

## Abstract

The package crefthe provides a command `\crefthe` parallel to cleveref's `\cref` for handling definite articles properly (especially for the article contractions in some European languages).

/ 1 /

## The motivation

1 By default, with cleveref's `\cref` to reference theorem-like environments, the names do not  
2 contain definite articles. While this might be acceptable for English, it is certainly not good  
3 enough for languages such as French, Italian, Portuguese, Spanish, etc. – in these cases there  
4 shall be grammatical errors and would give you a strong feeling that it is machine-generated.  
5 However, even if we manually add the definite articles to the names, there would still be  
6 other problems. As an example, if we define the French names to be:

---

```
\crefname{theorem}{le théorème}{les théorèmes}
\crefname{proposition}{la proposition}{les propositions}
```

---

7 then when one writes (which means “*We can deduce this from ...*”)

---

```
On peut le déduire de \cref{thm1,thm2,prop3}.
```

---

8 the result would be:

```
On peut le déduire de les théorèmes 1 et 2 et la proposition 3.
```

9 which is wrong, as the correct result should be:

```
On peut le déduire des théorèmes 1 et 2 et de la proposition 3.
```

10 `\cref` cannot handle such cases automatically — that is when `\crefthe` comes into play.

/ 2 /

## The usage

### 2.1 | How to load it?

11 Simply load the package with:

---

```
\usepackage{crefthe}
```

---

#### TIP

- Since `crefthe` uses `cleveref` internally, it should usually be placed at the last of your preamble, and notably, after `varioref` and `hyperref`.
- To handle article contractions correctly, `\crefthe` shall detect the current language, thus you need to use packages such as `babel` or `polyglossia` to set your languages, and use commands like `\selectlanguage` to select them appropriately.

## 2.2 | How to use it?

Before everything, you need to define the names, which can be done with `\crefthename`. Its syntax is similar to `\crefname`, but now you can specify the definite articles, for example:

```
\crefthename{theorem}[le]{théorème}[les]{théorèmes}
```

#### TIP

The `\crefthenames` should be placed in your preamble, otherwise the `\cref` formats will not be set. These names can, however, be reset within the document body.

Then you can use the command `\crefthe` as follows:

```
\crefthe[⟨prep⟩]{⟨labels⟩}
```

- This will pass the preposition `⟨prep⟩` to the definite articles that follows. Its behavior depends on the current language (for example, in Spanish, `⟨prep⟩` is passed only to the first definite article, while in French it is passed to everyone).

```
\crefthe- [⟨prep⟩]{⟨labels⟩} and \crefthe+ [⟨prep⟩]{⟨labels⟩}
```

- In case the automatic version does not meet your needs, here are two manual ones. The `-` version passes the preposition `⟨prep⟩` only to the first definite article, while the `+` version passes `⟨prep⟩` to every definite article.

#### TIP

There is also a starred version `\crefthe*` for generating the same referencing text but without creating hyperlinks.

/ 3 /

### Example

Let us come back to the example at the beginning, now you can do this:

```
\crefthename{theorem}[le]{théorème}[les]{théorèmes}
\crefthename{proposition}[la]{proposition}[les]{propositions}
```

And the sentence shall be written as:

```
On peut le déduire \crefthe[de]{thm1,thm2,prop3}.
```

which would result in (provided that you have done `\selectlanguage{french}`):

On peut le déduire des théorèmes 1 et 2 et de la proposition 3.

Voilà !

### Regarding the upper and lower cases

The commands also have corresponding uppercased version: `\Crefthename` and `\Crefthe`, similar to `cleveref`'s `\Crefname` and `\Cref`, reserved for use at the beginning of a sentence. `\Crefthe` can handle case changing automatically: for example, with `\Crefthe[À]{thm1,thm2,prop3}`, you will get something like

Aux théorèmes 1 et 2 et à la proposition 3

Of course you will have to define the `\Crefthenames` separately, for example as:

---

```
\Crefthename{theorem}[Le]{théorème}[Les]{théorèmes}
\Crefthename{proposition}[La]{proposition}[Les]{propositions}
```

---

### For writing multi-language documents

To place hyperlinks at the right place, `\crefthename` touches the corresponding `\crefformat` internally, which makes the format language-dependent. If you are writing multi-language documents, you may consider putting `\crefthename` inside your language configuration so as to reset it each time you select a new language.

### The relationship with cleveref

`crefthe` loads `cleveref` automatically and pass related options to it. All its commands, used without optional arguments, degenerate to those in `cleveref`. For example, `\crefthe{...}` is the same as `\cref{...}`, and `\crefthename` is the same as `\crefname` if the definite articles are not specified. That said, you can safely use the command `\crefthe` everywhere in your document without causing extra trouble.

With the package option `overwrite`, user commands in `cleveref` will be replaced by those offered here, thus you can simply write `\cref` for `\crefthe` – and similarly with `\Cref`, `\crefname` and `\Crefname`.

Known issues

- crefthe currently works for French, Italian, Portuguese (European and Brazilian) and Spanish, certainly more would be added to this list.
- The current mechanism does not work for German. The author plans to adopt a more refined approach in later versions in order to support the various situations in German. Meanwhile, you may consider the package zref-clever, which has a much more powerful and sophisticated interface for configuring cross referencing.
- The names of theorem-like environments are not provided here, you need to define them by yourself. However, users are encouraged to use the ProjLib toolkit (more specifically, the internal package create-theorem), which already handles everything for you.

If you run into any issues or have ideas for improvement, feel free to discuss on:

<https://github.com/Jinwen-XU/crefthe/issues>

or email me via ProjLib@outlook.com.