

The smartref package*

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The purpose of this package is to extend the capability of the the `\ref` command; precisely, whenever a label is set, this package records, along with the label, the values of some other counters (which, can be selected by the user); then, the value of these counters can be recalled, with a command similar to `\pageref`; moreover, this package adds a command (`\s<name>ref`) for each counter added, that displays something only if the value of the `<name>` counter is changed from when the label is set. For example, let's say that we are using the `amsbook` class, and we are numbering theorems within sections; when we want to refer to a theorem in another section, same chapter, we just say 'as in theorem `\ref{zorn}`'; but if we want to refer to a theorem in another chapter, we have to set a label for that chapter and then say 'as in theorem `\ref{zorn}`, in chapter `\ref{chapterofzorn}`'; if we, later on, move the referenced theorem (or the referencing line) in some other chapter, we might need to update the references; with this package, there's no need for that: you say, at the beginning of the document:

```
\addtocontents{chapter}
```

and then, every `\label` is recorded alongside with the chapter in which it occurred. When we refer to the theorem, we might now say

```
theorem \ref{zorn}, chapter \chapterref{zorn}
```

if we are sure it will always be in another chapter, or

```
theorem \ref{zorn}\schapterref{zorn}
```

*This manual corresponds to `smartref.sty` v1.9, dated 2002/02/28.

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where the second command prints nothing if the chapter is the same as the current, or prints ‘, chap. \chapterref{zorn}’ if the chapter has changed. Since this command sequence is supposed to be used with quite a frequency, it is not-so-short-handed by \srefchapterref (\sref<name>ref, in general).

Here’s a complete list of the commands made available by this package.

```
\addtoreflist{<name>}
```

This is the first command called: it says that the <name> counter is to be recorded alongside with all the (following) labels; please use it *before* defining any label, because the result is unknown if the SmartReference list changes during use (nothing special should happen, anyhow; it should work correctly).

The previous command defines a few commands, whose name depends on the counter chosen. The commands are:

```
\sget<name>val{\<variable>}{<foo>}
```

This command gets the value of counter <name> recorded with label <foo>, and puts this value in the chosen \<variable>.

```
\<name>ref{<foo>}
```

This command prints the value of the counter <name> recorded with label <foo>.

```
\if<name>changed
```

‘If’ construct for the next two commands:

```
\is<name>changed{<foo>}
```

Checks whether the <name> counter is changed from value recorded with <foo>, and sets \<name>changed accordingly

```
\s<name>ref{<foo>}
```

This command prints nothing if the value of <name> is not different, but prints

```
, \short<name>name \<name>ref{<foo>}
```

if the value did change; the \short<name>name should be defined by the user. It queries by using the previous command.

```
\sref<name>ref{<foo>}
```

Equivalent of ‘\ref{<foo>}\s<name>ref{<foo>}’.

The only options accepted, as for now, are `chapter` and `part`; `chapter` does the following:

- adds the `chapter` counter to the smart list
- defines `\shortchaptername` to be ‘Cap.’ if `babel` is loaded with option `italian`, ‘Chap.’ otherwise
- defines `\smartref` to be `\srefchapterref`

`part` does the following:

- adds the `part` counter to the smart list
- defines `\shortpartname` to be ‘Parte’ if `babel` is loaded with option `italian`, ‘Part’ otherwise
- defines `\smartref` to be `\srefpartref` if previously undefined, or adds `\spartref` to previous definition of `\smartref` (saved in `\nopart@smartref`) otherwise (this is mainly to be used after the option `chapter`).

As of version 1.6, the package comes with a small style file:

```
byname.sty;
```

it can be used alone, or within `smartref`, when the option `byname` is used; it adds the command

```
\byname{<label>}
```

that can be used when referencing to a section (subsection, etc) by name instead of number. As of version 1.8, the same style file also provides the command `\byshortname` that does the same as `\byname`, except that it uses the “short” name (the one provided in square brackets).

Note that the references create by `smartref` and `byname` are *not* hyperlink, when `hyperref` is active. Maybe in the future ...

(You can still have “named” links with `hyperref` using the `nameref` style file provided with `hyperref` itself).

* * *

Please send me any bugs, comments, suggestions, hacks, etc etc etc ...

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Heartily thanks to James Kilfiger (mapdn@csv.warwick.ac.uk) whose consulence has been essential (let me say vital) to the birth of this small package in its first revision (v0.1); it was him who gave me the idea to hack the `\label` command, and then encouraged me to put the newborn code in a package (and telling me how to do it!); it was also him

that pointed out a potential bug in documents where chapters don't start on a page on their own (seems that the bug is not present, anyway ...).

TODOs:

- Babel: instead of `\chaptername` (for example), this package uses `\shortchaptername`, and this is not yet changed by Babel; you can set it up to your short form of chapter. Please send me the short names, so that I can implement them.
- Maybe put an option (`long`) to make `\short<name>name` an alias for `\<name>name`
- Options: If the option is not recognized, check if it's a counter, and add it; otherwise, do nothing
- Smartrefs: check for counters that get reset by other counters (section in chapter, etc); maybe link to the `\@addtoreset` internal command ...
- ByName: refine, and add commands to do both references with a single command

History:

v0.1 First release (only did chapter and part).

v1.0 First customizable release.

v1.1 Made it work with HyperRef.

v1.5 Added `nameref.sty`: reference by name.

v1.6 Changed name to `byname.sty`, because of name conflict with style file from the HyperRef bundle.

v1.8 Fixed bugs in `smartref`, changed behaviour for unknown options, fixed bug in `byname` that actually prevented it from functioning properly.

v1.9 Fixed limitation with $\mathcal{A}\mathcal{M}\mathcal{S}\text{-}\mathcal{L}\mathcal{A}\mathcal{T}\mathcal{E}\mathcal{X}$: would not handle `\labels` within equation because $\mathcal{A}\mathcal{M}\mathcal{S}\text{-}\mathcal{L}\mathcal{A}\mathcal{T}\mathcal{E}\mathcal{X}$ redefines the `\label` command for equations.
Made `\smartref` robust.