mddefault\upshape,
290     notebraces    = {\}\},
291     headstyle     = \keythms_thmstyle_headcmd_default:nnn{#1}{#2}{#3},
292 }
293 \__keythms_thmstyle_definekeylist:nn { amsbook }
294 {
295     spaceabove    = .5\baselineskip plus .2\baselineskip minus .2\baselineskip,
296     spacebelow    = .5\baselineskip plus .2\baselineskip minus .2\baselineskip,
297     bodyfont      = \itshape,
298     headindent    = \parindent,
299     headfont      = \scshape,
300     headpunct     = {\.},
301     postheadspace = 5pt plus 1pt minus 1pt,
302     notefont      = \fontseries\mddefault\upshape,
303     notebraces    = {\}\},
304     headstyle     = \keythms_thmstyle_headcmd_default:nnn{#1}{#2}{#3},
305 }
306 \__keythms_thmstyle_definekeylist:nn { acmart }
307 {
308     spaceabove    = .5\baselineskip plus .2\baselineskip minus .2\baselineskip,
309     spacebelow    = .5\baselineskip plus .2\baselineskip minus .2\baselineskip,
310     bodyfont      = \@acmplainbodyfont,
311     headindent    = \@acmplainindent,
312     headfont      = \@acmplainheadfont,
313     headpunct     = {\.},
314     postheadspace = .5em,
315     notefont      = \@acmplainnotefont,
316     notebraces    = {\}\},
317     headstyle     = \keythms_thmstyle_headcmd_default:nnn{#1}{#2}{#3},
318 }
319
320 \IfClassLoadedTF { amsart }
321 {
322     \IfClassLoadedTF { acmart } % acmart loads amsart
323     {
324         \__keythms_thmstyle_setdefaultkeys:n { acmart }
325     }
326     {
327         \__keythms_thmstyle_setdefaultkeys:n { amsart }
328         \keys_define:nn { keytheorems/thmstyle }
329         {
330             inherit-style / remark .meta:n =
331             {
332                 headfont = \itshape,
333                 bodyfont = \normalfont,
334             }
335         }
336     }
337 }
338 {
339     \IfClassLoadedTF { amsbook }
340     {
341         \__keythms_thmstyle_setdefaultkeys:n { amsbook }
342         \keys_define:nn { keytheorems/thmstyle }
343         {
344             inherit-style / remark .meta:n =
345             {
346                 bodyfont = \normalfont,

```

```

347         },
348     }
349 }
350 {
351     \IfClassLoadedTF { amsproc }
352     {
353         \__keythms_thmstyle_setdefaultkeys:n { amsproc }
354         \keys_define:nn { keytheorems/thmstyle }
355         {
356             inherit-style / remark .meta:n =
357             {
358                 bodyfont = \normalfont,
359             },
360         }
361     }
362     { \__keythms_thmstyle_setdefaultkeys:n { default } }
363 }
364 }
365 %%% </SURELY A BETTER WAY>
366
367 \NewDocumentCommand \newkeytheoremstyle { m m }
368 {
369     \cs_if_free:cTF { th@ #1 }
370     { \keythms_thmstyle_declarestyle:nn { #1 } { #2 } }
371     { \msg_error:nnn { keytheorems } { thmstyle-defined } { #1 } }
372 }
373 \NewDocumentCommand \renewkeytheoremstyle { m m }
374 {
375     \cs_if_free:cTF { th@ #1 }
376     { \msg_error:nnn { keytheorems } { thmstyle-undefined } { #1 } }
377     { \keythms_thmstyle_declarestyle:nn { #1 } { #2 } }
378 }
379 \NewDocumentCommand \providekeytheoremstyle { m m }
380 {
381     \cs_if_free:cT { th@ #1 }
382     { \keythms_thmstyle_declarestyle:nn { #1 } { #2 } }
383 }
384 \NewDocumentCommand \declarekeytheoremstyle { m m }
385 {
386     \keythms_thmstyle_declarestyle:nn { #1 } { #2 }
387 }
388
389 \@onlypreamble \newkeytheoremstyle
390 \@onlypreamble \renewkeytheoremstyle
391 \@onlypreamble \providekeytheoremstyle
392 \@onlypreamble \declarekeytheoremstyle
393
394 \cs_new_eq:NN \keythms_thmstyle_new:nnnnnnnn \newtheoremstyle
395 \cs_generate_variant:Nn \keythms_thmstyle_new:nnnnnnnn { nVVVVVVVe }
396
397 \cs_new_protected:Npn \keythms_thmstyle_declarestyle:nn #1#2
398 {
399     \clist_clear:N \l__keythms_thmstyle_savedkeys_clist
400     \tl_use:N \l__keythms_thmstyle_defaultkeys_tl
401     \keys_set:nn { keytheorems/thmstyle } { #2 }
402     \keythms_thmstyle_new:nVVVVVVVe { #1 }
403     \l__keythms_thmstyle_spaceabove_tl
404     \l__keythms_thmstyle_spacebelow_tl

```

```

405 \l__keythms_thmstyle_bodyfont_tl
406 \l__keythms_thmstyle_headindent_tl
407 \l__keythms_thmstyle_headfont_tl
408 \l__keythms_thmstyle_headpunct_tl
409 \l__keythms_thmstyle_postheadspace_tl
410 { \text_expand:n { \keythms_thmstyle_headcmd:nnn{##1}{##2}{##3} } }
411 % Define new inherit-style key
412 \keys_define:nn { keytheorems/thmstyle }
413 { inherit-style / #1 .meta:n = { #2 } }
414 \tl_if_exist:cF { l__keythms_thmstyle_ #1 _savedkeys_tl }
415 { \tl_new:c { l__keythms_thmstyle_ #1 _savedkeys_tl } }
416 \keys_precompile:nVc { keytheorems/thm }
417 \l__keythms_thmstyle_savedkeys_clist
418 { l__keythms_thmstyle_ #1 _savedkeys_tl }
419 }
420
421 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
422 %%% Defining Theorems %%%
423 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
424
425 % FIX: reimplement these without \NewDocumentCommand and \SplitArgument
426
427 % \keythms_thm_setrefnames:n { <envname> } { <refname> or <sing,plural> }
428 \NewDocumentCommand \keythms_thm_setrefnames:nn
429 { m >\SplitArgument{1}{,}} m }
430 { \__keythms_thm_setrefnames_aux:nnn{#1}#2 }
431 \cs_new_protected:Npn \__keythms_thm_setrefnames_aux:nnn #1#2#3
432 {
433 \cs_set:cpn { #1 autorefname } { #2 }
434 \IfPackageLoadedT { cleveref }
435 {
436 \tl_if_novalue:nTF { #3 }
437 { \crefname{#1}{#2}{\textbf{??~(pl.~#2)}} }
438 { \crefname{#1}{#2}{#3} }
439 }
440 }
441 \cs_generate_variant:Nn \keythms_thm_setrefnames:nn { nV }
442
443 % \keythms_thm_setRefnames:n { <envname> } { <refname> or <sing,plural> }
444 \NewDocumentCommand \keythms_thm_setRefnames:nn
445 { m >\SplitArgument{1}{,}} m }
446 { \__keythms_thm_setRefnames_aux:nnn{#1}#2 }
447 \cs_new_protected:Npn \__keythms_thm_setRefnames_aux:nnn #1#2#3
448 {
449 \cs_set:cpn { #1 Autorefname } { #2 }
450 \IfPackageLoadedT { cleveref }
451 {
452 \tl_if_novalue:nTF { #3 }
453 { \Crefname{#1}{#2}{\textbf{??~(pl.~#2)}} }
454 { \Crefname{#1}{#2}{#3} }
455 }
456 }
457 \cs_generate_variant:Nn \keythms_thm_setRefnames:nn { nV }
458
459 \keys_define:nn { keytheorems/thm }
460 {
461 name .tl_set:N = \l__keythms_thm_name_tl,
462 title .meta:n = { name = #1 },

```

```

463 heading .meta:n = { name = #1 },
464 refname .tl_set:N = \l__keythms_thm_refname_tl,
465 Refname .tl_set:N = \l__keythms_thm_Refname_tl,
466 numbered .choice:,
467 numbered / true .code:n = \bool_set_true:N \l__keythms_thm_numbered_bool,
468 numbered / false .code:n = \bool_set_false:N \l__keythms_thm_numbered_bool,
469 numbered / yes .meta:n = { numbered = true },
470 numbered / no .meta:n = { numbered = false },
471 numbered / unless-unique .code:n =
472 {
473 \bool_set_true:N \l__keythms_thm_unlessunique_bool
474 },
475 numbered / unless-unique .meta:n = { numbered = unless-unique },
476 numbered .default:n = true,
477 parent .tl_set:N = \l__keythms_thm_parent_tl,
478 numberwithin .meta:n = { parent = #1 },
479 within .meta:n = { parent = #1 },
480 sibling .tl_set:N = \l__keythms_thm_sibling_tl,
481 numberlike .meta:n = { sibling = #1 },
482 sharenumber .meta:n = { sibling = #1 },
483 style .tl_set:N = \l__keythms_thm_style_tl,
484 style .groups:n = { style-comes-first },
485 preheadhook .tl_set:N = \l__keythms_thm_preheadhook_tl,
486 postheadhook .tl_set:N = \l__keythms_thm_postheadhook_tl,
487 prefoothook .tl_set:N = \l__keythms_thm_prefoothook_tl,
488 postfoothook .tl_set:N = \l__keythms_thm_postfoothook_tl,
489 qed .tl_set:N = \l__keythms_thm_qed_tl,
490 qed .default:n = \c_novaluel_tl,
491 % ~ distinguish between 'qed' and 'qed={}'
492 tcolorbox .tl_set:N = \l__keythms_thm_tcbkeys_tl,
493 tcolorbox .default:n = {},
494 tcolorbox-no-titlebar .meta:n =
495 {
496 tcolorbox={
497 notitle,
498 before~upper={
499 \group_begin:
500 \__keythms_thm_tcbxtemphead:
501 \group_end:
502 },
503 #1
504 }
505 },
506 tcolorbox-no-titlebar .default:n = {},
507 }
508
509 % what below is unnecessary? Commenting everything but \def causes spaceabove,
510 % etc. to not work
511 \cs_new:Npn \__keythms_thm_storedeferredthmhead:n #1
512 {
513 % \if@inlabel \indent \par \fi % eject a section head if one is pending
514 % \if@nobreak
515 % \adjust@parskip@nobreak
516 % \else
517 % \addpenalty\@beginparpenalty
518 \addvspace\@topsep
519 \addvspace{-\parskip}
520 % \fi

```

```

521 % \global\@inlabeltrue
522 % \everypar\dtth@everypar
523 \cs_set:Npn \__keythms_thm_tcboxtemphead: { \normalfont #1 }
524 \ignorespaces
525 }
526
527 \keys_precompile:nnN { keytheorems/thm }
528 {
529     name          = \q_no_value,
530     refname       = \q_no_value,
531     Refname       = \q_no_value,
532     numbered      = true,
533     parent        = {},
534     sibling        = {},
535     style         = {},
536     preheadhook   = {},
537     postheadhook  = {},
538     prefoothook   = {},
539     postfoothook  = {},
540     qed           = \q_no_value,
541     tcolorbox     = \q_no_value,
542 }
543 \l__keythms_thm_defaultkeys_tl
544
545 \cs_new_protected:Npn \__keythms_thm_makethmhooks:n #1
546 {
547     \hook_new:n { keytheorems/#1/prehead }
548     \hook_new:n { keytheorems/#1/posthead }
549     \hook_new_reversed:n { keytheorems/#1/prefoot }
550     \hook_new_reversed:n { keytheorems/#1/postfoot }
551     \hook_new:n { keytheorems/#1/restated }
552 }
553
554 % Make generic theorem hooks
555 \__keythms_thm_makethmhooks:n { allthms }
556
557 % \newkeytheorem{<name>}{<keys>}
558 \NewDocumentCommand \newkeytheorem { m O{} }
559 {
560     \clist_map_inline:nn { #1 } % define multiple theorems at once
561     { \keythms_thm_newkeythm:nn { ##1 } { #2 } }
562 }
563
564 \@onlypreamble \newkeytheorem
565
566 % to prevent error when plain, remark, or definition style used
567 \tl_new:N \l__keythms_thmstyle_plain_savedkeys_tl
568 \tl_new:N \l__keythms_thmstyle_remark_savedkeys_tl
569 \tl_new:N \l__keythms_thmstyle_definition_savedkeys_tl
570
571 % \keythms_thm_newkeythm:nn { <envname> } { <keys> }
572 \cs_new_protected:Npn \keythms_thm_newkeythm:nn #1#2
573 {
574     % Store envname
575     \tl_set:Nn \l__keythms_thm_envname_tl { #1 }
576     % Make unless-unique false by default (can't precompile this)
577     \bool_set_false:N \l__keythms_thm_unlessunique_bool
578     % Set default keys

```

```

579 \tl_use:N \l__keythms_thm_defaultkeys_tl
580 % First set style so we can pick up additional thm keys, then overwrite if necessary
581 \keys_set:groups:nnn { keytheorems/thm } { style-comes-first } { #2 }
582 \tl_if_empty:NF \l__keythms_thm_style_tl
583 {
584   % Store theorem style
585   \tl_set:Ne \l__keythms_thm_currentthmstyle_tl { \the\thm@style }
586   % Temporarily set theorem style
587   \__keythms_theoremstyle:n { \l__keythms_thm_style_tl }
588   % If thm keys given in style, call now (possibly overwritten in next step)
589   % but don't error if user uses a style defined with just \newtheoremstyle
590   \tl_if_exist:cT { l__keythms_thmstyle_ \l__keythms_thm_style_tl _savedkeys_tl }
591   { \tl_use:c { l__keythms_thmstyle_ \l__keythms_thm_style_tl _savedkeys_tl } }
592 }
593 % Set env-specific keys
594 \keys_set:nn { keytheorems/thm } { #2 }
595 % Set up env-specific hooks
596 \__keythms_thm_makethmhooks:n { #1 }
597 % Add to env-specific hooks (use label so code given in keys is outermost)
598 % NOTE: faster to check if empty than add empty code to hook
599 \tl_if_empty:NF \l__keythms_thm_preheadhook_tl
600 {
601   \hook_gput_code:nnV { keytheorems/#1/prehead }
602   { keythms_hook_keys } \l__keythms_thm_preheadhook_tl
603 }
604 \tl_if_empty:NF \l__keythms_thm_postheadhook_tl
605 {
606   \hook_gput_code:nnV { keytheorems/#1/posthead }
607   { keythms_hook_keys } \l__keythms_thm_postheadhook_tl
608 }
609 \tl_if_empty:NF \l__keythms_thm_prefoothook_tl
610 {
611   \hook_gput_code:nnV { keytheorems/#1/prefoot }
612   { keythms_hook_keys } \l__keythms_thm_prefoothook_tl
613 }
614 \tl_if_empty:NF \l__keythms_thm_postfoothook_tl
615 {
616   \hook_gput_code:nnV { keytheorems/#1/postfoot }
617   { keythms_hook_keys } \l__keythms_thm_postfoothook_tl
618 }
619 % Set name if none given
620 \quark_if_no_value:NT \l__keythms_thm_name_tl % use quark so name={} is valid
621 {
622   % use e so \text_titlecase called only once per theorem definition,
623   % not each time the theorem is used
624   \tl_set:Ne \l__keythms_thm_name_tl
625   { \text_titlecase_first:n { #1 } }
626 }
627 % associate formatted name with envname in prop list
628 \prop_gput:NnV \g__keythms_thmnames_prop { #1 } \l__keythms_thm_name_tl
629 % Call correct \newtheorem variant
630 \bool_if:NTF \l__keythms_thm_unlessunique_bool
631 {
632   % [unq] is required since aux is read at begindocument
633   % (technically right before) which is after theorem is defined
634   \RequirePackage[unq]{unique}
635   \tl_if_empty:NTF \l__keythms_thm_parent_tl
636   {

```

```

637 \hook_gput_code:nnn { keytheorems/#1/prehead }
638 { keythms_hook_keys } { \setuniqmark { #1 } }
639 \ifuniq{ #1 }
640 { \bool_set_false:N \l__keythms_thm_numbered_bool }
641 { \bool_set_true:N \l__keythms_thm_numbered_bool }
642 \bool_if:NTF \l__keythms_thm_numbered_bool
643 {
644   \tl_if_empty:NTF \l__keythms_thm_sibling_tl
645   {
646     \__keythms_thm_new:nV { #1 } \l__keythms_thm_name_tl
647   }
648   {
649     \exp_args:NnV \newaliascnt { #1 } \l__keythms_thm_sibling_tl
650     \__keythms_thm_new_sibling:nVn { #1 }
651     \l__keythms_thm_name_tl { #1 }
652     \aliascntresetthe { #1 }
653   }
654 }
655 {
656   \__keythms_thm_new_nonnumber:nV { #1 } \l__keythms_thm_name_tl
657   \hook_gput_code:nnn { keytheorems/#1/prehead } { keythms_hook_keys }
658   {
659     \keythms_if_restating:F
660     { \refstepcounter{ keythms_unnumbered_dummyctr } }
661   }
662 }
663 }
664 {
665   \__keythms_thm_new_uuwithparent:nVV { #1 }
666   \l__keythms_thm_name_tl \l__keythms_thm_parent_tl
667 }
668 }
669 {
670   \bool_if:NTF \l__keythms_thm_numbered_bool
671   {
672     \tl_if_empty:NTF \l__keythms_thm_parent_tl
673     {
674       \tl_if_empty:NTF \l__keythms_thm_sibling_tl
675       {
676         \__keythms_thm_new:nV { #1 } \l__keythms_thm_name_tl
677       }
678       {
679         \exp_args:NnV \newaliascnt { #1 } \l__keythms_thm_sibling_tl
680         \__keythms_thm_new_sibling:nVn { #1 }
681         \l__keythms_thm_name_tl { #1 }
682         \aliascntresetthe { #1 }
683       }
684     }
685     {
686       \__keythms_thm_new_parent:nVV { #1 }
687       \l__keythms_thm_name_tl \l__keythms_thm_parent_tl
688     }
689   }
690   {
691     \__keythms_thm_new_nonnumber:nV { #1 } \l__keythms_thm_name_tl
692     \hook_gput_code:nnn { keytheorems/#1/prehead } { keythms_hook_keys }
693     {
694       \keythms_if_restating:F

```

```

695         { \refstepcounter{ keythms_unnumbered_dummyctr } }
696     }
697 }
698 }
699 % Store theorem def and redefine it with keys
700 \keythms_keyify_theorem:n { #1 }
701 % define \<env>autorefname and \<env>Autorefname, might be redefined next
702 \exp_args:NnV \cs_set:cpn { #1 autorefname } \l__keythms_thm_name_tl
703 \exp_args:NnV \cs_set:cpn { #1 Autorefname } \l__keythms_thm_name_tl
704 % Set ref names
705 \quark_if_no_value:NF \l__keythms_thm_refname_tl
706 { \keythms_thm_setrefnames:nV { #1 } \l__keythms_thm_refname_tl }
707 \quark_if_no_value:NF \l__keythms_thm_Refname_tl
708 { \keythms_thm_setRefnames:nV { #1 } \l__keythms_thm_Refname_tl }
709 % Set up qed if needed
710 \quark_if_no_value:NF \l__keythms_thm_qed_tl
711 {
712     \exp_args:Nno \__keythms_thm_qedcode:nn { #1 } { \l__keythms_thm_qed_tl }
713 }
714 % Set up tcolorbox if needed
715 \quark_if_no_value:NF \l__keythms_thm_tcbkeys_tl
716 {
717     \exp_args:Nno \__keythms_thm_tcbboxcode:nn { #1 }
718     { \l__keythms_thm_tcbkeys_tl }
719 }
720 % Set default list-of display command
721 \__keythms_listof_show_aux:n { #1 }
722 % Set theorem style back to original state if needed
723 \tl_if_empty:NF \l__keythms_thm_style_tl
724 {
725     \__keythms_theoremstyle:V \l__keythms_thm_currentthmstyle_tl
726 }
727 }
728
729 \cs_new_protected:Npn \__keythms_thm_tcbboxcode:nn #1#2
730 {
731     \RequirePackage{tcolorbox}
732     \hook_gput_code:nnn { keytheorems/#1/prehead }
733     { keythms_tcbbox }
734     {
735         \cs_set_eq:NN \deferred@thm@head \__keythms_thm_storedeferredthmhead:n
736         \cs_set_eq:NN \Hy@theorem@makelinktarget \use_none:n
737         % ^ don't like playing with hyperref internals... but don't see around
738         % it because hyperref tries to add to para hook which doesn't work
739         % when title set up the way we do it
740         \cs_set:Npn \thm@space@setup { \thm@preskip=Opt \thm@postskip=Opt }
741         % ^ to match tcolorbox defaults; shouldn't interfere with user styles
742     }
743     \hook_gset_rule:nnnn { keytheorems/#1/posthead }
744     { keythms_tcbbox } { before } { keythms_hook_keys }
745     \hook_gset_rule:nnnn { keytheorems/#1/prefoot }
746     { keythms_tcbbox } { after } { keythms_hook_keys }
747     \hook_gset_rule:nnnn { keytheorems/#1/prefoot }
748     { keythms_tcbbox } { after } { keythms_qed }
749     \bool_if:NTF \l__keythms_thm_numbered_bool
750     {
751         \hook_gput_code:nnn { begindocument } { . }
752     }

```



```

753 \IfPackageLoadedTF{cleveref}
754 { % hyperref doesn't patch \@thm if cleveref loaded
755 \hook_gput_code:nnn { keytheorems/#1/posthead }
756 { keythms_tcbox }
757 {
758 \begin{tcolorbox}[
759 savedelimiter=#1,
760 title={ \_\_keythms_thm_tcboxtemphead: },
761 #2]
762 }
763 }
764 {
765 \hook_gput_code:nnn { keytheorems/#1/posthead }
766 { keythms_tcbox }
767 {
768 \begin{tcolorbox}[
769 savedelimiter=#1,
770 title={ \_\_keythms_thm_tcboxtemphead: },
771 phantom={ \MakeLinkTarget*{\@currentHref} }, % fix hyperlinking
772 #2]
773 }
774 }
775 }
776 }
777 {
778 \hook_gput_code:nnn { keytheorems/#1/posthead }
779 { keythms_tcbox }
780 {
781 \begin{tcolorbox}[
782 savedelimiter=#1,
783 title={ \_\_keythms_thm_tcboxtemphead: },
784 #2]
785 }
786 }
787 \hook_gput_code:nnn { keytheorems/#1/prefoot }
788 { keythms_tcbox } { \end{tcolorbox} }
789 }
790 \cs_new_protected:Npn \_\_keythms_thm_qedcode:nn #1#2
791 {
792 \hook_gput_code:nnn { keytheorems/#1/posthead }
793 { keythms_qed }
794 {
795 \exp_args:No \tl_if_novalue:nF { #2 } { \protected@edef\qedsymbol{#2} }
796 \pushQED{\qed}
797 }
798 \hook_gput_code:nnn { keytheorems/#1/prefoot }
799 { keythms_qed }
800 {
801 \exp_args:No \tl_if_novalue:nF { #2 } { \protected@edef\qedsymbol{#2} }
802 \popQED
803 }
804 }
805
806 \cs_new_eq:NN \_\_keythms_theoremstyle:n \theoremstyle
807 \cs_generate_variant:Nn \_\_keythms_theoremstyle:n { V }
808
809 % \newtheorem variants
810 \cs_new_eq:NN \_\_keythms_thm_new:nn \newtheorem

```

```

811 \cs_generate_variant:Nn \__keythms_thm_new:nn { nV }
812
813 \cs_new_protected:Npn \__keythms_thm_new_nonnumber:nn #1#2
814 { \__keythms_thm_new:nn*{#1}{#2} }
815 \cs_generate_variant:Nn \__keythms_thm_new_nonnumber:nn { nV }
816
817 \cs_new_protected:Npn \__keythms_thm_new_parent:nnn #1#2#3
818 { \__keythms_thm_new:nn{#1}{#2}[#3] }
819 \cs_generate_variant:Nn \__keythms_thm_new_parent:nnn { nVV }
820
821 \cs_new_protected:Npn \__keythms_thm_new_sibling:nnn #1#2#3
822 { \__keythms_thm_new:nn{#1}[#3]{#2} }
823 \cs_generate_variant:Nn \__keythms_thm_new_sibling:nnn { nV }
824
825 \cs_new_protected:Npn \__keythms_thm_new_uuwithparent:nnn #1#2#3
826 {
827   \cs_undefine:c { keythms_orig_nonnumber_#1 } % for renew, declare
828   \__keythms_thm_new_nonnumber:nn { keythms_orig_nonnumber_#1 } { #2 }
829   \__keythms_thm_new_parent:nnn { #1 } { #2 } { #3 }
830   \DeclareEnvironmentCopy { keythms_orig_withparent_#1 } { #1 }
831   \renewenvironment { #1 } % opt arg is implicit
832   {
833     \setuniqmark{ #1. \use:c {the #3} }
834     \ifuniq{ #1. \use:c {the #3} }
835     {
836       \keythms_if_restating:F
837       { \refstepcounter{ keythms_unnumbered_dummyctr } }
838       \begin{keythms_orig_nonnumber_#1}
839     }
840     {
841       \begin{keythms_orig_withparent_#1}
842     }
843   }
844   {
845     \ifuniq{ #1. \use:c {the #3} }
846     { \end{keythms_orig_nonnumber_#1} }
847     { \end{keythms_orig_withparent_#1} }
848   }
849 }
850 \cs_generate_variant:Nn \__keythms_thm_new_uuwithparent:nnn { nVV }
851
852 % for getting notes with continues*, use nameref if available, otherwise ltproperties
853 \hook_gput_code:nnn { begindocument } { . }
854 {
855   \IfPackageLoadedTF { nameref }
856   {
857     \cs_new:Npn \__keythms_thmuse_recordnote: { } % nameref takes care of this
858     \cs_new:Npn \__keythms_getrecordednote:n #1
859     {
860       \getrefbykeydefault{ #1 }{ name }{ }
861     }
862   }
863   { % needs https://github.com/latex3/latex2e/issues/1200 fixed
864     \property_new:nnnn { keytheorems/recordednote } { now } { }
865     { \l__keythms_thmuse_note_tl }
866     \cs_new:Npn \__keythms_getrecordednote:n #1
867     {
868       \property_ref:nn { keythms_recordednote_#1 }

```

```

869         { keytheorems/recordednote }
870     }
871     \cs_new:Npn \__keythms_thmuse_recordnote:
872     {
873         \tl_if_empty:NF \l__keythms_thmuse_note_tl
874         {
875             \RecordProperties
876             { keythms_recordednote_\l__keythms_thmuse_label_tl }
877             { keytheorems/recordednote }
878         }
879     }
880 }
881 }
882
883 \keys_define:nn { keytheorems/thmuse }
884 {
885     label      .tl_set:N = \l__keythms_thmuse_label_tl,
886     note       .tl_set:N = \l__keythms_thmuse_note_tl,
887     name       .meta:n   = { note = #1 },
888     % ^ for compatibility. "name" is ambiguous and doesn't match amsthm language
889     short-note .code:n   = {}, % these do nothing at point of use
890     short-name .code:n   = {}, % ^ worthwhile compatibility?
891     continues  .tl_set:N = \l__keythms_thmuse_contlabel_tl,
892     continues* .code:n   =
893     {
894         \keys_set:nn { keytheorems/thmuse } { continues = #1 }
895         \protected@edef \l__keythms_tmpa_tl { \__keythms_getrecordednote:n{#1} }
896         \tl_if_empty:NF \l__keythms_tmpa_tl
897         {
898             \keys_set:nn { keytheorems/thmuse }
899             { note = \l__keythms_tmpa_tl }
900         }
901     },
902     store      .tl_set:N = \l__keythms_thmuse_store_tl,
903     %store      .default:n = \q_no_value, % ={name} causes issues
904     restate    .meta:n   = { store = #1 },
905     % ^ thmtools compatibility
906     listhack   .choice:, % need equals sign
907     listhack / true .code:n = \bool_set_true:N \l__keythms_thmuse_listhack_bool,
908     listhack / false .code:n = \bool_set_false:N \l__keythms_thmuse_listhack_bool,
909     listhack   .initial:n = false,
910     seq        .code:n   = {},
911 }
912
913 \cs_new_protected:Npn \keythms_keyify_theorem:n #1
914 { % #1 = theorem name
915     \DeclareEnvironmentCopy { keythms_orig_#1 } { #1 }
916     \DeclareDocumentEnvironment { keythms_grab_#1 } { m O{} +b }
917     { % ##1 = keys, ##2 = note, ##3 = theorem body
918         \__keythms_thm_prehead_code:n { #1 }
919         \begin{keythms_orig_#1}[{##2}]
920         \clist_map_inline:Nn \g__keythms_restatecounters_clist
921         {
922             \prop_gput:Nne \g__keythms_thmuse_othercounters_prop { ####1 }
923             { \the\value{####1} }
924         }
925         \__keythms_thm_posthead_code:n { #1 }
926         % below needs to come after posthead so that correct \@currentHref

```

```

927 % is stored for tcolorbox theorems
928 \__keythms_thm_addcontentsdata:nnnn { #1 }
929 { \prop_to_keyval:N \g__keythms_thmuse_othercounters_prop }
930 { ##1 } { ##3 }
931 \__keythms_thm_tempstorerebasedata:nnn { #1 } { ##1 } { ##3 }
932 ##3
933 \__keythms_thm_prefoot_code:n { #1 }
934 \end{keythms_orig_#1}
935 \__keythms_thm_postfoot_code:n { #1 }
936 }
937 {}
938 % NOTE: have to do a lot of shenanigans to make sure the begin/end of grabbed
939 % theorem env captures only the body and no package code.
940 % This is the price of on-the-fly redefining the env to grab body
941 \RenewDocumentEnvironment { #1 } { = {note} 0 {} }
942 {
943 \keys_set:nn { keytheorems/thmuse } { ##1 }
944 \tl_if_empty:NF \l__keythms_thmuse_store_tl
945 {
946 \bool_gset_true:N \g__keythms_listof_writefile_bool
947 \cs_set_eq:NN \__keythms_withhooks_begin:nn \__keythms_grab_begin:nn
948 \cs_set_eq:NN \__keythms_withhooks_begin:nnn \__keythms_grab_begin:nnn
949 \cs_set_eq:NN \__keythms_withhooks_begin:nnV \__keythms_grab_begin:nnV
950 \cs_set_eq:NN \__keythms_withhooks_end:n \__keythms_grab_end:n
951 }
952 \__keythms_thm_prehead_continues_code:n { #1 }
953 \tl_if_empty:NTF \l__keythms_thmuse_note_tl
954 { \__keythms_withhooks_begin:nn { #1 } { ##1 } }
955 {
956 \__keythms_withhooks_begin:nnV { #1 } { ##1 }
957 \l__keythms_thmuse_note_tl
958 }
959 }
960 {
961 \__keythms_withhooks_end:n { #1 }
962 \tl_if_empty:NF \l__keythms_thmuse_store_tl
963 {
964 \cs_if_exist:cF
965 { __keythms_getthm_ \l__keythms_thmuse_store_tl _theorem }
966 {
967 \cs_new:cpe
968 { __keythms_getthm_ \l__keythms_thmuse_store_tl _theorem }
969 {
970 \exp_not:N \__keythms_getthm_theorem:nnnnn
971 \exp_not:o { \g__keythms_thmuse_temprestatedata_tl }
972 }
973 \cs_new:cpe
974 { __keythms_getthm_ \l__keythms_thmuse_store_tl _body }
975 {
976 \exp_not:N \__keythms_getthm_body:nn
977 \exp_args:No \exp_not:o
978 {
979 \exp_after:wN \__keythms_use_iii_v_braced:nnnnn
980 \g__keythms_thmuse_temprestatedata_tl
981 }
982 }
983 }
984 }

```

```

985     }
986 }
987 \cs_new:Npn \__keythms_use_iii_v_braced:nnnnn #1#2#3#4#5 { {#3}{#5} }
988
989 \cs_new_protected:Npn \__keythms_withhooks_begin:nn #1#2
990 { % #1 = theorem name, #2 = keys
991   \__keythms_thm_prehead_code:n { #1 }
992   \begin{keythms_orig_#1}
993   \__keythms_thm_posthead_code:n { #1 }
994   \__keythms_thm_addcontentsdata:nnnn { #1 } { } { #2 } { }
995   \ignorespaces % I hope this is alright
996 }
997 \cs_new_protected:Npn \__keythms_withhooks_begin:nnn #1#2#3
998 { % #1 = theorem name, #2 = keys, #3 = note
999   \__keythms_thm_prehead_code:n { #1 }
1000   \begin{keythms_orig_#1}[{#3}]
1001   \__keythms_thm_posthead_code:n { #1 }
1002   \__keythms_thm_addcontentsdata:nnnn { #1 } { } { #2 } { }
1003   \ignorespaces % I hope this is alright
1004 }
1005 \cs_generate_variant:Nn \__keythms_withhooks_begin:nnn { nnV }
1006 \cs_new_protected:Npn \__keythms_withhooks_end:n #1
1007 {
1008   \__keythms_thm_prefoot_code:n { #1 }
1009   \end{keythms_orig_#1}
1010   \__keythms_thm_postfoot_code:n { #1 }
1011 }
1012 \cs_new_protected:Npn \__keythms_grab_begin:nn #1#2
1013 { % #1 = theorem name, #2 = keys
1014   \begin{keythms_grab_#1}{#2}
1015 }
1016 \cs_new_protected:Npn \__keythms_grab_begin:nnn #1#2#3
1017 { % #1 = theorem name, #2 = keys, #3 = note
1018   \begin{keythms_grab_#1}{#2}[{#3}]
1019 }
1020 \cs_generate_variant:Nn \__keythms_grab_begin:nnn { nnV }
1021 \cs_new_protected:Npn \__keythms_grab_end:n #1 { \end{keythms_grab_#1} }
1022
1023 \cs_new_protected:Npn \__keythms_orig_begin:n #1 { \begin{keythms_orig_#1} }
1024 \cs_new_protected:Npn \__keythms_orig_begin:nn #1#2
1025 { \begin{keythms_orig_#1}[{#2}] }
1026 \cs_generate_variant:Nn \__keythms_orig_begin:nn { nV }
1027 \cs_new_protected:Npn \__keythms_orig_end:n #1 { \end{keythms_orig_#1} }
1028
1029 \cs_new:Npn \__keythms_thm_prehead_code:n #1
1030 { % #1 = theorem name
1031   \tl_set:Nn \l__keythms_thmuse_envname_tl { #1 }
1032   \hook_use:n { keytheorems/#1/prehead }
1033   \hook_use:n { keytheorems/allthms/prehead }
1034 }
1035 %% this below has to be separate from prehead_code above since we need to add
1036 %% continues-code to note before retrieving it in \__keythms_withhooks_begin:nnV
1037 \cs_new:Npn \__keythms_thm_prehead_continues_code:n #1
1038 { % #1 = theorem name
1039   \tl_if_empty:NF \l__keythms_thmuse_contlabel_tl
1040   {
1041     \tl_if_empty:NF \l__keythms_thmuse_note_tl
1042     { \tl_put_right:Nn \l__keythms_thmuse_note_tl { , ~ } }

```

```

1043     \tl_put_right:Ne \l__keythms_thmuse_note_tl
1044     { \__keythms_thmuse_continues:V \l__keythms_thmuse_contlabel_tl }
1045     \cs_set:cpn { the #1 }
1046     {
1047         \getrefnumber { \l__keythms_thmuse_contlabel_tl }
1048     }
1049     \cs_set_eq:cN { c@ #1 } \c@keythms_continues_dummyctr
1050     \cs_set_eq:cN { theH #1 } \theHkeythms_continues_dummyctr
1051     %\cs_set_eq:NN \setunigmark \use_none:n % not the right fix
1052 }
1053 }
1054 \cs_new:Npn \__keythms_thm_posthead_code:n #1
1055 { % #1 = theorem name
1056     \hook_use:n { keytheorems/#1/posthead }
1057     \hook_use:n { keytheorems/allthms/posthead }
1058     \tl_if_empty:NF \l__keythms_thmuse_label_tl
1059     {
1060         \label{ \l__keythms_thmuse_label_tl }
1061         \__keythms_thmuse_recordnote:
1062     }
1063     \bool_if:NT \l__keythms_thmuse_listhack_bool
1064     { % straight from thm-amsthm.sty
1065         \leavevmode
1066         \vspace{-\baselineskip}%
1067         \par
1068         \everypar{\setbox\z@\lastbox\everypar{}}%
1069     }
1070 }
1071 \cs_new:Npn \__keythms_thm_prefoot_code:n #1
1072 { % #1 = theorem name
1073     \hook_use:n { keytheorems/allthms/prefoot }
1074     \hook_use:n { keytheorems/#1/prefoot }
1075 }
1076 \cs_new:Npn \__keythms_thm_postfoot_code:n #1
1077 { % #1 = theorem name
1078     \hook_use:n { keytheorems/allthms/postfoot }
1079     \hook_use:n { keytheorems/#1/postfoot }
1080 }
1081 \cs_new:Npn \__keythms_thm_addcontentsdata:nnnn #1#2#3#4
1082 { % #1 = theorem name, #2 = stored counters, #3 = keys, #4 = body
1083     \keythms_listof_chaptervspacehack:
1084     \iow_shipout:Ne \@auxout
1085     {
1086         \exp_not:N \@writefile { thlist }
1087         {
1088             \KeyThmsSavedTheorem{ #1 }
1089             { \@currentlabel }
1090             { \@currentHref }
1091             { \thepage }
1092             { #2 }
1093             { \exp_not:n { #3 } } % do we want any expansion here, perhaps
1094             { \exp_not:n { #4 } } % with \text_expand:n ?
1095         }
1096     }
1097 }
1098 \cs_new:Npn \__keythms_thm_tempstorerebasedata:nnn #1#2#3
1099 { % #1 = theorem name, #2 = keys, #3 = body
1100     \tl_gset:Ne \g__keythms_thmuse_temprestatedata_tl % needs to be global to get out of env

```

```

1101     {
1102     { #1 }
1103     { \@currentlabel }
1104     { \prop_to_keyval:N \g__keythms_thmuse_othercounters_prop }
1105     { \exp_not:n { #2 } } % do we want any expansion here, perhaps
1106     { \exp_not:n { #3 } } % with \text_expand:n ?
1107     }
1108   }
1109
1110   %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
1111   %% Retrieving Theorem Data %%
1112   %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
1113
1114   \cs_new_protected:Npn \KeyThmsSavedTheorem #1#2#3#4#5#6#7 % 7th arg is body
1115   { \use:c { __keythms_thmitem_#1:nnnnnn } {#2}{#3}{#4}{#5}{#6}{#7} }
1116
1117   \keys_define:nn { keytheorems/storeatbegin }
1118   {
1119     store .tl_set:N = \l__keythms_storeatbegin_store_tl,
1120     restate .meta:n = { store=#1 },
1121     unknown .code:n = { } % do nothing with unknown keys
1122   }
1123
1124   \cs_new_protected:Npn \KeyThmsContentsLine #1 { #1 }
1125   \NewDocumentCommand \addtheoremcontentsline { m m }
1126   {
1127     \addtocontents { thlist }
1128     {
1129       \KeyThmsContentsLine
1130       { % copied from def of \addcontentsline
1131         \protect\contentsline{#1}{#2}{\thepage}{ }
1132         \protected@file@percent
1133       }
1134     }
1135   }
1136   \NewDocumentCommand \addtotheoremcontents { m }
1137   {
1138     \addtocontents { thlist }
1139     {
1140       \KeyThmsContentsLine { #1 }
1141     }
1142   }
1143
1144   \hook_gput_code:nnn { begindocument } { . }
1145   {
1146     \group_begin:
1147     \cs_set_eq:NN \KeyThmsContentsLine \use_none:n
1148     \cs_set_eq:NN \KeyThmsAddvspace \use_none:n
1149     \cs_set_protected:Npn \KeyThmsSavedTheorem #1#2#3#4#5#6#7
1150     {
1151       \group_begin:
1152       \keys_set:nn { keytheorems/storeatbegin } { #6 }
1153       \tl_if_empty:NF \l__keythms_storeatbegin_store_tl
1154       {
1155         \cs_new:cpn
1156         { __keythms_getthm_ \l__keythms_storeatbegin_store_tl _theorem }
1157         {
1158           \__keythms_getthm_theorem:nnnnn

```

```

1159         {#1}{#2}{#5}{#6}{#7}
1160     }
1161     \cs_new:cpn
1162     { __keythms_getthm_ \l__keythms_storeatbegin_store_tl _body }
1163     {
1164         \__keythms_getthm_body:nn {#5}{#7}
1165     }
1166 }
1167 \group_end:
1168 }
1169 \file_if_exist_input:n { \c_sys_jobname_str.thlist }
1170 \group_end:
1171 }
1172
1173 \prg_new_conditional:Npnn \keythms_if_restating: { T, F, TF }
1174 {
1175     \bool_if:NTF \l__keythms_thmuse_restating_bool
1176     { \prg_return_true: }
1177     { \prg_return_false: }
1178 }
1179 \NewDocumentCommand \IfRestatingTF { } { \keythms_if_restating:TF }
1180
1181 \cs_new_protected:Npn \__keythms_getthm_theorem:nnnnn #1#2#3#4#5
1182 { % #1 = name, #2 = number, #3 = restate counters, #4 = keys, #5 = theorem body
1183     \group_begin:
1184     \bool_set_true:N \l__keythms_thmuse_restating_bool
1185     \prop_set_from_keyval:Nn \l__keythms_restate_counters_prop { #3 }
1186     \prop_map_inline:Nn \l__keythms_restate_counters_prop
1187     {
1188         \tl_set:ce { l_keythms_restate_current_##1_tl } { \the\value{##1} }
1189         \setcounter { ##1 } { ##2 }
1190         % ^ FIX: what if eq's numbered by section, theorem, etc.? The
1191         %         thmtools code is opaque.... Or maybe should be up to the
1192         %         user to say "restate-counters={section,chapter,...}".
1193         \cs_set:cpn { theH ##1 } { \use:c { the ##1 } . \theHkeythms_restate_dummyctr }
1194     }
1195     \tl_if_empty:nTF { #2 }
1196     { \refstepcounter{keythms_restate_dummyctr} } % for unnumbered theorems
1197     {
1198         \cs_set:cpn { the #1 } { #2 }
1199         \cs_set_eq:cn { c@ #1 } \c@keythms_restate_dummyctr
1200         \cs_set_eq:cn { theH #1 } \theHkeythms_restate_dummyctr
1201         % ^ why are the last two line here? We shouldn't be referencing
1202         %   restated theorems. Think it's a remnant of thmtools
1203         % WRONG: needed to make numbering correct after restated theorem.
1204         % not sure about theH. <- this is needed to prevent duplicate anchors
1205     }
1206     \renewcommand\label[2][]{ } % disable \label (opt arg in case cleveref loaded)
1207     \cs_set_eq:NN \ltx@label \use_none:n % disable \ltx@label
1208     \cs_set_eq:NN \property_record:nn \use_none:nn % disable \RecordProperties
1209     \cs_set_eq:NN \setuniqmark \use_none:n % work with numbered=unless-unique
1210     % QUESTION: also disable \hyper@@anchor? \MakeLinkTarget?
1211     \keys_set:nn { keytheorems/thmuse } { #4 }
1212     \hook_use:n { keytheorems/#1/restated }
1213     \hook_use:n { keytheorems/allthms/restated }
1214     \__keythms_thm_prehead_continues_code:n { #1 }
1215     \__keythms_thm_prehead_code:n { #1 }
1216     \tl_if_empty:NTF \l__keythms_thmuse_note_tl

```



```

1217     { \_keythms_orig_begin:n { #1 } }
1218     { \_keythms_orig_begin:nV { #1 } \l\_keythms_thmuse_note_tl }
1219     \_keythms_thm_posthead_code:n { #1 }
1220     #5
1221     \_keythms_thm_prefoot_code:n { #1 }
1222     \_keythms_orig_end:n { #1 }
1223     \_keythms_thm_postfoot_code:n { #1 }
1224     \prop_map_inline:Nn \l\_keythms_restate_counters_prop
1225     {
1226         \exp_args:Nnc \setcounter { ##1 }
1227         { l\_keythms_restate_current_##1_tl }
1228     }
1229     \group_end:
1230 }
1231
1232 \cs_new_protected:Npn \_keythms_getthm_body:nn #1#2
1233 { % #1 = restate counters, #2 = theorem body
1234     \group_begin:
1235     \bool_set_true:N \l\_keythms_thmuse_restating_bool
1236     \prop_set_from_keyval:Nn \l\_keythms_restate_counters_prop { #1 }
1237     \prop_map_inline:Nn \l\_keythms_restate_counters_prop
1238     {
1239         \tl_set:ce { l\_keythms_restate_current_##1_tl } { \the\value{##1} }
1240         \setcounter { ##1 } { ##2 }
1241         % ^ FIX: what if eq's numbered by section, theorem, etc.? The
1242         %       thmtools code is opaque.... Or maybe should be up to the
1243         %       user to say "restate-counters={section,chapter,...}".
1244         \cs_set:cpn { theH ##1 } { \use:c { the ##1 } . \theHkeythms_restate_dummyctr }
1245     }
1246     \refstepcounter{keythms_restate_dummyctr}
1247     \renewcommand\label[2] [] {} % disable \label (opt arg in case cleveref loaded)
1248     \cs_set_eq:NN \ltx@label \use_none:n % disable \ltx@label
1249     \cs_set_eq:NN \property_record:nn \use_none:nn % disable \RecordProperties
1250     \hook_use:n { keytheorems/#1/restated }
1251     \hook_use:n { keytheorems/allthms/restated }
1252     #2
1253     \prop_map_inline:Nn \l\_keythms_restate_counters_prop
1254     {
1255         \exp_args:Nnc \setcounter { ##1 }
1256         { l\_keythms_restate_current_##1_tl }
1257     }
1258     \group_end:
1259 }
1260
1261 % \getkeytheorem[<property>]{<tag>}
1262 \NewDocumentCommand \getkeytheorem { o m }
1263 {
1264     \cs_if_exist:cTF { \_keythms_getthm_#2_theorem }
1265     {
1266         \IfNoValueTF { #1 }
1267         { \use:c { \_keythms_getthm_#2_theorem } }
1268         { \use:c { \_keythms_getthm_#2_#1 } }
1269     }
1270     {
1271         \textbf{??}
1272         \msg_warning:nnn { keytheorems } { no-stored-theorem } { #2 }
1273     }
1274 }

```

1275  
1276  
1277  
1278  
1279  
1280  
1281  
1282  
1283  
1284  
1285  
1286  
1287  
1288  
1289  
1290  
1291  
1292  
1293  
1294  
1295  
1296  
1297  
1298  
1299  
1300  
1301  
1302  
1303  
1304  
1305  
1306  
1307  
1308  
1309  
1310  
1311  
1312  
1313  
1314  
1315  
1316  
1317  
1318  
1319  
1320  
1321  
1322  
1323  
1324  
1325  
1326  
1327  
1328  
1329  
1330  
1331  
1332

```

%% Theorem Hooks %%
%% Theorem Hooks %%
%% Theorem Hooks %%

%% \addtotheoremhook[<envname>]{<hook>}{<code>}
\NewDocumentCommand \addtotheoremhook { o m +m }
{
  \__hook_if_declared:nTF { keytheorems/allthms/#2 }
  {
    \IfNoValueTF { #1 }
    { \hook_gput_code:nnn { keytheorems/allthms/#2 } { . } { #3 } }
    { \hook_gput_code:nnn { keytheorems/#1/#2 } { . } { #3 } }
  }
  {
    \msg_error:nnn { keytheorems } { undefined-thm-hook } { #2 }
  }
}

% NOTE: I think it's OK we use the internal \__hook_if_declared:nTF above
%       since we don't need to worry about the user creating new theorem hooks
%       so, as we're only checking the existence of hooks created by us, it's OK.

%% List of Theorems %%
%% List of Theorems %%
%% List of Theorems %%

\keys_define:nn { keytheorems/listof }
{
  numwidth .dim_set:N = \l__keythms_listof_numwidth_dim,
  numwidth .initial:n = 2.3em,
  ignore .code:n =
  {
    \hook_gput_code:nnn { begindocument/before } { keytheorems }
    { \keythms_listof_ignore:n { #1 } }
  },
  show .code:n =
  {
    \hook_gput_code:nnn { begindocument/before } { keytheorems }
    { \keythms_listof_show:n { #1 } }
  },
  onlynamed .code:n =
  {
    \hook_gput_code:nnn { begindocument/before } { keytheorems }
    { \keythms_listof_onlynamed:n { #1 } }
  },
  onlynamed .default:n = \q_no_value,
  onlynumbered .code:n =
  {
    \hook_gput_code:nnn { begindocument/before } { keytheorems }
    { \keythms_listof_onlynumbered:n { #1 } }
  },
  onlynumbered .default:n = \q_no_value,
  ignoreall .code:n =
  {
    \hook_gput_code:nnn { begindocument/before } { keytheorems } % in case called before theorem
    {
      \prop_map_inline:Nn \g__keythms_thmnames_prop

```

```

1333         { \_keythms_listof_ignore_aux:n { ##1 } }
1334     }
1335 },
1336 showall .code:n =
1337 {
1338     \hook_gput_code:nnn { begindocument/before } { keytheorems } % in case called before theorem
1339     {
1340         \prop_map_inline:Nn \g__keythms_thmnames_prop
1341         { \_keythms_listof_show_aux:n { ##1 } }
1342     }
1343 },
1344 title .tl_set:N = \l__keythms_listof_title_tl,
1345 title .initial:n = \GetTranslation{keythms_listof_title},
1346 swapnumber .bool_set:N = \l__keythms_listof_swapnumber_bool,
1347 swapnumber .initial:n = false,
1348 title-code .cs_set:Np = \_keythms_listof_titlecmd:n #1,
1349 no-title .bool_set:N = \l__keythms_listof_notitle_bool,
1350 no-title .initial:n = false,
1351 print-body .code:n =
1352 {
1353     \cs_set:Nn \keythms_listof_listcmd:nnnnnnn
1354     {
1355         \tl_if_empty:nF { ##7 }
1356         {
1357             \_keythms_getthm_theorem:nnnnn
1358             {##1}{##2}{##5}{##6}{##7}
1359         }
1360     }
1361     \cs_set_eq:NN \KeyThmsContentsLine \use_none:n
1362     % ^ I assume we want this?
1363     \cs_set_eq:NN \KeyThmsAddvspace \use_none:n
1364 },
1365 note-code .cs_set:Np = \_keythms_listof_notecmd:n #1,
1366 note-code .initial:n = { ~ (#1) },
1367 no-continues .bool_set:N = \l__keythms_listof_nocont_bool,
1368 no-continues .initial:n = false,
1369 no-chapter-skip .bool_set:N = \l__keythms_listof_nochapskip_bool,
1370 no-chapter-skip .initial:n = false,
1371 chapter-skip-length .dim_set:N = \keythms@listof@chaptervspace@dim,
1372 chapter-skip-length .initial:n = 10pt,
1373 }
1374
1375 \hook_gput_code:nnn { begindocument } { . } % redefine these keys at begindocument
1376 {
1377     \keys_define:nn { keytheorems/listof }
1378     {
1379         ignore .code:n = \keythms_listof_ignore:n { #1 },
1380         show .code:n = \keythms_listof_show:n { #1 },
1381         onlynamed .code:n = \keythms_listof_onlynamed:n { #1 },
1382         onlynamed .default:n = \q_no_value,
1383         onlynumbered .code:n = \keythms_listof_onlynumbered:n { #1 },
1384         onlynumbered .default:n = \q_no_value,
1385         ignoreall .code:n =
1386         {
1387             \prop_map_inline:Nn \g__keythms_thmnames_prop
1388             { \_keythms_listof_ignore_aux:n { ##1 } }
1389         },
1390         showall .code:n =

```

```

1391         {
1392             \prop_map_inline:Nn \g__keythms_thmnames_prop
1393             { \__keythms_listof_show_aux:n { ##1 } }
1394         },
1395         seq      .code:n = \keythms_listof_showseq:n { #1 },
1396     }
1397 }
1398
1399 \NewDocumentCommand \keytheoremset { m }
1400 {
1401     \keys_set:nn { keytheorems/listof } { #1 }
1402 }
1403
1404 \cs_new_protected:Npn \keythms_listof_ignore:n #1
1405 {
1406     \clist_map_inline:nn { #1 } { \__keythms_listof_ignore_aux:n { ##1 } }
1407 }
1408 \cs_new_protected:Npn \__keythms_listof_ignore_aux:n #1
1409 {
1410     \cs_set_protected:cpn { __keythms_thmitem_#1:nnnnnn } ##1##2##3##4##5##6
1411     { }
1412 }
1413
1414 \cs_new_protected:Npn \keythms_listof_show:n #1
1415 {
1416     \clist_map_inline:nn { #1 } { \__keythms_listof_show_aux:n { ##1 } }
1417 }
1418 \cs_new_protected:Npn \__keythms_listof_show_aux:n #1
1419 {
1420     \cs_set_protected:cpn { __keythms_thmitem_#1:nnnnnn } ##1##2##3##4##5##6
1421     {
1422         \__keythms_listof_listcmd_setup:nn { ##5 }
1423         {
1424             \keythms_listof_listcmd:nnnnnnn
1425             {#1}{##1}{##2}{##3}{##4}{##5}{##6}
1426         }
1427     }
1428 }
1429
1430 \cs_new_protected:Npn \keythms_listof_onlynamed:n #1
1431 {
1432     \quark_if_no_value:nTF { #1 }
1433     {
1434         \prop_map_inline:Nn \g__keythms_thmnames_prop
1435         { \__keythms_listof_onlynamed_aux:n { ##1 } }
1436     }
1437     {
1438         \clist_map_inline:nn { #1 }
1439         { \__keythms_listof_onlynamed_aux:n { ##1 } }
1440     }
1441 }
1442 \cs_new_protected:Npn \__keythms_listof_onlynamed_aux:n #1
1443 {
1444     \cs_set_protected:cpn { __keythms_thmitem_#1:nnnnnn } ##1##2##3##4##5##6
1445     {
1446         \__keythms_listof_listcmd_setup:nn { ##5 }
1447         {
1448             \tl_if_empty:NF \l__keythms_listof_heading_note_tl

```

```

1449         {
1450             \keythms_listof_listcmd:nnnnnnn
1451             {#1}{##1}{##2}{##3}{##4}{##5}{##6}
1452         }
1453     }
1454 }
1455 }
1456
1457 \cs_new_protected:Npn \keythms_listof_onlynumbered:n #1
1458 {
1459     \quark_if_no_value:nTF { #1 }
1460     {
1461         \prop_map_inline:Nn \g__keythms_thmnames_prop
1462         { \__keythms_listof_onlynumbered_aux:n { ##1 } }
1463     }
1464     {
1465         \clist_map_inline:nn { #1 }
1466         { \__keythms_listof_onlynumbered_aux:n { ##1 } }
1467     }
1468 }
1469 \cs_new_protected:Npn \__keythms_listof_onlynumbered_aux:n #1
1470 {
1471     \cs_set_protected:cpn { __keythms_thmitem_#1:nnnnnn } ##1##2##3##4##5##6
1472     {
1473         \__keythms_listof_listcmd_setup:nn { ##5 }
1474         {
1475             \tl_if_empty:nF { ##1 }
1476             {
1477                 \keythms_listof_listcmd:nnnnnnn
1478                 {#1}{##1}{##2}{##3}{##4}{##5}{##6}
1479             }
1480         }
1481     }
1482 }
1483
1484 \cs_new_protected:Npn \keythms_listof_showseq:n #1
1485 {
1486     \prop_map_inline:Nn \g__keythms_thmnames_prop
1487     { \__keythms_listof_showseq_aux:nn { #1 } { ##1 } }
1488 }
1489 \cs_new_protected:Npn \__keythms_listof_showseq_aux:nn #1#2
1490 { % #1 = seq name, #2 = theorem name
1491     \cs_set_protected:cpn { __keythms_thmitem_#2:nnnnnn } ##1##2##3##4##5##6
1492     {
1493         \__keythms_listof_listcmd_setup:nn { ##5 }
1494         {
1495             \tl_if_eq:NnT \l__keythms_listof_heading_seq_tl { #1 }
1496             {
1497                 \keythms_listof_listcmd:nnnnnnn
1498                 {#2}{##1}{##2}{##3}{##4}{##5}{##6}
1499             }
1500         }
1501     }
1502 }
1503
1504 % Seems unnecessary to repeat all this for reading the keyvals from seq.
1505 % In thmtools they just hook the "thmitem" definition into the theorem declaration.
1506 %% NOTE ON ABOVE: this gives more flexibility to define different kinds of lists.

```

```

1507 %% See acro.sty for template idea.
1508 \keys_define:nn { keytheorems/listofheading }
1509 {
1510     note .tl_set:N = \l__keythms_listofheading_note_tl,
1511     name .meta:n = { note = #1 },
1512     short-note .tl_set:N = \l__keythms_listofheading_shortnote_tl,
1513     short-name .meta:n = { short-note = #1 },
1514     continues .tl_set:N = \l__keythms_listofheading_contlabel_tl,
1515     continues* .code:n =
1516     {
1517         \keys_set:nn { keytheorems/listofheading } { continues = #1 }
1518         \protected@edef \l__keythms_tmpa_tl { \__keythms_getrecordednote:n{#1} }
1519         \tl_if_empty:NF \l__keythms_tmpa_tl
1520         {
1521             \keys_set:nn { keytheorems/listofheading }
1522             { note = \l__keythms_tmpa_tl }
1523         }
1524     },
1525     seq .tl_set:N = \l__keythms_listofheading_seq_tl,
1526     unknown .code:n = { } % do nothing with unknown keys
1527     % ~ this is OK because we have total control over possible keys; if invalid
1528     % key is given to theorem then an error will be raised there
1529 }
1530
1531 \cs_new:Npn \__keythms_listof_printheadng:
1532 {
1533     \tl_if_empty:NTF \l__keythms_listofheading_shortnote_tl
1534     {
1535         \tl_if_empty:NF \l__keythms_listofheading_note_tl
1536         { \__keythms_listof_notecmd:n { \l__keythms_listofheading_note_tl } }
1537     }
1538     {
1539         \__keythms_listof_notecmd:n { \l__keythms_listofheading_shortnote_tl }
1540     }
1541 }
1542
1543 \cs_new:Npn \__keythms_listof_default_listcmd:nnnnnnn #1#2#3#4#5#6#7
1544 {
1545     \contentsline{ #1 }
1546     {
1547         \bool_if:NTF \l__keythms_listof_swapnumber_bool
1548         {
1549             \prop_item:Nn \g__keythms_thmnames_prop { #1 } ~ #2
1550         }
1551         {
1552             \numberline{ #2 }
1553             \prop_item:Nn \g__keythms_thmnames_prop { #1 }
1554         }
1555         \__keythms_listof_printheadng:
1556     }
1557     { #4 }{ #3 }
1558 }
1559
1560 % NOTE: We still need to do this setup for [print-body] so that onlynamed works
1561 \cs_new:Npn \__keythms_listof_listcmd_setup:nn #1#2
1562 { % #1 = keys, #2 = list command
1563     \group_begin:
1564     \keys_set:nn { keytheorems/listofheading } { #1 }

```

```

1565 \tl_if_empty:NTF \l__keythms_listofheading_contlabel_tl
1566 { #2 }
1567 {
1568   \bool_if:NF \l__keythms_listof_nocont_bool
1569   {
1570     \tl_if_empty:NF \l__keythms_listofheading_note_tl
1571     {
1572       \tl_put_right:Nn \l__keythms_listofheading_note_tl { , ~ }
1573     }
1574     \tl_put_right:Nn \l__keythms_listofheading_note_tl
1575     {
1576       \__keythms_thmuse_continues:V \l__keythms_listofheading_contlabel_tl
1577     }
1578     #2
1579   }
1580 }
1581 \group_end:
1582 }
1583
1584 % set default listcmd
1585 \cs_new_eq:NN \keythms_listof_listcmd:nnnnnnn
1586   \__keythms_listof_default_listcmd:nnnnnnn
1587
1588 \cs_if_exist:NTF \chapter
1589 { \cs_set:Npn \__keythms_listof_titlecmd:n #1 { \chapter*{#1} } }
1590 { \cs_set:Npn \__keythms_listof_titlecmd:n #1 { \section*{#1} } }
1591
1592 \hook_gput_code:nnn { begindocument } { . }
1593 { % try to detect ams classes
1594   \keythms_if_amsclass:TF
1595   {
1596     \prop_map_inline:Nn \g__keythms_thmnames_prop
1597     {
1598       \cs_set:cpn { l@ #1 }
1599       {
1600         \@tocline{ 0 }{ 3pt plus 2pt }{ 0pt }
1601         { \l__keythms_listof_numwidth_dim }{ }
1602       }
1603     }
1604   }
1605   {
1606     \prop_map_inline:Nn \g__keythms_thmnames_prop
1607     {
1608       \cs_set:cpn { l@ #1 }
1609       {
1610         \@dottedtocline{ 1 }{ 1.5em }
1611         { \l__keythms_listof_numwidth_dim }
1612       }
1613     }
1614   }
1615 }
1616
1617 \keythms_if_amsclass:TF
1618 {
1619   \keys_define:nn { keytheorems/listof } % adjust to class
1620   {
1621     numwidth .initial:n = 1.5pc,
1622   }

```

```

1623 \NewDocumentCommand \listofkeytheorems { 0{} }
1624 { % title command not customizable here
1625   \bool_gset_true:N \g__keythms_listof_writefile_bool
1626   \group_begin:
1627   \keys_set:nn { keytheorems/listof } { #1 }
1628   \bool_if:NT \l__keythms_listof_nochapskip_bool
1629   {
1630     \cs_set_eq:NN \KeyThmsAddvspace \use_none:n
1631   }
1632   \legacy_if_set_false:n { @filesw }
1633   \bool_if:NTF \l__keythms_listof_notitle_bool
1634   {
1635     \@starttoc{ thlist }{ }
1636   }
1637   { % ams classes don't expand title enough
1638     \protected@edef \l__keythms_tmpa_tl { \l__keythms_listof_title_tl }
1639     \@starttoc{ thlist }{ \l__keythms_tmpa_tl }
1640   }
1641   \group_end:
1642 }
1643 }
1644 {
1645   \NewDocumentCommand \listofkeytheorems { 0{} }
1646   {
1647     \bool_gset_true:N \g__keythms_listof_writefile_bool
1648     \group_begin:
1649     \keys_set:nn { keytheorems/listof } { #1 }
1650     \bool_if:NT \l__keythms_listof_nochapskip_bool
1651     {
1652       \cs_set_eq:NN \KeyThmsAddvspace \use_none:n
1653     }
1654     \bool_if:NF \l__keythms_listof_notitle_bool
1655     {
1656       \__keythms_listof_titlecmd:n { \l__keythms_listof_title_tl }
1657       \@mkboth % QUESTION: should this go in titlecmd ?
1658       { \MakeUppercase \l__keythms_listof_title_tl }
1659       { \MakeUppercase \l__keythms_listof_title_tl }
1660     }
1661     \legacy_if_set_false:n { @filesw }
1662     \@starttoc{ thlist }
1663     \group_end:
1664   }
1665 }
1666 % ^ unlike thmtools we don't use the class's style of \listoffigures because
1667 % we want control over title-code, no-title, etc. But this means we have to guess
1668 % things like marks, sectioning command, etc.
1669
1670 \hook_gput_code:nnn { enddocument } { . }
1671 {
1672   \bool_if:NTF \g__keythms_listof_writefile_bool
1673   {
1674     \legacy_if:nT { @filesw }
1675     {
1676       \iow_new:N \tf@thlist
1677       \iow_open:Nn \tf@thlist { \c_sys_jobname_str.thlist }
1678     }
1679   }
1680   { % if .thlist file left over from previous run but not needed, clear it

```



```

1681         \file_if_exist:nT { \c_sys_jobname_str.thlist }
1682         {
1683             \iow_open:Nn \g_tmpa_iow { \c_sys_jobname_str.thlist }
1684             \iow_close:N \g_tmpa_iow
1685         }
1686     }
1687 }
1688
1689 % chapterospacehack (code translated from thmtools)
1690 \cs_new_eq:NN \KeyThmsAddvspace \addvspace
1691 \int_new:N \g_keythms_listof_prevchapter_int
1692 \int_gset:Nn \g_keythms_listof_prevchapter_int { 1 }
1693 % ^ if this is zero, bad things happen if title-code is changed; anyways don't
1694 % need addvspace at top
1695 \cs_new:Npn \keythms_listof_chapterospacehack: { }
1696 \cs_if_exist:cT { c@chapter }
1697 {
1698     \cs_if_eq:NNF \c@chapter \relax
1699     {
1700         \cs_set:Npn \keythms_listof_chapterospacehack:
1701         {
1702             \int_compare:nNnF { \value{chapter} } = { \g_keythms_listof_prevchapter_int }
1703             {
1704                 \addtocontents{ thlist }
1705                 {
1706                     \protect\KeyThmsAddvspace
1707                     { \keythms@listof@chapterospace@dim }
1708                 }
1709                 \int_gset:Nn \g_keythms_listof_prevchapter_int { \value{chapter} }
1710             }
1711         }
1712     }
1713 }
1714
1715 %%%%%%%%%%%%%%%
1716 %%% \Autoref %%
1717 %%%%%%%%%%%%%%%
1718
1719 \ProvideDocumentCommand { \Autoref } { s m }
1720 {
1721     \group_begin:
1722     \cs_set_eq:NN \HyRef@testreftype \__keythms_Autoref_testreftype:w
1723     \IfBooleanTF { #1 } { \autoref*{#2} } { \autoref{#2} }
1724     \group_end:
1725 }
1726
1727 \cs_new:Npn \__keythms_Autoref_testreftype:w #1.#2\
1728 {
1729     \cs_if_exist:cTF { #1 Autorefname }
1730     {
1731         \cs_set:Npe \HyRef@currentHtag
1732         {
1733             \exp_not:N \use:c { #1 Autorefname }
1734             \exp_not:N \c_space_token
1735         }
1736     }
1737     { \msg_warning:nnn { keytheorems } { no-Autorefname } { #1 } }
1738 }

```

```

1739
1740 %%%%%%%%%%%%%%%
1741 %%% Global Keys %%%
1742 %%%%%%%%%%%%%%%
1743
1744 \keys_define:nn { keytheorems }
1745 {
1746   restate-counters .code:n =
1747   {
1748     \clist_map_inline:nn { #1 }
1749     { \tl_new:c { l_keythms_restate_current_##1_tl } }
1750     \clist_gput_right:Nn \g__keythms_restatecounters_clist { #1 }
1751   },
1752   restate-counters .initial:n = equation,
1753   continues-code .cs_set:Np = \__keythms_thmuse_continues:n #1,
1754   continues-code .initial:n =
1755   { % not sure how best to handle this translation
1756     \GetTranslation{keythms_continues}\pageref{#1}
1757   },
1758   qed-symbol .cs_set_protected:Np = \qedsymbol,
1759   overload .code:n = \__keythms_overload_code:,
1760   overload .value_forbidden:n = true,
1761   overload .usage:n = preamble,
1762   thmtools-compat .code:n = \__keythms_thmtoolscompat_code:,
1763   thmtools-compat .value_forbidden:n = true,
1764   thmtools-compat .usage:n = preamble,
1765   store-all .code:n = \__keythms_storeall_code:,
1766   store-all .value_forbidden:n = true,
1767   store-all .usage:n = preamble,
1768   auto-translate .bool_gset:N = \g__keythms_autotranslate_bool,
1769   auto-translate .initial:n = true,
1770 }
1771
1772 \cs_generate_variant:Nn \__keythms_thmuse_continues:n { V }
1773
1774 % \keytheoremset{<options>}
1775 \NewDocumentCommand \keytheoremset { m }
1776 {
1777   \keys_set:nn { keytheorems } { #1 }
1778 }
1779
1780 \cs_new_protected:Npn \__keythms_overload_code:
1781 {
1782   \RenewDocumentCommand { \newtheorem } { smomo }
1783   {
1784     \IfBooleanTF { ##1 }
1785     { \keythms_thm_newkeythm:nn { ##2 } { name=##4, numbered=no } }
1786     {
1787       \IfNoValueTF { ##3 }
1788       {
1789         \IfNoValueTF { ##5 }
1790         { \keythms_thm_newkeythm:nn { ##2 } { name=##4 } }
1791         { \keythms_thm_newkeythm:nn { ##2 } { name=##4, parent=##5 } }
1792       }
1793       { \keythms_thm_newkeythm:nn { ##2 } { name=##4, sibling=##3 } }
1794     }
1795   }
1796 }

```

```

1797
1798 \cs_new_protected:Npn \__keythms_thmtoolscompat_code:
1799 {
1800   \ProvideDocumentCommand { \declaretheoremstyle } { 0{} m }
1801   {
1802     \declarekeytheoremstyle { ##2 } { ##1 }
1803   }
1804   \ProvideDocumentCommand { \declaretheorem } { 0{} m }
1805   {
1806     \newkeytheorem { ##2 } [ ##1 ]
1807   }
1808   \ProvideDocumentEnvironment { restatable } { 0{} m m }
1809   {
1810     \begin{##2}[##1,store=##3]
1811   }
1812   {
1813     \end{##2}
1814     \cs_new:cpn { ##3 }
1815       { % make \foo and \foo* identical
1816         \peek_meaning_remove:NTF *
1817         { \use:c { __keythms_getthm_ ##3 _theorem } }
1818         { \use:c { __keythms_getthm_ ##3 _theorem } }
1819       }
1820   }
1821   \ProvideDocumentCommand { \listoftheorems } { } { \listofkeytheorems }
1822   \ProvideDocumentCommand { \addtotheorempreheadhook } { o m }
1823   {
1824     \IfNoValueTF { ##1 }
1825       { \addtotheoremhooke { prehead } { ##2 } }
1826       { \addtotheoremhooke [ ##1 ] { prehead } { ##2 } }
1827   }
1828   \ProvideDocumentCommand { \addtotheorempostheadhook } { o m }
1829   {
1830     \IfNoValueTF { ##1 }
1831       { \addtotheoremhooke { posthead } { ##2 } }
1832       { \addtotheoremhooke [ ##1 ] { posthead } { ##2 } }
1833   }
1834   \ProvideDocumentCommand { \addtotheoremprefoothook } { o m }
1835   {
1836     \IfNoValueTF { ##1 }
1837       { \addtotheoremhooke { prefoot } { ##2 } }
1838       { \addtotheoremhooke [ ##1 ] { prefoot } { ##2 } }
1839   }
1840   \ProvideDocumentCommand { \addtotheorempostfoothook } { o m }
1841   {
1842     \IfNoValueTF { ##1 }
1843       { \addtotheoremhooke { postfoot } { ##2 } }
1844       { \addtotheoremhooke [ ##1 ] { postfoot } { ##2 } }
1845   }
1846   \clist_new:N \l__keythms_tcbshaded_keys_clist
1847   \clist_new:N \l__keythms_tcbthmbox_keys_clist
1848   \keys_define:nn { keytheorems/thm/shaded }
1849   {
1850     textwidth .code:n = \clist_put_right:Nn \l__keythms_tcbshaded_keys_clist { width=##1 },
1851     bgcolor .code:n = \clist_put_right:Nn \l__keythms_tcbshaded_keys_clist { colback=##1 },
1852     rulewidth .code:n = \clist_put_right:Nn \l__keythms_tcbshaded_keys_clist { boxrule=##1 },
1853     rulecolor .code:n = \clist_put_right:Nn \l__keythms_tcbshaded_keys_clist { colframe=##1 },
1854     margin .code:n = \clist_put_right:Nn \l__keythms_tcbshaded_keys_clist { boxsep=##1 },

```

```

1855 padding .meta:n = { margin=##1 },
1856 leftmargin .code:n = \clist_put_right:Nn \l__keythms_tcbshaded_keys_clist { left~skip=##1 }
1857 rightmargin .code:n = \clist_put_right:Nn \l__keythms_tcbshaded_keys_clist { right~skip=##1 }
1858 }
1859 \keys_define:nn { keytheorems/thm/thmbox }
1860 {
1861   L .code:n =
1862     {
1863       \clist_put_right:Nn \l__keythms_tcbthmbox_keys_clist
1864         { keythms_tcbthmbox_L }
1865     },
1866   M .code:n =
1867     {
1868       \clist_put_right:Nn \l__keythms_tcbthmbox_keys_clist
1869         { keythms_tcbthmbox_M }
1870     },
1871   S .code:n =
1872     {
1873       \clist_put_right:Nn \l__keythms_tcbthmbox_keys_clist
1874         { keythms_tcbthmbox_S }
1875     },
1876   underline .choice:,
1877   underline / true .code:n = {},
1878   underline / false .code:n =
1879     {
1880       \clist_put_right:Nn \l__keythms_tcbthmbox_keys_clist
1881         { boxed~title~style={bottomrule=Opt} }
1882     },
1883   underline .default:n = true,
1884   nounderline .meta:n = { underline=false },
1885   cut .choice:,
1886   cut / true .code:n = {},
1887   cut / false .code:n =
1888     {
1889       \clist_put_right:Nn \l__keythms_tcbthmbox_keys_clist { unbreakable }
1890     },
1891   cut .default:n = true,
1892   nocut .meta:n = { cut=false },
1893   thickness .code:n = % could also add keys to clist with changed dims; which is better?
1894     {
1895       \hook_gput_code:nnn { keytheorems/\l__keythms_thm_envname_tl/prehead }
1896         { keythms_tcbbox }
1897         { \dim_set:Nn \l__keythms_tcbthmbox_thickness_dim { ##1 } }
1898     },
1899   leftmargin .code:n =
1900     {
1901       \hook_gput_code:nnn { keytheorems/\l__keythms_thm_envname_tl/prehead }
1902         { keythms_tcbbox }
1903         { \dim_set:Nn \l__keythms_tcbthmbox_leftmargin_dim { ##1 } }
1904     },
1905   rightmargin .code:n =
1906     {
1907       \hook_gput_code:nnn { keytheorems/\l__keythms_thm_envname_tl/prehead }
1908         { keythms_tcbbox }
1909         { \dim_set:Nn \l__keythms_tcbthmbox_rightmargin_dim { ##1 } }
1910     },
1911   hskip .code:n =
1912     {

```

```

1913     \hook_gput_code:nnn { keytheorems/\l__keythms_thm_envname_tl/prehead }
1914     { keythms_tcbbox }
1915     { \dim_set:Nn \l_keythms_tcbthmbox_hskip_dim { ##1 } }
1916 },
1917 vskip .code:n =
1918 {
1919     \hook_gput_code:nnn { keytheorems/\l__keythms_thm_envname_tl/prehead }
1920     { keythms_tcbbox }
1921     { \dim_set:Nn \l_keythms_tcbthmbox_vskip_dim { ##1 } }
1922 },
1923 }
1924 \dim_new:N \l_keythms_tcbthmbox_thickness_dim
1925 \dim_set:Nn \l_keythms_tcbthmbox_thickness_dim { 0.6pt }
1926 \dim_new:N \l_keythms_tcbthmbox_leftmargin_dim
1927 \dim_set:Nn \l_keythms_tcbthmbox_leftmargin_dim { 0.7\parindent } % use \parindent? thmbox does
1928 \dim_new:N \l_keythms_tcbthmbox_rightmargin_dim
1929 \dim_set:Nn \l_keythms_tcbthmbox_rightmargin_dim { Opt }
1930 \dim_new:N \l_keythms_tcbthmbox_hskip_dim
1931 \dim_set:Nn \l_keythms_tcbthmbox_hskip_dim { 0.2em }
1932 \dim_new:N \l_keythms_tcbthmbox_vskip_dim
1933 \dim_set:Nn \l_keythms_tcbthmbox_vskip_dim { 0.2em }
1934 \msg_new:nnn { keytheorems } { mdfamed-undefined }
1935 {
1936     keytheorems~does~not~define~the~'mdfamed'~key.~
1937     Consider~using~the~'tcolorbox'~key~instead.
1938 }
1939 \keys_define:nn { keytheorems/thm }
1940 {
1941     shaded .code:n =
1942     {
1943         \clist_clear:N \l__keythms_tcbshaded_keys_clist
1944         \keys_set:nn { keytheorems/thm/shaded } { ##1 }
1945         % FIX: surely a better way to do this
1946         \RequirePackage{tcolorbox}
1947         \pgfkeysifdefined{/tcb/keythms_tcbshaded_default/.@cmd} % even worth it?
1948         {}
1949         {
1950             \tcbset % wish I could do this outside of key but can't assume tcb loaded
1951             {
1952                 keythms_tcbshaded_default/.style=
1953                 {
1954                     sharp~corners = all,
1955                     boxrule = Opt,
1956                     left = Opt, right = Opt,
1957                     top = Opt, bottom = Opt,
1958                     parbox = false,
1959                 }
1960             }
1961         }
1962         \keys_set:ne { keytheorems/thm }
1963         {
1964             tcolorbox-no-titlebar =
1965             {
1966                 keythms_tcbshaded_default,
1967                 \l__keythms_tcbshaded_keys_clist
1968             }
1969         }
1970     },

```

```

1971 thmbox .code:n = % adapted from https://tex.stackexchange.com/a/236230/208544
1972 {
1973   \clist_clear:N \l__keythms_tcbthmbox_keys_clist
1974   \keys_set:nn { keytheorems/thm/thmbox } { ##1 }
1975   % FIX: surely a better way to do this
1976   \RequirePackage{tcolorbox}
1977   \tcbuselibrary{skins,breakable}
1978   \pgfkeysifdefined{/tcb/keythms_tcbthmbox_default/.@cmd} % even worth it?
1979   {}
1980   {
1981     \tcbset{
1982       keythms_tcbthmbox_default/.style={
1983         enhanced,
1984         breakable,
1985         sharp~corners=all,
1986         right=\l_keythms_tcbthmbox_hskip_dim,
1987         left=\l_keythms_tcbthmbox_hskip_dim,
1988         top=\l_keythms_tcbthmbox_vskip_dim,
1989         bottom=\l_keythms_tcbthmbox_vskip_dim,
1990         coltitle=black,
1991         frame~engine=empty,
1992         interior~titled~engine=empty,
1993         interior~engine=empty,
1994         extras~broken={
1995           frame~engine=empty,
1996           interior~titled~engine=empty,
1997           interior~engine=empty
1998         },
1999         parbox=false,
2000         % even though frame isn't drawn, makes spacing correct
2001         boxrule=0.5\l_keythms_tcbthmbox_thickness_dim,
2002         attach~boxed~title~to~top~left={
2003           xshift=-\l_keythms_tcbthmbox_leftmargin_dim,
2004         },
2005         boxed~title~style={
2006           empty,
2007           size=minimal,
2008           bottom=0.7ex,
2009           top=0ex,
2010           % ditto
2011           bottomrule=0.5\l_keythms_tcbthmbox_thickness_dim,
2012         },
2013         left~skip=\l_keythms_tcbthmbox_leftmargin_dim,
2014         right~skip=\l_keythms_tcbthmbox_rightmargin_dim,
2015         overlay~unbroken={
2016           \draw[line~width=\l_keythms_tcbthmbox_thickness_dim]
2017             (title.south~west)
2018             --
2019             (title.south~east);
2020           \draw[line~width=\l_keythms_tcbthmbox_thickness_dim]
2021             (frame.north~west)
2022             |-
2023             ([xshift=10mm]frame.south~west);
2024         },
2025         overlay~first={
2026           \draw[line~width=\l_keythms_tcbthmbox_thickness_dim]
2027             (title.south~west)
2028             --

```

```

2029         (title.south~east);
2030     \draw[line~width=\l_keythms_tcbthmbox_thickness_dim]
2031         (frame.north~west)
2032         --
2033         (frame.south~west);
2034     },
2035     overlay~middle={
2036         \draw[line~width=\l_keythms_tcbthmbox_thickness_dim]
2037             (frame.north~west)
2038             --
2039             (frame.south~west);
2040     },
2041     overlay~last={
2042         \draw[line~width=\l_keythms_tcbthmbox_thickness_dim]
2043             (frame.north~west)
2044             |-
2045             ([xshift=10mm]frame.south~west);
2046     }
2047 },
2048 keythms_tcbthmbox_L/.style={
2049     overlay~unbroken={
2050         \draw[line~width=\l_keythms_tcbthmbox_thickness_dim]
2051             (title.south~west)
2052             --
2053             (title.south~east);
2054         \draw[line~width=\l_keythms_tcbthmbox_thickness_dim]
2055             (frame.north~west)
2056             |-
2057             (frame.south~east)
2058             -|
2059             (frame.north~east);
2060     },
2061     overlay~first={
2062         \draw[line~width=\l_keythms_tcbthmbox_thickness_dim]
2063             (title.south~west)
2064             --
2065             (title.south~east);
2066         \draw[line~width=\l_keythms_tcbthmbox_thickness_dim]
2067             (frame.north~west)
2068             --
2069             (frame.south~west);
2070         \draw[line~width=\l_keythms_tcbthmbox_thickness_dim]
2071             (frame.north~east)
2072             --
2073             (frame.south~east);
2074     },
2075     overlay~middle={
2076         \draw[line~width=\l_keythms_tcbthmbox_thickness_dim]
2077             (frame.north~west)
2078             --
2079             (frame.south~west);
2080         \draw[line~width=\l_keythms_tcbthmbox_thickness_dim]
2081             (frame.north~east)
2082             --
2083             (frame.south~east);
2084     },
2085     overlay~last={
2086         \draw[line~width=\l_keythms_tcbthmbox_thickness_dim]

```

```

2087         (frame.north~west)
2088         |-
2089         (frame.south~east)
2090         -|
2091         (frame.north~east);
2092     }
2093 },
2094 keythms_tcbthmbox_M/.style={},
2095 keythms_tcbthmbox_S/.style={ % first and middle same as M
2096     overlay~unbroken={
2097         \draw[line~width=\l_keythms_tcbthmbox_thickness_dim]
2098             (title.south~west)
2099             --
2100             (title.south~east);
2101         \draw[line~width=\l_keythms_tcbthmbox_thickness_dim]
2102             (frame.north~west)
2103             --
2104             (frame.south~west);
2105     },
2106     overlay~last={
2107         \draw[line~width=\l_keythms_tcbthmbox_thickness_dim]
2108             (frame.north~west)
2109             --
2110             (frame.south~west);
2111     }
2112 },
2113 }
2114 }
2115 \keys_set:ne { keytheorems/thm }
2116 {
2117     tcolorbox =
2118     {
2119         keythms_tcbthmbox_default,
2120         \l__keythms_tcbthmbox_keys_clist
2121     }
2122 }
2123 },
2124 thmbox .default:n = M,
2125 mdframed .code:n = \msg_error:nn { keytheorems } { mdframed-undefined },
2126 }
2127 }
2128
2129 \cs_new_protected:Npn \__keythms_storeall_code:
2130 {
2131     \cs_set_eq:NN \__keythms_withhooks_begin:nn \__keythms_grab_begin:nn
2132     \cs_set_eq:NN \__keythms_withhooks_begin:nnn \__keythms_grab_begin:nnn
2133     \cs_set_eq:NN \__keythms_withhooks_begin:nnV \__keythms_grab_begin:nnV
2134     \cs_set_eq:NN \__keythms_withhooks_end:n \__keythms_grab_end:n
2135 }
2136
2137 \hook_gput_code:nnn { begindocument/before } { . }
2138 { % use 'provide' in case user defines their own translation in preamble
2139     \ProvideTranslationFallback { keythms_listof_title } { List~of~Theorems }
2140     \ProvideTranslationFallback { keythms_continues } { continuing~from~p.\, }
2141     \bool_if:NT \g__keythms_autotranslate_bool
2142     {
2143         \ProvideTranslation { English } { keythms_listof_title } { List~of~Theorems }
2144         \ProvideTranslation { English } { keythms_continues } { continuing~from~p.\, }

```



```

2145      % from DeepL; I don't know these languages!
2146      \ProvideTranslation { French } { keythms_listof_title } { Liste~des~théorèmes }
2147      \ProvideTranslation { French } { keythms_continues } { suite~de~la~p.\, }
2148      \ProvideTranslation { German } { keythms_listof_title } { Liste~der~Theoreme }
2149      \ProvideTranslation { German } { keythms_continues } { weiter~von~Seite~ }
2150      \ProvideTranslation { Spanish } { keythms_listof_title } { Lista~de~teoremas }
2151      \ProvideTranslation { Spanish } { keythms_continues } { continúa~de~la~p.\, }
2152    }
2153  }
2154
2155  \ProcessKeyOptions[keytheorems]
2156
2157  \file_input_stop:

```

# Index

`\addtheoremcontentsline`, 11  
`\addtotheoremcontents`, 11  
`\addtotheoremhook`, 11  
`\addtotheorempostfoothook`, 2  
`\addtotheorempostheadhook`, 2  
`\addtotheoremprefoothook`, 2  
`\addtotheorempreheadhook`, 2  
 auto-translate key, 2  
`\Autoref`, 6

bodyfont key, 8  
 break key, 8

chapter-skip-length key, 11

## Commands

`\addtheoremcontentsline`, 11  
`\addtotheoremcontents`, 11  
`\addtotheoremhook`, 11  
`\addtotheorempostfoothook`, 2  
`\addtotheorempostheadhook`, 2  
`\addtotheoremprefoothook`, 2  
`\addtotheorempreheadhook`, 2  
`\Autoref`, 6  
`\declarekeytheoremstyle`, 7  
`\declaretheorem`, 2  
`\declaretheoremstyle`, 2  
`\getkeytheorem`, 8  
`\IfRestatingTF`, 8  
`\keytheoremset`, 9  
`\keytheoremset`, 1  
`\listofkeytheorems`, 9  
`\listoftheorems`, 2  
`\NAME`, 8  
`\newkeytheorem`, 2  
`\newkeytheoremstyle`, 7  
`\NOTE`, 8  
`\NUMBER`, 8  
`\providekeytheoremstyle`, 7  
`\renewkeytheoremstyle`, 7

continues key, 3  
 continues-code key, 2

`\declarekeytheoremstyle`, 7  
`\declaretheorem`, 2  
`\declaretheoremstyle`, 2  
 definition value, 5, 8

## Environments

restatable, 2

`\getkeytheorem`, 8

headfont key, 8  
 headindent key, 8  
 heading key, 4  
 headpunct key, 8  
 headstyle key, 8

`\IfRestatingTF`, 8  
 ignore key, 9  
 ignoreall key, 9

inherit-style key, 8

## Keys

auto-translate, 2  
 bodyfont, 8  
 break, 8  
 chapter-skip-length, 11  
 continues, 3  
 continues-code, 2  
 headfont, 8  
 headindent, 8  
 heading, 4  
 headpunct, 8  
 headstyle, 8  
 ignore, 9  
 ignoreall, 9  
 inherit-style, 8  
 label, 3  
 listhack, 4  
 name, 3, 4  
 no-chapter-skip, 11  
 no-continues, 10  
 no-title, 10  
 note, 3  
 note-code, 10  
 notebraces, 8  
 notefont, 8  
 numbered, 5  
 numberlike, 5  
 numberwithin, 5  
 numwidth, 9  
 onlynamed, 9  
 onlynumbered, 10  
 overload, 2  
 parent, 5  
 postfoothook, 5  
 postheadhook, 5  
 postheadspace, 8  
 prefoothook, 5  
 preheadhook, 5  
 print-body, 10  
 qed, 6  
 qed-symbol, 2  
 Refname, 6  
 refname, 6  
 restate, 3  
 restate-counters, 2  
 seq, 4, 10  
 shaded, 2  
 sharenumber, 5  
 short-name, 3  
 short-note, 3  
 show, 9  
 showall, 10  
 sibling, 5  
 spaceabove, 7  
 spacebelow, 7  
 store, 3  
 store-all, 2  
 style, 5

- swapnumber, 10
- tcolorbox, 6
- tcolorbox-no-titlebar, 7
- thmbox, 2
- thmtools-compat, 2
- title, 4, 10
- title-code, 10
- within, 5
- \keytheoremset, 9
- \keytheoremset, 1
- label key, 3
- listhack key, 4
- \listofkeytheorems, 9
- \listoftheorems, 2
- margin value, 8
- \NAME, 8
- name key, 3, 4
- \newkeytheorem, 2
- \newkeytheoremstyle, 7
- no-chapter-skip key, 11
- no-continues key, 10
- no-title key, 10
- \NOTE, 8
- note key, 3
- note-code key, 10
- notebraces key, 8
- notefont key, 8
- \NUMBER, 8
- numbered key, 5
- numberlike key, 5
- numberwithin key, 5
- numwidth key, 9
- onlynamed key, 9
- onlynumbered key, 10
- overload key, 2
- parent key, 5
- plain value, 5, 8
- postfoothook key, 5
- postheadhook key, 5
- postheadspace key, 8
- prefoothook key, 5
- preheadhook key, 5
- print-body key, 10
- \providekeytheoremstyle, 7
- qed key, 6
- qed-symbol key, 2
- Refname key, 6
- refname key, 6
- remark value, 5, 8
- \renewkeytheoremstyle, 7
- restatable environment, 2
- restate key, 3
- restate-counters key, 2
- seq key, 4, 10
- shaded key, 2
- sharenumber key, 5

- short-name key, 3
- short-note key, 3
- show key, 9
- showall key, 10
- sibling key, 5
- spaceabove key, 7
- spacebelow key, 7
- store key, 3
- store-all key, 2
- style key, 5
- swapnumber key, 10
- swapnumber value, 8
- tcolorbox key, 6
- tcolorbox-no-titlebar key, 7
- thmbox key, 2
- thmtools-compat key, 2
- title key, 4, 10
- title-code key, 10
- unless-unique value, 5
- Values
  - definition, 5, 8
  - margin, 8
  - plain, 5, 8
  - remark, 5, 8
  - swapnumber, 8
  - unless-unique, 5
- within key, 5