

The `cleveref` package*

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2018/03/27

摘要

The `cleveref` package enhances L^AT_EX's cross-referencing features, allowing the format of cross-references to be determined automatically according to the “type” of cross-reference (equation, section, etc.) and the context in which the cross-reference is used. The formatting for each cross-reference type can be fully customised in the preamble of your document. In addition, `cleveref` can typeset cross-references to lists of multiple labels, automatically formatting them according to their types, sorting them, and compressing sequences of numerically consecutive labels. Again, the multiple-reference formatting is fully customisable.

`cleveref` 包增强了 L^AT_EX 的交叉引用功能，允许根据交叉引用的“类型”（方程，章节等）和使用交叉引用的上下文自动确定交叉引用的格式。每种交叉引用类型的格式可以在文档的导言部分进行完全自定义。此外，`cleveref` 可以排版多个标签的交叉引用，根据其类型自动格式化它们，对它们进行排序，并压缩数字连续标签的序列。同样，多重引用格式也是完全可自定义的。

Normally, the latest version of the `cleveref` package is available via CTAN. Occasionally, slightly newer “pre-release” versions are available at www.dr-qubit.org/latex.php#cleveref a little before they make their way onto CTAN.

通常，`cleveref` 包的最新版本可以通过 CTAN 获取。偶尔，在它们进入 CTAN 之前，稍微更新的“预发布”版本可以在 www.dr-qubit.org/latex.php#cleveref 上获取。

*This document corresponds to `cleveref` 0.21.4, dated 2018/03/27.

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1 Introduction

介绍

When “clever” is used in the name of a computer program, it usually indicates that the programmer is overly smug about his own achievements. But at the heart of the \LaTeX philosophy also lies the idea that it is clever to delegate as much of the typesetting as possible to the computer, in order to achieve a beautiful — and above all consistent — visual appearance.

当计算机程序的名称中出现“聪明”的时候，通常意味着程序员对自己的成就过于自满。但是，在 \LaTeX 的哲学核心中也包含了一种思想，即尽可能地将排版工作委托给计算机，以实现美观、统一的视觉效果，这是一种聪明的做法。

All of this probably applies to the `cleveref` package. Its goals are two-fold: to exploit all the information that \LaTeX can collect about labels as intelligently as possible (clever processing), allowing you to produce an attractive, consistent formatting of cross-references throughout your document with the minimum of effort (you’d be clever to use it!).

所有这些可能都适用于 `cleveref` 宏包。它的目标有两个：尽可能智能地利用 \LaTeX 可以收集的有关标签的所有信息（巧妙处理），使您能够在文档中以最小的努力产生具有吸引力、一致格式的交叉引用（使用它会很聪明！）。

The `cleveref` package enhances \LaTeX ’s cross-referencing features by automatically formatting cross-references depending on what they refer to (chapter, section, equation, theorem, etc.). It can automatically format cross-references to multiple labels, and can sort lists of multiple cross-references, compresses consecutive labels into a reference range, and all kinds of other clever wizardry. It also does similar things with page references.

`cleveref` 宏包通过自动根据交叉引用指向的对象（章节、公式、定理等）来格式化交叉引用，增强了 \LaTeX 的交叉引用功能。它可以自动格式化多个标签的交叉引用，并可以对多个交叉引用列表进行排序，将连续的标签压缩成一个引用范围，以及各种其他巧妙的技巧。它还可以对页面引用进行类似的处理。

In standard \LaTeX , you have almost certainly found yourself writing things like `Eq.~\ref{eq1}` and `Theorems~\ref{thm1} to~\ref{thm3}` over and over again. Tedium isn’t the only downside to this. What happens if you later decide you want equation references to be typeset as `Equation~\ref{eq1}` instead (i.e. without the abbreviation and without the parentheses)? What hap-

pens if you decide to change the theorem labelled `thm1` into a lemma?¹ What if you move `thm3` so that it appears (and is numbered) before `thm1`, meaning that references to the sequence of theorems 1 through 3 should now be ordered `Theorems~\ref{thm3} to~\ref{thm1}` (i.e. the other way around)? What if you decide you prefer references to multiple theorems to be written as `Theorems~\ref{thm1}--\ref{thm3}`? Any such change requires you to search through the entire L^AT_EX source of your document, modifying all references to equations, updating all references to `thm1`, re-ordering all references to `thm1` and `thm3`, and changing all the formatting of references to multiple theorems.

在标准的 L^AT_EX 中,你几乎肯定会发现自己一遍又一遍地写如 `Eq.(\ref{eq1})` 和 `Theorems\ref{thm1} to\ref{thm3}` 这样的东西。这种繁琐不仅是唯一的缺点。如果你以后决定让方程引用以 `Equation\ref{eq1}` 的形式排版(即不带缩写和括号)会发生什么?如果你决定将标签为 `thm1` 的定理改为引理呢?²如果你将 `thm3` 移动到出现在 `thm1` 之前(并且被编号),这意味着对定理序列 1 到 3 的引用现在应该按顺序排列为 `Theorems\ref{thm3} to\ref{thm1}`(即反过来)?如果你决定将多个定理的引用写成 `Theorems~\ref{thm1}--\ref{thm3}`, 会发生什么?任何这样的更改都需要你搜索整个 L^AT_EX 文档源代码,修改所有方程的引用,更新所有对 `thm1` 的引用,重新排序所有对 `thm1` 和 `thm3` 的引用,并更改所有多个定理的引用的格式。

The `cleveref` package allows you to define the format for the different types of cross-references once-and-for-all in the preamble of your document. (Of course, sane default formats are provided, so you only have to redefine the format if you don't like the default for a particular cross-reference type.) If you later decide to change the format of equation references, you only have to change one preamble definition. If you change a theorem into a lemma, you don't need to change any cross-references at all, because `cleveref` will automatically use the appropriate name when typesetting any cross-references to it. This makes it far easier to typeset cross-references uniformly across your whole document, as well as avoiding repetitively typing similar text for each and every cross-reference.

`cleveref` 软件包允许你在文档的导言部分一次性地定义不同类型的交叉引用

¹Note that to allow `cleveref` to automatically infer the type of theorem, you need to load either the `ntheorem` or the `amsthm` package. See Section 14.1 for more details.

²请注意,要让 `cleveref` 自动推断定理类型,你需要加载 `ntheorem` 或 `amsthm` 包。有关更多详细信息,请参见 Section 14.1。

格式。(当然, 它也提供了合理的默认格式, 因此你只需要重新定义格式, 如果你不喜欢特定交叉引用类型的默认格式。) 如果你后来决定更改方程引用的格式, 你只需要更改一个导言定义。如果你将定理更改为引理, 你不需要更改任何交叉引用, 因为 `cleveref` 将自动在排版任何交叉引用时使用适当的名称。这使得在整个文档中统一排版交叉引用变得更加容易, 同时避免为每个交叉引用重复输入类似的文本。

2 Usage

用法

The `cleveref` package is loaded in the usual way, by putting the line
通常情况下, 可以通过添加以下行来加载 `cleveref` 宏包:

```
\usepackage{cleveref}
```

in your document's preamble. However, care must be taken when using `cleveref` in conjunction with other packages that modify L^AT_EX's referencing system (see Section 13). Basically, `cleveref` must be loaded *last*.

在文档的导言部分中加载 `cleveref`。但是, 在与其他修改 L^AT_EX 引用系统的包一起使用 `cleveref` 时, 必须小心 (参见 Section 13)。基本上, `cleveref` 必须最后加载。

If you just want to get going quickly with `cleveref`, and come back later to read up on all the features it provides in more detail, here's what you need to do. Wherever you would previously have used `\ref`, use `\cref` instead. (Except at the beginning of a sentence, where you should use `\Cref`.) You no longer need to put the name of the thing you're referencing in front of the `\cref` command, because `cleveref` will sort that out for you: i.e. use `\cref{eq1}` instead of `eq.~(\ref{eq1})`. If you want to refer to a range of labels, use the `\crefrange` command: `\crefrange{eq1}{eq5}` produces `eqs.~(1) to~(5)`. If you want to refer to multiple things at once, you can simply throw them all into one cross-reference and leave `cleveref` to sort it out: e.g. `\cref{eq2,eq1,eq3,eq5,thm2,def1}` produces `eqs.~(1) to~(3) and~(5), theorem~5, and definition~1`. Finally, if you want a page reference, use `\cpageref` (and don't write "page" in front), if you want a page range, use `\cpagerefrange`, and if you want to refer to multiple

pages, simply throw them all into a single `\cpageref`. Just as with `\cref` (above), `cleveref` will sort it all out for you automatically.

如果您只是想快速上手使用 `cleveref`, 并稍后再详细了解其提供的所有功能, 那么您需要做以下几步。在以前您会使用 `\ref` 的地方, 现在使用 `\cref` 代替它 (但在句子开头处, 应该使用 `\Cref`)。您不再需要在 `\cref` 命令之前加上所引用的对象的名称, 因为 `cleveref` 将为您解决这个问题: 即使用 `\cref{eq1}` 代替 `eq.(\ref{eq1})`。如果您想引用一系列标签, 请使用 `\crefrange` 命令: `\crefrange{eq1}{eq5}` 将生成 `eqs.(1) to(5)`。如果您想同时引用多个对象, 可以将它们全部放入一个交叉引用中, 让 `cleveref` 帮您排序: 例如 `\cref{eq2,eq1,eq3,eq5,thm2,def1}` 将生成 `eqs.(1) to(3) and(5), theorem5, and definition1`。最后, 如果您想引用某一页, 请使用 `\cpageref` (不要在前面写“页”), 如果您想引用某个页码范围, 请使用 `\cpagerefrange`, 如果您想引用多个页面, 请将它们全部放在一个单独的 `\cpageref` 中。与 `\cref` (上面) 一样, `cleveref` 将自动为您解决所有问题。

`Cleveref` supports a number of languages other than English, and also supports the `babel` and `polyglossia` packages for those languages. Either pass the desired language as an option to `cleveref`, or pass it as a global option to `\documentclass`. Note that if you're writing in a language in which nouns decline, the `\cref` and `\cpageref` commands may be less useful, as they always produce the cross-reference name in the nominative case.³ In such languages, you may instead prefer to use the `\labelcref` and `\labelcpageref` commands. Unlike `\cref` and `\cpageref`, these don't produce the name in front of the cross-reference, so you must supply it (in the appropriate case) yourself. But they do still cope with multi-references, so you still gain some benefit from using `cleveref`.

`Cleveref` 支持除英语以外的多种语言, 并且还支持这些语言的 `babel` 和 `polyglossia` 包。您可以将所需的语言作为选项传递给 `cleveref`, 也可以将其作为全局选项传递给 `\documentclass`。请注意, 如果您使用的语言中存在名词变化, 那么 `\cref` 和 `\cpageref` 命令可能会不太有用, 因为它们总是以主格形式产生交叉引用名称。⁴ 在这种语言中, 您可能更喜欢使用 `\labelcref` 和 `\labelcpageref` 命令。与 `\cref` 和 `\cpageref` 不同, 这些命令不会在交

³Providing separate variants of the `cleveref` commands for each noun case quickly becomes more cumbersome than just typing the cross-reference name by hand. Trying to determine the appropriate case automatically would be tantamount to solving the full natural-language processing problem in `cleveref`. Check back in a century or so for this feature.

⁴为每个名词格提供 `cleveref` 命令的单独变体比手动输入交叉引用名称更加繁琐。试图自动确定适当的语法格将等同于在 `cleveref` 中解决完整的自然语言处理问题。请在一个世纪左右再回来看这个功能。

又引用前面产生名称，因此您必须自己提供它（以适当的形式）。但是它们仍然可以处理多重引用，因此使用 `cleveref` 仍然会带来一些好处。

3 Comparison with Other Packages 与其他包的比较

Given how useful automated cross-reference typesetting is, there are naturally a number of other L^AT_EX packages with similar goals to `cleveref`, most notably `varioref`, `fancyref`, `hyperref`'s `\autoref` command, and (for theorem-like environments) `ntheorem` with the `thref` option. (There are many others, but these come closest to providing similar features to `cleveref`.) However, all have certain deficiencies which `cleveref` attempts to overcome.

自动交叉引用排版非常有用，因此自然会有许多其他的 L^AT_EX 包具有类似于 `cleveref` 的目标，其中最为著名的是 `varioref`、`fancyref`、`hyperref` 的 `\autoref` 命令以及（对于类似定理的环境）带有 `thref` 选项的 `ntheorem`。（还有许多其他的包，但这些最接近于提供与 `cleveref` 相似的功能。）然而，所有这些包都有一定的不足之处，而 `cleveref` 就是试图克服这些不足。

The `fancyref` package doesn't automatically determine the type of thing being referred to. Instead, it relies on you adhering to a naming convention for labels. This is usually a good idea in any case, but it can occasionally be inconvenient. For example, if you change a theorem into a lemma, you have to change the label name, and therefore also all cross-references to it. So with `fancyref`, you will at times be back to searching and replacing label names throughout your document. Not to mention missing out on all the other `cleveref` features, such as automatic sorting and compressing of consecutive references, `ntheorem` and `amsthm` support, precise control over hyperlinks, etc. `fancyref` 包不会自动确定所引用的事物类型。相反，它依赖于您遵循标签的命名约定。这通常是一个好主意，但有时可能会不方便。例如，如果您将一个定理改为引理，则必须更改标签名称，因此也必须更改所有与之相关的交叉引用。因此，使用 `fancyref` 时，您有时需要在整个文档中搜索和替换标签名称。更不用提错过所有其他 `cleveref` 功能，如连续引用的自动排序和压缩，`ntheorem` 和 `amsthm` 支持，对超链接的精确控制等。

The enhanced referencing feature provided by the `varioref` package's

`\labelformat` command decides how to format cross-references when the label is *defined*, rather than when it is *referenced*. Often this isn't a problem. But it makes it impossible to format cross-references according to the context in which they are referenced, which can sometimes be very useful. For example, you may want cross-references at the beginning of a sentence formatted differently to cross-references in the middle of a sentence. E.g. you may want to use the abbreviation “eq.”, but revert to “Equation” at the beginning of sentences (words at the start of sentences shouldn't be abbreviated in English). This is not possible with `varioref`. Perhaps even more significantly, `varioref`'s `\labelformat` implementation makes it impossible to typeset multiple references automatically; if you want to refer to equations `eq1` through `eq3`, with `varioref` you are back to typing `Eqs.~(\ref{eq1}) to~(\ref{eq3})` by hand. Not to mention missing out on all the other `cleveref` features. In fact, `cleveref` fully supports `varioref`, taking over responsibility for typesetting cross-references, whilst retaining (and even enhancing) all the `varioref` page-referencing magic.

`varioref` 包提供的增强引用功能通过 `\labelformat` 命令决定交叉引用的格式化方式，而不是在引用时定义。通常这不是问题。但它使得无法根据引用上下文格式化交叉引用，这有时非常有用。例如，您可能希望在句子开头格式化交叉引用与在句子中间格式化的方式不同。例如，您可能希望使用缩写“eq.”，但在句子开头恢复为“Equation”（英语句子开头的单词不应缩写）。这在 `varioref` 中是不可能的。更重要的是，`varioref` 的 `\labelformat` 实现使得自动排版多个引用不可能；如果您想引用方程 `eq1` 到 `eq3`，使用 `varioref`，您只能手动输入 `Eqs.(\ref{eq1}) to(\ref{eq3})`。更不用说错过所有其他 `cleveref` 功能了。实际上，`cleveref` 完全支持 `varioref`，接管交叉引用的排版责任，同时保留（甚至增强）所有 `varioref` 页面引用的魔术功能。

The `hyperref` package's `\autoref` command typesets a name before a cross-reference, determined by the cross-reference type. This is less flexible than `cleveref`'s fully customisable cross-reference formatting, but, when combined with `varioref`, the two packages working together come pretty close. But surprisingly, even with `hyperref`, it is impossible to customise precisely which part of the cross-reference is made into a hyperlink in PDF documents; this is simple with `cleveref`. And it still remains impossible to typeset multiple references, have consecutive references sorted and compressed automatically, etc.

`hyperref` 宏包的 `\autoref` 命令在交叉引用前面排版一个名称，该名称由交

叉引用类型确定。这比 `cleveref` 的完全可定制交叉引用格式要缺乏灵活性，但是当与 `varioref` 一起使用时，这两个宏包的工作方式非常接近。但令人惊讶的是，即使使用 `hyperref`，也无法精确地定制将交叉引用的哪一部分制成 PDF 文档中的超链接；而这在 `cleveref` 中是很简单的。并且仍然无法排版多个引用，自动排序和压缩连续的引用等。

The `ntheorem` package (with the `thref` option) does the right thing when it comes to how and when the format is defined...except that it only works for theorem-like environments. It is possible to use it for other environments, but only in a bastardized form, by manually supplying an optional argument to every `\label` command to specify the label type. `Cleveref` works equally well with any type of cross-reference, as well as fully supporting `ntheorem`. And again, `cleveref` provides a number of additional features over `ntheorem`, such as multi-references, automatic sorting and compressing of consecutive cross-references, control over the placement of hyperlinks, etc.

`ntheorem` 宏包（带有 `thref` 选项）在定义格式的方式和时间上做得很好……但它只适用于类似定理的环境。虽然可以将其用于其他环境，但只能以一种杂乱无章的形式，通过手动为每个 `\label` 命令提供可选参数来指定标签类型。`Cleveref` 可以同样适用于任何类型的交叉引用，并完全支持 `ntheorem`。而且，`cleveref` 提供了许多额外的功能，如多引用、连续交叉引用的自动排序和压缩、控制超链接的位置等。

4 Typesetting Cross-References

排版交叉引用

`\cref` To automatically typeset a cross-reference according to the type of thing referred to, simply refer to it using `\cref{<label>}`. `Cleveref` imposes just one extra restriction on the names of labels: they are no longer allowed to contain commas “,”. These are instead used to typeset multiple cross-references (see below).

为了根据引用的类型自动排版交叉引用，只需使用 `\cref{<label>}` 来引用即可。`Cleveref` 对标签名称施加了一个额外的限制：它们不再允许包含逗号“,”。相反，逗号被用于排版多个交叉引用（见下文）。

`\Cref` As it is very difficult⁵ for \LaTeX to determine whether a cross-reference appears

⁵Actually, very likely impossible!

at the beginning of a sentence or not, a beginning-of-sentence variant exists: `\Cref{<label>}`. By default, this typesets the cross-reference with the first letter capitalised, and without using an abbreviation in those cases where the standard variant does use one. (However, the formatting of the `\cref` and `\Cref` forms can be fully and independently customised, see Section 8.)

由于对于 L^AT_EX 来说很难（实际上很可能是不可能的）确定交叉引用是否出现在句子开头，因此存在一个句子开头的变体：`\Cref{<label>}`。默认情况下，它将以大写字母开头打印交叉引用，并且在标准变体使用缩写的情况下不使用缩写。（但是，`\cref` 和 `\Cref` 形式的格式可以完全和独立地自定义，参见 Section 8。）

`\crefrange` To typeset a cross-reference range, e.g. Eqs.~(1.1) to~(1.5), use `\crefrange` or `\Crefrange` (depending on the capitalisation you require), which take the beginning and end of the range as arguments:

为了排版交叉引用范围，例如 Eqs.(1.1) to(1.5)，使用 `\crefrange` 或 `\Crefrange`（根据所需的大小写），它们将范围的开始和结束作为参数：

```
\crefrange{<label1>}{<label2>}
```

`\cref` To typeset multiple cross-references, simply list the labels inside the `\cref` or `\Cref` command, separated by commas (recall that you are not allowed to use commas in label names when using `cleveref`):

要排版多个交叉引用，只需在 `\cref` 或 `\Cref` 命令中用逗号分隔列出标签（请注意，当使用 `cleveref` 时，不允许在标签名称中使用逗号）：

```
\cref{<label1>,<label2>,<label3>,...}
```

`\cref*` When `cleveref` is used along with the `hyperref` package (see Sections 8 and 13), additional starred variants of all the referencing commands are available. The standard referencing commands will make cross-references into hyperlinks; the starred variants prevent this, producing the same typeset text but without creating hyperlinks.

当与 `hyperref` 宏包（参见 Sections 8 and 13）一起使用时，`cleveref` 提供了所有引用命令的额外带星号版本。标准引用命令会生成交叉引用超链接；带星号的变体会防止这种情况，生成相同的排版文本但不会创建超链接。

`\cpageref` To typeset a page reference, use `\cpageref{<label>}`, which is typeset e.g. as “page 3”. At the beginning of a sentence, use `\Cpageref` instead. Since

page references are always references to, well...pages, this doesn't gain you so much over `\pageref`. Where `\cpageref` comes into its own is in referring to multiple pages:

要排版页面引用, 请使用`\cpageref{<标签>}`, 例如排版为“第 3 页”。在句子开头, 请改用`\Cpageref`。由于页面引用始终是对页面的引用, 这与`\pageref`相比并没有太大优势。但是, 当引用多个页面时, `\cpageref` 可以发挥其作用:

```
\cpageref{<label1>,<label2>,<label3>,...}
```

`\cpagerefrange` Predictably enough, `\cpagerefrange` and `\Cpagerefrange` are used to typeset references to page ranges:

可以预见到, `\cpagerefrange` 和`\Cpagerefrange` 用于排版页面范围的引用:

```
\cpagerefrange{<label1>}{<label2>}
```

`\ref` `Cleveref` does *not* modify the standard `\ref` or `\pageref` commands, so you can still use them to typeset the formatted label counter or page number alone, without any additional text or formatting.

`Cleveref` 不会修改标准的`\ref` 或`\pageref` 命令, 因此仍然可以使用它们仅排版格式化的标签计数器或页码, 而不需要任何额外的文本或格式。

`\namecref` Occasionally, it's useful to produce just the name of a reference, without the label itself. For example, if you want to refer to “this section”, but you're not sure whether you might later change the section into a chapter, it might be useful to produce just the name “section” associated with the section's label.

`\nameCref` If you later change the section into a chapter, the text will then automatically change to “this chapter”. The `\namecref` and `\nameCref` do exactly this:

有时, 仅需要生成引用的名称, 而不需要标签本身。例如, 如果您想引用“本节”, 但不确定以后是否会将该节更改为章节, 那么仅生成与该节标签相关联的名称“section”可能会很有用。如果以后将该节更改为章节, 则文本将自动更改为“本章”。`\namecref` 和`\nameCref` 正是这样做的:

```
\namecref{sec1}
```

is typeset as “section” (assuming `sec1` labels a section). The `\namecrefs` and `\nameCrefs` commands produce the plural forms. The `\lcnameref` and `\lcnamerefs` commands force the reference name to lowercase, for use when the `capitalise` option is enabled (see Section 7.1). (When that option is set, `\namecref` produces an uppercase reference name.)

会被排版为“section”(假设`sec1` 标签为一个节)。`\namecrefs` 和`\nameCrefs`

命令生成复数形式。`\lcnameref` 和 `\lcnamerefs` 命令强制引用名称为小写形式，以便在启用 `capitalise` 选项时使用（请参见 Section 7.1）。（当设置该选项时，`\nameref` 会生成一个大写的引用名称。）

Note that all these commands can only be passed a *single* reference name; they do *not* accept multi-references like `\cref`. (Passing multiple references to these commands would make little sense if the references had different types, and is redundant if they have the same type.)

请注意，所有这些命令只能接受一个引用名称，它们不接受像 `\cref` 这样的多引用。如果将多个引用传递给这些命令，如果这些引用具有不同的类型，则几乎没有意义，如果它们具有相同的类型，则是冗余的。

There is a slight pitfall that you should be aware of when using the `\nameref` commands. They get the reference name from the names defined for the label's reference type using `\crefname` or `\Crefname` (see Section 8.1.2). The default reference formats provide these definitions. However, it is possible to customise reference formats using lower-level commands that do not create `\crefname` definitions (see Section 8.2). If the `\crefname` definitions are missing for a particular reference type, `\nameref` and `\nameCref` will produce errors for labels of that type. You can fix the error by adding explicit `\crefname` definitions for these types.

在使用 `\nameref` 命令时，需要注意一个小陷阱。该命令从标签的引用类型所定义的名称中获取引用名称，这些名称使用了 `\crefname` 或 `\Crefname` 命令（参见 Section 8.1.2）。默认的引用格式提供了这些定义。然而，可以使用低级命令自定义引用格式，这些命令不会创建 `\crefname` 定义（参见 Section 8.2）。如果特定引用类型的 `\crefname` 定义缺失，那么 `\nameref` 和 `\nameCref` 将会对该类型的标签产生错误。您可以通过为这些类型添加显式的 `\crefname` 定义来修复错误。

`\labelcref` Conversely, it is occasionally convenient to produce just the label part of a reference, without the cross-reference name. For example, this can be useful when writing in a language in which nouns decline. The `\labelcref` command does exactly this, and can also cope with multi-references, processing them just as `\cref` does. However, since it typesets a multi-reference without any name, *all* labels in a `\labelcref` multi-reference *must* be of the same type. 相反，有时仅需要产生引用的标签部分，而不需要交叉引用名称，这样可以在使用名词变化的语言写作时很有用。`\labelcref` 命令正是这样做的，它可以处理多重引用，就像 `\cref` 一样。然而，由于它在没有名称的情况下排版

多重引用，所以 `\labelcref` 多重引用中的所有标签必须是相同的类型。

The `\labelcref` command will typeset cross-reference labels using the default label format if no type-specific format is defined using `\creflabelformat` (see Sections 8.1.1 and 8.1.2). Note that, if you customise reference formats using the low-level commands, you may want to also explicitly define the `\labelcref` formats to match, using the `\labelcrefformat` etc. commands (see Section 8.2).

如果未使用 `\creflabelformat` 定义特定类型的格式，则 `\labelcref` 命令将使用默认标签格式排版交叉引用标签（参见 Sections 8.1.1 and 8.1.2）。请注意，如果您使用低级命令自定义引用格式，则可能还希望使用 `\labelcrefformat` 等命令显式定义 `\labelcref` 格式以匹配（参见 Section 8.2）。

`\labelcpageref` Similarly, `\labelcpageref` typesets the page numbers alone, without inserting “page” in front. Like `\cpageref`, it also handles multi-references. Like `\labelcref`, by default `\labelcpageref` typesets the page numbers using the default label format, customised using `\crefdefaultlabelformat`. If you want to define a separate format for `\labelcpageref`, use `\creflabelformat` to customise the label format for the “page” cross-reference type. (see Section 8.2).

同样地，`\labelcpageref` 只排版页面数字，不在前面插入“page”字样。与 `\cpageref` 一样，它也可以处理多重引用。与 `\labelcref` 类似，默认情况下，`\labelcpageref` 使用默认标签格式来排版页面数字，可以使用 `\crefdefaultlabelformat` 进行自定义。如果您想为 `\labelcpageref` 定义单独的格式，则使用 `\creflabelformat` 自定义“page”交叉引用类型的标签格式（请参见 Section 8.2）。

5 Sorting and Compressing

排序和压缩

When `cleveref` typesets lists of multiple cross-references or page-references, the default behaviour is to automatically sort the list and compress sequences of consecutive cross-references or page numbers into a reference range. You can change this behaviour by supplying one of the following package options: 当 `cleveref` 排版多个交叉引用或页面引用列表时，默认行为是自动对列表进行排序，并将连续的交叉引用或页面编号压缩成引用范围。您可以通过提供以下任一软件包选项来更改此行为：

sort Sort lists of cross-references, but don't compress consecutive references.
对交叉引用列表进行排序，但不压缩连续引用。

compress Compress sequences of consecutive references into a reference range, but don't sort the list of cross-references.
压缩连续引用序列成为引用范围，但不对交叉引用列表进行排序。

nosort Neither sort lists of cross-references, *nor* compress consecutive references.
既不对交叉引用列表进行排序，也不压缩连续引用。

sort&compress Sort lists of cross-references, and compress sequences of consecutive references into a reference range (this is the default).
对交叉引用列表进行排序，并将连续引用序列压缩成为引用范围（这是默认选项）。

Occasionally, you may want to prevent a particular sequence of consecutive cross-references from being compressed to a reference range, without disabling this feature globally. To achieve this, you can separate the cross-references in the list by one or more empty references, at the point at which you want to prevent compression. For example,

有时，您可能希望防止特定的连续交叉引用序列被压缩为参考范围，而不必全局禁用此功能。为了实现这一点，您可以在您希望防止压缩的点上，通过一个或多个空引用将列表中的交叉引用分开。例如，

`\cref{eq1,eq2,eq3,,eq4}`

will be typeset as

eqs. (1) to (3) and (4)

or

`\cref{eq1,eq2,,eq3,eq4,eq5,,eq6,eq7,eq8}`

will be typeset as

eqs. (1), (2), (3) to (5) and (6) to (8)

You can safely put an empty reference between cross-references that would never be compressed anyway; it will simply be ignored.

在交叉引用之间安全地放置一个空引用，这些引用本来就不会被压缩；它将被

简单地忽略。

If lists of cross-references are also being sorted (the default), it can be a little confusing to work out where the empty reference should go in order to prevent compression of a particular consecutive sequence. It's best to think of the empty reference as being “attached” to the cross-reference preceding it. When the list is sorted, the empty reference will still appear after the same preceding reference, and will prevent it being compressed with any subsequent consecutive cross-references. In other words, an empty reference ensures that the preceding reference will appear explicitly in the final, typeset cross-reference: 如果交叉引用列表也正在排序（默认情况下），确定空引用应该放在哪里以防止特定连续序列的压缩可能会有些令人困惑。最好将空引用视为“附加”到前面的交叉引用。当列表排序时，空引用仍将出现在相同的前一个引用之后，并且将防止它与任何后续连续交叉引用压缩。换句话说，空引用确保前面的引用将显式地出现在最终的排版交叉引用中：

```
\cref{eq3,,eq2,eq1,eq6,eq4,eq5}
```

will be typeset as

eqs. (1) to (3) and (4) to (6)

6 Overriding the Cross-Reference Type 覆盖交叉引用类型

\label A label's “type” is usually determined by the name of the counter it refers to, or in the case of `ntheorem` and `amsthm` theorem-like environments by the environment name. However, sometimes it is useful to override the type. `Cleveref` provides two different mechanisms for accomplishing this. 标签的“类型”通常由它所引用的计数器的名称决定，或者在 `ntheorem` 和 `amsthm` 定理环境中，由环境名称决定。然而，有时覆盖类型是很有用的。`Cleveref` 提供了两种不同的机制来实现这一点。

You can alias a counter to a different cross-reference type using the `\crefalias` command:

你可以使用 `\crefalias` 命令将计数器别名为不同的交叉引用类型：

```
\crefalias{<counter>}{<type>}
```

$\langle counter \rangle$ will then use the cross-reference formatting of $\langle type \rangle$. This can be useful if you want multiple counters to use the same cross-reference format. 然后, $\langle counter \rangle$ 将使用 $\langle type \rangle$ 的交叉引用格式。如果您希望多个计数器使用相同的交叉引用格式, 则此功能可能很有用。

Occasionally, you may want to override the cross-reference type for one particular label, one-off. You can do this by supplying the desired type as an optional argument to the `\label` command:

有时, 您可能想要一次性覆盖一个特定标签的交叉引用类型。您可以通过将所需类型作为可选参数提供给 `\label` 命令来实现这一点:

```
\label[ $\langle type \rangle$ ]{ $\langle label \rangle$ }
```

One circumstance in which is useful is when you want to define a special cross-reference format for certain labels of a given type. By supplying a type that doesn't already exist as the optional argument to `\label`, you can then define the cross-reference format for that new type in whatever way you like, without affecting other cross-references of the same type. For example, if a particular equation contains multiple expressions and you want it to always be referred to in the plural, you could use:

有时需要定义特殊的交叉引用格式来处理某些特定类型的标签, 这时候就可以用到这个技巧。通过将不存在的类型作为可选参数传递给 `\label` 命令, 你可以定义新类型的交叉引用格式, 而不会影响到其他相同类型的交叉引用。例如, 如果一个方程包含多个表达式, 你希望它总是以复数形式引用, 那么可以使用以下代码:

```
\crefname{pluralequation}{eqs.}{eqs.}
...
\label[pluralequation]{eq1}
```

You can of course reuse this format for other plural equations, too. 当然, 你也可以将这种格式用于其他复数形式的方程。

If you need to do this frequently, it can become tedious specifying the label explicitly each time. An alternative is to use the `aliascnt` package. This lets you define one counter to be an alias for another, so that effectively the same counter has two names. Since `cleveref` determines the label type from the counter name, the two counter aliases can have different cross-reference formats whilst really being the same counter. You have to somehow arrange

for the correct counter alias to be used depending on which cross-reference format you want (probably by defining two variants of the environment in question). But the effort involved might be worth the convenience of not having to remember to pass an explicit optional argument to a large number of labels.

如果你需要频繁地这样做，每次都显式指定标签可能会变得繁琐。另一种选择是使用 `aliascnt` 宏包。这个宏包可以让你定义一个计数器作为另一个计数器的别名，从而实际上相同的计数器有两个名称。由于 `cleveref` 从计数器名称确定标签类型，这两个计数器别名可以有不同的交叉引用格式，但实际上是同一个计数器。你需要以某种方式安排正确的计数器别名，这取决于你想要哪种交叉引用格式（可能是通过定义相应环境的两个变体来实现）。但是，这样做的努力可能是值得的，因为你不需要记住向大量标签传递显式可选参数的便利性。

You can use this trick to get different cross-reference formats for different theorem-like environments,⁶ *without* using the `amsthm` or `ntheorem` package (although using one of those packages is a better solution if available). For example,

你可以使用这个技巧为不同的定理类环境得到不同的交叉引用格式，⁷ 不用使用 `amsthm` 或 `ntheorem` 宏包（尽管如果可用的话，使用其中一个宏包是更好的解决方案）。例如，

```
\usepackage{aliascnt}
\usepackage{cleveref}
\newaliascnt{lemma}{theorem}
\newtheorem{lemma}[lemma]{Lemma}
\aliascntresetthe{lemma}
\crefname{lemma}{lemma}{lemmas}
```

Note that `aliascnt` must be loaded before `cleveref`, and any `\newaliascnt` commands *must* come *after* `cleveref` has been loaded.

请注意，必须在加载 `cleveref` 之前加载 `aliascnt`，并且任何 `\newaliascnt` 命令必须在加载 `cleveref` 之后。

⁶This trick seems to belong to L^AT_EX mythology, and certainly isn't my own idea! But I haven't been able to definitively track down who originally came up with it.

⁷这个技巧似乎属于 L^AT_EX 神话，肯定不是我的想法！但是我无法确定最初是谁想出来的。

7 Options that Modify the Cross-Reference

Format

修改交叉引用格式的选项

7.1 Capitalising All Cross-Reference Names

大写所有交叉引用名称

`capitalise` Many authors prefer to always capitalise cross-reference names, regardless of where they appear in the sentence, writing Theorem 1 and Equation 3 (as opposed to theorem 1 and equation 3). If you count yourself among this group, you can pass the `capitalise` option to the `cleveref` package (`capitalize` also works).

许多作者喜欢始终将交叉引用名称大写，无论它们在句子中出现的位置如何，例如写作 Theorem1 和 Equation3（而不是 theorem1 和 equation3）。如果您也属于这个群体，可以将 `capitalise` 选项传递给 `cleveref` 宏包（`capitalize` 也可以）。

All the default cross-reference formats will then have the first letter capitalised, as will the automatically generated `\cref` variants (see Sections 8.1.2 and 8.2). (However, if you explicitly define a `\cref` variant to *not* be capitalised, `cleveref` will still honour your definition. In other words, you're responsible for defining the capitalisation correctly in your own format definitions.)

所有默认交叉引用格式的字母都将大写，自动生成的 `\cref` 变体也是如此（详见 Sections 8.1.2 and 8.2）。（但是，如果您明确定义一个不被大写的 `\cref` 变体，`cleveref` 仍将遵守您的定义。换句话说，您需要在自己的格式定义中正确定义大写。）

You should *still* use the `\Cref` variants at the beginning of sentences, for one thing, because abbreviations should not be used at the beginning of a sentence,⁸ and for another, in case you later change your mind and remove the `capitalise` option.

首先，你应该仍然在句子开头使用 `\Cref` 变体，因为缩写词不应该出现在句子开头⁹；另外，如果你后来改变主意并删除 `capitalise` 选项，也可以使用它。

⁸At least in English; I'm not sure about other languages.

⁹至少在英语中是这样；我不确定其他语言是否也是如此。

7.2 Including Names in Hyperlink Targets

在超链接目标中包含名称

nameinlink When using the `hyperref` package, `cleveref` automatically makes all cross-references into hyperlinks to the corresponding reference. By default, only the label itself forms part of the hyperlink target (i.e. the text you can click on to navigate to the cross-reference). The cross-reference name is not part of the hyperlink. By contrast, `hyperref`'s `\autoref` command *does* include the name as part of the hyperlink. If you prefer to include the names in the hyperlinks when using `cleveref`, you can pass the `nameinlink` option to the `cleveref` package. (For even more control over the placement of the hyperlink target, use the commands for customising the cross-reference format. See Section 8.)

使用 `hyperref` 宏包时, `cleveref` 会自动将所有交叉引用转换为超链接, 指向相应的引用。默认情况下, 只有标签本身成为超链接目标的一部分 (即可点击的文本, 用于导航到交叉引用)。交叉引用名称不是超链接的一部分。相比之下, `hyperref` 的 `\autoref` 命令包括名称作为超链接的一部分。如果您希望在使用 `cleveref` 时在超链接中包含名称, 则可以向 `cleveref` 宏包传递 `nameinlink` 选项。(如果您需要更多控制超链接目标的位置, 请使用自定义交叉引用格式的命令。请参见 Section 8。)

However, use of this option is discouraged on stylistic grounds. Firstly, when producing PDF output `hyperref` by default surrounds hyperlinks with red boxes, which looks particularly ugly when the entire cross-reference name is surrounded by a red box (though this unfortunate default can be changed using `hyperref` package options; see the `hyperref` documentation for details). Secondly, and more significantly, when using multi-references only the first reference in a group can include the cross-reference name as part of its hyperlink target, for obvious reasons. The hyperlink targets for the other references in the group will necessarily be just the labels. This makes for somewhat non-uniform typesetting of hyperlinks, with the first cross-reference in a multi-reference having a much larger hyperlink target than the others.

然而, 出于文体上的原因, 不建议使用这个选项。首先, 在生成 PDF 输出时, `hyperref` 默认会用红框框住超链接, 当整个交叉引用名称被红框包围时, 看起来特别丑陋 (虽然可以使用 `hyperref` 包选项更改此不幸的默认设置; 有关详细信息, 请参阅 `hyperref` 文档)。其次, 更重要的是, 当使用多重引用时, 组中仅第一个引用可以将交叉引用名称作为其超链接目标的一部分包含在内,

这是显而易见的。组中其他引用的超链接目标必然只是标签。这导致超链接的排版有些不均匀，在多重引用中，第一个交叉引用的超链接目标比其他引用要大得多。

7.3 Abbreviations in Cross-Reference Names

参考文献中的缩写

noabbrev The default cross-reference names for some languages use common abbreviations for some of the names (e.g. in the default English format, `\cref{eq1}` will be typeset as `eq.~(1)`). Some authors may prefer to always use the full name, rather than an abbreviation (`equation~(1)` instead of `eq.~(1)`). To disable all use of abbreviations in the default cross-reference names, pass the **noabbrev** option to the **cleveref** package.

某些语言的默认交叉引用名称使用一些名称的常见缩写（例如在默认的英语格式中，`\cref{eq1}` 将被排版为 `eq.(1)`）。一些作者可能更喜欢始终使用完整的名称，而不是缩写（例如使用 `equation(1)` 而不是 `eq.~(1)`）。要禁用默认交叉引用名称中所有缩写的使用，请将 **noabbrev** 选项传递给 **cleveref** 宏包。

Note that the default names *never* use abbreviations for the start-of-sentence variants (`\Cref` etc.) This is because in good written English (and likely other languages too), abbreviations should never be used at the beginning of a sentence. Many of \TeX 's default settings (e.g. page margins) are specifically chosen to encourage good typesetting style. **Cleveref** tried to follow the same philosophy. If despite this you insist on using abbreviations at the start of sentences, you will need to customise the start-of-sentence formats yourself.

请注意，默认名称绝不使用缩写形式的开头变体（如 `\Cref` 等）。这是因为在良好的书面英语（以及可能是其他语言）中，句子开头不应使用缩写。许多 \TeX 的默认设置（例如页面边距）都是特别选择的，以鼓励良好的排版风格。**Cleveref** 试图遵循相同的理念。如果您坚持在句子开头使用缩写，您将需要自己定制其格式。

8 Customising the Cross-Reference Formats

自定义交叉引用格式

The `cleveref` package allows you to take full control of the typesetting of cross-references, by allowing the formatting to be customised. Defaults appropriate for English documents are provided for the standard label types,¹⁰ and support for a number of languages is provided via package options (see Section 10). But if you don't like the defaults, or are writing in a language that is not supported yet,¹¹ or you need to refer to something for which no default format is defined, then you can take charge and define your own formats.

`cleveref` 宏包允许您完全控制交叉引用的排版，通过允许自定义格式。针对英语文档提供了适当的默认标签类型，¹² 并通过宏包选项提供了针对多种语言的支持（请参见 Section 10）。但如果您不喜欢默认设置，或正在使用尚未支持的语言，¹³ 或者您需要引用一个没有默认格式定义的内容，则可以掌控自己的格式。

If `cleveref` encounters a cross-reference to a type it does not know, it will produce a “reference type undefined” warning, and typeset the cross-reference as

如果 `cleveref` 遇到一个它不认识的交叉引用类型，它将产生一个“引用类型未定义”的警告，并将交叉引用排版为

?? \ref{<label>}

i.e. the label counter preceded by a double question mark. The error message indicates the name of the unknown cross-reference type, which you will then probably want to define. (References to undefined labels still produce a “reference undefined” warning and appear as a double question mark, as usual.)

¹⁰For any pedantic classics scholars out there: “lemmas” is recognised as a valid plural form of “lemma” in all current versions of the Oxford English Dictionary. “Lemmata” was last heard in a mathematical debate that took place in a pub just around the corner from Hadrian’s wall...a few years before the Romans pulled out of Britain. `Cleveref` might have “clever” in its name, but even that doesn’t make it pretentious enough to use “lemmata” for the plural of “lemma”.

¹¹Any contributions of translations for missing languages are very welcome! See Section 14.3 for information on how to contribute translations.

¹²对于那些追求完美的古典学者们：在所有当前版本的牛津英语词典中，“lemmas”被认为是“lemma”的有效复数形式。在罗马人从不列颠撤军几年前发生的一次数学辩论中，听到了“lemmata”这个词……。尽管 `Cleveref` 在名称中有“聪明”的意思，但即使这样，也不足以让它使用“lemmata”作为“lemma”的复数形式，因此在标准标签类型中没有提供“lemmata”。

¹³欢迎为缺失语言贡献翻译！有关如何贡献翻译的信息，请参见 Section 14.3。

即标签计数器前面有两个问号。错误消息指出未知交叉引用类型的名称，然后您可能需要定义它。（对未定义标签的引用仍然会产生“引用未定义”的警告，并像往常一样显示为双问号。）

The cross-reference formats are usually constructed out of components: the cross-reference name (different for each type of cross-reference), the format for the label itself, and the conjunctions used in reference ranges and lists of multiple cross-references. There are two levels of customisation: you can either customise the components, or you can take full control and override the component-derived format entirely.

交叉引用格式通常由以下组成部分构成：交叉引用名称（每种交叉引用类型不同）、标签本身的格式以及引用范围和多个交叉引用列表中使用的连接词。有两个级别的自定义：您可以自定义组件，也可以完全控制并覆盖组件派生的格式。

`Cleveref` treats page references, as produced e.g. by `\cpageref`, as cross-references with the type “page”. Therefore, all of the mechanisms for customising cross-references apply equally well to page references, simply by using “page” as the cross-reference type.

`Cleveref` 将由 `\cpageref` 产生的页面引用视为带有“页面”类型的交叉引用。因此，通过将“页面”作为交叉引用类型，所有自定义交叉引用的机制同样适用于页面引用。

8.1 Customising the Cross-Reference Components

自定义交叉引用组件

8.1.1 Global Customisation

全局自定义

The global customisation commands affect all cross-reference formats, unless they are overridden by lower-level customisation commands.

全局自定义命令会影响所有交叉引用格式，除非它们被低级别自定义命令覆盖。

`\crefdefaultlabelformat` The format for the label counter itself can be customised globally using 可以使用以下方式全局自定义标签计数器的格式：

```
\crefdefaultlabelformat{<format>}
```

The $\langle format \rangle$ argument can be any valid L^AT_EX code, though you will need to \backslashprotect fragile commands. It can (and almost certainly should!) contain three arguments, #1, #2 and #3. The first argument is the formatted version of the label counter (e.g. \backslashthesection). The other two are used to mark the beginning and end of the part of the cross-reference that should form the hyperlink when the `hyperref` package is used (see Section 13). For example, if you wanted to surround all labels with square brackets, without the square brackets themselves being part of the hyperlink, you would need:

其中, $\langle format \rangle$ 参数可以是任何有效的 L^AT_EX 代码, 但你需要使用 \backslashprotect 命令保护脆弱的命令。它可以 (并且几乎肯定应该) 包含三个参数: # 1、# 2 和 # 3。第一个参数是标签计数器的格式化版本 (例如: \backslashthesection)。其他两个参数用于标记跨引用的部分的开始和结束。当使用 `hyperref` 宏包时, 它们应该形成超链接 (参见 Section 13)。例如, 如果你想要将所有标签用方括号括起来, 而方括号本身不是超链接的一部分, 则需要使用以下代码:

```
 $\crefdefaultlabelformat{[#2#1#3]}$ 
```

The hyperlink arguments #2 and #3 *must* appear in that order. (Leaving them out completely will not cause an error, but in that case no hyperlink will be created when `hyperref` is used, and there are better ways to achieve this. See Sections 4 and 13.)

超链接参数 # 2 和 # 3 必须按照这个顺序出现。(完全省略它们不会导致错误, 但在这种情况下, 在使用 `hyperref` 时将不会创建任何超链接, 并且有更好的方法来实现这一点。请参见 Sections 4 and 13。)

Note that the default format for equation cross-references already overrides $\backslashcrefdefaultlabelformat$ in order to surround the label with parentheses, so the redefining $\backslashcrefdefaultlabelformat$ will have no effect on equations. The label format for equations must be customised separately if you want to change it (see Section 8.1.2).

请注意, 方程交叉引用的默认格式已经覆盖了 $\backslashcrefdefaultlabelformat$, 以便使用括号括起标签, 因此重新定义 $\backslashcrefdefaultlabelformat$ 对方程没有影响。如果您想要更改方程的标签格式, 则必须单独自定义它 (参见 Section 8.1.2)。

$\backslashcrefrangeconjunction$ The conjunction used in a reference range can be customised by defining $\backslashcrefrangeconjunction$:

在参考范围中使用的连词可以通过定义 $\backslashcrefrangeconjunction$ 进行自定义:

```
\newcommand{\crefrangeconjunction}{\langle conjunction\rangle}
```

It does not have to be an actual conjunction in the linguistic sense, e.g. it is perfectly reasonable to define it to be an endash “--”. `\crefrangeconjunction` is used directly between the start and end references in a reference range, without any additional space surrounding it, e.g. `\crefrange{thm1}{thm2}` is typeset as

在语言学意义上，它不必是实际的连词，比如说，我们可以完全合理地将其定义为一个破折号 “--”。在引用范围内，`\crefrangeconjunction` 直接用于起始和结束引用之间，不需要任何额外的空格，例如，`\crefrange{thm1}{thm2}` 的排版如下：

```
theorems~\ref{thm1}\crefrangeconjunction\ref{thm2}
```

so you may or may not want to include surrounding space, depending on the formatting you desire. For example,

因此，你可能会或者不会想要包含周围的空间，这取决于所需的格式。例如，

```
\newcommand{\crefrangeconjunction}{ and~}
```

does require surrounding space, whereas
需要周围的空间，而另一个则不需要。

```
\newcommand{\crefrangeconjunction}{--}
```

does not.

`\crefrangepreconjunction` There are two other “conjunction” commands available for customizing the
`\crefrangepostconjunction` formatting for reference ranges. These are `\crefrangepreconjunction` and
 `\crefrangepostconjunction`, which insert text before the first label defining
 the range, and after the second label, respectively. For example, when these
 commands are defined, `\crefrange{thm1}{thm2}` is typeset as
有两个其他的“连接词”命令可用于定制引用范围的格式。它们分别是
`\crefrangepreconjunction` 和 `\crefrangepostconjunction`，它们在定义
范围的第一个标签之前和第二个标签之后插入文本。例如，当定义了这些命令
时，`\crefrange{thm1}{thm2}` 将被排版为：

```
theorems~\crefrangepreconjunction\ref{thm1}  
          ➡\crefrangeconjunction\ref{thm2}\crefrangepostconjunction
```

These commands are not used in the default English format definitions, but

they are needed in some languages to correctly express a range. For example, the Italian format defines `\crefrangepreconjunction` to be “da”, so that `\crefrange{thm1}{thm2}` produces

这些命令在默认的英语格式定义中没有使用，但在一些语言中需要使用它们来正确地表示范围。例如，意大利格式定义了 `\crefrangepreconjunction` 为 “da”，因此 `\crefrange{thm1}{thm2}` 会产生... 的结果。

```
teorema da~\ref{thm1} a~\ref{thm2}
```

`\crefpairconjunction` The conjunctions used in lists of multiple cross-references can be customised by
`\crefmiddleconjunction` defining the commands `\crefpairconjunction`, `\crefmiddleconjunction`
`\creflastconjunction` and `\creflastconjunction`:
 可以通过定义命令 `\crefpairconjunction`、`\crefmiddleconjunction` 和 `\creflastconjunction` 来自定义多个交叉引用列表中使用的连词。

```
\newcommand{\crefpairconjunction}{\langle conjunction\rangle}
\newcommand{\crefmiddleconjunction}{\langle conjunction\rangle}
\newcommand{\creflastconjunction}{\langle conjunction\rangle}
```

`\crefpairconjunction` is used when there are only two cross-references in the list, `\creflastconjunction` is used between the penultimate and final cross-reference in a list of more than two, and `\crefmiddleconjunction` is used between all the others. Again, they do not have to be conjunctions in the linguistic sense, and the same considerations about surrounding space apply as in the case of `\crefrangeconjunction`. For example, the default definition of

当列表中只有两个交叉引用时，使用 `\crefpairconjunction`，当列表中有超过两个交叉引用时，在倒数第二个和最后一个交叉引用之间使用 `\creflastconjunction`，在所有其他交叉引用之间使用 `\crefmiddleconjunction`。同样，它们在语言上不必是连接词，关于周围空间的考虑与 `\crefrangeconjunction` 的情况相同。例如，`\crefmiddleconjunction` 的默认定义是：`\crefmiddleconjunction` is:

```
\newcommand{\crefmiddleconjunction}{, }
```

`\crefpairgroupconjunction` By default, the conjunctions used to separate sub-lists of different cross-
`\crefmiddlegroupconjunction` reference types in a multi-reference are identical to those used to separate
`\creflastgroupconjunction` cross-references of the same type.¹⁴ You can override this by defining the con-

¹⁴More accurately, if you redefine `\crefpairconjunction` etc. in your preamble,

junction commands `\crefpairgroupconjunction`, `\crefmiddlegroupconjunction` and `\creflastgroupconjunction`.

默认情况下,用于分隔多重引用中不同交叉引用类型的子列表的连接词与分隔相同类型交叉引用所使用的连接词相同。¹⁵您可以通过定义 `\crefpairgroupconjunction`、`\crefmiddlegroupconjunction` 和 `\creflastgroupconjunction` 来覆盖此设置。

For example,

```
\cref{eq1,eq2,eq3,thm1,thm2,fig1,thm3}
```

is typeset as

```
eqs. (1)\crefrangeconjunction(3)\crefmiddlegroupconjunction
theorems 1\crefpairconjunction2\crefmiddlegroupconjunction
fig. 1\creflastgroupconjunction{}theorem 3
```

8.1.2 Customising Individual Cross-Reference Types

自定义单个交叉引用类型

`\crefname` The cross-reference name for a given cross-reference type is customised using the `\crefname` and `\Crefname` commands:

使用 `\crefname` 和 `\Crefname` 命令可以自定义给定交叉引用类型的交叉引用名称:

```
\crefname{<type>}{<singular>}{<plural>}
\Crefname{<type>}{<singular>}{<plural>}
```

used by the `\cref` and `\Cref` commands, respectively. You must supply both `<singular>` and `<plural>` forms of the name. If the corresponding `\Crefname` is undefined when `\crefname` is called, it will automatically define `\Crefname` to be a capitalised version of `\crefname`, using `\MakeUppercase`. Conversely, if the corresponding `\crefname` is undefined when `\Crefname` is called, it will automatically define `\crefname` to be a lower-case version of `\Crefname`, using

`\crefpairgroupconjunction` etc. are automatically redefined so that they match. (In some languages, the default definition of `\creflastgroupconjunction` has an additional comma lacking in `\creflastconjunction`.)

¹⁵更准确地说,如果在导言区中重新定义 `\crefpairconjunction` 等命令,则 `\crefpairgroupconjunction` 等命令会自动重新定义为相匹配的命令。(在某些语言中, `\creflastgroupconjunction` 的默认定义中多了一个逗号,与 `\creflastconjunction` 不同。)

`\MakeLowercase`. Obviously, this will only work properly if the names begin with a letter. If the first letter is a special character construct, such as an accented character, you will need to surround it by braces. If the first thing in the name is *not* a letter at all (e.g. if it is a \LaTeX command), you *must* define both capitalisation variants explicitly. Otherwise you will get strange and fatal errors when processing the document.

分别由 `\cref` 和 `\Cref` 命令使用。您必须提供名称的 $\langle singular \rangle$ 和 $\langle plural \rangle$ 形式。如果在调用 `\crefname` 时对应的 `\Crefname` 未定义, 则它将自动定义为使用 `\MakeUppercase` 的 `\crefname` 的大写版本。反之, 如果在调用 `\Crefname` 时未定义相应的 `\crefname`, 则它将自动定义为使用 `\MakeLowercase` 的 `\Crefname` 的小写版本。显然, 这只有在名称以字母开头时才能正常工作。如果第一个字母是特殊字符构造, 例如带重音的字符, 则需要将其括在花括号中。如果名称中的第一件事不是字母 (例如, 如果它是一个 \LaTeX 命令), 则您必须明确定义两个大小写变体。否则, 在处理文档时会出现奇怪和致命的错误。

The cross-reference $\langle type \rangle$ is usually the name of the counter for the environment (equation, chapter, section, etc.). The exceptions are appendices, labels whose type has been overridden explicitly by supplying an optional argument (see Section 6), and theorem-like environments when the `ntheorem` of `amsthm` packages are loaded, for which $\langle type \rangle$ should instead be the environment name (lemma, corollary, definition, etc.) even when different environments are part of the same numbering sequence. (`ntheorem` and `amsthm` provide extra information about the environment when different theorem-like environments share a common counter, which `cleveref` makes use of to distinguish between them automatically.) In the case of appendices, the $\langle type \rangle$ is “appendix” for the top-level sectioning command (`\chapter` or `\section`, depending on the document class), “subappendix” for the sectioning command one level below (`\section` or `\subsection`), “subsubappendix” for the next level of sectioning command, etc.

交叉引用 $\langle type \rangle$ 通常是环境的计数器名称 (如方程、章节、节等)。例外包括附录、标签类型明确被覆盖以提供可选参数的标签 (参见 Section 6), 以及当加载 `ntheorem` 或 `amsthm` 包中的定理环境时, $\langle type \rangle$ 应该是环境名称 (引理、推论、定义等), 即使不同环境属于同一编号序列。(`ntheorem` 和 `amsthm` 在不同定理环境共享一个计数器时提供额外信息, `cleveref` 利用该信息自动区分它们。) 在附录的情况下, $\langle type \rangle$ 对于顶层分节命令 (`\chapter` 或 `\section`, 取决于文档类) 是 “appendix”, 对于下一级分节命令 (`\section` 或 `\subsection`)

是“subappendix”，对于下一级分节命令是“subsubappendix”等。

For convenience, if they have not been otherwise customised by the end of the preamble, the cross-reference name (and label format) for `subsection` is by default inherited from that of `section`, and that of `subsubsection` is inherited from `subsection` (which might itself have been inherited from `section`). Similarly for `subappendix`, `subsubappendix` and `subsubsubappendix`. The `enumii`, `enumiii`, `enumiv` and `enumv` formats each inherit from the preceding one, with `enumii` inheriting from `enumi`. Finally, `subfigure`, `subtable` and `subequation` inherit from `figure`, `table` and `equation`, respectively.

为了方便起见,在导言部分结束时,如果没有进行其他自定义,那么 `subsection` 的交叉引用名称(和标签格式)默认继承自 `section`, 而 `subsubsection` 的交叉引用名称则继承自 `subsection` (后者本身可能已经继承自 `section`)。同样地, `subappendix`、`subsubappendix` 和 `subsubsubappendix` 也是如此。`enumii`、`enumiii`、`enumiv` 和 `enumv` 格式都是从前一个格式继承而来, 其中 `enumii` 继承自 `enumi`。最后, `subfigure`、`subtable` 和 `subequation` 分别继承自 `figure`、`table` 和 `equation`。

If some of the format components for one of these reference types have been customised using high-level customisation commands, any remaining components are inherited from the parent type, and the cross-reference formats are then defined in terms of those components. (In this case, if the format for the parent type has been customised using low-level commands, this low-level customisation will *not* be inherited.) If *none* of the format components have been customised, the whole format is always inherited from the parent type. 如果这些参考类型中的某些格式组件已使用高级自定义命令进行自定义, 则其余组件将继承自父类型, 并且交叉引用格式将根据这些组件定义。(在这种情况下, 如果使用低级命令自定义了父类型的格式, 则不会继承此低级自定义。) 如果没有格式组件被自定义, 则整个格式始终继承自父类型。

`\creflabelformat` You may want the label format for a particular cross-reference type to differ from the global format set by `\crefdefaultlabelformat` (see Section 8.1.1). You can do this using

您可能希望特定交叉引用类型的标签格式与由 `\crefdefaultlabelformat` (请参见 Section 8.1.1) 设置的全局格式不同。您可以使用以下命令来完成:

```
\creflabelformat{<type>}{<format>}
```

The `<type>` argument is the cross-reference type to customise, and the `<format>`

argument defines the label format for cross-references of that type. As in the case of

`\crefdefaultlabelformat`, the latter should contain the three arguments `#1`, `#2` and `#3`, the first being the formatted version of the label counter, the others determining the beginning and end of the portion that becomes a hyperlink when the `hyperref` package is loaded (see Section 13). `#2` and `#3` *must* appear in that order.

其中, $\langle type \rangle$ 参数是要自定义的交叉引用类型, $\langle format \rangle$ 参数定义该类型交叉引用的标签格式。与 `\crefdefaultlabelformat` 一样, $\langle format \rangle$ 应包含三个参数 `#1`, `#2` 和 `#3`, 第一个是标签计数器的格式化版本, 其他两个则确定在加载 `hyperref` 宏包时形成超链接的部分的开头和结尾 (请参见 Section 13)。`#2` 和 `#3` 必须以这个顺序出现。

`\crefrangelabelformat` Normally, the start and end references in a reference range are typeset using the usual label format (as defined by `\crefdefaultlabelformat` or `\creflabelformat`) separated by `\crefrangeconjunction` (Section 8.1.1). You can override this for a given cross-reference type using
通常, 在引用范围内的起始和结束引用会使用通常的标签格式 (由 `\crefdefaultlabelformat` 或 `\creflabelformat` 定义) 分隔, 使用 `\crefrangeconjunction` 进行分隔 (参见 Section 8.1.1)。您可以使用 `\crefrangelabelformat` 为给定的交叉引用类型覆盖此设置。

`\crefrangelabelformat{\langle type \rangle}{\langle format \rangle}`

The $\langle format \rangle$ argument should contain six arguments: `#1`, `#2`, `#3`, `#4`, `#5`, `#6`. The first two (`#1` and `#2`) are the formatted versions of the two label counters defining the reference range. The next two (`#3` and `#4`) denote the beginning and end of the hyperlink for the first reference, the final two (`#5` and `#6`) the hyperlink for the second reference. The hyperlink arguments *must* appear in order. For example,

$\langle format \rangle$ 参数应包含六个参数: `#1`, `#2`, `#3`, `#4`, `#5`, `#6`。前两个 (`#1` 和 `#2`) 是定义引用范围的两个标签计数器的格式化版本。接下来的两个 (`#3` 和 `#4`) 表示第一个引用的超链接的开始和结束, 最后两个 (`#5` 和 `#6`) 表示第二个引用的超链接。超链接参数必须按顺序出现。例如,

`\crefrangelabelformat{equation}{(\#3\#1\#4) to~(\#5\#2\#6)}`

8.1.3 Automatic `\newtheorem` Definitions

自动 `\newtheorem` 定义

`\newtheorem` The standard L^AT_EX `\newtheorem` command for defining new theorem-like environments provides enough information to deduce a reasonable cross-reference name for the new environment. So `cleveref` automatically defines an appropriate cross-reference name for new theorem-like environments. This automatic definition is only used if no default definition is provided by `cleveref` itself, and if no `\crefname` or `\Crefname` definition is given explicitly (see Section 8.1.2).

标准 L^AT_EX 的 `\newtheorem` 命令用于定义新的类似定理的环境，提供了足够的信息来推断出新环境的合理交叉引用名称。因此，`cleveref` 自动为新的类似定理的环境定义适当的交叉引用名称。仅当 `cleveref` 本身没有提供默认定义，并且没有显式给出 `\crefname` 或 `\Crefname` 定义时才使用此自动定义（参见 Section 8.1.2）。

The caveat with this automatic definition is that, although `\newtheorem` essentially provides the singular form of the cross-reference name, it doesn't provide the plural form. And there is no reliable way of constructing the plural form from the singular.¹⁶ Therefore, if the plural form is ever required, `cleveref` will produce a “reference type undefined” warning, and typeset the cross-reference where the plural form is required as:

自动定义的一个警告是，虽然 `\newtheorem` 基本上提供了交叉引用名称的单数形式，但它并没有提供复数形式。而且从单数形式构建复数形式也没有可靠的方法。¹⁷因此，如果需要复数形式，`cleveref` 将产生“引用类型未定义”的警告，并将所需复数形式的交叉引用排版为：

?? `\ref{<label>}` ...

In this case, you will have to provide an explicit `\crefname` or `\Crefname` definition yourself, to define the plural form as well as the singular form.

在这种情况下，您将需要自己提供显式的 `\crefname` 或 `\Crefname` 定义，以定义复数形式以及单数形式。

¹⁶If you're a native English-speaker, you might think that just adding an 's' would work, though a moment's thought will provide examples of words where this will fail. If you're a non-English speaker, it probably won't even occur to you to claim that plurals can reliably be constructed automatically!

¹⁷如果你是以英语为母语的人，你可能会认为只需添加“s”即可，尽管稍加思考即可提供其中会失败的单词的示例。如果你不是以英语为母语的人，你可能甚至不会想到要自动构建复数形式！

Note that this has *nothing whatsoever* to do with automatically determining the type of theorem-like environment in a cross-reference! For that, you need to load either the `ntheorem` or the `amsthm` package. See Section 14.1 for more details.

注意,这与自动确定交叉引用中定理类环境的类型毫无关系!要实现这一点,您需要加载 `ntheorem` 或 `amsthm` 包。有关更多详细信息,请参见 Section 14.1。

8.2 Low-Level Customisation: Taking Full Control

低级自定义: 完全掌控

If you need more precise control over the cross-reference format than is possible by customising the individual components, then you can take full control of the format for any given type, overriding the component-derived format entirely. The formats for single cross-references, reference ranges and multi-references are customised separately. If you only customise some of these, the other formats will be constructed from components, as usual.

如果您需要比自定义单个组件更精确地控制交叉引用格式,那么您可以完全掌控任何给定类型的格式,完全覆盖基于组件的格式。单个交叉引用、参考范围和多参考的格式分别进行自定义。如果您只自定义了其中一些,那么其他格式将像往常一样从组件构建。

Note that when deciding which cross-references should be grouped together for sorting and/or compressing, `cleveref` does something slightly more complicated than simply checking whether the reference types match. In fact, it checks whether the reference *formats* match.¹⁸ This will always be the case for cross-references of the same type. But it could also be the case for cross-references that have different types, if the cross-reference formats happen to be identical.

请注意,当决定哪些交叉引用应该被分组以进行排序和/或压缩时,`cleveref`所做的事情比仅仅检查引用类型是否匹配稍微复杂一些。实际上,它检查引用的格式是否匹配。¹⁹这对于具有相同类型的交叉引用始终是成立的。但如果交叉引用格式恰好相同,那么具有不同类型的交叉引用也可能是这种情况。

The reason for doing this is to allow cross-references to e.g. sections and sub-sections to be grouped together if they have identical formats. The default

¹⁸To be precise, `cleveref` checks whether the `\crefformat` definitions match.

¹⁹确切地说,`cleveref` 检查 `\crefformat` 定义是否匹配。

formats for the sectioning commands, figures and subfigures, tables and subtables, and enumerated lists are set up in this way. If you change any of them using the low-level customisation commands, but still want them to be grouped together, then you must ensure that the formats are *identical*. (It is *not* sufficient for the formats to produce identical typeset text; the format definitions must contain identical L^AT_EX code.)

这样做的原因是为了允许交叉引用，例如将章节和子章节按照相同的格式分组。章节命令、图形和子图形、表格和子表格、以及枚举列表的默认格式都是这样设置的。如果您使用低级别的自定义命令更改其中任何一个，但仍希望它们被分组在一起，则必须确保它们的格式是相同的。（仅在格式产生相同排版文本是不够的；格式定义必须包含相同的 L^AT_EX 代码。）

Note that if you use the low-level customisation commands, you might still want to provide `\crefname` and `\Crefname` definitions too, so that the `\namecref` commands will work (see Section 4).

请注意，如果您使用低级别的自定义命令，您可能仍然需要提供 `\crefname` 和 `\Crefname` 的定义，以便 `\namecref` 命令可以正常工作（见 Section 4）。

8.2.1 Single Cross-References

单一交叉引用

`\crefformat` Cross-reference formats for *single* cross-references are defined or redefined using the `\crefformat` and `\Crefformat` commands, which are used by the `\cref` and `\Cref` commands respectively. These take two arguments: the cross-reference type, and the formatting code:

使用 `\crefformat` 和 `\Crefformat` 命令来定义或重新定义单一交叉引用的交叉引用格式，这些命令分别由 `\cref` 和 `\Cref` 命令使用。它们需要两个参数：交叉引用类型和格式代码：

```
\crefformat{<type>}{<format>}
\Crefformat{<type>}{<format>}
```

The `<type>` is usually the name of the counter, except for labels whose type has been overridden explicitly (see Section 6), theorem-like environments *when the ntheorem or amsthm package is loaded*, in which case it is the environment name, and appendices. For the latter, the `<type>` is “appendix” for the top-level sectioning command (`\chapter` or `\section`, depending on the document class), “subappendix” for the sectioning command one level below (`\section`

or `subsection`), “subsubappendix” for the next level of sectioning command, etc.

$\langle type \rangle$ 通常是计数器的名称, 除了那些类型已被明确覆盖的标签 (参见 Section 6), 定理类环境在加载 `ntheorem` 或 `amsthm` 包时, 此时它是环境名称, 以及附录。对于后者, 顶层分段命令 (`\chapter` 或 `\section`, 具体取决于文档类) 的 $\langle type \rangle$ 为 “appendix”, 下一级的分段命令 (`\section` 或 `subsection`) 为 “subappendix”, 下一级的分段命令为 “subsubappendix”, 以此类推。

As in the case of the `\crefname` and `\Crefname` commands, if the corresponding `\Crefformat` is undefined when `\crefformat` is called, it will define the `\Crefformat` to produce a capitalised version of `\crefformat`, using `\MakeUppercase`. Conversely, if the corresponding `\crefformat` is undefined when `\Crefformat` is called, it will define the `\crefformat` to produce a lower-case version of `\Crefformat`, using `\MakeLowercase`. Obviously, this will only work properly if the format starts with a letter, and letter constructs (such as accented letter constructs) must be surrounded by braces (see Section 8.1.1).

与 `\crefname` 和 `\Crefname` 命令的情况类似, 如果在调用 `\crefformat` 时相应的 `\Crefformat` 未定义, 它将定义 `\Crefformat` 以产生 `\crefformat` 的大写版本, 使用 `\MakeUppercase`。反之, 如果在调用 `\Crefformat` 时相应的 `\crefformat` 未定义, 它将定义 `\crefformat` 以生成 `\Crefformat` 的小写版本, 使用 `\MakeLowercase`。显然, 这只在格式以字母开头时才能正常工作, 而字母结构 (例如带重音的字母结构) 必须用大括号括起来 (参见 Section 8.1.1)。

The $\langle format \rangle$ argument can be any valid L^AT_EX code, though you will need to `\protect` fragile commands. It should contain three arguments, #1, #2 and #3. The first argument is the formatted version of the label counter (e.g. `\theequation`). The other two are used to mark the beginning and end of the part of the cross-reference that forms the hyperlink when the `hyperref` package is used, and *must* appear in that order (see Section 13).

$\langle format \rangle$ 参数可以是任何有效的 L^AT_EX 代码, 但您需要使用 `\protect` 保护脆弱命令。它应该包含三个参数 #1、#2 和 #3。第一个参数是标签计数器的格式化版本 (例如 `\theequation`)。其他两个参数用于标记交叉引用中形成超链接的部分的开始和结束, 当使用 `hyperref` 包时, 它们必须按照这个顺序出现 (请参见 Section 13)。

As an example,

举个例子,

```
\crefformat{equation}{Eq.~(\#2\#1\#3)}
```

will typeset equation references as

将把公式引用排版为

Eq. (*counter*)

with the counter (excluding the parentheses) forming the hyperlink.

其中计数器 (不包括括号) 形成超链接。

Note that the hyperlink arguments are *not* letters, so if #2 appears at the beginning of *format*, `cleveref` will not be able to automatically define the other capitalisation variant automatically using `\MakeUppercase` or `\MakeLowercase`. In this case, you will have to define both variants separately. For example, if you wanted the “Eq.” to be part of the hyperlink, you would have to explicitly define:

请注意, 超链接参数不是字母, 因此如果 #2 出现在 *format* 的开头, `cleveref` 将无法使用 `\MakeUppercase` 或 `\MakeLowercase` 自动定义其他大小写变体。在这种情况下, 您需要分别定义两种变体。例如, 如果你想让 “Eq.” 成为超链接的一部分, 你需要明确定义:

```
\crefformat{equation}{#2eq.~(\#1)\#3}
```

```
\Crefformat{equation}{#2Eq.~(\#1)\#3}
```

8.2.2 Reference Ranges

参考范围

`\crefrangeformat` The format for reference ranges is defined by `\crefrangeformat` and `\Crefrangeformat`. Like `\crefformat` and `\Crefformat`, the commands take two arguments: the cross-reference type, and the formatting code.

参考范围的格式由 `\crefrangeformat` 和 `\Crefrangeformat` 定义。与 `\crefformat` 和 `\Crefformat` 类似, 这些命令需要两个参数: 交叉引用类型和格式代码。

```
\crefrangeformat{<type>}{<format>}
```

```
\Crefrangeformat{<type>}{<format>}
```

The same comments apply as in the case of single cross-references: the *type* is usually the name of the counter, except for appendices, labels with explicitly

overridden types, and theorem-like environments when `ntheorem` or `amsthm` are loaded. Again, if the other-capitalisation variant is not already defined, it will be defined automatically.

与单个交叉引用的情况一样，相同的注释也适用：⟨类型⟩通常是计数器的名称，除非是附录、明确覆盖类型的标签以及当加载 `ntheorem` 或 `amsthm` 时的定理类环境。同样，如果没有定义其他的大写变体，它将自动定义。

The ⟨*format*⟩ argument can again be any valid L^AT_EX code, with fragile commands `\protected`. However, this time it should contain *six* arguments, #1–#6. The first two (#1 and #2) are the formatted versions of the label counters, the next two (#3 and #4) are used to mark the beginning and end of the hyperlink for the first cross-reference, and the final two (#5 and #6) mark the beginning and end of the second cross-reference’s hyperlink.

⟨*format*⟩参数可以是任何有效的 L^AT_EX 代码，但需要使用 `\protect` 命令保护易损命令。然而，这次它应该包含六个参数，# 1——# 6。前两个参数（#1 和 #2）是标签计数器的格式化版本，接下来的两个参数（#3 和 #4）用于标记第一个交叉引用的超链接的开始和结束，最后两个参数（#5 和 #6）用于标记第二个交叉引用的超链接的开始和结束。

As an example,
举个例子，

```
\crefrangeformat{equation}{eqs.~(#3#1#4) to~(#5#2#6)}
```

would typeset equation reference ranges as
将把数学公式引用范围排版为

```
eqs. ((counter1)) to ((counter2))
```

with the counters (excluding the parentheses) forming the hyperlinks.
其中计数器（不包括括号）形成超链接。

8.2.3 Multiple Cross-References 多重交叉引用

```
\crefmultiformat The format for multiple cross-references is defined by \crefmultiformat and
\Crefmultiformat \Crefmultiformat, and that of reference ranges within multiple cross-
\crefrangemultiformat references by \crefrangemultiformat and \Crefrangemultiformat. Multi-
\Crefrangemultiformat references also require all the other cross-reference formats to be defined (see
```

Sections 8.2.1 and 8.2.2), including the single reference range formats, even if you never use the `\crefrange` and `\Crefrange` commands.

多重交叉引用的格式由 `\crefmultiformat` 和 `\Crefmultiformat` 定义, 而多重交叉引用中引用范围的格式由 `\crefrangemultiformat` 和 `\Crefrangemultiformat` 定义。多重引用还需要所有其他交叉引用格式被定义 (参见 Sections 8.2.1 and 8.2.2), 包括单个引用范围格式, 即使您从未使用 `\crefrange` 和 `\Crefrange` 命令。

The commands all take five arguments: the cross-reference type, the format for the first cross-reference in a list, the format for the second cross-reference in a list of two, the format for the middle cross-references in a list of more than two, and the format for the last cross-reference in a list of more than two.

所有的命令都需要五个参数: 交叉引用类型、列表中第一个交叉引用的格式、列表中第二个交叉引用的格式、列表中多于两个交叉引用的中间交叉引用的格式以及列表中多于两个交叉引用的最后一个交叉引用的格式。

```
\crefmultiformat{<type>}{<first>}{<second>}{<middle>}{<last>}
\Crefmultiformat{<type>}{<first>}{<second>}{<middle>}{<last>}
\crefrangemultiformat{<type>}{<first>}{<second>}{<middle>}{<last>}
\Crefrangemultiformat{<type>}{<first>}{<second>}{<middle>}{<last>}
```

The `<type>` is, as ever, the counter name (except for appendices, explicitly overridden label types, and theorem-like environments when the `ntheorem` or `amsthm` packages are loaded). The same considerations apply to the formatting arguments `<first>`, `<second>`, `<middle>` and `<last>` as for the `<format>` argument of `\crefformat` or `\creffrangeformat`, including the meaning of the arguments that should appear in the formatting code (`#1`, `#2` and `#3` for `\crefmultiformat` and `\Crefmultiformat`, `#1–#6` for `\crefrangemultiformat` and `\Crefrangemultiformat`). However, when the corresponding other-capitalisation variant is automatically defined, only the first letter of the `<first>` argument is upper- or lower-cased; the other arguments are defined to be identical for both variants.

`<type>`通常是计数器名称 (除了附录、显式覆盖标签类型和当加载 `ntheorem` 或 `amsthm` 包时的类似定理环境)。与 `\crefformat` 或 `\creffrangeformat` 的 `<format>` 参数相同, 对于格式化参数 `<first>`、`<second>`、`<middle>` 和 `<last>`, 也应考虑出现在格式化代码中的参数的含义 (对于 `\crefmultiformat` 和 `\Crefmultiformat` 是 `#1`、`#2` 和 `#3`, 对于 `\crefrangemultiformat` 和 `\Crefrangemultiformat`

是#1–#6)。但是，当相应的其他大写变体被自动定义时，只有 $\langle first \rangle$ 参数的第一个字母是大写或小写的；其他参数对于两个变体都定义为相同的。

Be careful to get the spaces at the beginning and end of the formatting code correct: the $\langle first \rangle$ and $\langle second \rangle$, or $\langle first \rangle$, $\langle middle \rangle$ and $\langle last \rangle$, L^AT_EX code snippets are typeset one after another in a multi-reference, with no space separating them. You may or may not want spaces at the beginning or end of the formatting code, depending on the formatting you desire. For example, in the default equation format:

请注意正确添加格式化代码开头和结尾的空格： $\langle first \rangle$ 和 $\langle second \rangle$ ，或者 $\langle first \rangle$ 、 $\langle middle \rangle$ 和 $\langle last \rangle$ 的 L^AT_EX 代码片段在多个引用中一个接一个地排版，它们之间没有分隔空格。根据所需的格式，您可能需要或不需要在格式化代码开头或结尾添加空格。例如，在默认的公式格式中：

```
\crefmultiformat{equation}{eqs.~(#2#1#3)}%
{ and~(#2#1#3)}{, (#2#1#3)}{ and~(#2#1#3)}
```

the $\langle middle \rangle$ argument should *not* have a space at the beginning, whereas the $\langle second \rangle$ and $\langle last \rangle$ arguments *should* have a space.

$\langle middle \rangle$ 参数开头不应该有空格，而 $\langle second \rangle$ 和 $\langle last \rangle$ 参数应该有空格。

8.2.4 Label Cross-References

标签交叉引用

If you define the format for a particular cross-reference type using the low-level customisation commands, and still want to use the $\backslash labelcref$ command to produce just the label part of the cross-reference, then you must also define the appropriate $\backslash labelcref$ formats for that type. This is done using the $\backslash labelcrefformat$, $\backslash labelcrefrangeformat$, $\backslash labelcrefmultiformat$ and $\backslash labelcrefrangemultiformat$ commands. Their syntax is identical to that of the corresponding $\backslash crefformat$, $\backslash crefrangeformat$, $\backslash crefmultiformat$ or $\backslash crefrangemultiformat$ command. Typically, the $\backslash labelcref$ formats should be defined identically to the standard $\backslash cref$ formats, except for the $\langle first \rangle$ part, which should leave off the cross-reference name. This is not enforced, however.

如果您使用低级定制命令定义了特定交叉引用类型的格式，并且仍想使用 $\backslash labelcref$ 命令仅生成交叉引用的标签部分，则还必须定义该类型的适当 $\backslash labelcref$ 格式。这可以使用 $\backslash labelcrefformat$ 、 $\backslash labelcrefrangeformat$ 、

`\labelcrefmultiformat` 和 `\labelcrefrangemultiformat` 命令来完成。它们的语法与相应的 `\crefformat`、`\crefrangmeformat`、`\crefmultiformat` 或 `\crefrangemultiformat` 命令完全相同。通常，`\labelcref` 格式应该与标准 `\cref` 格式相同，除了 *first* 部分，它应该省略交叉引用名称。但是，这并不是强制性的。

9 Advanced Cross-Reference Formating 高级交叉引用格式化

When you define a custom cross-reference format using `\creflabelformat`, `\crefformat` et al. (see Section 8), you're not merely defining a pattern with placeholders to be filled in. You're really defining the body of a LaTeX macro, with the formatted labels as arguments. This is a very powerful tool. It means that the only limit on how you can process the labels is your ability to code it in TeX.²⁰ Which potentially allows for very sophisticated cross-reference formatting.

当你使用 `\creflabelformat`、`\crefformat` 等自定义交叉引用格式（详见 Section 8）时，你不只是定义了一个带有占位符的模式，用于填充。实际上，你正在定义一个 LaTeX 宏的主体，其中包含格式化标签作为参数。这是一个非常强大的工具。它意味着你能够处理标签的方式只受限于你在 TeX 中编码的能力。²¹这可能允许进行非常复杂的交叉引用格式化。

One example of this is removing common prefixes from reference ranges. E.g. if you're numbering equations within sections, and `eq1`, `eq2` and `eq3` are all in the section 1.2, then you might want to typeset `\cref{eq1,eq2,eq3}` as “eqs. (1.2.1–3)” instead of “eqs. (1.2.1) to (1.2.3)”. Similarly, if `eq1a`, `eq1b` and `eq1c` are `amsmath` subequations, you might want to typeset `\cref{eq1a,eq1b,eq1c}` as “eqs. (1a–c)” instead of “eqs. (1a) to (1c)”.

一个例子是从参考范围中删除常见的前缀。例如，如果你在章节内编号方程，而 `eq1`、`eq2` 和 `eq3` 都在第 1.2 节中，那么你可能想将 `\cref{eq1,eq2,eq3}` 排版为 “eqs.(1.2.1–3)” 而不是 “eqs.(1.2.1) to(1.2.3)”。同样，如果 `eq1a`、`eq1b` 和 `eq1c` 是 `amsmath` 的子方程，你可能想将 `\cref{eq1a,eq1b,eq1c}` 排版为 “eqs.(1a–c)” 而不是 “eqs.(1a) to(1c)”。

²⁰Since TeX is Turing-complete, that means you can do anything you like short of solving the Halting Problem.

²¹由于 TeX 是图灵完全的，这意味着你能够做任何你想做的事情，除了解决停机问题。

`Cleveref` provides a useful utility macro for this: `\crefstripprefix`, which takes two strings as arguments, and returns the second one with any common prefix stripped off. (However, the very last run of digits or letters in the string is retained in its entirety, even if it has a part in common.) With the help of this macro, you can produce the desired reference-range formatting with:

`Cleveref` 提供了一个有用的实用宏：`\crefstripprefix`，它接受两个字符串作为参数，并返回第二个字符串，其中任何公共前缀都被剥离掉。（但是，即使它们有一部分相同，字符串中的最后一组数字或字母也会被保留。）借助这个宏，您可以使用以下方式生成所需的引用范围格式：

```
\crefrangelabelformat{equation}%
  {(#3#1#4--#5\crefstripprefix{#1}{#2}#6)}
\crefrangelabelformat{subequation}%
  {(#3#1#4--#5\crefstripprefix{#1}{#2}#6)}
```

Similarly, stripping prefixes from multi-references so that e.g. `\cref{fig1a,fig1b,fig1d}` is typeset as “figs. 1a, b and d” instead of “figs. 1a, 1b and 1d” can be achieved by passing the prefix from the first component to the others in an auxiliary macro (called `\crefstripprefixinfo` here):

类似地，从多个引用中删除前缀，例如将`\cref{fig1a,fig1b,fig1d}` 排版为“图 1a、b 和 d”，而不是“图 1a、1b 和 1d”，可以通过在辅助宏（此处称为`\crefstripprefixinfo`）中将前缀从第一个组件传递给其他组件来实现。

```
\crefmultiformat{figure}%
  {\edef\crefstripprefixinfo{#1}figs.~#2#1#3}%
  { and~#2\crefstripprefix{\crefstripprefixinfo}{#1}#3}%
  {, #2\crefstripprefix{\crefstripprefixinfo}{#1}#3}%
  {, and~#2\crefstripprefix{\crefstripprefixinfo}{#1}#3}
```

10 Language, babel and polyglossia support 语言、babel 和 polyglossia 支持

`Cleveref` supports different languages via package options, in the usual way, though not all languages are supported yet.²² Basic `cleveref` language sup-

²²Contributions of translations for missing languages are very welcome! See Section 14.3 for information on how to contribute translations.

port will work even if `babel` or `polyglossia` are not loaded. The only exception currently is Catalan (which requires the `\lgem` command provided by these packages).

`Cleveref` 支持通过包选项使用不同的语言，通常的方式，虽然目前还不支持所有语言。²³ 即使没有加载 `babel` 或 `polyglossia`，基本的 `cleveref` 语言支持也可以工作。当前唯一的例外是加泰罗尼亚语（需要这些包提供的 `\lgem` 命令）。

The `babel` package is fully supported if it is loaded, allowing you to change the language used in cross-references using the `babel` language switching commands, such as `\selectlanguage` and `\foreignlanguage`. Similar support is provided for the `polyglossia` babel replacement package.

如果加载了 `babel` 包，则完全支持它，允许您使用 `babel` 语言切换命令（如 `\selectlanguage` 和 `\foreignlanguage`）更改交叉引用中使用的语言。类似的支持也提供给了 `polyglossia` babel 替代包。

Note that when using `babel`, you still need to tell `cleveref` which language it should use for the default cross-reference formats. It is *not* sufficient to pass the language option to `babel` alone. You *must* also *either* pass the language options to `cleveref` package directly when loading it:

请注意，在使用 `babel` 时，您仍然需要告诉 `cleveref` 应该使用哪种语言作为默认的交叉引用格式。仅仅将语言选项传递给 `babel` 是不够的。您必须在加载 `cleveref` 包时同时直接传递语言选项：

```
\usepackage[language]{cleveref}
```

or (better) specify the desired language globally as a document class option: 或者（更好的方法）在文档类选项中全局指定所需的语言：

```
\documentclass[language]{class}
\usepackage{babel}
\usepackage{cleveref}
```

The latter method is strongly recommended. L^AT_EX automatically passes document class options to *every* loaded package. So specifying the language as a global option causes the appropriate language support to be enabled automatically in every package that supports it.

²³欢迎为缺失的语言贡献翻译！请参见 Section 14.3 了解如何贡献翻译。

强烈推荐使用后一种方法。L^AT_EX 会自动将文档类选项传递给每个已加载的包。因此，将语言指定为全局选项会自动在每个支持它的包中启用相应的语言支持。

When writing multi-language documents, you may need to specify multiple language options in order to load `babel` support for all of them. In this case, `babel` sets the initial document language to the *last* language option. (See the `babel` documentation for more details.) `Cleveref` does the same: the last language in the option list determines the language for the initial cross-reference format definitions; additional language options load `cleveref` support for switching between those languages.

在编写多语言文档时，您可能需要指定多个语言选项，以便为它们所有加载 `babel` 支持。在这种情况下，`babel` 将初始文档语言设置为 最后一个语言选项。（有关更多详细信息，请参见 `babel` 文档。）`Cleveref` 也是如此：选项列表中的最后一个语言确定初始交叉引用格式定义的语言；其他语言选项加载 `cleveref` 支持，以在这些语言之间进行切换。

`Polyglossia` uses a different mechanism for selecting and loading languages, and ignores package language options entirely. The default language must be set using `\setdefaultlanguage`, and additional languages are loaded using `\setotherlanguage`. `Cleveref` recognises these commands, so you should *not* pass language options to `cleveref` when using `polyglossia`. (Passing language options to `cleveref`, either as package options or global options, will override the default language set by `polyglossia`'s `\setdefaultlanguage`.) Note that the `\setdefaultlanguage` option *must* come before `cleveref` is loaded, so that `cleveref` knows what default language you want. (If you don't do this, `cleveref` will generate a warning message in the log.)

`Polyglossia` 使用不同的机制来选择和加载语言，完全忽略包语言选项。默认语言必须使用 `\setdefaultlanguage` 来设置，使用 `\setotherlanguage` 加载其他语言。`Cleveref` 识别这些命令，因此在使用 `polyglossia` 时，不应向 `cleveref` 传递语言选项。（向 `cleveref` 传递语言选项，无论是作为包选项还是全局选项，都将覆盖由 `polyglossia` 的 `\setdefaultlanguage` 设置的默认语言。）请注意，`\setdefaultlanguage` 选项必须在加载 `cleveref` 之前，以便 `cleveref` 知道您想要的默认语言。（如果您不这样做，`cleveref` 将在日志中生成警告消息。）

The `babel` and `polyglossia` support works by redefining the cross-reference names and conjunctions for the default cross-reference types. Any customi-

sations you make to the default cross-reference names and conjunctions *in the preamble* apply to the main language (i.e. the last language listed in the options). A `\selectlanguage babel` command (or similar) in the document body will override these customisations, replacing them with the defaults for the newly selected language. If you later use `\selectlanguage` to switch back to the main language, any customisations from the preamble will be restored. If you want to customise cross-reference names or conjunctions for any language other than the main one, you either have to explicitly redefine them after every language switching command, or hook the redefinitions into `babel` or `polyglossia`'s language switching mechanism. (See section “Language and `babel` Support” in the full implementation documentation, and the `babel` or `polyglossia` package documentation.)

`babel` 和 `polyglossia` 的支持作用是通过重新定义默认交叉引用类型的交叉引用名称和连接词来实现的。您在导言部分对默认交叉引用名称和连接词所做的任何自定义都适用于主要语言（即选项中列出的最后一种语言）。文档正文中的 `\selectlanguagebabel` 命令（或类似命令）将覆盖这些自定义，并用新选择的语言的默认设置替换它们。如果您稍后使用 `\selectlanguage` 切换回主要语言，则来自导言的任何自定义都将被恢复。如果您想要自定义除主要语言以外的任何语言的交叉引用名称或连接词，则必须在每次语言切换命令之后显式重新定义它们，或者将重新定义钩入 `babel` 或 `polyglossia` 的语言切换机制中。（请参见完整实现文档中的“语言和 `babel` 支持”部分以及 `babel` 或 `polyglossia` 软件包文档。）

If you have defined formats for new cross-reference types for which no defaults are provided, then you're on your own. `Cleveref` will not know how to redefine them for other languages, and again you will have to take care of it yourself, either by explicitly redefining them in your document after each language switch, or by hooking the redefinitions into `babel` or `polyglossia`'s language switching mechanisms.

如果你为新的交叉引用类型定义了格式，但没有提供默认值，那么你就需要自己负责了。`Cleveref` 不知道如何为其他语言重新定义它们，因此你需要自己处理，可以在每次语言切换后在文档中显式地重新定义它们，也可以将重新定义钩入到 `babel` 或 `polyglossia` 的语言切换机制中。

On the other hand, since the language switching commands only modify the cross-reference components, if you use the low-level customisation commands to take full control of the format for a particular cross-

reference type, then (unless you're careful) you take it out of the control of `babel` or `polyglossia` entirely. If you want to use the low-level customisation commands, but *do* still want the language switching commands to work, then you have to use the component macros in your customised formats. The cross-reference names are stored in macros called `\cref@<type>@name`, `\Cref@<type>@name`, `\cref@<type>@name@plural`, and `\Cref@<type>@name@plural`. (Note that since these macro names contain the “@” character, you must use `\makeatletter` and `\makeatother` to access them.)

另一方面，由于语言切换命令仅修改交叉引用组件，如果您使用低级定制命令完全控制特定交叉引用类型的格式，则（除非您小心）它将完全脱离 `babel` 或 `polyglossia` 的控制。如果您想使用低级定制命令，但仍希望语言切换命令能够工作，则必须在您定制的格式中使用组件宏。交叉引用名称存储在称为 `\cref@<type>@name`、`\Cref@<type>@name`、`\cref@<type>@name@plural` 和 `\Cref@<type>@name@plural` 的宏中。（请注意，由于这些宏名称包含 “@” 字符，您必须使用 `\makeatletter` 和 `\makeatother` 来访问它们。）

For example, if you wanted to redefine the equation format so that the cross-reference name (“equation”) was also part of the hyperlink,²⁴ but you still want to be able to switch language using `babel` or `polyglossia`, you would need something like:

例如，如果您想重新定义方程格式，使交叉引用名称（“equation”）也成为超链接的一部分，²⁵但您仍然希望能够使用 `babel` 或 `polyglossia` 切换语言，那么您需要像这样的东西：

```
\makeatletter
\crefformat{equation}{#2\cref@equation@name~(##1)##3}
...
\makeatother
```

and similarly for `\crefrangeformat`, `\crefmultiformat`, `\Crefformat`, etc. 同样地，对于 `\crefrangeformat`、`\crefmultiformat`、`\Crefformat` 等也是如此。

Note that if you define an empty cross-reference name for some type using an empty `\crefname`, e.g. for equations

²⁴This is merely as an example. Including names in hyperlinks is more easily accomplished by setting the `nameinlink` package option.

²⁵这只是一个例子。将名称包含在超链接中可以通过设置 `nameinlink` 包选项更轻松地完成。

请注意，如果您使用空的 `\crefname` 为某些类型定义了一个空的交叉引用名称，例如对于方程式

```
\crefname{equation}{}{}
```

then the empty cross-reference name will be retained when switching languages. This is probably what you want anyway.

那么当切换语言时，空的交叉引用名称将保留下来。这可能是您想要的。

11 The cleveref.cfg File

cleveref.cfg 文件

If `cleveref` finds a `cleveref.cfg` file somewhere in the \LaTeX search path, it automatically loads any definitions found in that file. (For details of which directories \LaTeX searches, consult the documentation for your site's \TeX installation.) The main use of `cleveref.cfg` is to store any cross-reference format customisations that you want to use in every document you write, so that you don't have to include them explicitly in every document's preamble. 如果 `cleveref` 在 \LaTeX 搜索路径中的某个地方找到了 `cleveref.cfg` 文件，则会自动加载该文件中找到的任何定义。（有关 \LaTeX 搜索哪些目录的详细信息，请查阅您所在站点的 \TeX 安装文档。）`cleveref.cfg` 的主要用途是存储任何交叉引用格式定制，以便您可以在编写每个文档时使用它们，这样您就不必在每个文档的导言部分中显式地包含它们。

12 Poor Man's cleveref

低配版的 cleveref

Sometimes you may need to send your \LaTeX source to someone who can't or won't install the `cleveref` package themselves. For example, many academic journals accept papers in \LaTeX format, but only support a small subset of the packages available on CTAN. The `poorman` option was designed specifically to help in this situation.

有时候你需要把你的 \LaTeX 源文件发送给那些不能或不愿意安装 `cleveref` 包的人。例如，许多学术期刊接受 \LaTeX 格式的论文，但只支持 CTAN 上的

一小部分包。`poorman` 选项就是为了在这种情况下提供帮助而设计的。

When the `poorman` option is supplied, your document will be processed as normal. But in addition, a `sed` script will automatically be written, containing rules for replacing all the `cleveref` commands with the \LaTeX code that they would produce, and using the standard `\ref` command to produce the cross-references themselves. I.e. the script rewrites your document as you would have done if you had had to do it manually!

当提供 `poorman` 选项时，您的文档将被正常处理。但是除此之外，一个 `sed` 脚本将自动被编写，其中包含用于替换所有 `cleveref` 命令的规则，以及使用标准 `\ref` 命令来生成交叉引用本身的 \LaTeX 代码。也就是说，如果您不得不手动完成文档，该脚本会将您的文档重写！

The advantage, of course, is that you *don't* have to do it manually. Instead, you can use all the features of `cleveref`, and once you've created a version of your document that you want to send elsewhere, you can process it through the `sed` script to completely remove the `cleveref` dependency. The recipient won't even realise you used `cleveref`!

当然，优点是你不必手动操作。相反，你可以使用 `cleveref` 的所有功能，一旦你创建了一个版本的文档，你想要发送到其他地方，你可以通过 `sed` 脚本处理它，完全删除 `cleveref` 的依赖。接收者甚至不会意识到你使用了 `cleveref`！

The `sed` script is written to the same directory as the (main) \LaTeX source file, and given the same name as that source file but with the extension `.sed`. To process your document through the script, all you need to do is run the following from your shell:

`sed` 脚本应该写在与（主要） \LaTeX 源文件相同的目录中，并且与该源文件同名，但扩展名为 `.sed`。要通过脚本处理文档，您只需要从 shell 运行以下命令：

```
sed -f <name>.sed <name>.tex ><newname>.tex
```

where `<name>` is the name of the file containing your \LaTeX source file minus the `.tex` extension, and `<newname>` is whatever you want to call the new version. *Do not* make `<newname>` the same as `<name>`: it won't work. (It's in any case wise to keep the original \LaTeX source file containing the `cleveref` commands, in case you need to produce an updated version of your document in the future. Think of the `<newname>.tex` file in the same way as a DVI file: something you can always reproduce from the original source.)

其中，`<name>` 是包含您的 \LaTeX 源文件的文件名，去掉了 `.tex` 扩展名，

而 $\langle newname \rangle$ 则是您想要称呼新版本的任何名称。不要将 $\langle newname \rangle$ 与 $\langle name \rangle$ 相同：这样不会起作用。（无论如何，保留包含 `cleveref` 命令的原始 L^AT_EX 源文件是明智的，以防将来需要生成更新版本的文档。将 $\langle newname \rangle.tex$ 文件视为 DVI 文件的方式是相同的：您始终可以从原始源重新生成它。）

If your document is composed of a number of separate L^AT_EX source files, combined with `\include` commands, only one `sed` script will be generated, but you will need to run *each* source file through that *same* script (and probably modify the `\include` commands to match the new file names). However, using `babel`'s language switching commands in a document split across multiple separate source files is beyond the capabilities of the `poorman` option. You will almost certainly need to manually tweak the `sed` script in that case.

如果您的文档由多个独立的 L^AT_EX 源文件组成，并结合使用`\include` 命令，那么只会生成一个`sed` 脚本，但您需要将每个源文件都通过相同的脚本运行（并且可能需要修改`\include` 命令以匹配新的文件名）。但是，在跨多个独立源文件拆分的文档中使用 `babel` 的语言切换命令超出了 `poorman` 选项的能力范围。在这种情况下，您几乎肯定需要手动调整`sed` 脚本。

Note that the `poorman` script cannot fully reproduce the typesetting of the original `cleveref` cross-references in all cases.²⁶ In particular, if you're using the `hyperref` package (see Section 13) to turn cross-references into hyperlinks, any customisation of hyperlinks will be lost. And if you're using the `varioref` package (see Section 13), you may need to manually tweak the spacing in front of some of the `varioref` commands in the document produced by the `sed` script.

请注意，`poorman` 脚本无法在所有情况下完全复制原始 `cleveref` 交叉引用的排版。²⁷ 特别是，如果您正在使用 `hyperref` 包（参见 Section 13）将交叉引用转换为超链接，则任何超链接的自定义将会丢失。如果您正在使用 `varioref` 包（参见 Section 13），则您可能需要手动调整在 `sed` 脚本生成的文档中一些 `varioref` 命令前面的间距。

13 Interaction with Other Packages

²⁶ At least, not without resorting to inserting low-level L^AT_EX code in your document, which would somewhat defeat the purpose of the `poorman` option.

²⁷ 至少，在不插入低级 L^AT_EX 代码的情况下无法实现，这会有些违背 `poorman` 选项的目的。

与其他包的交互

The `cleveref` package *must* be loaded *after* all other packages that don't specifically support it,²⁸ i.e. the `cleveref` 包 必须在所有不特别支持它的其他包之后被加载。²⁹也就是说, 其他包先被加载, `cleveref` 包最后被加载。

```
\usepackage{cleveref}
```

line should usually be the last `\usepackage` command in your document's preamble.

在文档的导言部分中, `\usepackage` 命令通常应该是最后一个出现的命令, 用于加载宏包。

`Cleveref` tries as far as possible to minimise its impact on the standard \LaTeX cross-referencing machinery, allowing it to work alongside many of the other packages that also enhance \LaTeX 's cross-referencing features, though it can occasionally interact badly with packages that redefine the same core \LaTeX commands. Beyond peacefully co-existing with many packages, `cleveref` includes specific support for a number other packages, allowing it to integrate its clever cross-referencing features with the features provided by these packages: `babel`, `polyglossia`, `hyperref`, `varioref`, `ntheorem`, `amsthm`, `aliascnt`, `subfig`, `algorithmicx`³⁰, `algorithm2e`, `listings`.

`Cleveref` 尽可能地减少对标准 \LaTeX 交叉引用机制的影响, 使其能够与许多其他增强 \LaTeX 交叉引用功能的包一起使用, 尽管它偶尔可能与重新定义相同核心 \LaTeX 命令的包产生不良交互作用。除了与许多包和平共处外, `cleveref` 还包括对许多其他包的特定支持, 使其能够将其聪明的交叉引用功能与这些包提供的功能集成起来: `babel`、`polyglossia`、`hyperref`、`varioref`、`ntheorem`、`amsthm`、`aliascnt`、`subfig`、`algorithmicx`³¹、`algorithm2e`、`listings`。

`Cleveref` implements a significantly enhanced version of the features found in the `fancyref` package, `ntheorem`'s `thref` option, and `varioref`'s `\labelformat` command. Although these features may (or may not) work correctly alongside `cleveref`, there is no good reason to use them when using `cleveref`,

²⁸At the time of writing, the only packages I'm aware of that should be loaded after `cleveref` are the `hydvips` and `autonum` packages.

²⁹在撰写本文时, 我所知道的应该在 `cleveref` 之后加载的唯一包是 `hydvips` 和 `autonum` 包。

³⁰The `algorithmic` package is *not* supported.

³¹不支持 `algorithmic` 包。

and their use is unsupported. (Note that `varioref` is fully supported by `cleveref`, just that `cleveref`'s features supersede `varioref`'s `\labelformat` feature. Similarly, `ntheorem` is fully supported and even recommended, only the `thref` option is superseded by `cleveref`.)

`Cleveref` 实现了一种显著增强版本的 `fancyref` 包、`ntheorem` 的 `thref` 选项和 `varioref` 的 `\labelformat` 命令中所包含的特性。虽然这些特性可能（或可能不会）与 `cleveref` 协同工作，但没有使用 `cleveref` 的好理由，并且它们的使用不受支持。（请注意，`varioref` 虽然被 `cleveref` 完全支持，但是 `cleveref` 的特性已经超越了 `varioref` 的 `\labelformat` 特性。同样，`ntheorem` 被完全支持并且甚至是推荐的，只是 `thref` 选项被 `cleveref` 超越了。）

`\thref` In fact, if `ntheorem` is loaded with the `thref` option, `cleveref` redefines
`\vref` `ntheorem`'s `\thref` command for you, to be an alias for `\cref`. Simi-
`\Vref` larly, if `varioref` is loaded, `cleveref` redefines the `\vref`, `\vrefrange`,
`\vrefrange` `\fullref` commands and variants to instead use the `cleveref` features for
`\Vrefrange` cross-reference formatting, whilst retaining all the `varioref` page-referencing
`\fullref` magic. You can continue to use the other `varioref` and `ntheorem` commands
`\Fullref` (other than `\labelformat` and the `thref` option) whilst using `cleveref`, as
 long as `cleveref` is loaded *last*.

事实上，如果使用 `thref` 选项加载 `ntheorem` 包，`cleveref` 将为您重新定义 `ntheorem` 的 `\thref` 命令，作为 `\cref` 的别名。类似地，如果加载了 `varioref`，`cleveref` 将重新定义 `\vref`、`\vrefrange`、`\fullref` 命令和变体，以使用 `cleveref` 的交叉引用格式化功能，同时保留所有 `varioref` 的页面引用魔法。只要 `cleveref` 是最后加载的，您可以继续使用其他 `varioref` 和 `ntheorem` 命令（除了 `\labelformat` 和 `thref` 选项）。

`\vref*` Note that, whilst in the business of redefining the `varioref` commands,
`\Vref*` `cleveref` seizes the opportunity to get rid of the irritating spacing behaviour
`\vrefrange*` of the `\vref` and `\Vref` commands, instead making it consistent with the other
`\Vrefrange*` `cleveref` cross-referencing commands. This also frees up the starred variants
`\fullref*` of the `varioref` commands to be used for suppressing hyperlinks when the
`\Fullref*` `hyperref` package is loaded, as usual. (Unfortunately, due to lack of support
 for this in `varioref`, the page references will still sometimes be hyperlinks,
 even when using the starred variants. Go bug the `varioref` maintainer about
 this if you don't like it.)

注意，在重新定义 `varioref` 命令时，`cleveref` 抓住机会摆脱 `\vref` 和 `\Vref`

命令的烦人的间距行为，而是使其与其他 `cleveref` 交叉引用命令一致。这也释放了 `varioref` 命令的星号变体，以便在加载 `hyperref` 包时用于抑制超链接，就像往常一样。（不幸的是，由于 `varioref` 不支持此功能，即使使用星号变体，页面引用有时仍会是超链接。如果您不喜欢这个问题，请去找 `varioref` 维护者。）

`Cleveref` is currently incompatible with the `mathtools` package's `showonlyrefs` option, which automatically labels only those equations that are cross-referenced. The `autonum` package provides a possible alternative, which implements similar features in a `cleveref`-compatible manner.

`Cleveref` 目前与 `mathtools` 包的 `showonlyrefs` 选项不兼容，该选项仅自动标记与交叉引用有关的方程式。`autonum` 包提供了一个可能的替代方案，以一种与 `cleveref` 兼容的方式实现类似的功能。

14 Known Bugs, Non-Bugs, and Possible Improvements

已知的缺陷、非缺陷和可能的改进

14.1 Non-Bugs

非缺陷

The following are *not* bugs. They are either intentional behaviour, unavoidable behaviour, or are caused by \LaTeX misunderstandings:

以下内容 不是缺陷。它们可能是故意的行为、不可避免的行为，或者是由于对 \LaTeX 的误解引起的：

- If you are using both `varioref` and `hyperref`, *make sure you are loading them in the correct order*, otherwise cross-references will reference completely the wrong thing *without any warning in the \LaTeX output or log!* The packages *must* be loaded in the following order: `varioref`, `hyperref`, `cleveref`.

如果你同时使用了 `varioref` 和 `hyperref`，一定要确保它们以正确的顺序加载，否则交叉引用将会完全引用错误的内容而没有在 \LaTeX 输出或日志中发出任何警告！这两个宏包必须按照以下顺序加载：`varioref`，`hyperref`，`cleveref`。

- **Cleveref** on its own won't automatically infer the type of theorem-like environment you're referring to in a cross-reference. Cross-references to all theorem-like environments will use the same name, "theorem". To allow the theorem type to be determined automatically, you need to load either the `ntheorem` or the `amsthm` package. Also note that all `\newtheorem` definitions must be placed *after* the `cleveref` package is loaded.

Cleveref 本身无法自动推断交叉引用中所引用的定理环境的类型。对所有定理环境的交叉引用都将使用相同的名称 "theorem"。要使定理类型能够自动确定, 需要加载 `ntheorem` 或 `amsthm` 宏包。还要注意, 所有的 `\newtheorem` 定义必须放在加载 `cleveref` 宏包之后。

- Due to the way \TeX parses arguments, you have to be a little careful when using `\label` inside an optional argument to another command. `\label{<label>}` will work, but trying to pass an optional argument `\label[<type>]{<label>}` will fail. If you want to pass an optional argument to `\label` whilst already within an optional argument to some other command, you must surround the entire label command with braces: `{\label[<type>]{<label>}}`. This crops up e.g. when adding labels to subfigure subcaptions in the `memoir` document class. A simpler solution in this particular case is to define the label in the subfigure body, instead of in the subcaption.

由于 \TeX 解析参数的方式, 当在另一个命令的可选参数中使用 `\label` 时, 需要小心。`\label{<label>}` 是可以工作的, 但尝试传递可选参数 `\label[<type>]{<label>}` 将失败。如果您想在已经在某个其他命令的可选参数中的情况下传递可选参数给 `\label`, 则必须用大括号将整个标签命令括起来: `{\label[<type>]{<label>}}`。例如, 在 `memoir` 文档类的子图子标题中添加标签时就会遇到这种情况。在这种特殊情况下, 更简单的解决方案是在子图正文中定义标签, 而不是在子标题中定义。

- **Cleveref** will not work properly with the standard \LaTeX `eqnarray` environment. There is no intention to fix this. The `eqnarray` environment is poorly implemented, making it difficult to get it to work properly with `cleveref`, and it's broken any way. You're *far* better off using the `amsmath` replacements, such as `gather`, `align`, `multline` and `split`, which *do* work properly with `cleveref`. (See <http://www.tug.org/pracjourn/2006-4/madsen/>).

`Cleveref` 将无法正确地处理标准 \LaTeX `eqnarray` 环境。没有意图修复这个问题。`eqnarray` 环境的实现很差，使得它难以与 `cleveref` 正常工作，而且它本身就是有问题的。最好使用 `amsmath` 的替代方案，如 `gather`, `align`, `multline` 和 `split`，它们与 `cleveref` 完全兼容。(请参见<http://www.tug.org/pracjourn/2006-4/madsen/>。)

- If you are using `babel`, you *must still* pass the appropriate language option to `cleveref`, as well as to `babel`. Passing it to `babel` alone is *not* sufficient (you will get the default English cross-reference formats). The best way to set the document language is as a global option in the `\documentclass` line. (This is standard \LaTeX and `babel` practice – read up on \LaTeX ’s option handling for more detail.)

如果您使用 `babel`，则必须仍然将适当的语言选项传递给 `cleveref`，并传递给 `babel`。仅将其传递给 `babel` 是不够的（您将得到默认的英语交叉引用格式）。设置文档语言的最佳方法是在 `\documentclass` 行中作为全局选项。（这是标准 \LaTeX 和 `babel` 的做法——详细了解一下 \LaTeX 的选项处理。）

- `Cleveref` can’t cope with active characters being present in cross-reference label names. For example, if French `babel` support is loaded, the commonly used “:” in label names will often fail, spewing the usual random selection of mysterious \TeX errors that accompany such deep-seated errors. The solution is to avoid using active characters in label names. (You may need to consult the `babel` documentation to discover which active characters are defined in your language.)

`Cleveref` 无法处理交叉引用标签名称中存在活动字符的情况。例如，如果加载了法语 `babel` 支持，标签名称中通常使用的 “:” 将经常失败，产生通常伴随着此类深层错误的随机选择的神秘 \TeX 错误。解决方案是避免在标签名称中使用活动字符。（您可能需要查阅 `babel` 文档，以了解您的语言中定义了哪些活动字符。）

- The `poorman` `sed` script loses any custom `cleveref` hyperlink formatting you might have defined, and does not always reproduce the original spacing around the `varioref` commands when `varioref` is used. This is not a bug; it is a side-effect of the intended purpose of the `poorman` option. The philosophy behind `poorman` is to replace `cleveref`’s enhanced cross-referencing with standard \LaTeX cross-reference commands that are guaranteed to work with any standard \LaTeX installation. Although it

would be simple to fix these “bugs”, it’s almost certainly impossible without using low-level L^AT_EX code that is unlikely to be supported by e.g. academic journals, thereby defeating the whole purpose of the `poorman` option.

`poorman sed` 脚本将丢失您可能定义的自定义 `cleveref` 超链接格式，并且在使用 `varioref` 时不总是复制原始间距。这不是一个错误；这是 `poorman` 选项预期目的的副作用。`poorman` 背后的哲学是用标准 L^AT_EX 交叉引用命令替换 `cleveref` 的增强交叉引用，这些标准命令可保证与任何标准 L^AT_EX 安装一起使用。虽然修复这些“错误”很简单，但几乎肯定无法使用低级别的 L^AT_EX 代码来修复，这些代码不太可能得到支持，如学术期刊，从而打败了 `poorman` 选项的整个目的。

14.2 Known Bugs and Work-Arounds

已知的错误和解决方法

In rough order of significance:

按照重要程度的粗略顺序：

- When both the `amsmath` and `hyperref` packages are loaded at the same time, the `cleveref` cross-referencing commands do not work when used within section titles. If anyone can figure out why, let me know! As a work-around, use `\ref` within section titles when your document uses both `amsmath` and `hyperref`.

当同时加载 `amsmath` 和 `hyperref` 包时，`cleveref` 交叉引用命令在标题中使用时将不起作用。如果有人能找出原因，请让我知道！作为解决方法，在文档中同时使用 `amsmath` 和 `hyperref` 时，请在标题中使用 `\ref` 命令。

- When using `varioref` and `hyperref` with `cleveref`, the `cleveref nameinlink` option will not cause the word “page” in the page-reference part of a `\vref` (or other `varioref`) command to be included in the hyperlink, nor will the “on the previous page” (or similar) text produced by `\vref` be hyperlinked. This is not strictly speaking a `cleveref` issue. It is the normal behaviour of the `hyperref`-enhanced version of `varioref`’s `\vpageref` command, which `cleveref` uses to produce the page references in its enhanced `\vref` command. (This *might* be improved in a future version by partially overriding `hyperref`.)

在使用 `varioref` 和 `hyperref` 与 `cleveref` 一起时, `cleveref` 中的 `nameinlink` 选项将不会导致 `\vref` (或其他 `varioref`) 命令中的页面引用部分的单词 “page” 包含在超链接中, `\vref` 生成的 “on the previous page” (或类似的) 文本也不会被超链接。这严格来说不是 `cleveref` 的问题。这是 `hyperref` 增强版的 `varioref` 的命令 `\vpageref` 的正常行为, `cleveref` 使用它来生成其增强版的 `\vref` 中的页面引用。(这可能会在将来的版本中通过部分覆盖 `hyperref` 来改进。)

- `Cleveref` doesn't know about the `subfloat` package, so you have to revert to using `\ref` for cross-references to sub-figures. (Might be fixed in a future version.)

`Cleveref` 不支持 `subfloat` 包, 因此必须使用 `\ref` 来引用子图。(可能会在将来的版本中修复。)

- The `beamer` document class redefines the `\label` command in a particularly devious way that breaks `cleveref`'s optional argument to that command. (Might be fixed in a future version.)

`beamer` 文档类以特别狡猾的方式重新定义了 `\label` 命令, 这破坏了 `cleveref` 对该命令的可选参数的支持。(可能会在将来的版本中修复。)

- `Cleveref` is incompatible with the `showonlyrefs` option of the `mathtools` package, though it should be compatible with the rest of `mathtools`. (Might be fixed in a future version.) The `autonum` package, which provides similar functionality and is designed to be `cleveref`-compatible, is a possible alternative.

`Cleveref` 与 `mathtools` 包的 `showonlyrefs` 选项不兼容, 但应该与 `mathtools` 的其他部分兼容。(可能会在将来的版本中修复。)提供类似功能并且被设计为与 `cleveref` 兼容的 `autonum` 包, 是一个可能的替代选择。

- `Cleveref` assumes that counters are only ever reset by the standard sectioning commands (`\chapter`, `\section`, etc.). If this is not the case, the automatic compression of consecutive cross-references into a reference range may be incorrect. Making this more flexible would be a simple task, but so far there doesn't seem to be much need for it.

`Cleveref` 假定计数器只会被标准章节命令 (`\chapter`、`\section` 等) 重置。如果不是这种情况, 连续交叉引用的自动压缩为引用范围可能是不正确的。使其更加灵活是一个简单的任务, 但迄今为止似乎没有太多

需要。

14.3 Possible New Features and Improvements 可能的新功能和改进

In no particular order:

没有特定的顺序：

- The `poorman` option could be enhanced to allow a choice of scripting language rather than just `sed` (e.g. `awk`, `perl`, ...?), but these are unlikely to be much better for those apt to complain about the use of `sed`. The portable option would be to output a T_EX “script”, but this would be *much* more work³² than I’m prepared to invest.

`poorman` 选项可以增强以允许选择脚本语言，而不仅仅是`sed`（例如`awk`, `perl`, ...?），但这些对于那些喜欢抱怨使用`sed`的人来说可能不会更好。便携式选项是输出一个 T_EX “脚本”，但这将需要更多的工作³³，而我并没有准备投入这么多工作。

- `Cleveref` doesn’t include support for all languages yet. Any contributions of translations for missing languages are most welcome! If you can contribute definitions for a missing language, ideally you should add them below the existing ones in the implementation (using those as a model), generate a patch against the original `cleveref-cn.dtx` file, and send the patch by email to the package author. However, if you don’t know how to produce a patch, you can instead just send the translations as a plain text file.

`Cleveref` 尚未包括所有语言的支持。欢迎贡献缺失语言的翻译！如果您可以为缺失语言贡献定义，最好应该在实现中添加它们（使用现有的定义作为模板），生成针对原始 `cleveref-cn.dtx` 文件的补丁，并通过电子邮件将补丁发送给包作者。但是，如果您不知道如何生成补丁，您也可以将翻译作为纯文本文件发送。

15 Thanks

³² L^AT_EX *really* isn’t suited to that kind of pattern matching task – just take a look at the code for escaping regexp special characters in this package!

³³ L^AT_EX 真的不适合那种模式匹配任务——只需查看此包中转义正则表达式特殊字符的代码！

致谢

A number of people have helped improve `cleveref` by contributing code and translations. Thanks to Michael Ummels for contributing the `amsthm` support code, and to Stefan Pinnow, Gonzalo Medina, Massimo Redaelli, Philip Hölzenspies, Aleksander Gorohovski, Benjamin Høyer, Johannes Mueller, Paulo Roberto Massa Cereda, Simon Sigurdhsson, Rafel Jaume Deyà and Eva Bosch Roura for contributing translations. Thanks also to Susanna Goldschmidt for additional help with the translations.

许多人通过贡献代码和翻译帮助改进了 `cleveref`。感谢 Michael Ummels 为贡献 `amsthm` 支持代码, Stefan Pinnow、Gonzalo Medina、Massimo Redaelli、Philip Hölzenspies、Aleksander Gorohovski、Benjamin Høyer、Johannes Mueller、Paulo Roberto Massa Cereda、Simon Sigurdhsson、Rafel Jaume Deyà 和 Eva Bosch Roura 为贡献翻译。还要感谢 Susanna Goldschmidt 为翻译提供额外帮助。

Many people have suggested improvements or reported bugs – indeed, many have put significant effort into helping investigate and fix them. So thanks (in alphabetical order) to:

许多人提出了改进意见或报告了错误——实际上, 很多人付出了大量努力来帮助调查和修复它们。因此, 感谢以下人员 (按字母顺序):

Adrian Knoth, Akim Demaille, Alan Munn, Aleksander Gorohovski, Amar Ghaisas, Anand Deopurkar, Andreas Haselbacher, Arne Meier, Bas Ploeger, Christian Tuma, Dan Luecking, David Gleich, Davide Liessi, Denis Bitouzé, Domenic Denicola, Donald Arseneau, Eric Ahlberg, Frank Mittlebach, Hendrik Maryns, Iain Cunningham, Ingolf Becker, James Sharam, Jens Mueller, Joel C. Salomon, Jonas Nyrup, Joris Pinkse, Kristian Debrabant, Leo Shidai Liu, Lev Bishop, Mak Trifkovic, Mark Cipolone, Matej Batic, Matt Gately, Matthew Skala, Michael Barber, Michael Gorven, Michal Kaut, Mico Loretan, Milania, Nicolas Dubebout, Olivier Roy, Patrick Häcker, Paul Gomme, Ricardo de Aldama Sánchez, Robert Fischer, Sebastian Ørsted, Simon Spiegel, Stefan Pinnow, Steve Dower, Ted Pavlic, Thomas Arildsen, Tobias Jores, Uwe Lück and Vadim Makarov for their help.

(If I've inadvertently missed you out, please let me know!)

(如果我不小心漏掉了您, 请告诉我!)

16 Implementation

实现

Essentially, the core of the implementation consists of writing an extra piece of information — the label “type” — to the `aux` file, and defining `\cref` commands which use this extra information to typeset the cross-reference.

本质上，实现的核心是向 `aux` 文件中写入额外的信息——标签“类型”，并定义使用此额外信息来排版交叉引用的 `\cref` 命令。

The least invasive previous implementation of this kind of thing seems to be that used by the `varioref` package. Namely, to redefine the `\refstepcounter` command so that the `\@currentlabel` macro, which usually just contains the typeset version of the counter, now contains the additional type information.

这种类型的最小侵入性的先前实现似乎是 `varioref` 宏包使用的方式。即，重新定义 `\refstepcounter` 命令，使通常只包含计数器排版版本的 `\currentlabel` 宏现在包含附加类型信息。

However, even less invasive than `varioref`’s implementation is to leave `\@currentlabel` alone, and define a new `\cref@currentlabel` macro to hold the extra information. (In fact, we store three extra pieces of information: the type, the counter value itself, and the value of the counter that causes the label’s counter to be reset, which we call the “prefix” from now on.) The standard `\@currentlabel` contents eventually get written to the `aux` file as an argument to `\newlabel` by the usual \LaTeX label mechanisms. In order to also get the information in `\cref@currentlabel` into the `aux` file, we have to redefine the `\label` macro so that it writes *two* `\newlabel` lines to the `aux` file for *each* label: the standard one, plus an additional one which contains the extra information in `\cref@currentlabel`. The additional `\newlabel` line has the suffix `@cref` added to the label name. Thus the extra information in `\cref@currentlabel` will end up in `\r@<label>@cref` when the `aux` file is re-read on the next pass.

然而，比 `varioref` 更少侵入的实现方法是保持 `\currentlabel` 不变，并定义一个新的 `\cref@currentlabel` 宏来保存额外的信息。（实际上，我们存储了三个额外的信息：类型，计数器值本身以及导致标签计数器重置的计数器的值，我们称之为“前缀”。）标准的 `\currentlabel` 内容最终会作为 \LaTeX 标签机制的参数之一被写入 `aux` 文件中的 `\newlabel`。为了将 `\cref@currentlabel`

中的信息也写入 `aux` 文件中，我们必须重新定义 `\label` 宏，使其为每个标签写入两个 `\newlabel` 行：标准的一行，以及包含 `\cref@currentlabel` 中额外信息的附加行。附加的 `\newlabel` 行在标签名称后添加了后缀 `@cref`。因此，在下一次读取 `aux` 文件时，`\cref@currentlabel` 中的额外信息将出现在 `\r@{label}@cref` 中。

Doing things this way involves less hacking to get everything else working again, since the standard cross-reference mechanism and `\ref` command are left entirely intact. `Cleveref` can then do what it likes with its own parallel set of labels, without getting in the way of other packages that play around with the cross-reference mechanism. The only downside is the additional memory resources this uses, but on modern $\text{T}_{\text{E}}\text{X}$ implementations this is unlikely to be a problem.

以这种方式做事情可以减少对其他所有东西的黑客攻击，因为标准的交叉引用机制和 `\ref` 命令完全保持不变。`Cleveref` 然后可以随意处理其自己的并行标签集，而不会妨碍其他玩弄交叉引用机制的软件包。唯一的缺点是这需要额外的内存资源，但在现代 $\text{T}_{\text{E}}\text{X}$ 实现中，这不太可能成为问题。

16.1 Redefinitions of $\text{L}^{\text{A}}\text{T}_{\text{E}}\text{X}$ Kernel Macros

$\text{L}^{\text{A}}\text{T}_{\text{E}}\text{X}$ 内核宏的重新定义

```
\refstepcounter We store the original \refstepcounter in \cref@old@refstepcounter,
\cref@currentlabel then redefine \refstepcounter so that it first calls the old version to
\cref@old@refstepcounter define the standard \@currentlabel macro, before defining cleveref's
\cref@currentlabel, which contains the extra information. The cross-
reference “type” stored in \cref@currentlabel is usually inferred from the
counter. This can be overridden by aliasing the counter name to a different
type using \crefalias. The new \refstepcounter can also take an optional
argument, which always overrides the type.
```

我们将原始命令 `\refstepcounter` 存储在 `\cref@old@refstepcounter` 中，然后重新定义 `\refstepcounter`，使其首先调用旧版本来定义标准的 `\currentlabel` 宏，然后定义 `cleveref` 的 `\cref@currentlabel`，其中包含额外的信息。存储在 `\cref@currentlabel` 中的交叉引用“类型”通常是从计数器中推断出来的。这可以通过使用 `\crefalias` 将计数器名称别名到不同类型来覆盖。新的 `\refstepcounter` 也可以带有可选参数，该参数始终覆盖类型。

```
1 \def\cref@currentlabel{}%
```

```

2 \let\cref@old@refstepcounter\refstepcounter%
3 \def\refstepcounter{%
4   \@ifnextchar[{\refstepcounter@optarg}{\refstepcounter@noarg}]
5 }%
6 \def\refstepcounter@noarg#1{%
7   \cref@old@refstepcounter{#1}%
8   \cref@constructprefix{#1}{\cref@result}%
9   \@ifundefined{cref@#1@alias}%
10    {\def\@tempa{#1}}%
11    {\def\@tempa{\csname cref@#1@alias\endcsname}}%
12   \protected@edef\cref@currentlabel{%
13     [\@tempa][\arabic{#1}][\cref@result]%
14     \csname p@#1\endcsname\csname the#1\endcsname}%
15 \def\refstepcounter@optarg[#1]#2{%
16   \cref@old@refstepcounter{#2}%
17   \cref@constructprefix{#2}{\cref@result}%
18   \@ifundefined{cref@#1@alias}%
19    {\def\@tempa{#1}}%
20    {\def\@tempa{\csname cref@#1@alias\endcsname}}%
21   \protected@edef\cref@currentlabel{%
22     [\@tempa][\arabic{#2}][\cref@result]%
23     \csname p@#2\endcsname\csname the#2\endcsname}%

```

`\label` We redefine the `\label` command to make it define *two* labels each time it's called: the standard one, and an additional `cleveref`-specific one with the suffix `@cref` added to the label name, which contains the extra information from `\cref@currentlabel`. We call the original `\label` command, stored in `\cref@old@label`, to write the standard label to the `aux` file. However, to avoid other packages messing around with the content of the parallel set of `cleveref`-specific labels, we write those directly to the `aux` file ourselves. We also allow `\label` to take an optional argument which overrides the default reference type in `\cref@currentlabel`.

我们重新定义了`\label` 命令，使其在每次调用时定义两个标签：标准标签和一个额外的 `cleveref` 特定标签，该标签名称添加了后缀`@cref`，其中包含来自`\cref@currentlabel` 的额外信息。我们调用原始的`\label` 命令，存储在`\cref@old@label` 中，将标准标签写入 `aux` 文件。但是，为了避免其他包干扰并行的 `cleveref` 特定标签集的内容，我们自己将这些标签直接写入 `aux` 文件。我们还允许`\label` 接受一个可选参数，该参数覆盖`\cref@currentlabel` 中的默认引用类型。

The redefinition of `\label` has to be postponed until the beginning of the document because some other packages postpone their own `\label` redefinitions too, and we need to override their redefinitions.

`\label` 的重新定义必须推迟到文档开头，因为其他一些包也推迟了他们自己的 `\label` 重新定义，我们需要覆盖它们的重新定义。

```

24 \AtBeginDocument{%
25   \let\cref@old@label\label%
26   \def\label{\@ifnextchar[\label@optarg\label@noarg]%
27   \let\cref@label\label%
28   \def\label@noarg#1{%
29     \cref@old@label{#1}%
30     \@bsphack%
31     \edef\@tempa{{page}}{\the\c@page}}%
32   \setcounter{page}{1}%
33   \edef\@tempb{\thepage}%
34   \expandafter\setcounter\@tempa%
35   \cref@constructprefix{page}{\cref@result}%
36   \protected@write\@auxout{%
37     {\string\newlabel{#1\cref}{\cref@currentlabel}%
38     {[\@tempb][\arabic{page}][\cref@result]\thepage}}}%
39   \@esphack}%
40   \def\label@optarg[#1]#2{%
41     \cref@old@label{#2}%
42     \@bsphack%
43     \edef\@tempa{{page}}{\the\c@page}}%
44   \setcounter{page}{1}%
45   \edef\@tempb{\thepage}%
46   \expandafter\setcounter\@tempa%
47   \cref@constructprefix{page}{\cref@result}%
48   \protected@edef\cref@currentlabel{%
49     \expandafter\cref@override@label@type%
50     \cref@currentlabel\@nil{#1}}%
51   \protected@write\@auxout{%
52     {\string\newlabel{#2\cref}{\cref@currentlabel}%
53     {[\@tempb][\arabic{page}][\cref@result]\thepage}}}%
54   \@esphack}%
55 }% end of AtBeginDocument

```

`\@makefntext` Footnotes don't use the `\refstepcounter` mechanism, but instead set `\@currentlabel` directly inside the footnote insertion item. Thus we need

to explicitly set `\cref@currentlabel` in footnotes. To avoid the definition spilling out of the footnote, we need to set it inside `\insert`'s implicit insertion item grouping level. To this end, we add the explicit `\cref@currentlabel` redefinition to `\@makefnstext`, which gets called from within `\insert` by both `\@footnotetext` and `\@mpfootnotetext`.

脚注不使用`\refstepcounter`机制,而是直接在脚注插入项目中设置`\currentlabel`。因此,我们需要在脚注中显式设置`\cref@currentlabel`。为了避免定义泄漏到脚注之外,我们需要将其设置在`\insert`的隐式插入项目分组级别中。为此,我们将显式的`\cref@currentlabel`重新定义添加到`\makefnstext`中,`\makefnstext`由`\insert`通过`\footnotetext`和`\mpfootnotetext`调用。

```

56 \let\cref@old@makefnstext\@makefnstext%
57 \long\def\@makefnstext{%
58   \cref@constructprefix{footnote}{\cref@result}%
59   \protected@edef\cref@currentlabel{%
60     [footnote][\arabic{footnote}][\cref@result]%
61     \p@footnote\@thefnmark}%
62   \cref@old@makefnstext}%

```

`\newtheorem` A `\newtheorem` command provides sufficient information to automatically define a reasonable cross-reference name for theorem-like environments (`ntheorem`'s `thref` does essentially this). So we modify `\newtheorem` (actually, the lower-level `\@othm`, `\@xnthm` and `\@ynthm` macros) so that it does so. We do this in such a way that default definitions or explicit `\crefname` definitions for theorem-like environments override those produced automatically by our modified `\newtheorem`.

`\newtheorem` 命令提供足够的信息,可以自动为类似定理的环境定义合理的交叉引用名称(例如 `ntheorem` 的 `thref` 就可以做到这一点)。因此,我们修改`\newtheorem`命令(实际上是更低级别的`\othm`、`\xnthm`和`\ynthm`宏),使其能够实现这一点。我们这样做是为了默认定义或定理类环境的显式`\crefname`定义可以覆盖我们修改后的`\newtheorem`自动生成的名称。

The catch is that, although the `\newtheorem` command provides the singular form, there's no way of reliably deducing the correct plural form. Rather than implement some half-baked attempt at this which will be wrong more often than it's right (especially in languages other than English) and generally cause more trouble than it's worth, we simply define the singular form but leave the plural form undefined. If the latter is ever needed, it will produce

a “undefined cross-reference type” warning, prompting the author to provide an appropriate `\crefname` definition themselves.

问题在于, 尽管`\newtheorem` 命令提供了单数形式, 但没有可靠的方法推断正确的复数形式。我们不想实现一些不成熟的尝试, 这些尝试更多时候是错误的 (特别是在英语以外的语言中), 而且通常会引起更多麻烦。相反, 我们只定义单数形式, 而将复数形式未定义。如果后者曾经需要, 它将产生一个“未定义的交叉引用类型”警告, 促使作者自己提供适当的`\crefname` 定义。

`\@othm` After sorting out its arguments, `\newtheorem` calls one of `\@othm`, `\@xthm` or `\@xnthm` `\@ythm`. We add automatic definitions of `\cref@<type>@name` and `\@ynthm` `\Cref@<type>@name` to all three of these, and add the theorem-like environment to the list of cross-reference types that need to be defined from components at `\begin{document}`. Since we want explicit `\crefname`’s to override these automatic definitions, we store the definitions in `\cref@<type>@name@preamble`, which are processed at `\begin{document}` if they haven’t been overridden. The default definitions also get stored in `\cref@<type>@name@preamble` later on, so they too will override these automatic definitions, which is what we want.

在整理好其参数后, `\newtheorem` 会调用 `\othm`、`\xthm` 或 `\ythm` 中的一个。我们在这三个命令中都添加了 `\cref@<type>@name` 和 `\Cref@<type>@name` 的自动定义, 并将类似定理的环境添加到交叉引用类型的列表中, 这些类型需要在 `begin{document}` 中从组件中定义。由于我们希望显式的 `\crefname` 覆盖这些自动定义, 因此我们将这些定义存储在 `\cref@<type>@name@preamble` 中, 在 `begin{document}` 处进行处理, 如果它们没有被覆盖。默认定义后来也会存储在 `\cref@<type>@name@preamble` 中, 因此它们也会覆盖这些自动定义, 这正是我们想要的。

All this means that these automatic `\newtheorem` definitions will only work when `\newtheorem` is used in the preamble. However, this is also true of (new) cross-reference types defined using `\crefname`, so it doesn’t seem worth the significant effort of getting the automatic definitions to work within the document body.

这意味着, 这些自动`\newtheorem` 定义只有在导言部分使用`\newtheorem` 时才能正常工作。然而, 使用`\crefname` 定义的 (新的) 交叉引用类型也是如此, 因此似乎不值得花费大量的精力让自动定义在文档正文中正常工作。

```
63 \let\cref@old@othm\@othm%
```

```
64 \def\@othm#1[#2]#3{%
```



```

65 \edef\@tempa{\expandafter\noexpand%
66   \csname cref@#1@name@preamble\endcsname}%
67 \edef\@tempb{\expandafter\noexpand%
68   \csname Cref@#1@name@preamble\endcsname}%
69 \def\@tempc{#3}%
70 \ifx\@tempc\@empty\relax%
71   \expandafter\gdef\@tempa{}%
72   \expandafter\gdef\@tempb{}%
73 \else%
74   \if@cref@capitalise%
75     \expandafter\expandafter\expandafter\gdef\expandafter%
76     \@tempa\expandafter{\MakeUppercase #3}%
77   \else%
78     \expandafter\expandafter\expandafter\gdef\expandafter%
79     \@tempa\expandafter{\MakeLowercase #3}%
80   \fi%
81   \expandafter\expandafter\expandafter\gdef\expandafter%
82   \@tempb\expandafter{\MakeUppercase #3}%
83 \fi%
84 \cref@stack@add{#1}{\cref@label@types}%
85 \cref@old@othm{#1}[#2]{#3}%
86 \let\cref@old@xnthm\@xnthm%
87 \def\@xnthm#1#2[#3]{%
88   \edef\@tempa{\expandafter\noexpand%
89     \csname cref@#1@name@preamble\endcsname}%
90   \edef\@tempb{\expandafter\noexpand%
91     \csname Cref@#1@name@preamble\endcsname}%
92   \def\@tempc{#2}%
93   \ifx\@tempc\@empty\relax%
94     \expandafter\gdef\@tempa{}%
95     \expandafter\gdef\@tempb{}%
96   \else%
97     \if@cref@capitalise%
98       \expandafter\expandafter\expandafter\gdef\expandafter%
99       \@tempa\expandafter{\MakeUppercase #2}%
100    \else%
101      \expandafter\expandafter\expandafter\gdef\expandafter%
102      \@tempa\expandafter{\MakeLowercase #2}%
103    \fi%
104    \expandafter\expandafter\expandafter\gdef\expandafter%
105    \@tempb\expandafter{\MakeUppercase #2}%
106  \fi%

```

```

107 \cref@stack@add{#1}{\cref@label@types}%
108 \cref@old@xnthm{#1}{#2}{#3}}%
109 \let\cref@old@ynthm\@ynthm%
110 \def\@ynthm#1#2{%
111 \edef\@tempa{\expandafter\noexpand%
112 \csname cref@#1@name@preamble\endcsname}%
113 \edef\@tempb{\expandafter\noexpand%
114 \csname Cref@#1@name@preamble\endcsname}%
115 \def\@tempc{#2}%
116 \ifx\@tempc\@empty\relax%
117 \expandafter\gdef\@tempa{}%
118 \expandafter\gdef\@tempb{}%
119 \else%
120 \if@cref@capitalise%
121 \expandafter\expandafter\expandafter\gdef\expandafter%
122 \@tempa\expandafter{\MakeUppercase #2}%
123 \else%
124 \expandafter\expandafter\expandafter\gdef\expandafter%
125 \@tempa\expandafter{\MakeLowercase #2}%
126 \fi%
127 \expandafter\expandafter\expandafter\gdef\expandafter%
128 \@tempb\expandafter{\MakeUppercase #2}%
129 \fi%
130 \cref@stack@add{#1}{\cref@label@types}%
131 \cref@old@ynthm{#1}{#2}}%

```

`\appendix` The `\appendix` command causes the top-level sectioning commands (`\chapter` or `\section`, depending on the document class) to produce appendices instead. Since we want to be able to format references to appendices separately from references to normal top-level sections, we add to the tasks that `\appendix` does: it redefines `\refstepcounter@noarg` to exceptionally override the label type for chapters or sections, as appropriate, setting it to “appendix” instead. There are two alternative definitions: one if “section” is the top-level sectioning command, and one if “chapter” fulfils that role.

`\appendix` 命令会使得顶级节命令（根据文档类不同，可能是`\chapter`或`\section`）变为附录节。由于我们希望能够单独格式化对附录节和正常顶级节的引用，因此我们需要将`\appendix`所执行的任务添加一些内容：它重新定义`\refstepcounter@noarg`，以极其特殊的方式覆盖章节的标签类型，将其设置为“附录”而不是原来的类型。有两个备选定义：一个是当“section”是

顶级节命令时，另一个是当“chapter”担任该角色时。

```

132 \@ifundefined{appendix}{}{%
133   \let\cref@old@appendix\appendix%
134   \def\appendix{%
135     \@ifundefined{chapter}{}%
136     \gdef\refstepcounter@noarg##1{%
137       \cref@old@refstepcounter{##1}%
138       \cref@constructprefix{##1}{\cref@result}%

```

We add a large value to the front of the counter data, to force references to anything in appendices to be sorted after everything else.

我们在计数器数据前面添加一个大值，以强制将对附录中任何内容的引用排序在其他所有内容之后。

```

139     \ifx\cref@result\@empty%
140       \def\cref@result{2147483647}%
141     \else%
142       \edef\cref@result{2147483647,\cref@result}%
143     \fi%

```

Override the cross-reference type of sectioning commands.

覆盖章节命令的交叉引用类型。

```

144     \def\@tempa{##1}%
145     \def\@tempb{section}%
146     \ifx\@tempa\@tempb%
147       \@ifundefined{cref@appendix@alias}%
148         {\def\@tempa{appendix}}%
149         {\def\@tempa{\cref@appendix@alias}}%
150       \protected@edef\cref@currentlabel{%
151         [\@tempa][\arabic{##1}][\cref@result]%
152         \csname p@##1\endcsname\csname the##1\endcsname}%
153     \else%
154       \def\@tempa{##1}%
155       \def\@tempb{subsection}%
156       \ifx\@tempa\@tempb%
157         \@ifundefined{cref@subappendix@alias}%
158           {\def\@tempa{subappendix}}%
159           {\def\@tempa{\cref@subappendix@alias}}%
160       \protected@edef\cref@currentlabel{%
161         [\@tempa][\arabic{##1}][\cref@result]%

```

```

162         \csname p###1\endcsname\csname the###1\endcsname}%
163     \else%
164         \def\@tempa{##1}%
165         \def\@tempb{subsubsection}%
166         \ifx\@tempa\@tempb%
167             \@ifundefined{cref@subsubappendix@alias}%
168                 {\def\@tempa{subsubappendix}}%
169                 {\def\@tempa{\cref@subsubappendix@alias}}%
170             \protected@edef\cref@currentlabel{%
171                 [\@tempa] [\arabic{##1}] [\cref@result]}%
172             \csname p###1\endcsname\csname the###1\endcsname}%
173         \else%
174             \@ifundefined{cref@###1@alias}%
175                 {\def\@tempa{##1}}%
176                 {\def\@tempa{\csname cref@###1@alias\endcsname}}%
177             \protected@edef\cref@currentlabel{%
178                 [\@tempa] [\arabic{##1}] [\cref@result]}%
179             \csname p###1\endcsname\csname the###1\endcsname}%
180         \fi%
181     \fi%
182 \fi}%
183 \cref@old@appendix%
184 }{%
185     \def\refstepcounter@noarg##1{%
186         \cref@old@refstepcounter{##1}%
187         \cref@constructprefix{##1}{\cref@result}%

```

Again, the large value added to the front of the counter data forces references to appendix items to be sorted last.

再次，计数器数据前面的大值增加了，强制参考附录项目被最后排序。

```

188     \ifx\cref@result\@empty%
189         \def\cref@result{2147483647}%
190     \else%
191         \edef\cref@result{2147483647,\cref@result}%
192     \fi%

```

Override the cross-reference type of sectioning commands.

覆盖章节命令的交叉引用类型。

```

193     \def\@tempa{##1}%
194     \def\@tempb{chapter}%

```

```

195 \ifx\@tempa\@tempb%
196 \@ifundefined{cref@appendix@alias}%
197 {\def\@tempa{appendix}}%
198 {\def\@tempa{\cref@appendix@alias}}%
199 \protected@edef\cref@currentlabel{%
200 [\@tempa][\arabic{##1}][\cref@result]%
201 \csname p@##1\endcsname\csname the##1\endcsname}%
202 \else%
203 \def\@tempa{##1}%
204 \def\@tempb{section}%
205 \ifx\@tempa\@tempb%
206 \@ifundefined{cref@subappendix@alias}%
207 {\def\@tempa{subappendix}}%
208 {\def\@tempa{\cref@subappendix@alias}}%
209 \protected@edef\cref@currentlabel{%
210 [\@tempa][\arabic{##1}][\cref@result]%
211 \csname p@##1\endcsname\csname the##1\endcsname}%
212 \else%
213 \def\@tempa{##1}%
214 \def\@tempb{subsection}%
215 \ifx\@tempa\@tempb%
216 \@ifundefined{cref@subsubappendix@alias}%
217 {\def\@tempa{subsubappendix}}%
218 {\def\@tempa{\cref@subsubappendix@alias}}%
219 \protected@edef\cref@currentlabel{%
220 [\@tempa][\arabic{##1}][\cref@result]%
221 \csname p@##1\endcsname\csname the##1\endcsname}%
222 \else%
223 \def\@tempa{##1}%
224 \def\@tempb{subsubsection}%
225 \ifx\@tempa\@tempb%
226 \@ifundefined{cref@subsubsubappendix@alias}%
227 {\def\@tempa{subsubsubappendix}}%
228 {\def\@tempa{\cref@subsubsubappendix@alias}}%
229 \protected@edef\cref@currentlabel{%
230 [\@tempa][\arabic{##1}][\cref@result]%
231 \csname p@##1\endcsname\csname the##1\endcsname}%
232 \else%
233 \@ifundefined{cref@##1@alias}%
234 {\def\@tempa{##1}}%
235 {\def\@tempa{\csname cref@##1@alias\endcsname}}%
236 \protected@edef\cref@currentlabel{%

```

```

237             [\@tempa] [\arabic{##1}] [\cref@result]%
238             \csname p@##1\endcsname\csname the##1\endcsname}%
239             \fi%
240             \fi%
241             \fi%
242             \fi}%
243     \cref@old@appendix}%
244 }%
245 }% end of \@ifundefined{appendix}

```

16.2 Utility Macros

实用宏

16.2.1 miscellaneous

杂项

\cref@gobble@optarg A basic macro that gobbles one argument plus, if present, one optional argument.

一个基本的宏，它会吞噬一个必需的参数和一个可选的参数（如果存在的话）。

```

246 \def\cref@gobble@optarg{\@ifnextchar[\@cref@gobble@optarg\cref@gobble}%]
247 \def\cref@gobble#1{%
248 \def\@cref@gobble@optarg[#1]#2{%

```

\cref@append@toks A basic utility macro for appending tokens to a token register.

一个基本的实用宏，用于将记号附加到记号寄存器中。

```

249 \def\cref@append@toks#1#2{\toks0={#2}%
250   \edef\act{\noexpand#1={\the#1\the\toks0}}%
251   \act}%

```

\cref@ifstreq A utility macro to test string equality in a catcode-independent fashion. Assumes both arguments are fully expandable. Note: using the `\pdfstrcmp` primitive from `pdftex` would be more robust, but we don't want to depend on `pdftex`. This macro suffices for our purposes.

一个实用的宏，以独立于类别码的方式测试字符串相等性。假设两个参数都是完全可扩展的。注意：使用从 `pdftex` 中的 `\pdfstrcmp` 原语会更加健壮，但我们不想依赖于 `pdftex`。对于我们的目的，这个宏足够了。

```

252 \def\cref@ifstreq#1#2#3#4{%
253   \begingroup%
254     \edef\@tempa{#1}%
255     \edef\@tempb{#2}%
256     \expandafter\def\expandafter\@tempa\expandafter{\csname\@tempa\endcsname}%
257     \expandafter\def\expandafter\@tempb\expandafter{\csname\@tempb\endcsname}%
258     \ifx\@tempa\@tempb%
259       \let\@tempc\@firstoftwo%
260     \else%
261       \let\@tempc\@secondoftwo%
262     \fi%
263     \expandafter%
264     \endgroup%
265     \@tempc{#3}{#4}}%

```

16.2.2 aux file information

aux 文件信息

`\cref@getlabel` Define some utility macros for extracting label, type, and counter information from the contents of `\cref@currentlabel`, as written to the aux file and stored in `\r@<label>\cref` when this is re-read on the next pass. Some other packages commandeer the referencing system to write label information to the aux file for other purposes, and probably use `\ref` to recover it later. We still want them to work, so our utility macros must cope with the type information being absent. However, since we need them to be fully expandable in various places, and `\@ifnextchar` is definitely *not* fully expandable, we use the work-around of having the macros store their result in another macro, whose name is passed as the second argument. This other macro *will* then be fully expandable, and can be used e.g. inside an `\edef` or `\csname...\endcsname`.

定义一些实用的宏，用于从 `\cref@currentlabel` 的内容中提取标签、类型和计数器信息，这些信息被写入到 aux 文件中，并在下一次读取时存储在 `\r@<label>\cref` 中。一些其他的宏包会占用引用系统，将标签信息写入 aux 文件，以便于其他目的，并可能使用 `\ref` 在以后恢复它。我们仍然希望它们能够正常工作，因此我们的实用宏必须处理类型信息不存在的情况。但是，由于我们需要它们在各个地方都是可完全展开的，而 `\@ifnextchar` 明显不是可完全展开的，因此我们使用的解决方法是让宏将其结果存储在另一个宏中，其名称作为第二个参数传递。这个另一个宏 将是可完全展开的，并且可以在例

如 `\edef` 或 `\csname...\endcsname` 中使用。

```

266 \def\cref@getref#1#2{%
267   \expandafter\let\expandafter#2\csname r@#1@cref\endcsname%
268   \expandafter\expandafter\expandafter\def%
269     \expandafter\expandafter\expandafter#2%
270     \expandafter\expandafter\expandafter{%
271       \expandafter\@firstoftwo#2}}%
272 \def\cref@getlabel#1#2{%
273   \cref@getref{#1}{\@tempa}%
274   \expandafter\@cref@getlabel\@tempa\@nil#2}%
275 \def\@cref@getlabel{\@ifnextchar[%]
276   \@@cref@getlabel{\@@cref@getlabel[] [] []}}%
277 \def\@@cref@getlabel[#1][#2][#3]#4\@nil#5{\def#5{#4}}%
278 \def\cref@gettype#1#2{%
279   \cref@getref{#1}{\@tempa}%
280   \expandafter\@cref@gettype\@tempa\@nil#2}%
281 \def\@cref@gettype{\@ifnextchar[%]
282   \@@cref@gettype{\@@cref@gettype[] [] []}}%
283 \def\@@cref@gettype[#1][#2][#3]#4\@nil#5{\def#5{#1}}%
284 \def\cref@getcounter#1#2{%
285   \cref@getref{#1}{\@tempa}%
286   \expandafter\@cref@getcounter\@tempa\@nil#2}%
287 \def\@cref@getcounter{\@ifnextchar[%]
288   \@@cref@getcounter{\@@cref@getcounter[] [] []}}%
289 \def\@@cref@getcounter[#1][#2][#3]#4\@nil#5{\def#5{#2}}%
290 \def\cref@getprefix#1#2{%
291   \cref@getref{#1}{\@tempa}%
292   \expandafter\@cref@getprefix\@tempa\@nil#2}%
293 \def\@cref@getprefix{\@ifnextchar[%]
294   \@@cref@getprefix{\@@cref@getprefix[] [] []}}%
295 \def\@@cref@getprefix[#1][#2][#3]#4\@nil#5{\def#5{#3}}%

```

`\cpageref@getlabel` Similarly for the page number information. Here, the information we store in addition to the page label is the page label “type” (used to distinguish different page numbering sequences, e.g. roman in the front-matter and arabic in the main text), and the numerical value of the page counter.

同样，对于页码信息也是如此。在这里，我们存储的信息除了页面标签之外，还有页面标签“类型”（用于区分不同的页面编号序列，例如前言中的罗马数字和正文中的阿拉伯数字），以及页面计数器的数值。

```

296 \def\cpageref@getref#1#2{%

```



```

297 \expandafter\let\expandafter#2\csname r@#1@cref\endcsname%
298 \expandafter\expandafter\expandafter\def%
299 \expandafter\expandafter\expandafter#2%
300 \expandafter\expandafter\expandafter{%
301 \expandafter\@secondoftwo#2}}%
302 \def\cpageref@getlabel#1#2{%
303 \cpageref@getref{#1}{\@tempa}%
304 \expandafter\@cpageref@getlabel\@tempa\@nil#2}%
305 \def\@cpageref@getlabel{\@ifnextchar[%]
306 \@@cpageref@getlabel{\@@cpageref@getlabel [] [] []}}%
307 \def\@@cpageref@getlabel[#1][#2][#3]#4\@nil#5{\def#5{#4}}%
308 \def\cpageref@gettype#1#2{%
309 \cpageref@getref{#1}{\@tempa}%
310 \expandafter\@cpageref@gettype\@tempa\@nil#2}%
311 \def\@cpageref@gettype{\@ifnextchar[%]
312 \@@cpageref@gettype{\@@cpageref@gettype [] [] []}}%
313 \def\@@cpageref@gettype[#1][#2][#3]#4\@nil#5{\def#5{#1}}%
314 \def\cpageref@getcounter#1#2{%
315 \cpageref@getref{#1}{\@tempa}%
316 \expandafter\@cpageref@getcounter\@tempa\@nil#2}%
317 \def\@cpageref@getcounter{\@ifnextchar[%]
318 \@@cpageref@getcounter{\@@cpageref@getcounter [] [] []}}%
319 \def\@@cpageref@getcounter[#1][#2][#3]#4\@nil#5{\def#5{#2}}%
320 \def\cpageref@getprefix#1#2{%
321 \cpageref@getref{#1}{\@tempa}%
322 \expandafter\@cpageref@getprefix\@tempa\@nil#2}%
323 \def\@cpageref@getprefix{\@ifnextchar[%]
324 \@@cpageref@getprefix{\@@cpageref@getprefix [] [] []}}%
325 \def\@@cpageref@getprefix[#1][#2][#3]#4\@nil#5{\def#5{#3}}%

```

`\cref@override@label@type` is a convenience macro for overriding the label type stored in `\cref@currentlabel`.

`\cref@override@label@type` 是一个方便的宏,用于覆盖存储在 `\cref@currentlabel` 中的标签类型。

`\cref@override@label@type`

```

326 \def\cref@override@label@type[#1][#2][#3]#4\@nil#5{[#5][#2][#3]#4}%

```

`\cref@constructprefix` The `\cref@constructprefix` macro constructs the prefix information stored in `\cref@currentlabel` (retrieved using `\cref@getprefix`). This informa-

tion consists of the numerical value of each counter that's involved in resetting the label's counter, i.e. it contains the numerical values of the chapter, section, subsection... numbers that (ought to) make up the formatted label produced by `\the<counter>`. E.g. if `\theequation` produces "B.1.3", this utility macro will return "2,1" (the "3" corresponds to the equation number itself, which is stored separately in `\cref@currentlabel`). The first argument is the counter in question; the return value is stored in the second argument, which should be a macro name.

`\cref@constructprefix` 宏构造存储在 `\cref@currentlabel` 中的前缀信息 (通过 `\cref@getprefix` 检索)。该信息包括重置标签计数器所涉及的每个计数器的数值, 即包含章节、子节等数字的数值, 这些数字 (应该) 组成由 `\the<counter>` 生成的格式化标签。例如, 如果 `\theequation` 生成 "B.1.3", 则此实用程序宏将返回 "2,1" ("3" 对应方程号本身, 单独存储在 `\cref@currentlabel` 中)。第一个参数是相关的计数器, 返回值存储在第二个参数中, 该参数应该是一个宏名称。

The real work is done by the recursive `\@cref@constructprefix` macro, which works its way upwards through the counters' reset lists until it reaches a counter that isn't reset by any other.

真正的工作由递归的 `\cref@constructprefix` 宏完成, 它通过计数器的重置列表向上遍历, 直到它到达一个没有被其他计数器重置的计数器。

```
327 \def\cref@constructprefix#1#2{%
328   \cref@stack@init{\@tempstack}%
```

We fully expand the first argument (the counter name) because sometimes we get passed a counter name containing a macro.

我们完全展开第一个参数 (计数器名称), 因为有时候我们会收到包含宏的计数器名称。

```
329   \edef\@tempa{\noexpand{#1}\noexpand{}}%
330   \expandafter\def\expandafter\@tempa\expandafter{\@tempa{#2}}%
331   \expandafter\@cref@constructprefix\@tempa%
332   \cref@stack@to@list{\@tempstack}{\@tempa}%
333   \expandafter\def\expandafter#2\expandafter{\@tempa}%
334 \def\@cref@constructprefix#1#2{%
335   \cref@resetby{#1}{#2}%
336   \ifx#2\relax%
337   \else%
338     \edef\@tempa{\the\csname c@#2\endcsname}%
```

```

339 \expandafter\cref@stack@push\expandafter{\@tempa}{\@tempstack}%
340 \edef\@tempa{{#2}}%
341 \expandafter\expandafter\expandafter\@cref@constructprefix%
342 \expandafter\@tempa\expandafter{\expandafter#2\expandafter}%
343 \fi}%

```

16.2.3 Stack data structures

栈数据结构

\cref@stack@init We treat multiple references, supplied as a comma-separated list to \cref or \Cref, as a stack structure. So we define some utility macros for manipulating \cref@stack@top \Cref, as a stack structure. So we define some utility macros for manipulating \cref@stack@pop stacks (\@nil is used as an end-of-stack delimiter).

\cref@stack@push 对于以逗号分隔的多个引用，我们将其视为栈结构，供\cref 或\Cref 使用。

\cref@stack@topandbottom 因此，我们定义了一些用于操作栈的实用宏（\@nil 用作栈结尾的分隔符）。

\cref@stack@add

```

344 \def\cref@stack@init#1{\def#1{\@nil}}%
\cref@stack@to@list
345 \def\cref@stack@top#1{\expandafter\@cref@stack@top#1}%
346 \def\@cref@stack@top#1,#2\@nil{#1}%
347 \def\cref@stack@pop#1{\expandafter\@cref@stack@pop#1}%
348 \def\@cref@stack@pop#1,#2\@nil#3{\def#3{#2\@nil}}%
349 \def\cref@stack@push#1#2{%
350 \expandafter\@cref@stack@push\expandafter{#2}{#1}{#2}}%
351 \def\@cref@stack@push#1#2#3{\def#3{#2,#1}}%
352 \def\cref@stack@pull#1#2{\expandafter\@cref@stack@pull#2{#1}{#2}}%
353 \def\@cref@stack@pull#1\@nil#2#3{\def#3{#1#2,\@nil}}%
354 \def\cref@stack@to@list#1#2{%
355 \cref@isstackfull{#1}%
356 \if@cref@stackfull%
357 \expandafter\expandafter\expandafter\def%
358 \expandafter\expandafter\expandafter#2%
359 \expandafter\expandafter\expandafter{%
360 \expandafter\@cref@stack@to@list#1}%
361 \else%
362 \def#2{}%
363 \fi}%
364 \def\@cref@stack@to@list#1,\@nil{#1}%
365 \def\cref@stack@topandbottom#1#2#3{%
366 \def#2{}%
367 \def#3{}%
368 \cref@isstackfull{#1}%
369 \if@cref@stackfull%

```

```

370 \edef#2{\cref@stack@top{#1}}%
371 \cref@stack@pop{#1}%
372 \cref@isstackfull{#1}%
373 \@whiles\if@cref@stackfull\fi{%
374   \edef#3{\cref@stack@top{#1}}%
375   \cref@stack@pop{#1}%
376   \cref@isstackfull{#1}}%
377 \fi}%
378 \def\cref@stack@add#1#2{%
379   \begingroup%
380   \def\@arg1{#1}%
381   \let\@tempstack#2%
382   \newif\if@notthere%
383   \@nottheretrue%
384   \cref@isstackfull{\@tempstack}%
385   \@whiles\if@cref@stackfull\fi{%
386     \edef\@tempb{\cref@stack@top{\@tempstack}}%
387     \def\@tempa{#1}%
388     \ifx\@tempa\@tempb%
389       \cref@stackfullfalse%
390       \@nottherefalse%
391     \else%
392       \cref@stack@pop{\@tempstack}%
393       \cref@isstackfull{\@tempstack}%
394     \fi}%
395   \expandafter\endgroup%
396   \if@notthere\cref@stack@push{#1}{#2}\fi}%

```

\if@cref@stackempty The \cref@isstackempty and \cref@isstackfull macros test whether a stack is empty or full, respectively, and set the corresponding conditionals

\if@cref@stackfull

\cref@isstackempty \if@cref@stackempty and \if@cref@stackfull.

\cref@isstackfull \cref@isstackempty 和 \cref@isstackfull 宏分别测试堆栈是否为空或已满，并设置相应的条件语句 \if@cref@stackempty 和 \if@cref@stackfull。

```

397 \newif\if@cref@stackempty%
398 \newif\if@cref@stackfull%
399 \def\cref@isstackempty#1{%
400   \def\@tempa{\@nil}%
401   \ifx#1\@tempa\cref@stackemptytrue%
402   \else\cref@stackemptyfalse\fi}%
403 \def\cref@isstackfull#1{%
404   \def\@tempa{\@nil}%

```

```

405 \ifx#1\@tempa\@cref@stackfullfalse%
406 \else\@cref@stackfulltrue\fi}%

```

`\cref@stack@dropempty` Drop any empty references from head of a stack.
从堆栈头部删除任何空引用。

```

407 \def\cref@stack@dropempty#1{%
408 \edef\@tempa{\cref@stack@top{#1}}%
409 \@whilesw\ifx\@tempa\@empty\fi{%
410 \cref@stack@pop{#1}%
411 \cref@isstackempty{#1}%
412 \if@cref@stackempty%
413 \let\@tempa\relax%
414 \else%
415 \edef\@tempa{\cref@stack@top{#1}}%
416 \fi}}%

```

`\cref@stack@sort` The `\cref@stack@sort` macro sorts a stack passed in #2, using the comparison macro passed in #1, which we use later to sort lists of references. We use insertion sort despite its $O(n^2)$ scaling because it's simpler to code, and because we're very unlikely to encounter lists of more than ten or so references, so in practice a more complicated $O(n \log n)$ sorting algorithm will very likely be slower anyway.

`\cref@stack@sort` 宏使用传入的 #1 比较宏对传入的堆栈 #2 进行排序，稍后我们会用它来对引用列表进行排序。尽管插入排序的 $O(n^2)$ 缩放比较简单，但我们使用它是因为我们几乎不可能遇到超过十个左右的引用列表，因此在实践中，更复杂的 $O(n \log n)$ 排序算法很可能会更慢。

```

417 \def\cref@stack@sort#1#2{%
418 \begingroup%
419 \cref@stack@init{\@sortstack}%

```

Push first element into sorted stack.

```

420 \edef\@element{\cref@stack@top{#2}}%
421 \expandafter\cref@stack@push\expandafter{\@element}{\@sortstack}%
422 \cref@stack@pop{#2}%

```

If empty elements follow first one, need to add them after it in sorted stack.
将第一个元素推入已排序堆栈中。

```

423 \cres@isstackfull{#2}%
424 \if@cres@stackfull%
425   \edef\@tempa{\cres@stack@top{#2}}%
426   \@whiles\ifx\@tempa\@empty\fi{%
427     \cres@stack@pull{}\@sortstack}%
428     \cres@stack@pop{#2}%
429     \cres@isstackempty{#2}%
430     \if@cres@stackempty%
431       \let\@tempa\relax%
432     \else%
433       \edef\@tempa{\cres@stack@top{#2}}%
434     \fi}%
435 \fi%

```

Process elements from stack.

```

436 \cres@isstackfull{#2}%
437 \@whiles\if@cres@stackfull\fi{%
438   \edef\@element{\cres@stack@top{#2}}%
439   \cres@stack@pop{#2}%

```

If empty elements follow current one, need to add them to sorted stack, right after element we're currently dealing with.

如果空元素跟在第一个元素后面，需要在排序后的堆栈中将它们添加在第一个元素之后。

```

440 \def\@empties{}%
441 \cres@isstackfull{#2}%
442 \if@cres@stackfull%
443   \edef\@tempa{\cres@stack@top{#2}}%
444   \@whiles\ifx\@tempa\@empty\fi{%
445     \edef\@empties{\@empties,%}%
446     \cres@stack@pop{#2}%
447     \cres@isstackempty{#2}%
448     \if@cres@stackempty%
449       \let\@tempa\relax%
450     \else%
451       \edef\@tempa{\cres@stack@top{#2}}%
452     \fi}%
453 \fi%

```

Insert current element into sorted stack, appending any following empty ele-

ments.

将当前元素插入已排序的栈中，并追加任何后续的空元素。

```

454 \edef\@tempa{\expandafter\noexpand\@element}%
455 \expandafter\noexpand\@empties}%
456 \expandafter\@sortstack\{noexpand#1}\}%
457 \expandafter\cref@stack@insert\@tempa%
458 \cref@isstackfull{#2}\}%
459 \expandafter\endgroup\expandafter%
460 \def\expandafter#2\expandafter{\@sortstack}\}%

```

`\cref@stack@insert` `\cref@stack@insert{#1}{#2}{#3}{#4}` inserts #1 into the appropriate location in the sorted stack #3 (appending #2 onto the end of #1 when it's inserted), using the comparison macro #4.

```

461 \def\cref@stack@insert#1#2#3#4{%
462 \let\@cmp#4%
463 \@cref@stack@insert\{#1}{#2}{#3}%
464 \cref@stack@pop{#3}\}%

```

`\@cref@stack@insert` `\@cref@stack@insert{#1}{#2}{#3}{#4}` prepends #1 to the stack resulting from inserting #2 (with #3 appended to it) into the sorted stack #4.

```

465 \def\@cref@stack@insert#1#2#3#4{%
466 \let\cref@iterate\relax%
467 \cref@isstackempty{#4}%
468 \if@cref@stackempty%
469 \cref@stack@push{#1,#2#3}{#4}%
470 \else%
471 \edef\cref@elem{\cref@stack@top{#4}}%
472 \expandafter\@cmp\expandafter{\cref@elem}{#2}{\cref@result}%
473 \ifnum\cref@result=2\relax%
474 \cref@stack@push{#1,#2#3}{#4}%
475 \else%
476 \cref@stack@pop{#4}%
477 \edef\cref@elem{\noexpand#1,\cref@elem}{\noexpand#2}%
478 \{noexpand#3}{\noexpand#4}\}%
479 \expandafter\def\expandafter\cref@iterate\expandafter%
480 \{expandafter\@cref@stack@insert\cref@elem}%
481 \fi%
482 \fi%

```

```
483 \cref@iterate}%
```

16.2.4 Reference comparison and sorting

`\cref@isrefsametype` Test if two references have same type, and set `\if@cref@sametype` conditional `\if@cref@sametype` accordingly.

```
484 \newif\if@cref@sametype%
485 \def\cref@isrefsametype#1#2{%
486 \begingroup%
```

Undefined references are treated as different from any other type, but the same type as each other.

```
487 \expandafter\ifx\csname r@#1@cref\endcsname\relax%
488 \expandafter\ifx\csname r@#2@cref\endcsname\relax%
489 \def\@after{\@cref@sametype>true}%
490 \else%
491 \def\@after{\@cref@sametype=false}%
492 \fi%
493 \else%
494 \expandafter\ifx\csname r@#2@cref\endcsname\relax%
495 \def\@after{\@cref@sametype=false}%
```

To test if two references have the same type, we actually compare the expansion of `\cref@<type>@format` rather than the `<type>` per se. This allows references with different counters but identical formatting (e.g. equations and subequations with the default formatting) to be typeset as part of the same reference group, which is almost always what we want.

```
496 \else%
497 \cref@gettype{#1}{\@type}%
498 \expandafter\expandafter\expandafter\def%
499 \expandafter\expandafter\expandafter\@format%
500 \expandafter\expandafter\expandafter{%
501 \csname cref@\@type @format\endcsname%
502 {\@dummya}{\@dummyb}{\@dummyc}}%
503 \cref@gettype{#2}{\@type}%
504 \expandafter\expandafter\expandafter\def%
505 \expandafter\expandafter\expandafter\@formatb%
506 \expandafter\expandafter\expandafter{%
```



```

507         \csname cref@\@type @format\endcsname%
508         {\@dummya}{\@dummyb}{\@dummyc}}}%
509     \ifx\@formata\@formatb%
510         \def\@after{\@cref@sametypetrue}%
511     \else%
512         \def\@after{\@cref@sametypefalse}%
513     \fi%
514 \fi%
515 \fi%
516 \expandafter\endgroup\@after}%

```

`\cpageref@isrefsametype` Test if two page references have same “type”, and set `\if@cref@sametype` conditional accordingly.

```

517 \def\cpageref@isrefsametype#1#2{%
518     \begingroup%

```

Undefined references are treated as different from any other type, but the same type as each other.

```

519     \expandafter\ifx\csname r@#1@cref\endcsname\relax%
520         \expandafter\ifx\csname r@#2@cref\endcsname\relax%
521             \def\@after{\@cref@sametypetrue}%
522         \else%
523             \def\@after{\@cref@sametypefalse}%
524         \fi%
525     \else%
526         \expandafter\ifx\csname r@#2@cref\endcsname\relax%
527             \def\@after{\@cref@sametypefalse}%
528         \else%
529             \cpageref@gettype{#1}{\@typea}%
530             \cpageref@gettype{#2}{\@typeb}%
531             \ifx\@typea\@typeb%
532                 \def\@after{\@cref@sametypetrue}%
533             \else%
534                 \def\@after{\@cref@sametypefalse}%
535             \fi%
536         \fi%
537     \fi%
538     \expandafter\endgroup\@after}%

```

`\cref@countercmp` The `\cref@countercmp` macro compares references #1 and #2 according to

their respective sets of counter data (stored in the `aux` file). It `\chardef`'s `#3` to 0 if they're equal, 1 if the first comes earlier than the second, or 2 if the first reference comes later than the second. This is used later for sorting references. `\cref@countercmp` compares the references themselves, `\cpageref@countercmp` compares their page numbers.

```

539 \def\cref@counter@first#1#2\@nil{#1}%
540 \def\cref@counter@rest#1#2\@nil{#2}%
541 \def\cref@countercmp{\@cref@countercmp{cref}}%
542 \def\cpageref@countercmp{\@cref@countercmp{cpageref}}%
543 \def\@cref@countercmp#1#2#3#4{%
544   \begingroup%
545   \def\@tempa{#2}%

```

In order to ensure empty references end up in the right place when sorting lists of multiple references, we make the comparison macro sort them before a non-empty reference.

```

546   \ifx\@tempa\@empty%
547     \def\cref@result{1}%
548   \else%
549     \def\@tempa{#3}%
550     \ifx\@tempa\@empty%
551       \def\cref@result{2}%
552     \else%

```

Conversely, undefined references come after everything else.

```

553     \expandafter\ifx\csname r@#2\cref\endcsname\relax%
554     \def\cref@result{2}%
555   \else%
556     \expandafter\ifx\csname r@#3\cref\endcsname\relax%
557     \def\cref@result{1}%
558   \else%

```

The real work of comparing two references is done by `\@@cref@countercmp`.

```

559     \csname #1\getcounter\endcsname{#2}{\@countera}%
560     \csname #1\getprefix\endcsname{#2}{\@prefixa}%
561     \csname #1\getcounter\endcsname{#3}{\@counterb}%
562     \csname #1\getprefix\endcsname{#3}{\@prefixb}%
563     \cref@stack@init{\@countstacka}%

```

```

564      \expandafter\cref@stack@push\expandafter%
565      {\@countera}{\@countstacka}%
566      \ifx\@prefixa\@empty\else%
567      \expandafter\cref@stack@push\expandafter%
568      {\@prefixa}{\@countstacka}%
569      \fi%
570      \cref@stack@init{\@countstackb}%
571      \expandafter\cref@stack@push\expandafter%
572      {\@counterb}{\@countstackb}%
573      \ifx\@prefixb\@empty\else%
574      \expandafter\cref@stack@push\expandafter%
575      {\@prefixb}{\@countstackb}%
576      \fi%
577      \@@cref@countercmp%
578      \fi%
579      \fi%
580      \fi%
581      \fi%
582      \expandafter\endgroup\expandafter%
583      \chardef\expandafter#4\expandafter=\cref@result\relax}%

```

`\@@cref@countercmp` The `\@@cref@countercmp` macro recursively compares counter components until it runs out of components for one of the references, or finds two corresponding components that are unequal.

```

584 \def\@@cref@countercmp{%
585   \let\@iterate\relax%
586   \cref@isstackempty{\@countstacka}%
587   \if@cref@stackempty%
588     \cref@isstackempty{\@countstackb}%
589     \if@cref@stackempty%
590       \def\cref@result{0}%
591     \else%
592       \def\cref@result{1}%
593     \fi%
594   \else%
595     \cref@isstackempty{\@countstackb}%
596     \if@cref@stackempty%
597       \def\cref@result{2}%
598     \else%
599       \edef\@tempa{\cref@stack@top{\@countstacka}}%
600       \cref@stack@pop{\@countstacka}%

```

```

601     \edef\@tempb{\cref@stack@top{\@countstackb}}%
602     \cref@stack@pop{\@countstackb}%
603     \ifnum\@tempa<\@tempb\relax%
604         \def\cref@result{1}%
605     \else%
606         \ifnum\@tempa>\@tempb\relax%
607             \def\cref@result{2}%
608         \else%
609             \def\@iterate{\@cref@countercmp}%
610         \fi%
611     \fi%
612 \fi%
613 \fi%
614 \@iterate}%

```

`\if@cref@inresetlist` We need to be able to determine which counter is used to reset a given counter.

`\cref@isinresetlist` Usually, resets are done by sectioning counters, and we assume that to be the

`\cref@resetby` case here. `\cref@isinresetlist` searches through one counter's reset list, stored in `\cl@<counter>`, to determine whether another counter appears there, and sets the new conditional appropriately. `\cref@resetby` searches through all the sectioning counters' reset lists, from lowest-level (subsubsection) to highest (part), checking whether the given counter is in the list, and returns the first sectioning counter in whose list it appears. (The value is returned by defining its second argument, which should be a macro name.)

```

615 \newif\if@cref@inresetlist%
616 \def\cref@isinresetlist#1#2{%
617     \begingroup%
618     \def\@counter{#1}%

```

We locally redefine `\@elt`, which appears at the head of the expansion of `\cl@<counter>`, so that entries in the reset list end up separated by commas, thus can be treated as a stack.

```

619     \def\@elt##1{##1,}%
620     \expandafter\ifx\csname cl@#2\endcsname\relax%
621         \def\cref@resetstack{\@nil}%
622     \else%
623         \edef\cref@resetstack{\csname cl@#2\endcsname\noexpand\@nil}%
624     \fi%
625     \let\@nextcounter\relax%

```

```

626 \cref@isstackfull{\cref@resetstack}%
627 \@whilesw\if@cref@stackfull\fi{%
628 \edef\@nextcounter{\cref@stack@top{\cref@resetstack}}%
629 \ifx\@nextcounter\@counter%
630 \cref@stackfullfalse%
631 \else%
632 \let\@nextcounter\relax%
633 \cref@stack@pop{\cref@resetstack}%
634 \cref@isstackfull{\cref@resetstack}%
635 \fi}%
636 \ifx\@nextcounter\relax%
637 \def\@next{\@cref@inresetlistfalse}%
638 \else%
639 \def\@next{\@cref@inresetlisttrue}%
640 \fi%
641 \expandafter%
642 \endgroup%
643 \@next}%

```

FIXME: We could easily remove the hard-coded search order in `\cref@resetby` and, say, replace it with a customisable list of counters to search in order. But, so far, I've yet to encounter a need for anything other than the hard-coded default.

```

644 \def\cref@resetby#1#2{%
645 \let#2\relax%

```

If counter in question is `subfigure` or `subtable`, check if it's reset by `figure` or `table`, respectively.

```

646 \cref@ifstreq{#1}{subfigure}{%
647 \cref@isinresetlist{#1}{figure}%
648 \if@cref@inresetlist%
649 \def#2{figure}%
650 \fi%
651 }{%
652 \cref@ifstreq{#1}{subtable}{%
653 \cref@isinresetlist{#1}{table}%
654 \if@cref@inresetlist%
655 \def#2{table}%
656 \fi%
657 }{%

```

If counter in question is `equation`, and the counter `parentequation` is defined, check if it's reset by that. The `parentequation` counter is used by `amsmath`'s `subequations` environment. Although `amsmath` doesn't implement `subequations` using counter reset lists, `cleveref`'s `amsmath` support tweaks the reset lists inside `subequations` environments to hook into this mechanism. We should really only check this when `amsmath` is loaded, but checking it anyway might catch other packages that independently implement `amsmath`'s `subequations` environment (are there any?).

```

658 \@ifundefined{cl@parentequation}{}{%
659   \cref@ifstreql{#1}{equation}{%
660     \cref@isinresetlist{#1}{parentequation}%
661     \if@cref@inresetlist%
662       \expandafter\ifnum\c@parentequation=0\else%
663         \def#2{parentequation}%
664       \fi%
665     \fi%
666   }{}%

```

\LaTeX hard-codes resetting of `enum<x>` counters by higher-level `enum<x>` counters, so we hard-code the results for these cases.

```

667 \cref@ifstreql{#1}{enumii}{%
668   \def#2{enumi}%
669 }{%
670   \cref@ifstreql{#1}{enumiii}{%
671     \def#2{enumii}%
672   }{%
673     \cref@ifstreql{#1}{enumiv}{%
674       \def#2{enumiii}%
675     }{}%
676   }%
677 }%

```

If we haven't found anything so far, check if it's reset by a sectioning command.

```

678 \ifx#2\relax%
679   \cref@isinresetlist{#1}{table}%
680   \if@cref@inresetlist%
681     \def#2{table}%
682   \else%
683     \cref@isinresetlist{#1}{subsubsection}%

```

```

684     \if@cref@inresetlist%
685         \def#2{subsubsection}%
686     \else%
687         \cref@isinresetlist{#1}{subsection}%
688         \if@cref@inresetlist%
689             \def#2{subsection}%
690         \else%
691             \cref@isinresetlist{#1}{section}%
692             \if@cref@inresetlist%
693                 \def#2{section}%
694             \else%
695                 \cref@isinresetlist{#1}{chapter}%
696                 \if@cref@inresetlist%
697                     \def#2{chapter}%
698                 \else%
699                     \cref@isinresetlist{#1}{part}%
700                     \if@cref@inresetlist%
701                         \def#2{part}%
702                     \else%
703                         \let#2\relax%
704                     \fi%
705                 \fi%
706             \fi%
707         \fi%
708     \fi%
709 \fi%
710 \fi}%

```

`\if@cref@refconsecutive` Define a new conditional to test whether two references are consecutive

`\cref@isrefconsecutive` (needed when compressing references and typesetting reference ranges).

`\cpageref@isrefconsecutive` This uses the counter and prefix (i.e. chain of counters that reset the reference's counter) information provided by `\r@{label}@cref` (via the `aux` file) to check if the prefixes are identical (i.e. the references come from the same chapter, section or whatever), and that the label counters differ by 0 or 1. `\cref@isrefconsecutive` tests the references themselves, `\cpageref@isrefconsecutive` tests their page numbers.

```

711 \newif\if@cref@refconsecutive%
712 \def\cref@isrefconsecutive{\@cref@isrefconsecutive{cref}}%
713 \def\cpageref@isrefconsecutive{\@cref@isrefconsecutive{cpageref}}%
714 \def\@cref@isrefconsecutive#1#2#3{%

```

```

715 \begingroup%
716 \def\@after{\@cref@refconsecutivefalse}%
717 \expandafter\ifx\csname r@#2@cref\endcsname\relax\else%
718   \expandafter\ifx\csname r@#3@cref\endcsname\relax\else%
719     \countdef\refa@counter=0%
720     \countdef\refb@counter=1%
721     \csname #1@getcounter\endcsname{#2}{\cref@result}%
722     \refa@counter=\cref@result%
723     \csname #1@getcounter\endcsname{#3}{\cref@result}%
724     \refb@counter=\cref@result%
725     \csname #1@getprefix\endcsname{#2}{\refa@prefix}%
726     \csname #1@getprefix\endcsname{#3}{\refb@prefix}%
727     \ifx\refa@prefix\refb@prefix%
728       \ifnum\refa@counter=\refb@counter\relax%
729         \def\@after{\@cref@refconsecutivetrue}%
730       \else%
731         \advance\refa@counter 1\relax%
732         \ifnum\refa@counter=\refb@counter\relax%
733           \def\@after{\@cref@refconsecutivetrue}%
734         \fi%
735       \fi%
736     \fi%
737   \fi%
738 \fi%
739 \expandafter\endgroup\@after}%

```

16.2.5 Reference stack processing

`\cref@processgroup` `\cref@processgroup` processes the first group of references from the stack passed in argument #2, by moving references to the stack passed in argument #3 until it encounters a reference that has a different type to those that came before. Note that empty references are treated as having the same type as the preceding one. If argument #1 is `cref` it processes references, if it's `cpageref` it processes page references.

```

740 \def\cref@processgroup#1#2#3{%
741   \cref@stack@dropempty{#2}%
742   \edef\@firstref{\cref@stack@top{#2}}%
743   \let\@nextref\@firstref%
744   \@cref@sametype true%
745   \@whiles\if@cref@sametype\fi{%

```



```

746 \expandafter\cref@stack@pull\expandafter{\@nextref}{#3}%
747 \cref@stack@pop{#2}%
748 \cref@isstackempty{#2}%
749 \if@cref@stackempty%
750   \@cref@sametypefalse%
751 \else%
752   \edef\@nextref{\cref@stack@top{#2}}%
753   \ifx\@nextref\@empty%
754     \@cref@sametypetrue%
755   \else%
756     \csname #1@isrefsametype\endcsname{\@firstref}{\@nextref}%
757   \fi%
758 \fi}}%

```

`\cref@processgroupall` `\cref@processgroupall` processes the first group of references from the stack passed in argument #2, by moving all references with the same type as the first one into the stack passed in argument #3. If argument #1 is `cref` it processes references, if it's `cpageref` it processes page references.

```

759 \def\cref@processgroupall#1#2#3{%
760   \cref@stack@init{\@tempstack}%
761   \cref@stack@dropempty{#2}%
762   \edef\@firstref{\cref@stack@top{#2}}%
763   \cref@isstackfull{#2}%
764   \@whiles\if@cref@stackfull\fi{%
765     \edef\@nextref{\cref@stack@top{#2}}%
766     \ifx\@nextref\@empty%
767       \expandafter\cref@stack@pull\expandafter{\@nextref}{#3}%
768     \else%
769       \edef\@tempa{{\@firstref}{\@nextref}}%
770       \csname #1@isrefsametype\endcsname\expandafter\@tempa%
771       \if@cref@sametype%
772         \expandafter\cref@stack@pull\expandafter{\@nextref}{#3}%
773       \else%
774         \expandafter\cref@stack@pull\expandafter{\@nextref}{\@tempstack}%
775       \fi%
776     \fi%
777   \cref@stack@pop{#2}%
778   \cref@isstackfull{#2}}%
779   \let#2\@tempstack}%

```

`\cref@processconsecutive` `\cref@processconsecutive` processes the first sequence of consecutive refer-

ences from the stack passed in #2, sets the macro passed as #3 to the first reference in the sequence, sets #4 to the last reference, and sets the counter passed in #5 to the number of consecutive references in the sequence. If argument #1 is `cref` it processes references, if it's `cpageref` it processes page references.

```
780 \def\cref@processconsecutive#1#2#3#4#5{%
```

Initialise return values to those appropriate for a single reference.

```
781 \let#4\relax%
782 #5=1\relax%
783 \edef\@nextref{\cref@stack@top{#2}}%
784 \edef#3{\@nextref}%
785 \cref@stack@pop{#2}%
786 \cref@isstackfull{#2}%
```

If stack contains multiple references, find end of consecutive references.

```
787 \if@cref@stackfull%
788 \edef\@nextref{\cref@stack@top{#2}}%
789 \expandafter\ifx\csname r@#3\cref\endcsname\relax%
790 \@cref@refconsecutivefalse%
791 \else%
```

If next reference in stack is empty, it indicates that no further compression should take place. Having served its purpose, the empty reference and any consecutive empty references are removed from the stack.

```
792 \ifx\@nextref\@empty%
793 \@cref@refconsecutivefalse%
794 \cref@stack@dropempty{#2}%
```

Otherwise, test whether next reference is consecutive or not.

```
795 \else%
796 \edef\@tempa{{#3}{\@nextref}}%
797 \csname #1@isrefconsecutive\expandafter\endcsname\@tempa%
798 \fi%
799 \fi%
```

Remove references from the stack until we find end of consecutive sequence.

```

800 \whilesw\if@cref@refconsecutive\fi{%
801   \advance#5 1\relax%
802   \let#4\@nextref%
803   \cref@stack@pop{#2}%
804   \cref@isstackempty{#2}%
805   \if@cref@stackempty%
806     \@cref@refconsecutivefalse%
807   \else%
808     \edef\@nextref{\cref@stack@top{#2}}%

```

If next reference is empty, remove any consecutive empty references and we're done.

```

809   \ifx\@nextref\@empty%
810     \@cref@refconsecutivefalse%
811     \@whilesw\ifx\@nextref\@empty\fi{%
812       \cref@stack@pop{#2}%
813       \cref@isstackempty{#2}%
814       \if@cref@stackempty%
815         \let\@nextref\relax%
816       \else%
817         \edef\@nextref{\cref@stack@top{#2}}%
818       \fi}%

```

Otherwise, test whether next reference is consecutive or not.

```

819   \else%
820     \edef\@tempa{{#4}{\@nextref}}%
821     \csname #1@isrefconsecutive\expandafter\endcsname\@tempa%
822   \fi%
823 \fi}%
824 \fi}%

```

16.2.6 Prefix-stripping

`\crefstripprefix` The `\crefstripprefix` utility command is intended for use in cross-reference format definitions. It takes two strings of characters as arguments, and strips any common prefix from the second argument. The common prefix is only stripped up to the last sequence of digits or letters in the second argument.

```

825 \newcommand\crefstripprefix[2]{%

```

```

826 \begingroup%
827   \edef\@toksa{#1}%
828   \edef\@toksb{#2}%
829   \let\cref@acc\empty%
830   \@crefstripprefix%
831   \cref@result%
832 \endgroup}%

```

The real work is done by the recursive `\@crefstripprefix` macro, which compares characters one-by-one (accumulating runs of the same type of character – digit or letter as it goes). It removes matching characters from the strings, and outputs the remaining characters from the second string (plus any accumulated characters of the same type) when it encounters the first non-matching character;

```

833 \def\@crefstripprefix{%
834   \let\@iterate\relax%
835   \def\accum@flag{0}%

```

Pop next characters from `\@toksa` and `\@toksb` string into `\@tempa` and `\@tempb`, storing previous b-string character in `\@tempc`.

```

836   \let\@tempc\@tempb%
837   \cref@poptok{\@toksa}{\@tempa}%
838   \cref@poptok{\@toksb}{\@tempb}%

```

If characters match, drop character and proceed to next.

```

839   \ifx\@tempa\@tempb\relax%
840     \def\@iterate{\@crefstripprefix}%

```

Accumulate popped character if accumulated string is empty...

```

841     \ifx\cref@acc\empty\relax%
842       \let\cref@acc\@tempb%
843     \else%

```

or if it has same catcode as previous character, and is either a letter...

```

844       \ifcat\@tempb\@tempc\relax%
845         \ifcat\@tempb a\relax%
846           \def\accum@flag{1}%
847       \else%

```

or a digit.

```

848      \expandafter\chardef\expandafter\@tempa%
849      \expandafter=\expandafter`\@tempb\relax%
850      \ifnum\@tempa>`\relax%
851      \expandafter\ifnum\@tempb<`\relax%
852      \def\accum@flag{1}%
853      \fi%
854      \fi%
855      \fi%
856      \fi%
857      \def\@tempa{1}%
858      \ifx\accum@flag\@tempa%
859      \edef\cref@acc{\cref@acc\@tempb}%
860      \else%
861      \let\cref@acc\@empty%
862      \fi%
863      \fi%

```

If characters don't match, return remaining characters from b-string, prepending any accumulated characters.

```

864      \else%
865      \ifcat\@tempb\@tempc\relax\else%
866      \let\cref@acc\@empty%
867      \fi%
868      \edef\cref@result{\cref@acc\@tempb\@toksb}%
869      \fi%
870      \@iterate}%

```

`\cref@poptok` The `\cref@poptok` macro takes two arguments, both macros. It defines `#2` to be the first token in `#1`'s expansion, and removes that token from `#1`'s definition.

```

871 \def\cref@poptok#1#2{%
872   \expandafter\expandafter\expandafter\def%
873   \expandafter\expandafter\expandafter#2%
874   \expandafter\expandafter\expandafter{%
875     \expandafter\@cref@firsttok#1\@nil}%
876   \expandafter\expandafter\expandafter\def%
877   \expandafter\expandafter\expandafter#1%
878   \expandafter\expandafter\expandafter{%

```

```

879 \expandafter\@cref@poptok#1\@nil}}%
880 \def\@cref@firsttok#1#2\@nil{#1}%
881 \def\@cref@poptok#1#2\@nil{#2}%

```

16.3 Cross-Referencing Commands

`\cref` Define the main referencing command `\cref` and the start-of-sentence variant `\Cref`, along with the reference range commands `\crefrange` and `\Crefrange`.

```

\Crefrange
882 \DeclareRobustCommand{\cref}[1]{\@cref{cref}{#1}}%
883 \DeclareRobustCommand{\Cref}[1]{\@cref{Cref}{#1}}%
884 \DeclareRobustCommand{\crefrange}[2]{\@setcrefrange{#1}{#2}{}}%
885 \DeclareRobustCommand{\Crefrange}[2]{\@setCrefrange{#1}{#2}{}}%

```

`\if@crefstarred` The `\if@crefstarred` flag is set within starred variants of `cleveref` commands. Starred variants are only defined if either the `hyperref` or `varioref` package is loaded, so we only define it in those cases. We need to `\let \if@crefstarred` to something even when not using it, otherwise `TEX` gets confused when parsing code that contains `\if@crefstarred` inside a nested if.

```

886 \@ifpackageloaded{hyperref}{\newif\if@crefstarred}{%
887 \@ifpackageloaded{varioref}{\newif\if@crefstarred}{}}%
888 \let\if@crefstarred\iffalse%

```

`\@cref` To save duplicating code, the referencing macros pass an argument determining the variant to an auxiliary macro `\@cref`, which does the real work. The `\@cref` macro is the behemoth at the heart of all the clever referencing features. It deals with grouping references by type, typesetting the conjunctions between groups, choosing the right formatting macro to use for each reference, and compressing consecutive references into ranges.

```

889 \def\@cref#1#2{%
890 \leavevmode%
891 \begingroup%
892 \def\cref@variant{#1}%
893 \def\@tempa{\in@{page}}%
894 \expandafter\@tempa\expandafter{\cref@variant}%

```

```

895 \ifin%
896   \def\cref@variant@get{cpageref}%
897 \else%
898   \def\cref@variant@get{cref}%
899 \fi%

```

Initialise some things, and put all the references into a stack called `\@refstack`. Note that we fully expand the second argument, in case it contains commands that *expand to* label names, rather than label names per se.

```

900 \countdef\count@consecutive=0%
901 \countdef\count@group=1%
902 \count@group=1%
903 \countdef\count@subgroup=2%
904 \cref@stack@init{\@refstack}%
905 \edef\@tempa{#2}%
906 \expandafter\cref@stack@push\expandafter{\@tempa}{\@refstack}%
907 \cref@isstackfull{\@refstack}%

```

Loop until the reference stack is empty.

```

908 \@whilesw\if@cref@stackfull\fi%

```

Move next group of references with same type into `\@refsubstack`.

```

909 \cref@stack@init{\@refsubstack}%
910 \if@cref@sort%
911   \expandafter\cref@processgroupall\expandafter%
912     {\cref@variant@get}{\@refstack}{\@refsubstack}%
913   \expandafter\cref@stack@sort\expandafter%
914     {\csname\cref@variant@get @countercmp\endcsname}{\@refsubstack}%
915 \else%
916   \expandafter\cref@processgroup\expandafter%
917     {\cref@variant@get}{\@refstack}{\@refsubstack}%
918 \fi%

```

Typeset appropriate conjunction between groups of reference types.

```

919 \ifnum\count@group=1\relax%
920   \advance\count@group 1\relax%
921 \else%
922   \cref@isstackfull{\@refstack}%
923   \if@cref@stackfull%

```

```

924     \@setcref@middlegroupconjunction%
925   \else%
926     \ifnum\count@group=2\relax%
927       \@setcref@pairgroupconjunction%
928     \else%
929       \@setcref@lastgroupconjunction%
930     \fi%
931   \fi%
932   \advance\count@group 1\relax%
933   \lowercase{\def\cref@variant{#1}}%
934 \fi%

```

Process groups of consecutive references until substack is empty.

```

935   \count@subgroup=1%
936   \cref@isstackfull{\@refsubstack}%
937   \@whiles\if@cref@stackfull\fi{%
938     \if@cref@compress%
939       \expandafter\cref@processconsecutive\expandafter{\cref@variant@get}%
940       {\@refsubstack}{\@beginref}{\@endref}{\count@consecutive}%

```

Empty references serve no purpose when we're not compressing, so we simply remove them and process the first non-empty reference..

```

941   \else%
942     \cref@stack@dropempty{\@refsubstack}%
943     \edef\@beginref{\cref@stack@top{\@refsubstack}}%
944     \cref@stack@pop{\@refsubstack}%
945     \let\@endref\relax%
946     \count@consecutive=1\relax%
947   \fi%

```

If the start and end labels are identical, treat it as a single reference instead of a range

```

948   \ifnum\count@consecutive>1\relax%
949     \csname\cref@variant@get @getlabel\endcsname{\@beginref}{\@labela}%
950     \csname\cref@variant@get @getlabel\endcsname{\@endref}{\@labelb}%
951     \ifx\@labela\@labelb%
952       \let\@endref\relax%
953       \count@consecutive=1\relax%
954     \fi%
955   \fi%

```


If there were only two consecutive references, keep the first one and return the second one to the substack. (We add an empty reference after it just to make sure there's no further compression.)

```

956     \ifnum\count@consecutive=2\relax%
957         \expandafter\cref@stack@push\expandafter{\@endref,}\@refsubstack}%
958     \let\@endref\relax%
959     \count@consecutive=1\relax%
960     \fi%

```

Work out which type of reference we need to typeset.

```

961     \cref@isstackfull{\@refsubstack}%
962     \if@cref@stackfull%
963         \ifnum\count@subgroup=1\relax%
964             \def\@pos{@first}%
965         \else%
966             \def\@pos{@middle}%
967         \fi%
968     \else%
969         \ifnum\count@subgroup=1\relax%
970             \def\@pos{}%
971         \else%
972             \ifnum\count@subgroup=2\relax%
973                 \def\@pos{@second}%
974             \else%
975                 \def\@pos{@last}%
976             \fi%
977         \fi%
978     \fi%

```

If there were no consecutive references, just typeset the next reference;

```

979     \ifnum\count@consecutive=1\relax%
980         \edef\@tempa{\@beginref}\@pos}%
981         \csname @set\cref@variant\expandafter\endcsname\@tempa%

```

otherwise, typeset a reference range.

```

982     \else%
983         \edef\@tempa{\@beginref}\@endref}\@pos}%
984         \csname @set\cref@variant range\expandafter\endcsname\@tempa%
985     \fi%

```

```

986     \advance\count@subgroup 1\relax%
987     \cref@isstackfull{\@refsubstack}%
988 }% end loop over reference substack
989     \cref@isstackfull{\@refstack}%

```

If we're typesetting a `\labelcref` reference and references in stack have different types, throw a warning and stop processing.

```

990     \if@cref@stackfull%
991         \def\@tempa{labelcref}%
992         \ifx\cref@variant\@tempa%
993             \protect\G@refundefinedtrue%
994             \nfss@text{\reset@font\bfseries\space ??}%
995             \@latex@warning{References in label reference on page \thepage
996                 \space have different types}%
997             \cref@stackfullfalse%
998         \fi%
999     \fi%
1000 }% end loop over main reference stack
1001 \endgroup}%

```

`\@setcref` The `\@setcref`, `\@setCref` and `\@setlabelcref` macros are called as appropriate by `\@cref` to typeset a reference. These macros just turn the `cref`, `Cref`, `\@setlavelcref` or `labelcref` variant into a macro argument and pass it along to `\@@setcref`, which deals with actually typesetting the reference by calling the appropriate type-dependent formatting macro defined by `\crefformat` etc. `\@@setcref` takes three arguments. #1 is the variant passed along by `\@set<x>ref`. #2 contains the reference itself. #3 is either empty or one of “@second”, “@middle” or “@last”, determining the type of reference group to typeset.

```

1002 \def\@setcref{\@@setcref{cref}}%
1003 \def\@setCref{\@@setcref{Cref}}%
1004 \def\@setlabelcref{\@@setcref{labelcref}}%
1005 \def\@@setcref#1#2#3{%
1006     \expandafter\ifx\csname r@#2@cref\endcsname\relax%
1007         \protect\G@refundefinedtrue%
1008         \nfss@text{\reset@font\bfseries ??}%
1009         \@latex@warning{Reference `#2' on page \thepage \space undefined}%
1010     \else%
1011         \cref@gettype{#2}{\@temptype}% puts label type in \@temptype
1012         \cref@getlabel{#2}{\@templabel}% puts label in \@templabel

```

```
1013 \expandafter\ifx\csname #1@\temptype @format#3\endcsname\relax%
```

If reference format is undefined, but we’re typesetting a `\labelcref`, fall back to default `\labelcref` format.

```
1014 \edef\@tempa{#1}\def\@tempb{labelcref}%
1015 \ifx\@tempa\@tempb\relax%
1016 \expandafter\@@@setcref\expandafter%
1017 {\csname #1@default@format#3\endcsname}{#2}%
1018 \else%
1019 \protect\G@refundefinedtrue%
1020 \nfss@text{\reset@font\bfseries ??}~\@templabel%
1021 \latex@warning{#1\space reference format for label type
1022 ~\@temptype' undefined}%
1023 \fi%
1024 \else%
1025 \expandafter\@@@setcref\expandafter%
1026 {\csname #1@\temptype @format#3\endcsname}{#2}%
1027 \fi%
1028 \fi}%
```

`\@@@setcref` We separate out the very final typesetting step into a separate macro, in order to make it easier to redefine things later to make them work with the `hyperref` package.

```
1029 \def\@@@setcref#1#2{\cref@getlabel{#2}{\@templabel}#1{\@templabel}{-}}%
```

`\@setcrefrange` The `\@setcrefrange`, `\@setCrefrange` and `\@setlabelrefrange` macros
`\@setCrefrange` are called as appropriate by `\@cref` to typeset a reference. The internal
`\@setlabelcrefrange` `\@@setcrefrange` macro deals with actually typesetting reference ranges, and
`\@@setcrefrange` takes four arguments. `#1` is the variant passed along by `\@set<x>ref`. `#2` and
`#3` contains the references themselves. `#4` is either empty or one of “@second”,
“@middle” or “@last”, determining the type of reference group to typeset.

The actual typesetting is no more complicated than in the `\@@setcref` case; it’s the error checking that makes the code longer. We now have to check whether *two* references are undefined, whether *two* reference formats are undefined, whether the reference types are consistent, and also combinations of these various errors.

```
1030 \def\@setcrefrange{\@@setcrefrange{cref}}%
```

```

1031 \def\@setCrefrange{\@setcrefrange{Cref}}%
1032 \def\@setlabelcrefrange{\@setcrefrange{labelcref}}%
1033 \def\@setcrefrange#1#2#3#4{%
1034   \begingroup%

```

Check if both references are defined.

```

1035   \expandafter\ifx\csname r@#2@cref\endcsname\relax%
1036     \protect\G@refundefinedtrue%
1037     \@latex@warning{Reference `#2' on page \thepage \space%
1038       undefined}%
1039     \expandafter\ifx\csname r@#3@cref\endcsname\relax%
1040       \nfss@text{\reset@font\bfseries ??}--%
1041       \nfss@text{\reset@font\bfseries ??}%
1042       \@latex@warning{Reference `#3' on page \thepage \space%
1043         undefined}%
1044     \else%
1045       \cref@getlabel{#3}{\@labelb}%
1046       \nfss@text{\reset@font\bfseries ??}--\@labelb%
1047     \fi%
1048   \else%
1049     \expandafter\ifx\csname r@#3@cref\endcsname\relax%
1050       \protect\G@refundefinedtrue%
1051       \cref@getlabel{#2}{\@labela}%
1052       \@labela--\nfss@text{\reset@font\bfseries ??}%
1053       \@latex@warning{Reference `#3' on page \thepage %
1054         \space undefined}%

```

If both references are defined, check that the reference format is defined.

```

1055   \else%
1056     \cref@gettype{#2}{\@typea}%
1057     \cref@gettype{#3}{\@typeb}%
1058     \cref@getlabel{#2}{\@labela}%
1059     \cref@getlabel{#3}{\@labelb}%
1060     \edef\@format{\expandafter\noexpand%
1061       \csname #1range@\@typea @format#4\endcsname}%
1062     \expandafter\ifx\@format\relax%

```

If reference format is undefined, but we're typesetting a `\labelcref`, fall back to default `\labelcref` formats.

```

1063     \edef\@tempa{#1}\def\@tempb{labelcref}%

```

```

1064      \ifx\@tempa\@tempb\relax%
1065      \expandafter\@@@setcrefrange\expandafter%
1066      {\csname #1range@default@format#4\endcsname}{#2}{#3}%
1067      \else%
1068      \protect\G@refundefinedtrue%
1069      \nfss@text{\reset@font\bfseries ??}~\@labela--\@labelb%
1070      \@latex@warning{#1 reference range format for label
1071      type `\'@typea' undefined}%
1072      \fi%
1073      \else%

```

If reference types are identical, typeset reference range, otherwise display warning.

(Note: there's no need to check if reference format for second type is defined, since if it isn't it will be caught here as a non-identical type.)

```

1074      \expandafter\expandafter\expandafter\def%
1075      \expandafter\expandafter\expandafter\@formata%
1076      \expandafter\expandafter\expandafter{%
1077      \csname #1range@\@typea @format#4\endcsname%
1078      {\@dummya}{\@dummyb}{\@dummyc}{\@dummyd}{\@dummye}{\@dummyf}}%
1079      \expandafter\expandafter\expandafter\def%
1080      \expandafter\expandafter\expandafter\@formatb%
1081      \expandafter\expandafter\expandafter{%
1082      \csname #1range@\@typeb @format#4\endcsname%
1083      {\@dummya}{\@dummyb}{\@dummyc}{\@dummyd}{\@dummye}{\@dummyf}}%
1084      \ifx\@formata\@formatb%
1085      \expandafter\@@@setcrefrange\expandafter{\@format}{#2}{#3}%
1086      \else%
1087      \protect\G@refundefinedtrue%
1088      \nfss@text{\reset@font\bfseries ??}~\@labela--\@labelb%
1089      \@latex@warning{References `#2' and `#3' in reference range
1090      on page \thepage \space have different types
1091      `\'@typea' and `\'@typeb'}%
1092      \fi%
1093      \fi%
1094      \fi%
1095      \fi%
1096      \endgroup}%

```

`\@@@setcrefrange` We again separate out the very final typesetting step into a separate macro, in order to make it easier to redefine things later to make them work with the

hyperref package.

```

1097 \def\@@@setcrefrange#1#2#3{%
1098   \cref@getlabel{#2}{\@labela}%
1099   \cref@getlabel{#3}{\@labelb}%
1100   #1{\@labela}{\@labelb}{-}{-}{-}}%

```

The typesetting of conjunctions is also separated out into separate macros, for the same reason.

```

1101 \def\@setcref@pairgroupconjunction{\crefpairgroupconjunction}%
1102 \def\@setcref@middlegroupconjunction{\crefmiddlegroupconjunction}%
1103 \def\@setcref@lastgroupconjunction{\creflastgroupconjunction}%

```

`\labelcref` Finally, we define a `\labelcref` command that returns just the typeset label part of a (multi-)reference, without the reference name, and conversely `\namecref` `\nameCref`, `\namecrefs` and `\nameCrefs` commands that return just the typeset name of a reference, without the reference label. The latter four retrieve the reference name from the corresponding `\crefname` or `\Crefname` definition, so they only work when this has been defined. We also define `\lcnameref` and `\lcnamerefs` commands which force the reference name to lowercase, for use when the `capitalise` option is enabled.

```

1104 \DeclareRobustCommand{\labelcref}[1]{\@cref{labelcref}{#1}}%
1105 \DeclareRobustCommand{\namecref}[1]{%
1106   \@setnamecref{cref}{#1}{-}}%
1107 \DeclareRobustCommand{\nameCref}[1]{%
1108   \@setnamecref{Cref}{#1}{-}}%
1109 \DeclareRobustCommand{\lcnameref}[1]{%
1110   \@setnamecref{Cref}{#1}{\MakeLowercase}}%
1111 \DeclareRobustCommand{\namecrefs}[1]{%
1112   \@setnamecref{cref}{#1}{@plural}}%
1113 \DeclareRobustCommand{\nameCrefs}[1]{%
1114   \@setnamecref{Cref}{#1}{@plural}}%
1115 \DeclareRobustCommand{\lcnamerefs}[1]{%
1116   \@setnamecref{Cref}{#1}{@plural}{\MakeLowercase}}%

```

`\@setnamecref` `\@setnamecref` is the real macro underlying all the `\namecref` commands. `#1` is the capitalisation variant, `#2` the reference, `#3` is either empty or `@plural` if the plural name should be generated, and `#4` is either empty or contains

`\MakeLowercase` if a lower-cased name should be generated.

```

1117 \def\@setnamecref#1#2#3#4{%
1118   \expandafter\ifx\csname r@#2@cref\endcsname\relax%
1119     \protect\G@refundefinedtrue%
1120     \nfss@text{\reset@font\bfseries ??}%
1121     \@latex@warning{Reference `#2' on page \thepage \space undefined}%
1122   \else%
1123     \cref@gettype{#2}{\@tempa}%
1124     \@ifundefined{#1@\@tempa @name#3}{%
1125       \protect\G@refundefinedtrue%
1126       \nfss@text{\reset@font\bfseries ??}%
1127       \@latex@warning{Reference name for label type `\@tempa' undefined}%
1128     }{%
1129       \edef\@tempa{%
1130         \expandafter\noexpand\csname #1@\@tempa @name#3\endcsname}%
1131       \expandafter\@@@setnamecref\expandafter{\@tempa}{#4}%
1132     }%
1133   \fi}%

```

`\@@@setnamecref` We again separate out the final typesetting step of the `\namecref` commands.

```

1134 \def\@@@setnamecref#1#2{%
1135   \expandafter\def\expandafter\@tempa\expandafter{#1}%
1136   \expandafter#2\@tempa}%

```

16.4 Page-Referencing Commands

`\cpageref` Define the main page referencing command `\cpageref` and the start-of-sentence variant `\Cpageref`, along with the `\cpagerefrange` and `\Cpagerefrange` page range referencing commands, and `\labelcpageref` (the counterpart to `\labelcref`).

```

1137 \DeclareRobustCommand{\cpageref}[1]{\@cref{cpageref}{#1}}%
1138 \DeclareRobustCommand{\Cpageref}[1]{\@cref{Cpageref}{#1}}%
1139 \DeclareRobustCommand{\cpagerefrange}[2]{%
1140   \@@setcpagerefrange{#1}{#2}{cref}}{%
1141   \DeclareRobustCommand{\Cpagerefrange}[2]{%
1142     \@@setcpagerefrange{#1}{#2}{Cref}}}%
1143 \DeclareRobustCommand{\labelcpageref}[1]{%
1144   \@cref{labelcpageref}{#1}}%

```

`\setcpageref` The `\setcpageref`, `\setCpageref` and `\setlabelcpageref` macros are called as appropriate by `\cref` to typeset a page reference. These macros just turn the `cref`, `Cref` or `labelcref` variant into a macro argument and pass it along to `\@@setcpageref`, which deals with actually typesetting the page reference by calling the appropriate page reference formatting macro defined by `\crefformat{page}` etc. `\@@setcpageref` takes four arguments. #1 is the variant passed along by `\setxpageref`. #2 contains the reference itself. #3 is either empty or one of “@second”, “@middle” or “@last”, determining the type of page reference group to typeset.

```

1145 \def\setcpageref{\@@setcpageref{cref}}
1146 \def\setCpageref{\@@setcpageref{Cref}}
1147 \def\setlabelcpageref{\@@setcpageref{labelcref}}
1148 \def\@@setcpageref#1#2#3{%
1149   \expandafter\ifx\csname r@#2@cref\endcsname\relax%
1150     \protect\G@refundefinedtrue%
1151     \nfss@text{\reset@font\bfseries ??}%
1152     \@latex@warning{Reference `#2' on page \thepage \space undefined}%
1153   \else%
1154     \cpageref@getlabel{#2}{\@temppage}%
1155     \expandafter\ifx\csname #1@page@format#3\endcsname\relax%

```

If reference format is undefined, but we’re typesetting a `\labelcpageref`, fall back to default `\labelcref` format.

```

1156     \edef\@tempa{#1}\def\@tempb{labelcref}%
1157     \ifx\@tempa\@tempb\relax%
1158       \expandafter\@@setcpageref\expandafter%
1159         {\csname #1@default@format#3\endcsname}{#2}%
1160     \else%
1161       \protect\G@refundefinedtrue%
1162       \nfss@text{\reset@font\bfseries ??}~\@temppage%
1163       \@latex@warning{ #1 reference format for
1164         page references undefined}%
1165     \fi%
1166   \else%
1167     \expandafter\@@setcpageref\expandafter%
1168       {\csname #1@page@format#3\endcsname}{#2}%
1169     \fi%
1170   \fi}%

```


`\@@setcpageref` We separate out the very final typesetting step into a separate macro, in order to make it easier to redefine things later to make them work with the `hyperref` package.

```
1171 \def\@@setcpageref#1#2{%
1172   \cpageref@getlabel{#2}{\@temppage}#1{\@temppage}{}}%
```

`\@@setcpagerefrange` The `\@@setcpagerefrange` macro deals with typesetting page range references, just as `\@@setcpageref` does for normal page references.

```
1173 \def\@@setcpagerefrange#1#2#3#4{%
1174   \begingroup%
```

Check if both references are defined.

```
1175   \expandafter\ifx\csname r@#1@cref\endcsname\relax%
1176     \protect\G@refundefinedtrue%
1177     \@latex@warning{Reference `#1' on page \thepage \space%
1178       undefined}%
1179   \expandafter\ifx\csname r@#2@cref\endcsname\relax%
1180     \nfss@text{\reset@font\bfseries ??}--%
1181     \nfss@text{\reset@font\bfseries ??}%
1182     \@latex@warning{Reference `#2' on page \thepage \space%
1183       undefined}%
1184   \else%
1185     \cpageref@getlabel{#2}{\@pageb}%
1186     \nfss@text{\reset@font\bfseries ??}--\@pageb%
1187     \fi%
1188   \else%
1189     \expandafter\ifx\csname r@#2@cref\endcsname\relax%
1190       \protect\G@refundefinedtrue%
1191       \cpageref@getlabel{#1}{\@pagea}%
1192       \@pagea--\nfss@text{\reset@font\bfseries ??}%
1193       \@latex@warning{Reference `#2' on page \thepage %
1194         \space undefined}%
1195     \else%
```

If both references are defined, check that the reference format is defined.

```
1195     \cpageref@getlabel{#1}{\@pagea}%
1196     \cpageref@getlabel{#2}{\@pageb}%
1197     \edef\@format{\expandafter\noexpand%
1198       \csname#3range@page@format#4\endcsname}%
1199     \csname#3range@page@format#4\endcsname}%
1200   \fi%
```

```
1200      \expandafter\ifx\@format\relax%
```

If page reference format is undefined, but we're typesetting a `\labelcpageref`, fall back to default `\labelcref` formats.

```
1201      \edef\@tempa{#3}\def\@tempb{labelcref}%
1202      \ifx\@tempa\@tempb\relax%
1203          \expandafter\@@@setcpagerefrange\expandafter%
1204              {\csname#3range@default@format#4\endcsname}{#1}{#2}%
1205      \else%
1206          \protect\G@refundefinedtrue%
1207          \nfss@text{\reset@font\bfseries ??}~\@pagea--\@pageb%
1208          \@latex@warning{#3 reference range format for page
1209              references undefined}%
1210      \fi%
1211      \else%
```

typeset page reference range,

```
1212      \expandafter\@@@setcpagerefrange\expandafter{\@format}{#1}{#2}%
1213      \fi%
1214      \fi%
1215      \fi%
1216      \endgroup}%
```

`\@@@setcpagerefrange` We again separate out the very final typesetting step into a separate macro, in order to make it easier to redefine things later to make them work with the `hyperref` package.

```
1217 \def\@@@setcpagerefrange#1#2#3{%
1218     \cpageref@getlabel{#2}{\@pagea}%
1219     \cpageref@getlabel{#3}{\@pageb}%
1220     #1{\@pagea}{\@pageb}{-}{-}{-}{-}%
```

16.5 Reference Format Customisation Commands

16.5.1 Format component commands

`\cref@label@types` The reference formats are usually constructed out of components defined by the user-level `\crefname`, `\Crefname`, `\creflabel` and `\crefrangelabel`

commands. `\cref@label@types` keeps track of label types for which components have been defined, and therefore need constructing at `\begindocument` (see below).

FIXME: We don't check if the label type is already in the list, so some formats may needlessly be redefined identically, multiple times.

```
1221 \cref@stack@init{\cref@label@types}%
```

`\crefdefaultlabelformat` The component customisation commands simply use the supplied arguments
`\crefname` to define appropriately named macros containing the formatting components.
`\Crefname` If the corresponding `\Crefname` or `\crefname` variant is not already defined,
`\creflabelformat` `\crefname` and `\Crefname` define it to be a version with the first letter capitalised or lower-cased, respectively.
`\crefrangelabelformat`

```
1222 \newcommand\crefdefaultlabelformat[1]{%
1223   \def\cref@default@label##1##2##3{#1}}%
1224 \newcommand\crefname[3]{%
1225   \@crefname{cref}{#1}{#2}{#3}{}}%
1226 \newcommand\Crefname[3]{%
1227   \@crefname{Cref}{#1}{#2}{#3}{}}%
1228 \newcommand\creflabelformat[2]{%
1229   \expandafter\def\csname cref@#1@label\endcsname##1##2##3{#2}%
1230   \cref@stack@add{#1}{\cref@label@types}}%
1231 \newcommand\crefrangelabelformat[2]{%
1232   \expandafter\def\csname cref@#1@rangelabel\endcsname%
1233     ##1##2##3##4##5##6{#2}%
1234   \cref@stack@add{#1}{\cref@label@types}}%
```

`\crefalias` The `\crefalias` command aliases a counter name to another cross-reference type, so can be used to make the same cross-reference format apply to multiple different counters.

```
1235 \newcommand\crefalias[2]{%
1236   \expandafter\def\csname cref@#1@alias\endcsname{#2}}%
```

`\crefname@preamble` The `\crefname@preamble` and `\Crefname@preamble` commands are very like
`\Crefname@preamble` the `\crefname` and `\Crefname` commands, but they tag “@preamble” onto the end of the generated macro names. They are used when defining the default formats for different languages (see Section 16.12).

```

1237 \newcommand\crefname@preamble[3]{%
1238   \@crefname{cref}{#1}{#2}{#3}{@preamble}}%
1239 \newcommand\Crefname@preamble[3]{%
1240   \@crefname{Cref}{#1}{#2}{#3}{@preamble}}%

```

cref@othervariant The following utility macro sets up the appropriate definitions for the other capitalisation variant. It defines the macro passed in #2 to be the other variant (“cref” or “Cref”) to the one specified in #1, and defines #3 to be the appropriate capitalisation-changing command. It makes use of the fact that the first character of #1 is “c” for the lower-case variant and “C” for the upper-case one.

```

1241 \def\cref@othervariant#1#2#3{\cref@@othervariant#1\@nil#2#3}%
1242 \def\cref@@othervariant#1#2\@nil#3#4{%
1243   \if#1c%
1244     \def#3{C#2}%
1245     \def#4{\MakeUppercase}%
1246   \else%
1247     \def#3{c#2}%
1248     \if@cref@capitalise%
1249       \def#4{}%
1250     \else%
1251       \def#4{\MakeLowercase}%
1252   \fi%
1253   \fi}%

```

\@crefname The \@crefname utility macro does the real work of defining format names, by defining an appropriately named command to contain the format component, and using the additional first argument (“cref” or “Cref”) to determine how to define the corresponding command with the other capitalisation. The extra fifth argument gets tagged onto the end of the generated macro names. Note that \@crefname *must not* create global definitions, or else it will break babel’s \otherlanguage, \otherlanguage* and \foreignlanguage commands.

```

1254 \def\@crefname#1#2#3#4#5{%
1255   \expandafter\def\csname #1@#2@name#5\endcsname{#3}%
1256   \expandafter\def\csname #1@#2@name@plural#5\endcsname{#4}%

```

If the other capitalisation variant is not already defined...

```

1257 \cref@othervariant{#1}{\@tempc}{\@tempd}%
1258 \@ifundefined{\@tempc @#2@name#5}{%

```

Define `\@tempa` and `\@tempb` to be partial expansions (expanded just once) of the macros for the capitalisation variant we've just defined above.

```

1259 \expandafter\expandafter\expandafter\def%
1260 \expandafter\expandafter\expandafter\@tempa%
1261 \expandafter\expandafter\expandafter{%
1262   \csname#1@#2@name\endcsname}%
1263 \expandafter\expandafter\expandafter\def%
1264 \expandafter\expandafter\expandafter\@tempb%
1265 \expandafter\expandafter\expandafter{%
1266   \csname#1@#2@name@plural\endcsname}%

```

Add the case-change command stored in `\@tempd` to the front of the definitions of `\@tempa` and `\@tempb`.

```

1267 \expandafter\ifx\@tempa\@empty\else%
1268   \expandafter\expandafter\expandafter\def%
1269   \expandafter\expandafter\expandafter\@tempa%
1270   \expandafter\expandafter\expandafter{%
1271     \expandafter\@tempd\@tempa}%
1272   \expandafter\expandafter\expandafter\def%
1273   \expandafter\expandafter\expandafter\@tempb%
1274   \expandafter\expandafter\expandafter{%
1275     \expandafter\@tempd\@tempb}%
1276 \fi%

```

Define the other capitalisation variants to be the partial expansions (expanded just once) of `\@tempa` and `\@tempb`. The `\@toksa` token register just makes the code less verbose.

```

1277 \toksdef\@toksa=0%
1278 \@toksa={%
1279   \expandafter\def\csname\@tempc @#2@name#5\endcsname}%
1280   \expandafter\the\expandafter\@toksa\expandafter{\@tempa}%
1281   \@toksa={%
1282     \expandafter\def\csname\@tempc @#2@name@plural#5\endcsname}%
1283     \expandafter\the\expandafter\@toksa\expandafter{\@tempb}%
1284   }{}%

```

Add label type to list of types that need defining from components.

```
1285 \cref@stack@add{#2}{\cref@label@types}}%
```

`\@crefconstructcomponents` The `\@crefconstructcomponents` utility macro puts the reference format components for the specified reference type into temporary macros, for use by later macros. The ridiculous number of “#” characters ensure that the correct number remain when they come to be used later (recall that pairs “##” are collapsed to a single “#” each time the code is expanded).

```
1286 \def\@crefconstructcomponents#1{%
```

Single cross-reference label format.

```
1287 \@ifundefined{cref@#1@label}{%
1288   \let\@templabel\cref@default@label%
1289 }{%
1290   \expandafter\let\expandafter\@templabel%
1291   \csname cref@#1@label\endcsname%
1292 }%
```

Reference range label format.

```
1293 \@ifundefined{cref@#1@rangelabel}{%
1294   \expandafter\def\expandafter\@tempa\expandafter{%
1295     \@templabel{####1}{####3}{####4}}%
1296   \expandafter\def\expandafter\@tempb\expandafter{%
1297     \@templabel{####2}{####5}{####6}}%
1298   \toksdef\@toksa=0%
1299   \@toksa={\def\@temprangelabel##1##2##3##4##5##6}%
1300   \expandafter\expandafter\expandafter\the%
1301   \expandafter\expandafter\expandafter\@toksa%
1302   \expandafter\expandafter\expandafter{%
1303     \expandafter\expandafter\expandafter\crefrangepreconjunction%
1304     \expandafter\@tempa\expandafter\crefrangeconjunction\@tempb%
1305     \crefrangepostconjunction}%
1306 }{%
1307   \expandafter\let\expandafter\@temprangelabel%
1308   \csname cref@#1@rangelabel\endcsname%
1309 }%
```

If we’re including names in hyperlinks, define variants of temporary label

macros which lack the hyperlink start argument (it will instead be included in the temporary name macros).

```

1310 \if@cref@nameinlink%
1311   \expandafter\def\expandafter\@templabel@first\expandafter{%
1312     \@templabel{#####1}{-}{#####3}}%
1313   \expandafter\def\expandafter\@temprangelabel@first\expandafter{%
1314     \@temprangelabel{#####1}{#####2}%
1315     {-}{#####4}{#####5}{#####6}}%
1316 \fi%

```

Get the correct number of “#”’s into the label format definitions.

```

1317 \expandafter\def\expandafter\@templabel\expandafter{%
1318   \@templabel{#####1}{#####2}{#####3}}%
1319 \expandafter\def\expandafter\@temprangelabel\expandafter{%
1320   \@temprangelabel{#####1}{#####2}{#####3}%
1321   {#####4}{#####5}{#####6}}%

```

If we’re not including names in hyperlinks, define all variants to be the same as standard temporary name macros.

```

1322 \if@cref@nameinlink\else%
1323   \let\@templabel@first\@templabel%
1324   \let\@temprangelabel@first\@temprangelabel%
1325 \fi%

```

If including names in hyperlinks, define temporary name macros to include hyperlink start argument.

```

1326 \if@cref@nameinlink%
1327   \def\@tempa##1##2{##2##1}%

```

Lower-case singular cross-reference name.

```

1328 \expandafter\expandafter\expandafter\def%
1329 \expandafter\expandafter\expandafter\@tempname%
1330 \expandafter\expandafter\expandafter{%
1331   \expandafter\@tempa\expandafter%
1332   {\csname cref@#1@name\endcsname}{#####2}}%

```

Upper-case singular cross-reference name.

```

1333 \expandafter\expandafter\expandafter\def%
1334 \expandafter\expandafter\expandafter\@tempName%
1335 \expandafter\expandafter\expandafter{%
1336   \expandafter\@tempa\expandafter%
1337   {\csname Cref@#1@name\endcsname}{#####2}}%

```

Lower-case plural cross-reference name.

```

1338 \expandafter\expandafter\expandafter\def%
1339 \expandafter\expandafter\expandafter\@tempNameplural%
1340 \expandafter\expandafter\expandafter{%
1341   \expandafter\@tempa\expandafter%
1342   {\csname cref@#1@name@plural\endcsname}{#####2}}%

```

Upper-case plural cross-reference name.

```

1343 \expandafter\expandafter\expandafter\def%
1344 \expandafter\expandafter\expandafter\@tempNameplural%
1345 \expandafter\expandafter\expandafter{%
1346   \expandafter\@tempa\expandafter%
1347   {\csname Cref@#1@name@plural\endcsname}{#####2}}%

```

For cross-reference ranges, the hyperlink start argument is #3 instead of #2, so we need a different variant of the temporary plural name macros.

```

1348 \expandafter\expandafter\expandafter\def%
1349 \expandafter\expandafter\expandafter\@tempNameplural@range%
1350 \expandafter\expandafter\expandafter{%
1351   \expandafter\@tempa\expandafter%
1352   {\csname cref@#1@name@plural\endcsname}{#####3}}%
1353 \expandafter\expandafter\expandafter\def%
1354 \expandafter\expandafter\expandafter\@tempNameplural@range%
1355 \expandafter\expandafter\expandafter{%
1356   \expandafter\@tempa\expandafter%
1357   {\csname Cref@#1@name@plural\endcsname}{#####3}}%

```

If we're not including names in hyperlinks, temporary name macros don't include the hyperlink start argument.

```

1358 \else%

```

Lower-case singular cross-reference name.


```

1359 \expandafter\def\expandafter\@tempname\expandafter{%
1360 \csname cref@#1@name\endcsname}%

```

Upper-case singular cross-reference name.

```

1361 \expandafter\def\expandafter\@tempName\expandafter{%
1362 \csname Cref@#1@name\endcsname}%

```

Lower-case plural cross-reference name.

```

1363 \expandafter\def\expandafter\@tempnameplural\expandafter{%
1364 \csname cref@#1@name@plural\endcsname}%

```

Upper-case plural cross-reference name.

```

1365 \expandafter\def\expandafter\@tempNameplural\expandafter{%
1366 \csname Cref@#1@name@plural\endcsname}%

```

Define reference range variants to be identical to normal variants.

```

1367 \let\@tempnameplural@range\@tempnameplural%
1368 \let\@tempNameplural@range\@tempNameplural%
1369 \fi%
1370 }%

```

`\@crefdefineformat` The `\@crefdefineformat` et al. macros construct calls to `\crefformat` et al. for the supplied reference type, which define the corresponding formats in terms of the format components. This is mostly just an arduous exercise in controlling macro expansion order.

```

1371 \def\@crefdefineformat#1{%
1372 \begingroup%

```

Put format components into tmp macros.

```

1373 \@crefconstructcomponents{#1}%

```

Assemble the arguments for `\crefformat`, `\Crefformat` and `\labelcrefformat` from the components.

```

1374 \expandafter\ifx\csname cref@#1@name\endcsname\@empty\relax%
1375 \expandafter\def\expandafter\@tempfirst\expandafter{\@templabel}%
1376 \else%

```

```

1377 \expandafter\expandafter\expandafter\def%
1378 \expandafter\expandafter\expandafter\@tempfirst%
1379 \expandafter\expandafter\expandafter{%
1380 \expandafter\@tempname\expandafter\nobreakspace\@templabel@first}%
1381 \fi%
1382 \expandafter\ifx\csname Cref@#1@name\endcsname\@empty\relax%
1383 \expandafter\def\expandafter\@tempFirst\expandafter{\@templabel}%
1384 \else%
1385 \expandafter\expandafter\expandafter\def%
1386 \expandafter\expandafter\expandafter\@tempFirst%
1387 \expandafter\expandafter\expandafter{%
1388 \expandafter\@tempName\expandafter\nobreakspace\@templabel@first}%
1389 \fi%
1390 \expandafter\def\expandafter\@templabel\expandafter{\@templabel}%

```

Define `\crefformat` and `\Crefformat`.

```

1391 \toksdef\@toksa=0%
1392 \@toksa={\crefformat{#1}}%
1393 \expandafter\the\expandafter\@toksa\expandafter{\@tempfirst}%
1394 \@toksa={\Crefformat{#1}}%
1395 \expandafter\the\expandafter\@toksa\expandafter{\@tempFirst}%

```

Define `\labelcrefformat` if type has custom label format.

```

1396 \@ifundefined{cref@#1@label}{}{%
1397 \@toksa={\labelcrefformat{#1}}%
1398 \expandafter\the\expandafter\@toksa\expandafter{\@templabel}%
1399 \endgroup}%

```

`\@crefrangedefineformat` Construct call to `\crefrangeformat`.

```

1400 \def\@crefrangedefineformat#1{%
1401 \begingroup%

```

Put format components into tmp macros.

```

1402 \@crefconstructcomponents{#1}%

```

Assemble the arguments for `\crefrangeformat`, `\Crefrangeformat` and `\labelcrefrangeformat` from the components.

```

1403 \expandafter\ifx\csname cref@#1@name\endcsname\@empty\relax%

```

```

1404     \expandafter\def\expandafter\@tempfirst%
1405     \expandafter{\@temprangelabel}%
1406   \else%
1407     \expandafter\expandafter\expandafter\def%
1408     \expandafter\expandafter\expandafter\@tempfirst%
1409     \expandafter\expandafter\expandafter{%
1410     \expandafter\@tempnameplural@range%
1411     \expandafter\nobreakspace\@temprangelabel@first}%
1412   \fi%
1413   \expandafter\ifx\csname Cref@#1@name\endcsname\@empty\relax%
1414     \expandafter\def\expandafter\@tempFirst%
1415     \expandafter{\@temprangelabel}%
1416   \else%
1417     \expandafter\expandafter\expandafter\def%
1418     \expandafter\expandafter\expandafter\@tempFirst%
1419     \expandafter\expandafter\expandafter{%
1420     \expandafter\@tempNameplural@range%
1421     \expandafter\nobreakspace\@temprangelabel@first}%
1422   \fi%
1423   \expandafter\def\expandafter\@temprangelabel%
1424   \expandafter{\@temprangelabel}%

```

Define \crefrangeformat and \Crefrangeformat.

```

1425   \toksdef\@toksa=0%
1426   \@toksa={\crefrangeformat{#1}}%
1427   \expandafter\the\expandafter\@toksa\expandafter{\@tempfirst}%
1428   \@toksa={\Crefrangeformat{#1}}%
1429   \expandafter\the\expandafter\@toksa\expandafter{\@tempFirst}%

```

Define \labelcrefrangeformat if type has custom label format.

```

1430   \@ifundefined{cref@#1@rangelabel}{%
1431     \@ifundefined{cref@#1@label}{\let\@tempa\relax}{\def\@tempa{}}}%
1432   {\def\@tempa{}}%
1433   \ifx\@tempa\@empty\relax%
1434     \@toksa={\labelcrefrangeformat{#1}}%
1435     \expandafter\the\expandafter\@toksa\expandafter{%
1436     \@temprangelabel}%
1437   \fi%
1438   \endgroup}%

```

`\@crefdefinemultiformat` Construct call to `\crefmultiformat`.

```
1439 \def\@crefdefinemultiformat#1{%
1440   \begingroup%
```

Put format components into tmp macros.

```
1441   \@crefconstructcomponents{#1}%
```

Assemble the arguments for `\crefmultiformat`, `\Crefmultiformat` and `\labelcrefmultiformat` from the components.

```
1442   \expandafter\ifx\csname cref@#1@name@plural\endcsname\@empty\relax%
1443     \expandafter\def\expandafter\@tempfirst%
1444       \expandafter{\@templabel}%
1445   \else%
1446     \expandafter\expandafter\expandafter\def%
1447       \expandafter\expandafter\expandafter\@tempfirst%
1448       \expandafter\expandafter\expandafter{%
1449         \expandafter\@tempnameplural%
1450         \expandafter\nobreakspace\@templabel@first}%
1451   \fi%
1452   \expandafter\ifx\csname Cref@#1@name@plural\endcsname\@empty\relax%
1453     \expandafter\def\expandafter\@tempFirst%
1454       \expandafter{\@templabel}%
1455   \else%
1456     \expandafter\expandafter\expandafter\def%
1457       \expandafter\expandafter\expandafter\@tempFirst%
1458       \expandafter\expandafter\expandafter{%
1459         \expandafter\@tempNameplural%
1460         \expandafter\nobreakspace\@templabel@first}%
1461   \fi%
1462   \expandafter\def\expandafter\@tempsecond\expandafter{%
1463     \expandafter\crefpairconjunction\@templabel}%
1464   \expandafter\def\expandafter\@tempmiddle\expandafter{%
1465     \expandafter\crefmiddleconjunction\@templabel}%
1466   \expandafter\def\expandafter\@templast\expandafter{%
1467     \expandafter\creflastconjunction\@templabel}%
1468   \expandafter\def\expandafter\@templabel\expandafter{\@templabel}%
```

Bundle all four arguments for `\crefmultiformat` in token register `\@toksb`, then call it.

```

1469 \toksdef\@toksa=0%
1470 \toksdef\@toksb=1%
1471 \@toksb={}%
1472 \expandafter\cref@append@toks\expandafter\@toksb\expandafter{%
1473   \expandafter{\@tempfirst}}%
1474 \expandafter\cref@append@toks\expandafter\@toksb\expandafter{%
1475   \expandafter{\@tempsecond}}%
1476 \expandafter\cref@append@toks\expandafter\@toksb\expandafter{%
1477   \expandafter{\@tempmiddle}}%
1478 \expandafter\cref@append@toks\expandafter\@toksb\expandafter{%
1479   \expandafter{\@templast}}%
1480 \@toksa={\crefmultiformat{#1}}%
1481 \expandafter\the\expandafter\@toksa\the\@toksb%

```

Bundle all four arguments for `\Crefmultiformat` in token register `\@toksb`, then call it.

```

1482 \@toksb={}%
1483 \expandafter\cref@append@toks\expandafter\@toksb\expandafter{%
1484   \expandafter{\@tempFirst}}%
1485 \expandafter\cref@append@toks\expandafter\@toksb\expandafter{%
1486   \expandafter{\@tempsecond}}%
1487 \expandafter\cref@append@toks\expandafter\@toksb\expandafter{%
1488   \expandafter{\@tempmiddle}}%
1489 \expandafter\cref@append@toks\expandafter\@toksb\expandafter{%
1490   \expandafter{\@templast}}%
1491 \@toksa={\Crefmultiformat{#1}}%
1492 \expandafter\the\expandafter\@toksa\the\@toksb%

```

If type has custom label format, bundle all four arguments for `\labelcrefmultiformat` in token register `\@toksb`, then call it.

```

1493 \@ifundefined{cref@#1@label}{}%
1494   \@toksb={}%
1495   \expandafter\cref@append@toks\expandafter\@toksb\expandafter{%
1496     \expandafter{\@templabel}}%
1497   \expandafter\cref@append@toks\expandafter\@toksb\expandafter{%
1498     \expandafter{\@tempsecond}}%
1499   \expandafter\cref@append@toks\expandafter\@toksb\expandafter{%
1500     \expandafter{\@tempmiddle}}%
1501   \expandafter\cref@append@toks\expandafter\@toksb\expandafter{%
1502     \expandafter{\@templast}}%
1503   \@toksa={\labelcrefmultiformat{#1}}%

```

```

1504     \expandafter\the\expandafter\@toksa\the\@toksb}%
1505 \endgroup}%

```

\@crefrangedefinemultiformat Construct call to \crefrangemultiformat.

```

1506 \def\@crefrangedefinemultiformat#1{%
1507   \begingroup%

```

Put format components into tmp macros.

```

1508   \@crefconstructcomponents{#1}%

```

Assemble the arguments that need to be passed to \crefrangemultiformat, \Crefrangemultiformat and \labelcrefrangemultiformat from the reference components.

```

1509   \expandafter\ifx\csname cref@#1@name@plural\endcsname\@empty\relax%
1510     \expandafter\def\expandafter\@tempfirst%
1511       \expandafter{\@temprangelabel}%
1512   \else%
1513     \expandafter\expandafter\expandafter\def%
1514       \expandafter\expandafter\expandafter\@tempfirst%
1515       \expandafter\expandafter\expandafter{%
1516         \expandafter\@tempnameplural@range%
1517         \expandafter\nobreakspace\@temprangelabel@first}%
1518   \fi%
1519   \expandafter\ifx\csname Cref@#1@name@plural\endcsname\@empty\relax%
1520     \expandafter\def\expandafter\@tempFirst%
1521       \expandafter{\@temprangelabel}%
1522   \else%
1523     \expandafter\expandafter\expandafter\def%
1524       \expandafter\expandafter\expandafter\@tempFirst%
1525       \expandafter\expandafter\expandafter{%
1526         \expandafter\@tempNameplural@range%
1527         \expandafter\nobreakspace\@temprangelabel@first}%
1528   \fi%
1529   \expandafter\def\expandafter\@tempsecond\expandafter{%
1530     \expandafter\crefpairconjunction\@temprangelabel}%
1531   \expandafter\def\expandafter\@tempmiddle\expandafter{%
1532     \expandafter\crefmiddleconjunction\@temprangelabel}%
1533   \expandafter\def\expandafter\@templast\expandafter{%
1534     \expandafter\creflastconjunction\@temprangelabel}%
1535   \expandafter\def\expandafter\@temprangelabel%

```

```
1536 \expandafter{\@temprangelabel}%
```

Bundle all four arguments for `\crefrangemultiformat` in token register `\@toksb`, then call it.

```
1537 \toksdef\@toksa=0%
1538 \toksdef\@toksb=1%
1539 \@toksb={}%
1540 \expandafter\cref@append@toks\expandafter\@toksb\expandafter{%
1541   \expandafter{\@tempfirst}}%
1542 \expandafter\cref@append@toks\expandafter\@toksb\expandafter{%
1543   \expandafter{\@tempsecond}}%
1544 \expandafter\cref@append@toks\expandafter\@toksb\expandafter{%
1545   \expandafter{\@tempmiddle}}%
1546 \expandafter\cref@append@toks\expandafter\@toksb\expandafter{%
1547   \expandafter{\@templast}}%
1548 \@toksa={\crefrangemultiformat{#1}}%
1549 \expandafter\the\expandafter\@toksa\the\@toksb%
```

Bundle all four arguments for `\Crefrangemultiformat` in token register `\@toksb`, then call it.

```
1550 \@toksb={}%
1551 \expandafter\cref@append@toks\expandafter\@toksb\expandafter{%
1552   \expandafter{\@tempFirst}}%
1553 \expandafter\cref@append@toks\expandafter\@toksb\expandafter{%
1554   \expandafter{\@tempsecond}}%
1555 \expandafter\cref@append@toks\expandafter\@toksb\expandafter{%
1556   \expandafter{\@tempmiddle}}%
1557 \expandafter\cref@append@toks\expandafter\@toksb\expandafter{%
1558   \expandafter{\@templast}}%
1559 \@toksa={\Crefrangemultiformat{#1}}%
1560 \expandafter\the\expandafter\@toksa\the\@toksb%
```

If type has custom label format, bundle all four arguments for `\labelcrefrangemultiformat` in token register `\@toksb`, then call it.

```
1561 \@ifundefined{cref@#1@rangelabel}{%
1562   \@ifundefined{cref@#1@label}{\let\@tempa\relax}{\def\@tempa{}}}%
1563   {\def\@tempa{}}}%
1564 \ifx\@tempa\@empty\relax%
1565   \@toksb={}%
1566   \expandafter\cref@append@toks\expandafter\@toksb\expandafter{%
```

```

1567     \expandafter{\@temprangelabel}}%
1568     \expandafter\cref@append@toks\expandafter\@toksb\expandafter{%
1569     \expandafter{\@tempsecond}}%
1570     \expandafter\cref@append@toks\expandafter\@toksb\expandafter{%
1571     \expandafter{\@tempmiddle}}%
1572     \expandafter\cref@append@toks\expandafter\@toksb\expandafter{%
1573     \expandafter{\@templast}}%
1574     \@toksa={\labelcrefrangemultiformat{#1}}%
1575     \expandafter\the\expandafter\@toksa\the\@toksb%
1576     \fi%
1577     \endgroup}%

```

`\labelcrefdefinedefaultformats` `\@labelcrefdefinedefaultformats` defines the default formats for the `\labelcref` command, which are used when no type-specific formats are defined.

```

1578 \def\@labelcrefdefinedefaultformats{%
1579     \begingroup%
1580     \toksdef\@toksa=0%
1581     \toksdef\@toksb=1%

```

Assemble the arguments that need to be passed to `\labelcrefformat`, `\labelcrefrangeformat`, `\labelcrefmultiformat` and `\labelcrefrangemultiformat`.

```

1582     \let\@templabel\cref@default@label%
1583     \expandafter\def\expandafter\@tempa\expandafter{%
1584     \@templabel{####1}{####3}{####4}}%
1585     \expandafter\def\expandafter\@tempb\expandafter{%
1586     \@templabel{####2}{####5}{####6}}%
1587     \@toksa={\def\@temprangelabel##1##2##3##4##5##6}%
1588     \expandafter\expandafter\expandafter\the%
1589     \expandafter\expandafter\expandafter\@toksa%
1590     \expandafter\expandafter\expandafter{%
1591     \expandafter\expandafter\expandafter\crefrangepreconjunction%
1592     \expandafter\@tempa\expandafter\crefrangeconjunction\@tempb%
1593     \crefrangepostconjunction}%
1594     \expandafter\def\expandafter\@templabel\expandafter{%
1595     \@templabel{#####1}{#####2}{#####3}}%
1596     \expandafter\def\expandafter\@temprangelabel\expandafter{%
1597     \@temprangelabel{#####1}{#####2}{#####3}%
1598     {#####4}{#####5}{#####6}}%

```



```

1599 \expandafter\def\expandafter\@tempsecond\expandafter{%
1600   \expandafter\crefpairconjunction\@templabel}%
1601 \expandafter\def\expandafter\@tempmiddle\expandafter{%
1602   \expandafter\crefmiddleconjunction\@templabel}%
1603 \expandafter\def\expandafter\@templast\expandafter{%
1604   \expandafter\creflastconjunction\@templabel}%
1605 \expandafter\def\expandafter\@temprangessecond\expandafter{%
1606   \expandafter\crefpairconjunction\@temprangelabel}%
1607 \expandafter\def\expandafter\@temprangemiddle\expandafter{%
1608   \expandafter\crefmiddleconjunction\@temprangelabel}%
1609 \expandafter\def\expandafter\@temprangelast\expandafter{%
1610   \expandafter\creflastconjunction\@temprangelabel}%
1611 \expandafter\def\expandafter\@templabel\expandafter{\@templabel}%
1612 \expandafter\def\expandafter\@temprangelabel%
1613   \expandafter{\@temprangelabel}%

```

Define default \labelcrefformat.

```

1614 \@toksa={\labelcrefformat{default}}%
1615 \expandafter\the\expandafter\@toksa\expandafter{\@templabel}%

```

Define default \labelcrefrangeformat.

```

1616 \@toksa={\labelcrefrangeformat{default}}%
1617 \expandafter\the\expandafter\@toksa\expandafter{\@temprangelabel}%

```

Bundle all four arguments for \labelcrefmultiformat in token register \@toksb, then call it to define default formats.

```

1618 \@toksb={}%
1619 \expandafter\cref@append@toks\expandafter\@toksb\expandafter{%
1620   \expandafter{\@templabel}}%
1621 \expandafter\cref@append@toks\expandafter\@toksb\expandafter{%
1622   \expandafter{\@tempsecond}}%
1623 \expandafter\cref@append@toks\expandafter\@toksb\expandafter{%
1624   \expandafter{\@tempmiddle}}%
1625 \expandafter\cref@append@toks\expandafter\@toksb\expandafter{%
1626   \expandafter{\@templast}}%
1627 \@toksa={\labelcrefmultiformat{default}}%
1628 \expandafter\the\expandafter\@toksa\the\@toksb%

```

Bundle all four arguments for \labelcrefrangemultiformat in token register

`\@toksb`, then call it to define default formats.

```

1629 \toksb={}%
1630 \expandafter\cref@append@toks\expandafter\@toksb\expandafter{%
1631   \expandafter{\@temprangelabel}}%
1632 \expandafter\cref@append@toks\expandafter\@toksb\expandafter{%
1633   \expandafter{\@temprangesecsecond}}%
1634 \expandafter\cref@append@toks\expandafter\@toksb\expandafter{%
1635   \expandafter{\@temprangemiddle}}%
1636 \expandafter\cref@append@toks\expandafter\@toksb\expandafter{%
1637   \expandafter{\@temprangelast}}%
1638 \@toksa={\labelcrefrangemultiformat{default}}%
1639 \expandafter\the\expandafter\@toksa\the\@toksb%
1640 \endgroup%
```

`\@crefdefineallformats` `\@crefdefineallformats` calls each of the above, to define all formats for the given type from the corresponding components.

```

1641 \def\@crefdefineallformats#1{%
1642   \@crefdefineformat{#1}%
1643   \@crefrangedefineformat{#1}%
1644   \@crefdefinemultiformat{#1}%
1645   \@crefrangedefinemultiformat{#1}}%
```

`\@crefcopyformats` `\@crefcopyformats` copies any undefined formats for type #2 from those for type #1.

```

1646 \def\@crefcopyformats#1#2{%
1647   \let\@tempf\iffalse%
1648   \@ifundefined{cref@#2@name}{%
1649     \edef\@tempa{\expandafter\noexpand\csname cref@#2@name\endcsname}%
1650     \edef\@tempb{\expandafter\noexpand\csname cref@#1@name\endcsname}%
1651     \expandafter\expandafter\expandafter\let\expandafter\@tempa\@tempb%
1652     \edef\@tempa{\expandafter\noexpand\csname cref@#2@name@plural\endcsname}%
1653     \edef\@tempb{\expandafter\noexpand\csname cref@#1@name@plural\endcsname}%
1654     \expandafter\expandafter\expandafter\let\expandafter\@tempa\@tempb%
1655   }{%
1656     \let\@tempf\ifftrue%
1657   }%
1658   \@ifundefined{Cref@#2@name}{%
1659     \edef\@tempa{\expandafter\noexpand\csname Cref@#2@name\endcsname}%
1660     \edef\@tempb{\expandafter\noexpand\csname Cref@#1@name\endcsname}%

```

```

1661 \expandafter\expandafter\expandafter\let\expandafter\@tempa\@tempb%
1662 \edef\@tempa{\expandafter\noexpand\csname Cref@#2@name@plural\endcsname}%
1663 \edef\@tempb{\expandafter\noexpand\csname Cref@#1@name@plural\endcsname}%
1664 \expandafter\expandafter\expandafter\let\expandafter\@tempa\@tempb%
1665 }{%
1666 \let\@tempf\iftrue%
1667 }%
1668 \@ifundefined{cref@#2@label}{%
1669 \@ifundefined{cref@#1@label}{}%
1670 \edef\@tempa{\expandafter\noexpand\csname cref@#2@label\endcsname}%
1671 \edef\@tempb{\expandafter\noexpand\csname cref@#1@label\endcsname}%
1672 \expandafter\expandafter\expandafter\let\expandafter\@tempa\@tempb%
1673 }{%
1674 \let\@tempf\iftrue%
1675 }%
1676 \@ifundefined{cref@#2@rangelabel}{%
1677 \@ifundefined{cref@#1@rangelabel}{}%
1678 \edef\@tempa{\expandafter\noexpand\csname cref@#2@rangelabel\endcsname}%
1679 \edef\@tempb{\expandafter\noexpand\csname cref@#1@rangelabel\endcsname}%
1680 \expandafter\expandafter\expandafter\let\expandafter\@tempa\@tempb%
1681 }{%
1682 \let\@tempf\iftrue%
1683 }%

```

If at least one format component has been customised specifically for reference type #2, generate its formats from components.

```

1684 \@tempf\relax%
1685 \@crefdefineallformats{#2}%

```

If no format components have been defined for reference type #2, copy over the low-level formats from type #1.

```

1686 \else%
1687 \@ifundefined{cref@#2@format}{%
1688 \edef\@tempa{\expandafter\noexpand\csname cref@#2@format\endcsname}%
1689 \edef\@tempb{\expandafter\noexpand\csname cref@#1@format\endcsname}%
1690 \expandafter\expandafter\expandafter\let\expandafter\@tempa\@tempb}{%
1691 \@ifundefined{crefrange@#2@format}{%
1692 \edef\@tempa{\expandafter\noexpand\csname crefrange@#2@format\endcsname}%
1693 \edef\@tempb{\expandafter\noexpand\csname crefrange@#1@format\endcsname}%
1694 \expandafter\expandafter\expandafter\let\expandafter\@tempa\@tempb}{%
1695 \@ifundefined{cref@#2@format@first}{%

```

```

1696 \edef\@tempa{\expandafter\noexpand\csname cref@#2@format@first\endcsname}%
1697 \edef\@tempb{\expandafter\noexpand\csname cref@#1@format@first\endcsname}%
1698 \expandafter\expandafter\expandafter\let\expandafter\@tempa\@tempb\{\}%
1699 \@ifundefined{cref@#2@format@second}\{%
1700 \edef\@tempa{\expandafter\noexpand\csname cref@#2@format@second\endcsname}%
1701 \edef\@tempb{\expandafter\noexpand\csname cref@#1@format@second\endcsname}%
1702 \expandafter\expandafter\expandafter\let\expandafter\@tempa\@tempb\{\}%
1703 \@ifundefined{cref@#2@format@middle}\{%
1704 \edef\@tempa{\expandafter\noexpand\csname cref@#2@format@middle\endcsname}%
1705 \edef\@tempb{\expandafter\noexpand\csname cref@#1@format@middle\endcsname}%
1706 \expandafter\expandafter\expandafter\let\expandafter\@tempa\@tempb\{\}%
1707 \@ifundefined{cref@#2@format@last}\{%
1708 \edef\@tempa{\expandafter\noexpand\csname cref@#2@format@last\endcsname}%
1709 \edef\@tempb{\expandafter\noexpand\csname cref@#1@format@last\endcsname}%
1710 \expandafter\expandafter\expandafter\let\expandafter\@tempa\@tempb\{\}%
1711 \@ifundefined{crefrange@#2@format@first}\{%
1712 \edef\@tempa{\expandafter\noexpand\csname crefrange@#2@format@first\endcsname}%
1713 \edef\@tempb{\expandafter\noexpand\csname crefrange@#1@format@first\endcsname}%
1714 \expandafter\expandafter\expandafter\let\expandafter\@tempa\@tempb\{\}%
1715 \@ifundefined{crefrange@#2@format@second}\{%
1716 \edef\@tempa{\expandafter\noexpand\csname crefrange@#2@format@second\endcsname}%
1717 \edef\@tempb{\expandafter\noexpand\csname crefrange@#1@format@second\endcsname}%
1718 \expandafter\expandafter\expandafter\let\expandafter\@tempa\@tempb\{\}%
1719 \@ifundefined{crefrange@#2@format@middle}\{%
1720 \edef\@tempa{\expandafter\noexpand\csname crefrange@#2@format@middle\endcsname}%
1721 \edef\@tempb{\expandafter\noexpand\csname crefrange@#1@format@middle\endcsname}%
1722 \expandafter\expandafter\expandafter\let\expandafter\@tempa\@tempb\{\}%
1723 \@ifundefined{crefrange@#2@format@last}\{%
1724 \edef\@tempa{\expandafter\noexpand\csname crefrange@#2@format@last\endcsname}%
1725 \edef\@tempb{\expandafter\noexpand\csname crefrange@#1@format@last\endcsname}%
1726 \expandafter\expandafter\expandafter\let\expandafter\@tempa\@tempb\{\}%
1727 %
1728 \@ifundefined{Cref@#2@format}\{%
1729 \edef\@tempa{\expandafter\noexpand\csname Cref@#2@format\endcsname}%
1730 \edef\@tempb{\expandafter\noexpand\csname Cref@#1@format\endcsname}%
1731 \expandafter\expandafter\expandafter\let\expandafter\@tempa\@tempb\{\}%
1732 \@ifundefined{Creffrange@#2@format}\{%
1733 \edef\@tempa{\expandafter\noexpand\csname Creffrange@#2@format\endcsname}%
1734 \edef\@tempb{\expandafter\noexpand\csname Creffrange@#1@format\endcsname}%
1735 \expandafter\expandafter\expandafter\let\expandafter\@tempa\@tempb\{\}%
1736 \@ifundefined{Cref@#2@format@first}\{%
1737 \edef\@tempa{\expandafter\noexpand\csname Cref@#2@format@first\endcsname}%

```

```

1738 \edef\@tempb{\expandafter\noexpand\csname Cref@#1@format@first\endcsname}%
1739 \expandafter\expandafter\expandafter\let\expandafter\@tempa\@tempb\}%
1740 \@ifundefined{Cref@#2@format@second}{%
1741 \edef\@tempa{\expandafter\noexpand\csname Cref@#2@format@second\endcsname}%
1742 \edef\@tempb{\expandafter\noexpand\csname Cref@#1@format@second\endcsname}%
1743 \expandafter\expandafter\expandafter\let\expandafter\@tempa\@tempb\}%
1744 \@ifundefined{Cref@#2@format@middle}{%
1745 \edef\@tempa{\expandafter\noexpand\csname Cref@#2@format@middle\endcsname}%
1746 \edef\@tempb{\expandafter\noexpand\csname Cref@#1@format@middle\endcsname}%
1747 \expandafter\expandafter\expandafter\let\expandafter\@tempa\@tempb\}%
1748 \@ifundefined{Cref@#2@format@last}{%
1749 \edef\@tempa{\expandafter\noexpand\csname Cref@#2@format@last\endcsname}%
1750 \edef\@tempb{\expandafter\noexpand\csname Cref@#1@format@last\endcsname}%
1751 \expandafter\expandafter\expandafter\let\expandafter\@tempa\@tempb\}%
1752 \@ifundefined{Creffrange@#2@format@first}{%
1753 \edef\@tempa{\expandafter\noexpand\csname Creffrange@#2@format@first\endcsname}%
1754 \edef\@tempb{\expandafter\noexpand\csname Creffrange@#1@format@first\endcsname}%
1755 \expandafter\expandafter\expandafter\let\expandafter\@tempa\@tempb\}%
1756 \@ifundefined{Creffrange@#2@format@second}{%
1757 \edef\@tempa{\expandafter\noexpand\csname Creffrange@#2@format@second\endcsname}%
1758 \edef\@tempb{\expandafter\noexpand\csname Creffrange@#1@format@second\endcsname}%
1759 \expandafter\expandafter\expandafter\let\expandafter\@tempa\@tempb\}%
1760 \@ifundefined{Creffrange@#2@format@middle}{%
1761 \edef\@tempa{\expandafter\noexpand\csname Creffrange@#2@format@middle\endcsname}%
1762 \edef\@tempb{\expandafter\noexpand\csname Creffrange@#1@format@middle\endcsname}%
1763 \expandafter\expandafter\expandafter\let\expandafter\@tempa\@tempb\}%
1764 \@ifundefined{Creffrange@#2@format@last}{%
1765 \edef\@tempa{\expandafter\noexpand\csname Creffrange@#2@format@last\endcsname}%
1766 \edef\@tempb{\expandafter\noexpand\csname Creffrange@#1@format@last\endcsname}%
1767 \expandafter\expandafter\expandafter\let\expandafter\@tempa\@tempb\}%
1768 %
1769 \@ifundefined{labelcref@#2@format}{%
1770 \edef\@tempa{\expandafter\noexpand\csname labelcref@#2@format\endcsname}%
1771 \edef\@tempb{\expandafter\noexpand\csname labelcref@#1@format\endcsname}%
1772 \expandafter\expandafter\expandafter\let\expandafter\@tempa\@tempb\}%
1773 \@ifundefined{labelcreffrange@#2@format}{%
1774 \edef\@tempa{\expandafter\noexpand\csname labelcreffrange@#2@format\endcsname}%
1775 \edef\@tempb{\expandafter\noexpand\csname labelcreffrange@#1@format\endcsname}%
1776 \expandafter\expandafter\expandafter\let\expandafter\@tempa\@tempb\}%
1777 \@ifundefined{labelcref@#2@format@first}{%
1778 \edef\@tempa{\expandafter\noexpand\csname labelcref@#2@format@first\endcsname}%
1779 \edef\@tempb{\expandafter\noexpand\csname labelcref@#1@format@first\endcsname}%

```

```

1780 \expandafter\expandafter\expandafter\let\expandafter\@tempa\@tempb\}%
1781 \@ifundefined{labelcref@#2@format@second}\{%
1782 \edef\@tempa{\expandafter\noexpand\csname labelcref@#2@format@second\endcsname}%
1783 \edef\@tempb{\expandafter\noexpand\csname labelcref@#1@format@second\endcsname}%
1784 \expandafter\expandafter\expandafter\let\expandafter\@tempa\@tempb\}%
1785 \@ifundefined{labelcref@#2@format@middle}\{%
1786 \edef\@tempa{\expandafter\noexpand\csname labelcref@#2@format@middle\endcsname}%
1787 \edef\@tempb{\expandafter\noexpand\csname labelcref@#1@format@middle\endcsname}%
1788 \expandafter\expandafter\expandafter\let\expandafter\@tempa\@tempb\}%
1789 \@ifundefined{labelcref@#2@format@last}\{%
1790 \edef\@tempa{\expandafter\noexpand\csname labelcref@#2@format@last\endcsname}%
1791 \edef\@tempb{\expandafter\noexpand\csname labelcref@#1@format@last\endcsname}%
1792 \expandafter\expandafter\expandafter\let\expandafter\@tempa\@tempb\}%
1793 \@ifundefined{labelcrefrange@#2@format@first}\{%
1794 \edef\@tempa{\expandafter\noexpand\csname labelcrefrange@#2@format@first\endcsname}%
1795 \edef\@tempb{\expandafter\noexpand\csname labelcrefrange@#1@format@first\endcsname}%
1796 \expandafter\expandafter\expandafter\let\expandafter\@tempa\@tempb\}%
1797 \@ifundefined{labelcrefrange@#2@format@second}\{%
1798 \edef\@tempa{\expandafter\noexpand\csname labelcrefrange@#2@format@second\endcsname}%
1799 \edef\@tempb{\expandafter\noexpand\csname labelcrefrange@#1@format@second\endcsname}%
1800 \expandafter\expandafter\expandafter\let\expandafter\@tempa\@tempb\}%
1801 \@ifundefined{labelcrefrange@#2@format@middle}\{%
1802 \edef\@tempa{\expandafter\noexpand\csname labelcrefrange@#2@format@middle\endcsname}%
1803 \edef\@tempb{\expandafter\noexpand\csname labelcrefrange@#1@format@middle\endcsname}%
1804 \expandafter\expandafter\expandafter\let\expandafter\@tempa\@tempb\}%
1805 \@ifundefined{labelcrefrange@#2@format@last}\{%
1806 \edef\@tempa{\expandafter\noexpand\csname labelcrefrange@#2@format@last\endcsname}%
1807 \edef\@tempb{\expandafter\noexpand\csname labelcrefrange@#1@format@last\endcsname}%
1808 \expandafter\expandafter\expandafter\let\expandafter\@tempa\@tempb\}%
1809 \fi%
1810 }

```

16.5.2 Format definition commands

`\crefformat` `\crefformat` et al. are lower-level commands that give complete control over the format of different reference types. They override the component-based formats, simply using the supplied arguments to define appropriately named formatting macros, which are called by `\@@setcref` etc. If the corresponding `\crefmultiformat` `\Crefformat` or `\crefformat` variant is not already defined, they define it to be a version with the first letter capitalised or lower-cased.

`\crefrangemultiformat`
`\Crefrangemultiformat`

```

1811 \newcommand\crefformat[2]{\@crefformat{cref}{#1}{#2}}%
1812 \newcommand\Crefformat[2]{\@crefformat{Cref}{#1}{#2}}%
1813 \newcommand\crefrangeformat[2]{\@crefrangeformat{crefrange}{#1}{#2}}%
1814 \newcommand\Crefrangeformat[2]{\@crefrangeformat{Crefrange}{#1}{#2}}%
1815 \newcommand\crefmultiformat[5]{%
1816   \@crefmultiformat{cref}{#1}{#2}{#3}{#4}{#5}}%
1817 \newcommand\Crefmultiformat[5]{%
1818   \@crefmultiformat{Cref}{#1}{#2}{#3}{#4}{#5}}%
1819 \newcommand\crefrangemultiformat[5]{%
1820   \@crefrangemultiformat{crefrange}{#1}{#2}{#3}{#4}{#5}}%
1821 \newcommand\Crefrangemultiformat[5]{%
1822   \@crefrangemultiformat{Crefrange}{#1}{#2}{#3}{#4}{#5}}%
1823 \newcommand\labelcrefformat[2]{%
1824   \expandafter\gdef\csname labelcref@#1@format\endcsname##1##2##3{#2}}%
1825 \newcommand\labelcrefrangeformat[2]{%
1826   \expandafter\gdef\csname labelcrefrange@#1@format\endcsname%
1827     ##1##2##3##4##5##6{#2}}%
1828 \newcommand\labelcrefmultiformat[5]{%
1829   \expandafter\gdef\csname labelcref@#1@format@first\endcsname%
1830     ##1##2##3{#2}}%
1831   \expandafter\gdef\csname labelcref@#1@format@second\endcsname%
1832     ##1##2##3{#3}}%
1833   \expandafter\gdef\csname labelcref@#1@format@middle\endcsname%
1834     ##1##2##3{#4}}%
1835   \expandafter\gdef\csname labelcref@#1@format@last\endcsname%
1836     ##1##2##3{#5}}%
1837 \newcommand\labelcrefrangemultiformat[5]{%
1838   \expandafter\gdef\csname labelcrefrange@#1@format@first\endcsname%
1839     ##1##2##3##4##5##6{#2}}%
1840   \expandafter\gdef\csname labelcrefrange@#1@format@second\endcsname%
1841     ##1##2##3##4##5##6{#3}}%
1842   \expandafter\gdef\csname labelcrefrange@#1@format@middle\endcsname%
1843     ##1##2##3##4##5##6{#4}}%
1844   \expandafter\gdef\csname labelcrefrange@#1@format@last\endcsname%
1845     ##1##2##3##4##5##6{#5}}%

```

The utility macros do the real work, by using the first argument (“cref” or “Cref”, and “crefrange” or “Crefrange”) to determine how to define the corresponding command with the other capitalisation.

`\@crefformat` `\@crefformat` defines the macros for single references.

```

1846 \def\@crefformat#1#2#3{%
1847   \begingroup%
1848     \expandafter\gdef\csname #1@#2@format\endcsname##1##2##3{#3}%

```

If the other capitalisation variant is not already defined...

```

1849   \cref@othervariant{#1}\@other\@change}%
1850   \@ifundefined{\@other @#2@format}{%

```

Define `\@tempa` to be a partial expansion (expanded just once) of the capitalisation variant we've just defined above. The `\@toska` token register just makes the code less verbose.

```

1851     \toksdef\@toska=0%
1852     \@toska={\def\@tempa##1##2##3}%
1853     \expandafter\expandafter\expandafter\the%
1854     \expandafter\expandafter\expandafter\@toska%
1855     \expandafter\expandafter\expandafter{%
1856       \csname#1@#2@format\endcsname{##1}{##2}{##3}}%

```

Add the `\@change` command to the front of the definition of `\@tempa`.

```

1857     \expandafter\expandafter\expandafter\the%
1858     \expandafter\expandafter\expandafter\@toska%
1859     \expandafter\expandafter\expandafter{%
1860       \expandafter\@change\@tempa{##1}{##2}{##3}}%

```

Define the other capitalisation variant to be the partial expansion (expanded just once) of `\@tempa`.

```

1861     \@toska={%
1862       \expandafter\gdef\csname\@other @#2@format\endcsname##1##2##3}%
1863       \expandafter\the\expandafter\@toska\expandafter{%
1864         \@tempa{##1}{##2}{##3}}%
1865     }{}%
1866   \endgroup}%

```

`\@crefrangeformat` `\@crefrangeformat` defines the macros for single reference ranges.

```

1867 \def\@crefrangeformat#1#2#3{%
1868   \begingroup%
1869   \expandafter\gdef\csname #1@#2@format\endcsname%
1870     ##1##2##3##4##5##6{#3}%

```


If the other capitalisation variant is not already defined...

```
1871 \cref@othervariant{#1}{\@other}{\@changepcase}%
1872 \@ifundefined{\@other @#2@format}{%
```

Define `\@tempa` to be a partial expansion (expanded just once) of the capitalisation variant we've just defined above. The `\@toska` token register just makes the code less verbose.

```
1873 \toksdef\@toksa=0%
1874 \@toksa={\def\@tempa##1##2##3##4##5##6}%
1875 \expandafter\expandafter\expandafter\the%
1876 \expandafter\expandafter\expandafter\@toksa%
1877 \expandafter\expandafter\expandafter{%
1878 \csname#1@#2@format\endcsname{##1}{##2}{##3}{##4}{##5}{##6}}%
```

Add the `\@changepcase` command to the front of the definition of `\@tempa`.

```
1879 \expandafter\expandafter\expandafter\the%
1880 \expandafter\expandafter\expandafter\@toksa%
1881 \expandafter\expandafter\expandafter{%
1882 \expandafter\@changepcase\@tempa{##1}{##2}{##3}{##4}{##5}{##6}}%
```

Define the other capitalisation variant to be the partial expansion (expanded just once) of `\@tempa`.

```
1883 \@toksa={\expandafter\gdef%
1884 \csname\@other @#2@format\endcsname##1##2##3##4##5##6}%
1885 \expandafter\the\expandafter\@toksa\expandafter{%
1886 \@tempa{##1}{##2}{##3}{##4}{##5}{##6}}%
1887 }{}%
1888 \endgroup}%%
```

`\@crefmultiformat` `\@crefmultiformat` defines the macros for multiple references.

```
1889 \def\@crefmultiformat#1#2#3#4#5#6{%
1890 \begingroup%
1891 \expandafter\gdef\csname #1@#2@format@first\endcsname##1##2##3{#3}%
1892 \expandafter\gdef\csname #1@#2@format@second\endcsname##1##2##3{#4}%
1893 \expandafter\gdef\csname #1@#2@format@middle\endcsname##1##2##3{#5}%
1894 \expandafter\gdef\csname #1@#2@format@last\endcsname##1##2##3{#6}%
```

If the other capitalisation variant of the first part of the multi-format definition is not already defined...

```
1895 \cdef@othervariant{#1}{\@other}{\@change}%
1896 \ifundefined{\@other @#2@format@first}{%
```

Define `\@tempa` to be a partial expansion (expanded just once) of the capitalisation variant we've just defined above. The `\@toska` token register just makes the code less verbose.

```
1897 \toksdef\@toksa=0%
1898 \@toksa={\def\@tempa##1##2##3}%
1899 \expandafter\expandafter\expandafter\the%
1900 \expandafter\expandafter\expandafter\@toksa%
1901 \expandafter\expandafter\expandafter{%
1902 \csname#1@#2@format@first\endcsname{##1}{##2}{##3}}%
```

Add the `\@change` command to the front of the definition of `\@tempa`.

```
1903 \expandafter\expandafter\expandafter\the%
1904 \expandafter\expandafter\expandafter\@toksa%
1905 \expandafter\expandafter\expandafter{%
1906 \expandafter\@change\@tempa{##1}{##2}{##3}}%
```

Define the other capitalisation variant to be the partial expansion (expanded just once) of `\@tempa`.

```
1907 \@toksa={%
1908 \expandafter\gdef\csname\@other @#2@format@first\endcsname%
1909 ##1##2##3}%
1910 \expandafter\the\expandafter\@toksa\expandafter{%
1911 \@tempa{##1}{##2}{##3}}%
1912 }{}}%
```

The other parts of the multi-format definition are defined to be identical for both capitalisation variants.

```
1913 \ifundefined{\@other @#2@format@second}{%
1914 \@toksa={%
1915 \expandafter\global\expandafter\let%
1916 \csname\@other @#2@format@second\endcsname}%
1917 \expandafter\the\expandafter\@toksa%
1918 \csname #1@#2@format@second\endcsname%
```

```

1919 }{}%
1920 \@ifundefined{\@other @#2@format@middle}{%
1921   \@toksa={%
1922     \expandafter\global\expandafter\let%
1923     \csname\@other @#2@format@middle\endcsname}%
1924     \expandafter\the\expandafter\@toksa%
1925     \csname #1@#2@format@middle\endcsname%
1926   }{}%
1927   \@ifundefined{\@other @#2@format@last}{%
1928     \@toksa={%
1929       \expandafter\global\expandafter\let%
1930       \csname\@other @#2@format@last\endcsname}%
1931       \expandafter\the\expandafter\@toksa%
1932       \csname #1@#2@format@last\endcsname%
1933     }{}%
1934   \endgroup}%

```

`\@crefrangemultiformat` `\@crefmultiformat` defines the macros for reference ranges within multiple references.

```

1935 \def\@crefrangemultiformat#1#2#3#4#5#6{%
1936   \begingroup%
1937     \expandafter\gdef\csname #1@#2@format@first\endcsname%
1938       ##1##2##3##4##5##6{#3}%
1939     \expandafter\gdef\csname #1@#2@format@second\endcsname%
1940       ##1##2##3##4##5##6{#4}%
1941     \expandafter\gdef\csname #1@#2@format@middle\endcsname%
1942       ##1##2##3##4##5##6{#5}%
1943     \expandafter\gdef\csname #1@#2@format@last\endcsname%
1944       ##1##2##3##4##5##6{#6}%

```

If the other capitalisation variant of the first part of the multi-format definition is not already defined...

```

1945   \cref@othervariant{#1}{\@other}{\@changepcase}%
1946   \@ifundefined{\@other @#2@format@first}{%

```

Define `\@tempa` to be a partial expansion (expanded just once) of the capitalisation variant we've just defined above. The `\@toska` token register just makes the code less verbose.

```

1947   \toksdef\@toksa=0%

```

```

1948 \toksa={\def\@tempa##1##2##3##4##5##6}%
1949 \expandafter\expandafter\expandafter\the%
1950 \expandafter\expandafter\expandafter\@toksa%
1951 \expandafter\expandafter\expandafter{%
1952 \csname#1@#2@format@first\endcsname%
1953 {##1}{##2}{##3}{##4}{##5}{##6}}%

```

Add the `\@changeCase` command to the front of the definition of `\@tempa`.

```

1954 \expandafter\expandafter\expandafter\the%
1955 \expandafter\expandafter\expandafter\@toksa%
1956 \expandafter\expandafter\expandafter{%
1957 \expandafter\@changeCase\@tempa{##1}{##2}{##3}{##4}{##5}{##6}}%

```

Define the other capitalisation variant to be the partial expansion (expanded just once) of `\@tempa`.

```

1958 \@toksa={%
1959 \expandafter\gdef\csname\@other @#2@format@first\endcsname%
1960 ##1##2##3##4##5##6}%
1961 \expandafter\the\expandafter\@toksa\expandafter{%
1962 \@tempa{##1}{##2}{##3}{##4}{##5}{##6}}%
1963 }{}%

```

The other parts of the multi-format definition are defined to be identical for both capitalisation variants.

```

1964 \@ifundefined{\@other @#2@format@second}{%
1965 \toksa={%
1966 \expandafter\global\expandafter\let%
1967 \csname\@other @#2@format@second\endcsname}%
1968 \expandafter\the\expandafter\@toksa%
1969 \csname #1@#2@format@second\endcsname%
1970 }{}%
1971 \@ifundefined{\@other @#2@format@middle}{%
1972 \toksa={%
1973 \expandafter\global\expandafter\let%
1974 \csname\@other @#2@format@middle\endcsname}%
1975 \expandafter\the\expandafter\@toksa%
1976 \csname #1@#2@format@middle\endcsname%
1977 }{}%
1978 \@ifundefined{\@other @#2@format@last}{%
1979 \toksa={%

```

```

1980      \expandafter\global\expandafter\let%
1981      \csname\@other @#2@format@last\endcsname}%
1982      \expandafter\the\expandafter\@toksa%
1983      \csname #1@#2@format@last\endcsname%
1984      }{}%
1985      \endgroup}%

```

16.6 Support for Other Packages

16.6.1 hyperref support

hyperref If the `hyperref` package is loaded, we add hyperlink support to `cleveref`. Since `hyperref` messes around with some of the same L^AT_EX internals as we do, we also have to override some of its redefinitions so that they work with `cleveref`.

```

1986 \let\if@cref@hyperrefloaded\iffalse%
1987 \let\cref@addtoreset@addtoreset%
1988 \@ifpackageloaded{hyperref}{%
1989   \@ifpackagewith{hyperref}{implicit=false}{%
1990     \let\if@cref@hyperrefloaded\iftrue%
1991     \PackageWarning{cleveref}{hyperref package loaded with
1992       implicit=false option - disabling cleveref's hyperref support.
1993       This situation is not supported by cleveref, and there's no guarantee
1994       anything will work. You're on your own!}%
1995   }{%
1996     \let\if@cref@hyperrefloaded\iftrue%
1997     \PackageInfo{cleveref}{`hyperref' support loaded}%

```

`hyperref` redefines the L^AT_EX kernel `\@addtoreset` macro (sigh), but we sometimes need the vanilla version without the `hyperref` shenanigans. `hyperref` saves the original in `\HyOrg@addtoreset`. So we create yet *another* version called `\cref@addtotreset`, which is always let to the original `\@addtoreset`, wherever that's found.

```

1998   \let\cref@addtoreset\HyOrg@addtoreset%

```

`\cref@hyperlinkname` We define a utility macro to extract the hyperlink supplied by `hyperref` (via `\cref@hyperlinkurl` the aux file). Note that `hyperref` adds the hyperlink info to the standard

`\newlabel` line in the aux file, so we have to retrieve it from the standard `\r@<label>`, *not* the one suffixed with `@cref` that we've created ourselves.

```

1999   \def\cref@hyperlinkname#1{\expandafter\expandafter\expandafter%
2000     \@fourthoffive\csname r@#1\endcsname}%
2001   \def\cref@hyperlinkurl#1{\expandafter\expandafter\expandafter%
2002     \@fifthoffive\csname r@#1\endcsname}%

```

`\cref@hyperlink` Because of the way the cross-referencing formatting commands work, we will need to use a delimited argument to specify the text to be turned into a hyperlink. So we define a variant of `hyperref`'s `\hyper@@link` command that takes the hyperlink text as an argument delimited by `\@nil`, instead of a standard argument. (We only ever need the `link` hyperlink type in `cleveref`, so we don't bother providing `\hyper@@link`'s optional argument.)

```

2003   \def\cref@hyperlink#1#2#3\@nil{\hyper@@link[link]{#1}{#2}{#3}}%

```

`\H@refstepcounter` The `hyperref` package stores the original `\refstepcounter` definition as `\H@refstepcounter`. Unfortunately, it plasters `\H@refstepcounter` all over the place, sometimes bypassing `\refstepcounter` entirely. So we're forced to modify `\H@refstepcounter` itself, in order to ensure that the extra information we need is stored in `\cref@currentlabel`.

```

2004   \let\cref@oldH@refstepcounter\H@refstepcounter%
2005   \def\H@refstepcounter#1{%
2006     \cref@oldH@refstepcounter{#1}%
2007     \cref@constructprefix{#1}{\cref@result}%
2008     \@ifundefined{cref@#1@alias}%
2009       {\def\@tempa{#1}}%
2010       {\def\@tempa{\csname cref@#1@alias\endcsname}}%
2011     \protected@edef\cref@currentlabel{%
2012       [\@tempa][\arabic{#1}][\cref@result]%
2013       \csname p@#1\endcsname\csname the#1\endcsname}}%

```

`\refstepcounter@noarg` `hyperref`'s `\refstepcounter`, which ends up stored in our `\refstepcounter@optarg` `\cref@old@refstepcounter`, already calls `\H@refstepcounter`, and we just redefined the latter to store the extra information. So we only need to change `\cref@currentlabel` in *our* `\refstepcounter` if an optional argument was supplied. Note that, in this case, the mechanism for setting `\cref@currentlabel` is slightly different than it is without `hyperref`:

`\cref@currentlabel` first gets set by our modified `\H@refstepcounter`, which gets called via `hyperref`’s original version, as stored in `\cref@old@refstepcounter`. The version of `\cref@refstepcounter@optarg` defined below then overrides the label type.

```

2014 \let\refstepcounter@noarg\cref@old@refstepcounter%
2015 \def\refstepcounter@optarg[#1]#2{%
2016   \cref@old@refstepcounter{#2}%
2017   \@ifundefined{cref@#1@alias}%
2018     {\def\@tempa{#1}}%
2019     {\def\@tempa{\csname cref@#1@alias\endcsname}}%
2020   \protected@edef\cref@currentlabel{%
2021     \expandafter\cref@override@label@type%
2022     \cref@currentlabel\@nil{\@tempa}}}%

```

`\appendix` We again make `\appendix` redefine things so that the label type for chapters or sections is exceptionally overridden and set to “appendix” instead. But this time, it is `\H@refstepcounter` that needs to be redefined.

```

2023 \@ifundefined{appendix}{\%
2024   \def\appendix{%
2025     \@ifundefined{chapter}{\%
2026       \def\H@refstepcounter##1{%
2027         \cref@old\H@refstepcounter{##1}%
2028         \cref@constructprefix{##1}{\cref@result}%

```

We add a large value to the front of the counter data, to force references to anything in appendices to be sorted after everything else.

```

2029   \ifx\cref@result\@empty%
2030     \def\cref@result{2147483647}%
2031   \else%
2032     \edef\cref@result{2147483647,\cref@result}%
2033   \fi%

```

Override the cross-reference type of sectioning commands.

```

2034   \def\@tempa{##1}%
2035   \def\@tempb{section}%
2036   \ifx\@tempa\@tempb%
2037     \@ifundefined{cref@appendix@alias}%
2038     {\def\@tempa{appendix}}%

```

```

2039         {\def\@tempa{\cref@appendix@alias}}%
2040         \protected@edef\cref@currentlabel{%
2041             [\@tempa][\arabic{##1}][\cref@result]%
2042             \csname p###1\endcsname\csname the##1\endcsname}%
2043     \else%
2044         \def\@tempa{##1}%
2045         \def\@tempb{subsection}%
2046         \ifx\@tempa\@tempb%
2047             \ifundefined{cref@subappendix@alias}%
2048                 {\def\@tempa{subappendix}}%
2049                 {\def\@tempa{\cref@subappendix@alias}}%
2050             \protected@edef\cref@currentlabel{%
2051                 [\@tempa][\arabic{##1}][\cref@result]%
2052                 \csname p###1\endcsname\csname the##1\endcsname}%
2053         \else%
2054             \def\@tempa{##1}%
2055             \def\@tempb{subsubsection}%
2056             \ifx\@tempa\@tempb%
2057                 \ifundefined{cref@subsubappendix@alias}%
2058                     {\def\@tempa{subsubappendix}}%
2059                     {\def\@tempa{\cref@subsubappendix@alias}}%
2060                 \protected@edef\cref@currentlabel{%
2061                     [\@tempa][\arabic{##1}][\cref@result]%
2062                     \csname p###1\endcsname\csname the##1\endcsname}%
2063             \else%
2064                 \ifundefined{cref@###1@alias}%
2065                     {\def\@tempa{##1}}%
2066                     {\def\@tempa{\csname cref@###1@alias\endcsname}}%
2067                 \protected@edef\cref@currentlabel{%
2068                     [\@tempa][\arabic{##1}][\cref@result]%
2069                     \csname p###1\endcsname\csname the##1\endcsname}%
2070             \fi%
2071         \fi%
2072     \fi}%
2073 \cref@old@appendix%
2074 }{%
2075     \def\H@refstepcounter##1{%
2076         \cref@old@H@refstepcounter{##1}%
2077         \cref@constructprefix{##1}{\cref@result}%

```

Again, the large value added to the front of the counter data forces references

to appendix items to be sorted last.

```

2078      \ifx\cref@result\@empty%
2079      \def\cref@result{2147483647}%
2080      \else%
2081      \edef\cref@result{2147483647,\cref@result}%
2082      \fi%

```

Override the cross-reference type of sectioning commands.

```

2083      \def\@tempa{##1}%
2084      \def\@tempb{chapter}%
2085      \ifx\@tempa\@tempb%
2086      \@ifundefined{cref@appendix@alias}%
2087      {\def\@tempa{appendix}}%
2088      {\def\@tempa{\cref@appendix@alias}}%
2089      \protected@edef\cref@currentlabel{%
2090      [\@tempa][\arabic{##1}][\cref@result]%
2091      \csname p@##1\endcsname\csname the##1\endcsname}%
2092      \else%
2093      \def\@tempa{##1}%
2094      \def\@tempb{section}%
2095      \ifx\@tempa\@tempb%
2096      \@ifundefined{cref@subappendix@alias}%
2097      {\def\@tempa{subappendix}}%
2098      {\def\@tempa{\cref@subappendix@alias}}%
2099      \protected@edef\cref@currentlabel{%
2100      [\@tempa][\arabic{##1}][\cref@result]%
2101      \csname p@##1\endcsname\csname the##1\endcsname}%
2102      \else%
2103      \def\@tempa{##1}%
2104      \def\@tempb{subsection}%
2105      \ifx\@tempa\@tempb%
2106      \@ifundefined{cref@subsubappendix@alias}%
2107      {\def\@tempa{subsubappendix}}%
2108      {\def\@tempa{\cref@subsubappendix@alias}}%
2109      \protected@edef\cref@currentlabel{%
2110      [\@tempa][\arabic{##1}][\cref@result]%
2111      \csname p@##1\endcsname\csname the##1\endcsname}%
2112      \else%
2113      \def\@tempa{##1}%
2114      \def\@tempb{subsubsection}%
2115      \ifx\@tempa\@tempb%

```

```

2116         \ifundefined{cref@subsubappendix@alias}%
2117         {\def\@tempa{subsubsubappendix}}%
2118         {\def\@tempa{\cref@subsubsubappendix@alias}}%
2119         \protected@edef\cref@currentlabel{%
2120         [\@tempa][\arabic{##1}][\cref@result]%
2121         \csname p@##1\endcsname\csname the##1\endcsname}%
2122     \else%
2123         \ifundefined{cref@##1@alias}%
2124         {\def\@tempa{##1}}%
2125         {\def\@tempa{\csname cref@##1@alias\endcsname}}%
2126         \protected@edef\cref@currentlabel{%
2127         [\@tempa][\arabic{##1}][\cref@result]%
2128         \csname p@##1\endcsname\csname the##1\endcsname}%
2129     \fi%
2130 \fi%
2131 \fi%
2132 \fi}%
2133 \cref@old@appendix}%
2134 }%
2135 }% end of \ifundefined{appendix}

```

\cref* We redefine **\cref** and all the others to allow starred variants, which don't
\Cref* create hyperlinks. The starred variants simply set a flag, which is tested in the
\@crefstar very final stage of reference typesetting in **\@@@setcref**, **\@@@setcrefrange**,
\@@@setcpageref and **\@@@setcpagerefrange** (below).

```

2136 \DeclareRobustCommand{\cref}{%
2137     \ifstar{\@crefstar{cref}}{\@cref{cref}}}%
2138 \DeclareRobustCommand{\Cref}{%
2139     \ifstar{\@crefstar{Cref}}{\@cref{Cref}}}%
2140 \def\@crefstar#1#2{%
2141     \@crefstarredtrue\@cref{#1}{#2}\@crefstarredfalse}%

```

```

\crefrange*
\Crefrange*
2142 \DeclareRobustCommand{\crefrange}{%
\@crefrangestar 2143     \ifstar{\@crefrangestar{cref}}{\@crefrangenostar{cref}}}%
\@crefrangenostar 2144 \DeclareRobustCommand{\Crefrange}{%
2145     \ifstar{\@crefrangestar{Cref}}{\@crefrangenostar{Cref}}}%
2146 \def\@crefrangenostar#1#2#3{\@@setcrefrange{#1}{#2}{#3}{}}
2147 \def\@crefrangestar#1#2#3{%
2148     \@crefstarredtrue\@@setcrefrange{#1}{#2}{#3}{}\@crefstarredfalse}%

```

```

\cpageref*
\Cpageref*
2149 \DeclareRobustCommand{\cpageref}{%
2150 \ifstar\@crefstar\@cref{cpageref}}%
2151 \DeclareRobustCommand{\Cpageref}{%
2152 \ifstar\@crefstar\@cref{Cpageref}}%

\cpagerefrange*
\Cpagerefrange*
2153 \DeclareRobustCommand{\cpagerefrange}{%
\@cpagerefrangestar 2154 \ifstar{\@cpagerefrangestar{cref}}{\@cpagerefrangenostar{cref}}}%
2155 \DeclareRobustCommand{\Cpagerefrange}{%
2156 \ifstar{\@cpagerefrangestar{Cref}}{\@cpagerefrangenostar{Cref}}}%
2157 \def\@cpagerefrangenostar#1#2#3{%
2158 \@@setcpagerefrange{#2}{#3}{#1}{}}
2159 \def\@cpagerefrangestar#1#2#3{%
2160 \@crefstarredtrue%
2161 \@@setcpagerefrange{#2}{#3}{#1}{}%
2162 \@crefstarredfalse}%

\labelcref*
\labelcpageref*
2163 \DeclareRobustCommand{\labelcref}{%
\@labelcrefstar 2164 \ifstar{\@labelcrefstar}{\@cref{labelcref}}}%
\@labelcpagerefstar 2165 \def\@labelcrefstar#1{%
2166 \@crefstarredtrue%
2167 \@cref{labelcref}{#1}%
2168 \@crefstarredfalse}%
2169 \DeclareRobustCommand{\labelcpageref}{%
2170 \ifstar{\@labelcpagerefstar}{\@cref{labelcpageref}}}%
2171 \def\@labelcpagerefstar#1{%
2172 \@crefstarredtrue%
2173 \@cref{labelcpageref}{#1}%
2174 \@crefstarredfalse}%

\@@@setcref Redefine the final reference typesetting macros to create hyperlinks (unless
\@@@setcrefrange the starred flag is set), using the extra arguments supplied in \r@{label} (via
\@@@setcpageref the aux file) by hyperref.
\@@@setcpagerefrange
2175 \def\@@@setcref#1#2{%
2176 \cref@getlabel{#2}{\@templabel}%
2177 \if@crefstarred%

```

```

2178      #1{\@templabel}{\@tempname}{\@tempurl}{\@tempname}}{\@nil}%
2179    \else%
2180      \edef\@tempname{\cref@hyperlinkname{#2}}%
2181      \edef\@tempurl{\cref@hyperlinkurl{#2}}%
2182      #1{\@templabel}{\cref@hyperlink{\@tempurl}{\@tempname}}{\@nil}%
2183    \fi}%
2184  \def\@@@setcrefrange#1#2#3{%
2185    \cref@getlabel{#2}{\@labela}%
2186    \cref@getlabel{#3}{\@labelb}%
2187    \if@crefstarred%
2188      #1{\@labela}{\@labelb}{\@tempname}{\@tempurl}{\@tempname}}{\@nil}%
2189    \else%
2190      \edef\@tempnamea{\cref@hyperlinkname{#2}}%
2191      \edef\@tempurlb{\cref@hyperlinkurl{#3}}%
2192      \edef\@tempnameb{\cref@hyperlinkname{#3}}%
2193      \edef\@tempurla{\cref@hyperlinkurl{#2}}%
2194      #1{\@labela}{\@labelb}{\@tempnamea}{\@tempurla}{\@tempnameb}{\@tempurlb}}{\@nil}%
2195      {\cref@hyperlink{\@tempurla}{\@tempnamea}}{\@nil}%
2196      {\cref@hyperlink{\@tempurlb}{\@tempnameb}}{\@nil}%
2197    \fi}%
2198  \def\@@@setcpageref#1#2{%
2199    \cpageref@getlabel{#2}{\@temppage}%
2200    \if@crefstarred%
2201      #1{\@temppage}{\@tempname}{\@tempurl}{\@tempname}}{\@nil}%
2202    \else%
2203      \edef\@tempname{\cref@hyperlinkname{#2}}%
2204      \edef\@tempurl{\cref@hyperlinkurl{#2}}%
2205      #1{\@temppage}{\cref@hyperlink{\@tempurl}{\@tempname}}{\@nil}%
2206    \fi}%
2207  \def\@@@setcpagerefrange#1#2#3{%
2208    \cpageref@getlabel{#2}{\@pagea}%
2209    \cpageref@getlabel{#3}{\@pageb}%
2210    \if@crefstarred%
2211      #1{\@pagea}{\@pageb}{\@tempname}{\@tempurl}{\@tempname}}{\@nil}%
2212    \else%
2213      \edef\@tempnamea{\cref@hyperlinkname{#2}}%
2214      \edef\@tempurlb{\cref@hyperlinkurl{#3}}%
2215      \edef\@tempnameb{\cref@hyperlinkname{#3}}%
2216      \edef\@tempurla{\cref@hyperlinkurl{#2}}%
2217      #1{\@pagea}{\@pageb}{\@tempnamea}{\@tempurla}{\@tempnameb}{\@tempurlb}}{\@nil}%
2218      {\cref@hyperlink{\@tempurla}{\@tempnamea}}{\@nil}%
2219      {\cref@hyperlink{\@tempurlb}{\@tempnameb}}{\@nil}%

```

```

2220     \fi}%
2221 }% end of false case of \@ifpackagewith{hyperref}{implicit=false}

```

16.6.2 revtex4 and revtex4-1 support

The `revtex4` and `revtex4-1` document classes use `\H@refstepcounter` to increment section counters, even when `hyperref` isn't explicitly loaded. Therefore, for these docclasses we need to redefine `\H@refstepcounter` even when `hyperref` is not loaded.

```

2222 }{% false case of \@ifpackageloaded{hyperref}
2223   \@ifclassloaded{revtex4}{\let\if@cref@hyperrefloaded\iftrue}{}%
2224   \@ifclassloaded{revtex4-1}{\let\if@cref@hyperrefloaded\iftrue}{}%
2225   \if@cref@hyperrefloaded\relax%
2226   \let\cref@old@H@refstepcounter\H@refstepcounter%
2227   \def\H@refstepcounter#1{%
2228     \cref@old@H@refstepcounter{#1}%
2229     \cref@constructprefix{#1}{\cref@result}%
2230     \@ifundefined{cref@#1@alias}{%
2231       {\def\@tempa{#1}}%
2232       {\def\@tempa{\csname cref@#1@alias\endcsname}}%
2233     \protected@edef\cref@currentlabel{%
2234       [\@tempa] [\arabic{#1}] [\cref@result]%
2235     \csname p@#1\endcsname\csname the#1\endcsname}}%

```

We also need to redefine `\appendix` to use

```

2236   \@ifundefined{appendix}{}%
2237   \def\appendix{%
2238     \@ifundefined{chapter}{%
2239       \def\H@refstepcounter##1{%
2240         \cref@old@H@refstepcounter{##1}%
2241         \cref@constructprefix{##1}{\cref@result}%

```

We add a large value to the front of the counter data, to force references to anything in appendices to be sorted after everything else.

```

2242     \ifx\cref@result\@empty%
2243       \def\cref@result{2147483647}%
2244     \else%
2245       \edef\cref@result{2147483647,\cref@result}%
2246     \fi%

```

Override the cross-reference type of sectioning commands.

```

2247      \def\@tempa{##1}%
2248      \def\@tempb{section}%
2249      \ifx\@tempa\@tempb%
2250          \protected@edef\cref@currentlabel{%
2251              [appendix][\arabic{##1}][\cref@result]%
2252              \csname p@##1\endcsname\csname the##1\endcsname}%
2253      \else%
2254          \def\@tempa{##1}%
2255          \def\@tempb{subsection}%
2256          \ifx\@tempa\@tempb%
2257              \protected@edef\cref@currentlabel{%
2258                  [subappendix][\arabic{##1}][\cref@result]%
2259                  \csname p@##1\endcsname\csname the##1\endcsname}%
2260          \else%
2261              \def\@tempa{##1}%
2262              \def\@tempb{subsubsection}%
2263              \ifx\@tempa\@tempb%
2264                  \protected@edef\cref@currentlabel{%
2265                      [subsubappendix][\arabic{##1}][\cref@result]%
2266                      \csname p@##1\endcsname\csname the##1\endcsname}%
2267              \else%
2268                  \ifundefined{cref@##1@alias}%
2269                      {\def\@tempa{##1}}%
2270                      {\def\@tempa{\csname cref@##1@alias\endcsname}}%
2271                  \protected@edef\cref@currentlabel{%
2272                      [\@tempa][\arabic{##1}][\cref@result]%
2273                      \csname p@##1\endcsname\csname the##1\endcsname}%
2274              \fi%
2275          \fi%
2276      \fi}%
2277      \cref@old@appendix%
2278  }{%
2279      \def\H@refstepcounter##1{%
2280          \cref@old\H@refstepcounter{##1}%
2281          \cref@constructprefix{##1}{\cref@result}%

```

Again, the large value added to the front of the counter data forces references to appendix items to be sorted last.

```

2282      \ifx\cref@result\@empty%
2283          \def\cref@result{2147483647}%

```

```

2284         \else%
2285             \edef\cref@result{2147483647,\cref@result}%
2286         \fi%

```

Override the cross-reference type of sectioning commands.

```

2287         \def\@tempa{##1}%
2288         \def\@tempb{chapter}%
2289         \ifx\@tempa\@tempb%
2290             \protected@edef\cref@currentlabel{%
2291                 [appendix][\arabic{##1}][\cref@result]%
2292                 \csname p@##1\endcsname\csname the##1\endcsname}%
2293         \else%
2294             \def\@tempa{##1}%
2295             \def\@tempb{section}%
2296             \ifx\@tempa\@tempb%
2297                 \protected@edef\cref@currentlabel{%
2298                     [subappendix][\arabic{##1}][\cref@result]%
2299                     \csname p@##1\endcsname\csname the##1\endcsname}%
2300             \else%
2301                 \def\@tempa{##1}%
2302                 \def\@tempb{subsection}%
2303                 \ifx\@tempa\@tempb%
2304                     \protected@edef\cref@currentlabel{%
2305                         [subsubappendix][\arabic{##1}][\cref@result]%
2306                         \csname p@##1\endcsname\csname the##1\endcsname}%
2307                 \else%
2308                     \def\@tempa{##1}%
2309                     \def\@tempb{subsubsection}%
2310                     \ifx\@tempa\@tempb%
2311                         \protected@edef\cref@currentlabel{%
2312                             [subsubsubappendix][\arabic{##1}][\cref@result]%
2313                             \csname p@##1\endcsname\csname the##1\endcsname}%
2314                     \else%
2315                         \@ifundefined{cref@##1@alias}%
2316                         {\def\@tempa{##1}}%
2317                         {\def\@tempa{\csname cref@##1@alias\endcsname}}%
2318                         \protected@edef\cref@currentlabel{%
2319                             [@tempa][\arabic{##1}][\cref@result]%
2320                             \csname p@##1\endcsname\csname the##1\endcsname}%
2321                     \fi%
2322                 \fi%
2323             \fi%

```

```

2324         \fi}%
2325     \cref@old@appendix}%
2326     }%
2327 }% end of \@ifundefined{appendix}
2328 \fi% end of \if@cref@hyperrefloaded
2329 \let\if@cref@hyperrefloaded\iffalse%
2330 }% end of \@ifpackageloaded{hyperref}

```

Add check to `AtBeginDocument` to throw error if `hyperref` was loaded after `cleveref`.

```

2331 \AtBeginDocument{%
2332   \if@cref@hyperrefloaded\else%
2333     \@ifpackageloaded{hyperref}{%
2334       \PackageError{cleveref}{cleveref must be loaded after hyperref!}%
2335       {Package load order is wrong: load cleveref after hyperref.}
2336     }{}%
2337   \fi}

```

16.6.3 varioref support

varioref If `varioref` is loaded, we redefine its commands to use `\cref` instead of `\ref` to produce the reference. Since `\cref` can cope with multiple references, we extend the page referencing magic of `\vref` et al. to use `\cpageref` instead, assisted by `\@@setvpageref` and `\@vpagerefrange` (which typeset page references using `varioref` commands). The former takes care of multi-references, the latter take care of the `varioref` page referencing magic.

```

2338 \let\if@cref@variorefloaded\iffalse%
2339 \@ifpackageloaded{varioref}{%
2340   \let\if@cref@variorefloaded\iftrue%
2341   \PackageInfo{cleveref}{`varioref' support loaded}%
2342   \PackageInfo{cleveref}{`cleveref' supersedes `varioref's
2343     \string\labelformat command}%

```

`\cref@old@@vpageref` Unfortunately, `varioref`'s `\@@vpageref` macro calls a `\vref@label` *before* it typesets the page reference. The `\protected@write` within `\vref@label` seems to prevent an `\unskip` command coming after the `\vref@label` from removing any space that was inserted before the `\vref@label`. This means that setting a `\reftext⟨x⟩` command to `\unskip` won't work; it won't properly

remove any preceding space in the event that an empty page reference is typeset.

This didn't matter in the original `varioref` implementation, because it *always* removed any preceding space, then inserted its own space *after* the `\vref@label`, which the `\unskip` could then gobble. But we want to get rid of this irritating always-space-gobbling behaviour here. So we have to re-define `\@@vpageref` (here renamed `\cref@old@@vpageref`) in order to move the `\vref@label` to the end of the macro, after the page reference has been typeset. We also remove the `\unskip` from the start of `\@@vpageref`.

```

2344 \def\cref@old@@vpageref#1[#2]#3{%
2345   \leavevmode%\unskip <<<
2346   \global\advance\c@vrcnt\@ne\relax%
2347   \vref@pagenum\@tempa{\the\c@vrcnt @vr}%
2348   \vref@pagenum\@tempb{\the\c@vrcnt @xvr}%
2349   %\vref@label{\the\c@vrcnt @xvr}% <<<
2350   \ifx\@tempa\@tempb\else%
2351     \vref@err{\noexpand\vref or \noexpand\vpageref at page boundary
2352               \@tempb-\@tempa space (may loop)%
2353             }%
2354   \fi%
2355   \vref@pagenum\thevpagerefnum{#3}%
2356   \vref@space%
2357   \ifx\@tempa\thevpagerefnum%
2358     \def\@tempc{#1}%
2359     \ifx\@tempc\@empty%
2360       \unskip%
2361     \else%
2362       #1%
2363     \fi%
2364   \else%
2365     #2%
2366     \is@pos@number\thevpagerefnum%
2367     {%
2368       \is@pos@number\@tempa%
2369       {\@tempcnta\@tempa%
2370        \advance\@tempcnta\@ne\relax%
2371       }%
2372       {\@tempcnta\maxdimen}%
2373       \ifnum \thevpagerefnum =\@tempcnta%
2374       \ifodd\@tempcnta%
```

```

2375         \if@twoside%
2376             \reftextfaceafter%
2377         \else%
2378             \reftextafter%
2379         \fi%
2380     \else%
2381         \reftextafter%
2382     \fi%
2383 \else%
2384     \advance\@tempcnta-2\relax%
2385     \ifnum \thevpagerefnum =\@tempcnta%
2386         \ifodd\@tempcnta%
2387             \reftextbefore%
2388         \else%
2389             \if@twoside%
2390                 \reftextfacebefore%
2391             \else%
2392                 \reftextbefore%
2393             \fi%
2394         \fi%
2395     \else%
2396         \reftextfaraway{#3}%
2397     \fi%
2398 \fi%
2399 }%
2400 {\reftextfaraway{#3}}%
2401 \fi%
2402 \vref@label{\the\c@vrcnt @xvr}% <<<
2403 \vref@label{\the\c@vrcnt @vr}%
2404 }%

```

`\cref@vpageref` We first enhance the core `varioref` `\vpageref` macro to allow it to cope with lists of page references. This is done by defining our version in terms of `cleveref`'s `\cpageref` command, which handles multi-references, but telling `\cpageref` to typeset the actual page references themselves using `varioref`'s own page-referencing commands. (The alternative version of `\vpagerefrange` is there to facilitate later redefinitions.)

Most of the work is done by defining suitable `\@setvpageref` etc. commands (below), called as appropriate by our ever-faithful `\@cref` work-horse. We only make use of one of the optional arguments to the original `varioref`

`\@@vpageref` macro, which we store here in `\cref@@vpageref` for later.

```

2405 \def\cref@@vpageref#1[#2]#3{%
2406   \begingroup%
2407   \def\cref@@vpageref@arg{#1}%
2408   \@cref{vpageref}{#3}%
2409   \endgroup}%

```

`\cref@vref` Now we define `cleveref`-enhanced versions of the other `varioref` cross-referencing commands, which use `\cref` et al. to type set the cross-references, `\cref@vrefrange` and the `cleveref`-enhanced `\vpageref` et al. to typeset page references.

The original `\vref` command passes an empty first argument to `\@@vpageref`, to omit the page reference if it refers to the current page. In our case, we only want to omit it if it's the sole page reference we're printing; otherwise we need to print it even if it refers to the current page. This is taken care of by `\cref@patchreftexts` (which gets called further down). For this mechanism, it's more convenient to pass `\reftextcurrent` as the first argument but temporarily redefine it to be empty, instead of passing an empty first argument to `\cref@@vpageref`.

```

2410 \def\cref@vref#1#2{%
2411   \leavevmode%
2412   \begingroup%
2413     \def\reftextcurrent{}%
2414     \@cref{#1}{#2}\@setcref@space%
2415     \cref@@vpageref{\reftextcurrent}[] {#2}%
2416   \endgroup}%
2417 \def\cref@vrefrange#1#2#3{%
2418   \@setcrefrange{#1}{#2}{#3}\@setcref@space\vpagerefrange{#2}{#3}%
2419 \def\cref@fullref#1#2{%
2420   \@cref{#1}{#2}\@setcref@space\@cref{fullpageref}{#2}%

```

`\cref@vpagerefconjunction` When typesetting multi-references, we need to add appropriate conjunctions to the page references produced by the `varioref` macros. Since we need this in various different commands, we separate it out into a self-contained macro.

```

2421 \def\cref@vpagerefconjunction#1{%
2422   \def\@tempa{#1}%
2423   \def\@tempb{@second}%
2424   \ifx\@tempa\@tempb\relax%

```

```

2425     \@setcref@pairconjunction%
2426     \else%
2427     \def\@tempb{@middle}%
2428     \ifx\@tempa\@tempb\relax%
2429     \@setcref@middleconjunction%
2430     \else%
2431     \def\@tempb{@last}%
2432     \ifx\@tempa\@tempb\relax%
2433     \@setcref@lastconjunction%
2434     \fi%
2435     \fi%
2436     \fi}%

```

`\@setcref@space` We separate out the typesetting of the space between the cross-reference and page-reference into a separate macro, to make it easier to implement the `poorman` option.

```

2437     \def\@setcref@space{ }%

```

`\@setvpageref` The `\@setvpageref` macro is called by `\@cref` to typeset page references using `varioref` commands, tweaked to work with the enhanced `cleveref` page-referencing features. #1 is the reference itself. #2 is either empty if we're typesetting a single page reference, or one of `@first`, `@second`, `@middle` or `@end`, identifying where the page reference comes in a multi-reference. We only make use of one of the optional arguments to the original `varioref` `\@vpageref` macro, available here as `\cref@@vpageref@arg` (stored there by `\cref@@vpageref`, above).

```

2438     \def\@setvpageref#1#2{%

```

Add the appropriate conjunction before the page reference.

```

2439     \cref@vpagerefconjunction{#2}%

```

Undefining `\vref@space` prevents the original `varioref` `\@vpageref` macro from `\unskip`ing any preceding space and inserting its own. We definitely don't want it to do that here when we're typesetting anything other than the first group of page references, as any preceding space then is part of the preceding conjunction, and should be strictly respected. But, since we're modifying the `varioref` commands anyway, we take this opportunity to get

rid of the irritating `varioref` spacing behaviour even for the first group of page references.

```
2440 \def\vref@space{}
```

Modify the `varioref` `\reftext` $\langle x \rangle$ commands as appropriate for the page reference we're currently typesetting, then typeset the page reference.

```
2441 \begingroup%
2442 \cref@patchreftexts{#2}%
2443 \expandafter\@@@setvpageref\expandafter%
2444 {\cref@@vpageref@arg}[\vref@space]{#1}%
2445 \endgroup%
```

`\@@@setvpageref` We separate out the final type setting step, as always, to make it easier to redefine things later.

```
2446 \let\@@@setvpageref\cref@old@@vpageref%
```

`\@setvpagerefrange` `\@setvpagerefrange` is similar to `\@setvpageref`, but typesets page ranges. `#1` and `#2` are the labels themselves. `#3` is either empty if we're typesetting a single page range, or one of `@first`, `@second`, `@middle` or `@end`, identifying where the page reference comes in a multi-reference. We only make use of one of the optional arguments to the original `varioref` `\@@vpageref` macro, available here as `\cref@@vpageref@arg` (stored there by `\cref@@vpageref`, above).

```
2447 \def\@setvpagerefrange#1#2#3{%
```

Add the appropriate conjunction before the page range reference.

```
2448 \cref@vpagerefconjunction{#3}%
```

Unlike `\vpageref`, `varioref`'s `\vpagerefrange` command *doesn't* go in for quite the same space-mangling behaviour. We still undefine `\vref@space`, though.

```
2449 \let\vref@space\relax%
```

Modify the `varioref` `\reftext` $\langle x \rangle$ commands as appropriate for the page range we're currently typesetting, then typeset the page range.

```

2450 \begingroup%
2451 \cref@patchreftexts{#3}%
2452 \expandafter\@@@setvpagerefrange\expandafter%
2453 [\cref@vpageref@arg]{#1}{#2}%
2454 \endgroup}%

```

`\@@@setvpagerefrange` Again, we separate out the final typesetting step, to aid later redefinition.

```
2455 \let\@@@setvpagerefrange\vpagerefrange
```

`\@setfullpageref` Ditto for `\@setfullpageref`, with #1 the reference, #2 either empty, @first, @second, @middle or @end.

```
2456 \def\@setfullpageref#1#2{%
```

Add the appropriate conjunction before the page reference.

```
2457 \cref@vpagerefconjunction{#2}%
```

Modify the `varioref` `\reftext⟨x⟩` commands as appropriate for the page reference we're currently typesetting, then typeset the page reference.

```

2458 \begingroup%
2459 \cref@patchreftexts{#2}%
2460 \@@@setfullpageref{#1}%
2461 \endgroup}%

```

`\@@@setfullpageref` Separate out the final typesetting step, as usual.

```
2462 \let\@@@setfullpageref\reftextfaraway%
```

`\@setfullpagerefrange` Ditto for `\@setfullpagerefrange`, with #1 and #2 the references, #3 either empty, @first, @second, @middle or @end.

```
2463 \def\@setfullpagerefrange#1#2#3{%
```

Add the appropriate conjunction before the page reference.

```
2464 \cref@vpagerefconjunction{#3}%
```

Modify the `varioref` `\reftext⟨x⟩` commands as appropriate for the page reference we're currently typesetting, then typeset the page reference.

```

2465 \begingroup%
2466 \cref@patchref texts{#3}%
2467 \@@@setfullpagerefrange{#1}{#2}%
2468 \endgroup}%

```

`\@@@setfullpagerefrange` Separate out the final typesetting step, as usual.

```

2469 \let\@@@setfullpagerefrange\ref textp agerange%

```

We save the default `varioref` `\ref text⟨x⟩` commands as `\creftext⟨x⟩`, before the user's had any chance to redefine them. These are used if a `\ref text⟨x⟩` is redefined to produce an empty reference, to force a non-empty reference within multi-references.

```

2470 \let\creftextcurrent\ref textcurrent%
2471 \let\creftextfaceafter\ref textfaceafter%
2472 \let\creftextfacebefore\ref textfacebefore%
2473 \let\creftextafter\ref textafter%
2474 \let\creftextbefore\ref textbefore%
2475 \let\creftextfaraway\ref textfaraway%
2476 \let\creftextp agerange\ref textp agerange%

```

`\cref@patchref texts` The `\cref@patchref texts` command modifies `varioref` `\ref text⟨x⟩` commands, for use within `\@@setvpageref` and `\@@setvpagerefrange`.

```

2477 \def\cref@patchref texts#1{%
2478 \cref@patchref text{\ref textcurrent}{#1}%
2479 \cref@patchref text{\ref textfaceafter}{#1}%
2480 \cref@patchref text{\ref textfacebefore}{#1}%
2481 \cref@patchref text{\ref textafter}{#1}%
2482 \cref@patchref text{\ref textbefore}{#1}}%

```

`\cref@patchref text` `\cref@patchref text` does the hard work of modifying the `\ref text⟨x⟩` command given in `#1` as appropriate for the `\@@setvpageref` or `\@@setvpagerefrange` command that it's called from. (It can only be called from within one of those commands.) `#2` is empty if we're typesetting a single page reference, or one of `@first`, `@second`, `@middle` or `@end` when typesetting a multi-reference.

```

2483 \def\cref@patchref text#1#2{%
2484 \def\@tempa{#2}%

```

If we're typesetting a single page reference...

```
2485 \ifx\@tempa\@empty%
```

if the reftext command produces an empty reference, redefine it to be `\unskip`.

```
2486 \def\@tempc{}%
2487 \expandafter\ifx\csname #1\endcsname\@tempc\relax%
2488 \expandafter\def\csname #1\endcsname{\unskip}%
2489 %{\advance\count@group -1\relax\reftextcurrent@orig}%
2490 \else%
2491 \long\def\@tempc{}%
2492 \expandafter\ifx\csname #1\endcsname\@tempc\relax%
2493 \expandafter\def\csname #1\endcsname{\unskip}%
2494 %{\advance\count@group -1\relax\reftextcurrent@orig}%
2495 \fi%
2496 \fi%
```

If we're typesetting a multi-reference...

```
2497 \else%
```

if the reftext command produces an empty page reference, patch it to instead use `\creftext<x>`, which always produces a non-empty reference.

```
2498 \long\def\@tempc{\unskip}%
2499 \expandafter\ifx\csname #1\endcsname\@tempc\relax%
2500 \expandafter\expandafter\expandafter\def%
2501 \expandafter\expandafter\csname #1\endcsname\expandafter{%
2502 \csname c#1\endcsname}%
2503 \else%
2504 \long\def\@tempc{}%
2505 \expandafter\ifx\csname #1\endcsname\@tempc\relax%
2506 \expandafter\expandafter\expandafter\def%
2507 \expandafter\expandafter\csname #1\endcsname\expandafter{%
2508 \csname c#1\endcsname}%
2509 \else%
2510 \def\@tempc{\unskip}%
2511 \expandafter\ifx\csname #1\endcsname\@tempc\relax%
2512 \expandafter\expandafter\expandafter\def%
2513 \expandafter\expandafter\csname #1\endcsname\expandafter{%
2514 \csname c#1\endcsname}%
2515 \else%
```


<code>\Vref*</code>	2532	<code>\if@cref@hyperrefloaded\relax% hyperref loaded%</code>
<code>\vrefrange</code>	2533	<code>\DeclareRobustCommand{\vref}{%</code>
<code>\vrefrange*</code>	2534	<code>\@ifstar{\cref@vrefstar{\cref}}{\cref@vref{\cref}}}%</code>
<code>\Vrefrange</code>	2535	<code>\DeclareRobustCommand{\Vref}{%</code>
<code>\Vrefrange*</code>	2536	<code>\@ifstar{\cref@vrefstar{Cref}}{\cref@vref{Cref}}}%</code>
<code>\fullref</code>	2537	<code>\DeclareRobustCommand{\vrefrange}{%</code>
<code>\fullref*</code>		
<code>\Fullref</code>		
<code>\Fullref*</code>		

```

2538     \ifstar{\cref@vrefrangestart{cref}}{\cref@vrefrange{cref}}}%
2539     \DeclareRobustCommand{\Vrefrange}{%
2540     \ifstar{\cref@vrefrangestart{Cref}}{\cref@vrefrange{Cref}}}%
2541     \DeclareRobustCommand{\fullref}{%
2542     \ifstar{\cref@fullrefstart{cref}}{\cref@fullref{cref}}}%
2543     \DeclareRobustCommand{\Fullref}{%
2544     \ifstar{\cref@fullrefstart{Cref}}{\cref@fullref{Cref}}}%
2545     \def\cref@vrefstar#1#2{%
2546     \crefstarredtrue%
2547     \cref@vref{#1}{#2}%
2548     \crefstarredfalse}%
2549     \def\cref@vrefrangestart#1#2#3{%
2550     \crefstarredtrue%
2551     \cref@vrefrange{#1}{#2}{#3}%
2552     \crefstarredfalse}%
2553     \def\cref@fullrefstart#1#2{%
2554     \crefstarredtrue%
2555     \cref@fullref{#1}{#2}%
2556     \crefstarredfalse}%
2557     \else%
2558     \DeclareRobustCommand{\vref}{\cref@vref{cref}}%
2559     \DeclareRobustCommand{\Vref}{\cref@vref{Cref}}%
2560     \DeclareRobustCommand{\vrefrange}{\cref@vrefrange{cref}}%
2561     \DeclareRobustCommand{\Vrefrange}{\cref@vrefrange{Cref}}%
2562     \DeclareRobustCommand{\fullref}{\cref@fullref{cref}}%
2563     \DeclareRobustCommand{\Fullref}{\cref@fullref{Cref}}%
2564     \fi% end of test for hyperref
2565 }{\let\if@cref@variorefloaded\iffalse}% end of \ifpackageloaded{varioref}

```

Add check to AtBeginDocument to throw error if varioref was loaded after cleveref.

```

2566 \AtBeginDocument{%
2567   \if@cref@variorefloaded\relax\else%
2568     \ifpackageloaded{varioref}{%
2569       \PackageError{cleveref}{cleveref must be loaded after varioref!}%
2570       {Package load order is wrong: load cleveref *after* varioref.}
2571     }{}%
2572   \fi}

```

16.6.4 `amsmath` support

`amsmath` The `amsmath` package redefines the `\label` command within equation environments, so if it is loaded we have to extend the behaviour to support the `\label` optional argument. With `amsmath`, the original `\label` command is stored in `\ltx@label`, and `\label@in@display` replaces `\label` inside equations. `\label@in@display` just saves the label for later, and defining it is left until the end of the equation, when `\ltx@label` is finally called.

To allow `\label` within equations to support an optional argument, we first store the original `\label@in@display` and the new `\label` macro we defined above (since `\label` will be clobbered inside equations). Then we redefine `\label@in@display` so that it wraps all its arguments, including any optional argument, in an extra set of braces. These are stripped away again by `\ltx@label` before calling the `cleveref` `\label` command we defined previously (saved in `\cref@label`). As before, we must postpone the redefinition of `\label` until the beginning of the document, since other packages do so.

```

2573 \let\if@cref@amsmathloaded\iffalse%
2574 \@ifpackageloaded{amsmath}{%
2575   \let\if@cref@amsmathloaded\iftrue%
2576   \AtBeginDocument{%
2577     \let\cref@old@label@in@display\label@in@display%
2578     \def\label@in@display{%
2579       \ifnextchar[\label@in@display@optarg\label@in@display@noarg}%
2580     \def\label@in@display@noarg#1{\cref@old@label@in@display{#1}}%
2581     \def\label@in@display@optarg[#1]#2{%
2582       \cref@old@label@in@display{[#1]{#2}}}%
2583     \def\ltx@label#1{\cref@label#1}%
2584   }% end of AtBeginDocument

```

`\measure@` The `amsmath` multi-line equation environments scan their bodies twice: once to measure, once to typeset. In the measure phase, the `\label` command is disabled by letting it to `\gobble`. But this isn't sufficient to gobble all the arguments any more if an optional argument is supplied to our new `\label`, so we have to modify the `amsmath` measuring commands so that they let `\label` to `\cref@gobble@optarg` instead.

Unfortunately, `amsmath` wasn't designed with redefinitions of `\label` in mind, so there appears to be no safe way of doing this other than copying the `amsmath`

definitions and making the modification directly in the macro's code. This is a recipe for future chaos if these commands are ever modified in a new version of `amsmath`, but it seems we have no choice. Luckily, `amsmath` isn't updated too often!

```

2585 \def\measure@#1{%
2586   \begingroup%
2587     \measuring@true%
2588     \global\eqnshift@z@%
2589     \global\alignsep@z@%
2590     \global\let\tag@lengths\empty%
2591     \global\let\field@lengths\empty%
2592     \savecounters@%
2593     \global\setbox0\vbox{%
2594       \let\math@cr@@@math@cr@@@align@measure%
2595       \everycr{\noalign{\global\tag@false%
2596         \global\let\raise@tag\empty \global\column@z@}}%
2597       \let\label\cref@gobble@optarg% <<< cleveref modification
2598       \global\row@z@%
2599       \tabskipz@%
2600       \halign{\span\align@preamble\crrc%
2601         #1%
2602         \math@cr@@@%
2603         \global\column@z@%
2604         \add@amps\maxfields@\crrc%
2605       }%
2606     }%
2607     \restorecounters@%
2608     \ifodd\maxfields@%
2609       \global\advance\maxfields@\@ne\relax%
2610     \fi%
2611     \ifnum\xatlevel@=tw@%
2612       \ifnum\maxfields@<\thr@@%
2613         \let\xatlevel@z@%
2614       \fi%
2615     \fi%
2616     \setboxz@\vbox{%
2617       \unvboxz@ \unpenalty \global\setbox\@ne\lastbox%
2618     }%
2619     \global\totwidth@wd\@ne%
2620     \if@fleqn \global\advance\totwidth@\@mathmargin\relax\fi%
2621     \global\let\maxcolumn@widths\empty%

```

```

2622 \begingroup%
2623 \let\or\relax%
2624 \loop%
2625 \global\setbox\@ne\hbox{%
2626 \unhbox\@ne \unskip \global\setbox\thr@@\lastbox%
2627 }%
2628 \ifhbox\thr@@%
2629 \xdef\maxcolumn@widths{ \or \the\wd\thr@@ \maxcolumn@widths}%
2630 \repeat%
2631 \endgroup%
2632 \dimen@\displaywidth%
2633 \advance\dimen@-\totwidth@\relax%
2634 \ifcase\xatlevel@%
2635 \global\alignsep@\z@%
2636 \let\minalignsep\z@%
2637 \@tempcntb\z@%
2638 \if@fleqn%
2639 \@tempcnta\@ne%
2640 \global\eqnshift@\@mathmargin%
2641 \else%
2642 \@tempcnta\tw@%
2643 \global\eqnshift@\dimen@%
2644 \global\divide\eqnshift@\@tempcnta\relax%
2645 \fi%
2646 \or%
2647 \@tempcntb\maxfields@%
2648 \divide\@tempcntb\tw@\relax%
2649 \@tempcnta\@tempcntb%
2650 \advance\@tempcntb\m@ne\relax%
2651 \if@fleqn%
2652 \global\eqnshift@\@mathmargin%
2653 \global\alignsep@\dimen@%
2654 \global\divide\alignsep@\@tempcnta\relax%
2655 \else%
2656 \global\advance\@tempcnta\@ne\relax%
2657 \global\eqnshift@\dimen@%
2658 \global\divide\eqnshift@\@tempcnta\relax%
2659 \global\alignsep@\eqnshift@%
2660 \fi%
2661 \or%
2662 \@tempcntb\maxfields@%
2663 \divide\@tempcntb\tw@\relax%

```

```

2664      \global\advance\@tempcntb\m@ne\relax%
2665      \global\@tempcnta\@tempcntb\relax%
2666      \global\eqnshift@\z@%
2667      \global\alignsep@\dimen@%
2668      \if@fleqn%
2669          \global\advance\alignsep@\@mathmargin\relax%
2670      \fi%
2671      \global\divide\alignsep@\@tempcntb\relax%
2672  \fi%
2673  \ifdim\alignsep@<\minalignsep\relax%
2674      \global\alignsep@\minalignsep\relax%
2675      \ifdim\eqnshift@>\z@%
2676          \if@fleqn\else%
2677              \global\eqnshift@\displaywidth%
2678              \global\advance\eqnshift@-\totwidth@\relax%
2679              \global\advance\eqnshift@-\@tempcntb\alignsep@\relax%
2680              \global\divide\eqnshift@\tw@\relax%
2681          \fi%
2682      \fi%
2683  \fi%
2684  \ifdim\eqnshift@<\z@%
2685      \global\eqnshift@\z@%
2686  \fi%
2687  \calc@shift@align%
2688  \global>tagshift@\totwidth@%
2689  \global\advance>tagshift@\@tempcntb\alignsep@\relax%
2690  \if@fleqn%
2691      \ifnum\xatlevel@=\tw@%
2692          \global\advance>tagshift@-\@mathmargin\relax%
2693      \fi%
2694  \else%
2695      \global\advance>tagshift@\eqnshift@\relax%
2696  \fi%
2697  \iftagsleft@ \else%
2698      \global\advance>tagshift@-\displaywidth\relax%
2699  \fi%
2700  \dimen@\minalignsep\relax%
2701  \global\advance\totwidth@\@tempcntb\dimen@\relax%
2702  \ifdim\totwidth@>\displaywidth%
2703      \global\let\displaywidth@\totwidth@%
2704  \else%
2705      \global\let\displaywidth@\displaywidth%

```

```

2706     \fi%
2707   \endgroup%
2708 }%
2709 \def\gmeasure@#1{%
2710   \begingroup%
2711     \measuring@true%
2712     \totwidth@{z}%
2713     \global\let\tag@lengths\@empty%
2714     \savecounters@%
2715     \setbox\@ne\vbox{%
2716       \everycr{\noalign{\global\tag@false%
2717         \global\let\raise@tag\@empty \global\column@{z}}}%
2718       \let\label\@gobble% <<< cleveref modification
2719       \halign{%
2720         \setboxz@h{${m@th\displaystyle{##}}$}%
2721         \ifdim\wdz@>\totwidth@%
2722           \global\totwidth@\wdz@%
2723         \fi%
2724         &\setboxz@h{\strut{##}}%
2725         \savetaglength@%
2726         \crcr%
2727         #1%
2728         \math@cr@@@%
2729       }%
2730     }%
2731     \restorecounters@%
2732     \if@fleqn%
2733       \global\advance\totwidth@\@mathmargin\relax%
2734     \fi%
2735     \iftagsleft@%
2736       \ifdim\totwidth@>\displaywidth%
2737         \global\let\gdisplaywidth@\totwidth@%
2738       \else%
2739         \global\let\gdisplaywidth@\displaywidth%
2740       \fi%
2741     \fi%
2742   \endgroup%
2743 }%

```

`\multline@` The `\multline` environment works a bit differently to the other `amsmath` environments, in that `\label` is *disabled* during the typesetting phase, and *enabled* during the measuring phase. To cope with `cleveref`'s optional argument,

`\label@mmeasure@noarg`

`\label@mmeasure@optarg`

we have to define separate versions of `\label@in@display` specifically for `\mmeasure@`.

```

2744 \def\multline@#1{%
2745   \Let@%
2746   \@display@init{\global\advance\row@ \@one\relax\global\dspbrk@lvl\m@one}%
2747   \chardef\dspbrk@context\z@%
2748   \restore@math@cr%
2749   \let\tag\tag@in@align%
2750   \global\tag@false \global\let\raise@tag\@empty%
2751   \mmeasure@{#1}%
2752   \let\tag\gobble@tag \let\label\cref@gobble@optarg% <<< cleveref modification
2753   \tabskip \if@fleqn \@mathmargin \else \z@skip \fi%
2754   \totwidth@\displaywidth%
2755   \if@fleqn%
2756     \advance\totwidth@-\@mathmargin\relax%
2757   \fi%
2758   \halign\bgroup%
2759     \hbox to\totwidth@{%
2760       \if@fleqn%
2761         \hskip \@centering \relax%
2762       \else%
2763         \hfil%
2764       \fi%
2765       \strut@%
2766       $\m@th\displaystyle{ }##\endmultline@math%
2767       \hfil%
2768     }% $
2769   \crcr%
2770   \if@fleqn%
2771     \hskip-\@mathmargin%
2772   \def\multline@indent{\hskip\@mathmargin}%
2773   \else%
2774     \hfilneg%
2775   \def\multline@indent{\hskip\multlinegap}%
2776   \fi%
2777   \iftagsleft@%
2778     \iftag@%
2779       \begingroup%
2780         \ifshifftag@%
2781           \rlap{\vbox{%
2782             \normalbaselines%
```



```

2783             \hbox{%
2784                 \strut@%
2785                 \make@display@tag%
2786             }%
2787             \vbox to\lineht@{%}%
2788             \raise@tag%
2789         }}%
2790         \multline@indent%
2791     \else%
2792         \setbox\z@\hbox{\make@display@tag}%
2793         \dimen@\@mathmargin \advance\dimen@-\wd\z@\relax%
2794         \ifdim\dimen@<\multlinetaggap%
2795             \dimen@\multlinetaggap%
2796         \fi%
2797         \box\z@ \hskip\dimen@\relax%
2798     \fi%
2799     \endgroup%
2800 \else%
2801     \multline@indent%
2802     \fi%
2803 \else%
2804     \multline@indent%
2805     \fi%
2806 #1%
2807 }%
2808 \def\mmeasure@#1{%
2809     \begingroup%
2810         \measuring@true%
2811         \def\label{%
2812             \ifnextchar[\label@in@mmeasure@optarg%
2813                 \label@in@mmeasure@noarg}%
2814         \def\math@cr@@@{\cr}%
2815         \let\shoveleft\@iden \let\shoveright\@iden%
2816         \savecounters@%
2817         \global\row@\z@%
2818         \setbox\@ne\vbox{%
2819             \global\let\df@tag\@empty%
2820             \halign{%
2821                 \setboxz@h{\@lign$\m@th\displaystyle{}}##$}%
2822                 \iftagsleft@%
2823                     \ifnum\row@=\@ne%
2824                         \global\totwidth@\wdz@%

```

```

2825         \global\lineht@\ht\z%
2826         \fi%
2827     \else%
2828         \global\totwidth@\wdz%
2829         \global\lineht@\dp\z%
2830         \fi%
2831     \crr%
2832     #1%
2833     \crr%
2834 }%
2835 }%
2836 \ifx\df@tag\@empty\else\global\tag@true\fi%
2837 \if@eqnsw\global\tag@true\fi%
2838 \iftag%
2839     \setboxz@h{%
2840         \if@eqnsw%
2841             \stepcounter{equation}%
2842             \tagform@\theequation%
2843         \else%
2844             \df@tag%
2845         \fi%
2846     }%
2847     \global\tagwidth@\wdz%
2848     \dimen@\totwidth%
2849     \advance\dimen@\tagwidth\relax%
2850     \advance\dimen@\multlinetaggap\relax%
2851     \iftagsleft\else%
2852         \if@fleqn%
2853             \advance\dimen@\@mathmargin\relax%
2854         \fi%
2855     \fi%
2856     \ifdim\dimen@>\displaywidth%
2857         \global\shifftag@true%
2858     \else%
2859         \global\shifftag@false%
2860     \fi%
2861 \fi%
2862 \restorecounters%
2863 \endgroup%
2864 }%
2865 \def\label@in@mmeasure@noarg#1{%
2866     \begingroup%

```

```

2867     \measuring@false%
2868     \cref@old@label@in@display{[#1]}%
2869     \endgroup}%
2870     \def\label@in@mmeasure@optarg[#1]#2{%
2871     \begingroup%
2872     \measuring@false%
2873     \cref@old@label@in@display{[#1]{#2}}%
2874     \endgroup}%

```

`subequations` In order for `subequations` to be sorted properly, `cleveref` needs to know that the `equation` counter is effectively reset by the `parentequation` counter within the `subequations` environment. This isn't how `amsmath` implements `subequations` (for obvious reasons!), but we harmlessly add the `equation` counter to the `parentequation` counter's reset list *within* `subequations` environments, so that `cleveref`'s sorting mechanism can figure things out. We also harmlessly make sure `parentequation` is reset by the same counter as `equation`.

We also want to treat `subequations` as a separate cross-reference type from equations. However, `amsmath` still uses the `equation` counter for `subequations`, not a separate “subequation” counter. We therefore temporarily alias `equation` to `subequation` within `subequation` environments.

```

2875     \let\cref@old@subequations\subequations%
2876     \let\cref@old@endsubequations\endsubequations%
2877     \cref@resetby{equation}{\cref@result}%
2878     \ifx\cref@result\relax\else%
2879     \cref@addtoreset{parentequation}{\cref@result}%
2880     \fi%
2881     \renewenvironment{subequations}{%

```

Temporarily declare `equation` counter to be reset by `parentequation`.

```

2882     \cref@addtoreset{equation}{parentequation}%

```

Temporarily alias `equation` to `subequation`, or to whatever `subequation` has been aliased to.

```

2883     \let\cref@orig@equation@alias\cref@equation@alias%
2884     \@ifundefined{cref@subequation@alias}%
2885     {\crefalias{equation}{subequation}}%

```

```

2886      {\def\@tempa{{equation}}}%
2887      \expandafter\expandafter\expandafter\crefalias%
2888      \expandafter\@tempa\expandafter{\cref@subequation@alias}}%
2889      \cref@old@subequations%
2890  }%

```

Remove equation from parentequation counter's reset list.

```

2891      \gdef\cl@parentequation{}%
2892      \cref@old@endsubequations%
2893      \setcounter{parentequation}{0}%

```

Restore original equation alias (if any).

```

2894      \@ifundefined{cref@orig@cref@equation@alias}%
2895      {\let\cref@equation@alias\relax}%
2896      {\let\cref@equation@alias\cref@orig@equation@alias\relax}%
2897      \let\cref@orig@equation@alias\relax%
2898  }%

```

`\make@df@tag@@` We override the internals of the `amsmath` `\tag` command to add the additional information to the label definition. Since labels produced by `\tag` have no logical ordering when sorting a list of references, we give them a large numerical value so that they get pushed to the end of sorted cross-reference lists.

```

2899      \let\cref@old@make@df@tag@@\make@df@tag@@%
2900      \def\make@df@tag@@#1{%
2901        \cref@old@make@df@tag@@{#1}%
2902        \let\cref@old@df@tag\df@tag%
2903        \expandafter\gdef\expandafter\df@tag\expandafter{%
2904          \cref@old@df@tag%
2905          \def\cref@currentlabel{[equation] [2147483647] [] #1}}}%
2906      \let\cref@old@make@df@tag@@@ \make@df@tag@@@%
2907      \def\make@df@tag@@@#1{%
2908        \cref@old@make@df@tag@@@{#1}%
2909        \let\cref@old@df@tag\df@tag%
2910        \expandafter\gdef\expandafter\df@tag\expandafter{%
2911          \cref@old@df@tag%
2912          \toks@ \xp{\p@equation{#1}}%
2913          \edef\cref@currentlabel{[equation] [2147483647] [] \the\toks@}}}%
2914  }% end of \@ifpackageloaded{amsmath}

```

Add check to `AtBeginDocument` to throw error if `amsmath` was loaded after `cleveref`.

```

2915 \AtBeginDocument{%
2916   \if@cref@amsmathloaded\else%
2917     \@ifpackageloaded{amsmath}{%
2918       \PackageError{cleveref}{cleveref must be loaded after amsmath!}%
2919       {Package load order is wrong: load cleveref *after* amsmath.}
2920     }{}%
2921   \fi}
2922 %
2923 %
2924 %
2925 \subsubsection{\package{amsthm} support}
2926 \begin{macro}{amsthm}
2927 %   If \package{amsthm} is loaded, we need to modify its theorem
2928 %   referencing features so that they work with \package{cleveref}.
2929 %   \begin{macrocode}
2930 \@ifpackageloaded{amsthm}{%
2931   \PackageInfo{cleveref}{`amsthm' support loaded}%

```

`\@thm` We modify `amsthm`'s version of the `\@thm` macro, to have it call `\refstepcounter` with an optional argument containing the theorem type.

```

2932 \let\cref@thmnoarg\@thm%
2933 \def\@thm{\@ifnextchar[{\cref@thmoptarg}{\cref@thmnoarg}}%
2934 \def\cref@thmoptarg[#1]#2#3#4{%
2935   \ifhmode\unskip\unskip\par\fi%
2936   \normalfont%
2937   \trivlist%
2938   \let\thmheadnl\relax%
2939   \let\thm@swap\@gobble%
2940   \thm@notefont{\fontseries\mddefault\upshape}%
2941   \thm@headpunct{.}% add period after heading
2942   \thm@headsep 5\p@ plus\p@ minus\p@\relax%
2943   \thm@space@setup%
2944   #2% style overrides
2945   \@topsep \thm@preskip           % used by thm head
2946   \@topsepadd \thm@postskip       % used by \@endparenv
2947   \def\@tempa{#3}\ifx\@empty\@tempa%
2948     \def\@tempa{\@oparg{\@begintheorem{#4}{}}{}}%
2949   \else%

```

```

2950     \refstepcounter[#1]{#3}% <<< cleveref modification
2951     \def\@tempa{\@oparg{\@begintheorem{#4}{\csname the#3\endcsname}}{}}%
2952     \fi%
2953     \@tempa}%

```

`\@ynthm` We also have to modify `amsthm`'s `\@ynthm` command so that it passes the optional argument to `\@thm`. Since `amsmath`'s `\@ynthm` takes a different parameter list to the standard L^AT_EX `\@ynthm` macro, we deliberately override our previous redefinition, and add the code for the automatic `\crefname` definitions directly to this version.

```

2954     \def\@ynthm#1[#2]#3{%

```

Here's the automatic `\crefname` definition.

```

2955     \edef\@tempa{\expandafter\noexpand%
2956         \csname cref@#1@name@preamble\endcsname}%
2957     \edef\@tempb{\expandafter\noexpand%
2958         \csname Cref@#1@name@preamble\endcsname}%
2959     \def\@tempc{#3}%
2960     \ifx\@tempc\@empty\relax%
2961         \expandafter\gdef\@tempa{}%
2962         \expandafter\gdef\@tempb{}%
2963     \else%
2964         \if@cref@capitalise%
2965             \expandafter\expandafter\expandafter\gdef\expandafter%
2966                 \@tempa\expandafter{\MakeUppercase #3}%
2967         \else%
2968             \expandafter\expandafter\expandafter\gdef\expandafter%
2969                 \@tempa\expandafter{\MakeLowercase #3}%
2970         \fi%
2971         \expandafter\expandafter\expandafter\gdef\expandafter%
2972             \@tempb\expandafter{\MakeUppercase #3}%
2973     \fi%
2974     \cref@stack@add{#1}{\cref@label@types}%

```

Here's the original `amsthm` `\@ynthm` definition, with the `cleveref` modification.

```

2975     \ifx\relax#2\relax%
2976         \def\@tempa{\@oparg{\@xthm{#1}{#3}}{}}%
2977     \else%

```

```

2978     \@ifundefined{c@#2}{%
2979         \def\@tempa{\@nocounterr{#2}}%
2980     }{%
2981         \xp\xdef\csname the#1\endcsname{\@xp\@nx\csname the#2\endcsname}%
2982         \toks@{#3}%
2983         \xp\xdef\csname#1\endcsname{%
2984             \@nx\@thm[#1]{% <<< new optional argument for theorem name
2985                 \let\@nx\thm@swap%
2986                 \if S\thm@swap\@nx\@firstoftwo\else\@nx\@gobble\fi%
2987                 \@xp\@nx\csname th@\the\thm@style\endcsname}%
2988                 {#2}{\the\toks@}}%
2989         \let\@tempa\relax%
2990     }%
2991     \fi%
2992     \@tempa}%

```

`\@xnthm` Finally, we have to restore the `amsthm` version of `\@xnthm`, which we stored earlier in `\cref@old@xnthm` and redefined. With `amsthm`, `\@xnthm` calls `\@ynthm`, so the automatic `\crefname` definition is already taken care of.

```

2993     \let\@xnthm\cref@old@xnthm%
2994 }{}% end of \@ifpackageloaded{amsthm}

```

16.6.5 ntheorem support

`ntheorem` If `ntheorem` is loaded, we need to modify its theorem referencing features so `thref` that they work with `cleveref`.

```

2995 \@ifpackageloaded{ntheorem}{%
2996     \PackageInfo{cleveref}{`ntheorem' support loaded}%
2997     \@ifpackagewith{ntheorem}{thref}{%
2998         \PackageWarning{cleveref}{`cleveref' supersedes `ntheorem's `thref'
2999             option}%
3000         \renewcommand{\thref}{\cref}}{}%

```

`\theorem@prework` Newer versions of `ntheorem` require a call to `\theorem@prework` when typesetting theorems. If an older version of `ntheorem` is being used, we just `\let` it to `\relax` to make sure it's defined.

```

3001     \@ifundefined{theorem@prework}{\let\theorem@prework\relax}{}%

```

`\@thm` We modify `ntheorem`'s version of the `\@thm` macro very slightly, to have it call `\refstepcounter` with an optional argument containing the theorem type.

```

3002 \gdef\@thm#1#2#3{%
3003   \if@thmmarks%
3004     \stepcounter{end\InTheoType ctr}%
3005   \fi%
3006   \renewcommand{\InTheoType}{#1}%
3007   \if@thmmarks%
3008     \stepcounter{curr#1ctr}%
3009     \setcounter{end#1ctr}{0}%
3010   \fi%
3011   \refstepcounter[#1]{#2}% <<< cleveref modification
3012   \theorem@prework%
3013   \thm@topsepadd \theorempostskipamount%
3014   \ifvmode \advance\thm@topsepadd\partopsep\relax\fi%
3015   \trivlist%
3016   \@topsep \theorempreskipamount%
3017   \@topsepadd \thm@topsepadd%
3018   \advance\linewidth -\theorem@indent\relax%
3019   \advance\@totalleftmargin \theorem@indent\relax%
3020   \parshape \@ne \@totalleftmargin \linewidth%
3021   \@ifnextchar[{\@ythm{#1}{#2}{#3}}{\@xthm{#1}{#2}{#3}}%]
3022   }%
3023 }{}% end of \@ifpackageloaded{ntheorem}

```

16.6.6 IEEEtrantools support

`IEEEtrantools` The `IEEEeqnarray` environment and `\IEEEeqnarraccr` command calls `\stepcounter` instead of `\refstepcounter` to increment the equation counters, so they fail to set the cross-reference type for `cleveref`. We patch in calls to `\refstepcounter` to fix this.

```

3024 \@ifpackageloaded{IEEEtrantools}{%
3025   \PackageInfo{cleveref}{`IEEEtrantools' support loaded}%

```

`\@IEEEeqnarray` Rather than copying the whole of `\@IEEEeqnarray` just to patch the `\stepcounter` line (which would be fragile and liable to breakage), we insert an extra step which calls `\refstepcounter` to set the cross-reference

type, then decrements the `equation` counter by one, before calling the original `\@IEEEeqnarray`.

```

3026 \let\cref@orig@IEEEeqnarray\@IEEEeqnarray%
3027 \def\@IEEEeqnarray[#1]#2{%
3028   \refstepcounter{equation}%
3029   \addtocounter{equation}{-1}%
3030   \cref@orig@IEEEeqnarray[#1]{#2}}%
```

We do the same thing with `\@IEEEeqnarrayXCR`, the last in the chain of macros that gets invoked by `\` (let to `\IEEEeqnarraycr`) within `IEEEeqnarray` environments.

`\@IEEEeqnarrayXCR`

```

3031 \let\cref@orig@IEEEeqnarrayXCR\@IEEEeqnarrayXCR%
```

Newer versions of `IEEEtrantools` replace `\if@IEEEissubequation` conditional with a counter `\c@IEEEsubequation` that is > 0 in subequations.

```

3032 \@ifundefined{c@IEEEsubequation}{%
3033   \def\@IEEEeqnarrayXCR[#1]{%
3034     \if@eqnsw%
3035       \if@IEEEissubequation%
3036         \refstepcounter{IEEEsubequation}%
3037         \addtocounter{IEEEsubequation}{-1}%
3038       \else%
3039         \refstepcounter{equation}%
3040         \addtocounter{equation}{-1}%
3041       \fi%
3042     \fi%
3043     \cref@orig@IEEEeqnarrayXCR[#1]}%
3044   }{
3045     \def\@IEEEeqnarrayXCR[#1]{%
3046       \if@eqnsw%
3047         \ifnum\c@IEEEsubequation>0\relax%
3048           \refstepcounter{IEEEsubequation}%
3049           \addtocounter{IEEEsubequation}{-1}%
3050         \else%
3051           \refstepcounter{equation}%
3052           \addtocounter{equation}{-1}%
3053         \fi%
```

```

3054     \fi%
3055     \cref@orig@IEEEeqnarrayXCR[#1]]%
3056 }% end of \@ifundefined{c@IEEEsubequation}

```

`\IEEEyessubnumber` And again for `\IEEEyessubnumber` (used to turn an equation into a subequation).

```

3057 \let\cref@orig@IEEEyessubnumber\IEEEyessubnumber%
3058 \def\IEEEyessubnumber{%
3059   \if@IEEEeqnarrayISinner%
3060     \if@IEEElastlinewassubequation\else%
3061       \setcounter{IEEEsubequation}{0}%
3062       \refstepcounter{IEEEsubequation}%
3063     \fi%
3064   \fi%
3065   \cref@orig@IEEEyessubnumber}%

```

`IEEEsubequation` To get the subequation formatting right, we harmlessly add the `IEEEsubequation` counter to the `equation` counter reset list so that `cleveref` can figure out the subnumbering relationship, and define `IEEEsubequation` to be an alias of the `subequation` format.

```

3066 \cref@addtoreset{IEEEsubequation}{subequation}%
3067 \crefalias{IEEEsubequation}{subequation}%
3068 }{}% end of \@ifpackageloaded{IEEEtrantools}

```

16.6.7 breqn support

`breqn` The `breqn` package uses `\eq@setcounter` instead of `\refstepcounter` to set equation numbers, which as usual breaks `cleveref`. To fix this, we have to patch `\eq@setcounter` with similar code to that already added to `\refstepcounter`.

```

3069 \@ifpackageloaded{breqn}{%
3070   \PackageInfo{cleveref}{`breqn' support loaded}%
3071   \let\cref@old@eq@setnumber\eq@setnumber%
3072   \def\eq@setnumber{%
3073     \cref@old@eq@setnumber%
3074     \cref@constructprefix{equation}{\cref@result}%
3075     \protected@xdef\cref@currentlabel{%

```

```

3076      [equation] [\arabic{equation}] [\cref@result] \p@equation\eq@number}}%
3077 }{}% end of \ifpackageloaded{breqn}

```

16.6.8 algorithmicx support

`algorithmicx` If `algorithmicx` is loaded, we modify its line numbering mechanism so that labels referring to line numbers in algorithms work with `cleveref`.

```

3078 \ifpackageloaded{algorithmicx}{%
3079 \PackageInfo{cleveref}{`algorithmicx' support loaded}%

```

`\ALG@step` We modify `algorithmicx`'s `\ALG@step` macro, which increments the line number, so that it stores the necessary information in `\cref@currentlabel`. `\ALG@step` already increments the line number counter `\ALG@line` using `\addtocounter`, but to get `cleveref` support working, it's cleaner to hook into the `\refstepcounter` mechanism, so we first decrement the counter and then re-increment it using `\refstepcounter`.

```

3080 \g@addto@macro\ALG@step{%
3081 \addtocounter{ALG@line}{-1}%
3082 \refstepcounter{ALG@line}%
3083 \expandafter\@cref@getprefix\cref@currentlabel\@nil\cref@currentprefix%
3084 \xdef\cref@currentprefix{\cref@currentprefix}}%

```

`\ALG@beginalgorithmic` However, this is not yet sufficient. The `\refstepcounter` above is called within a group, so the resulting `\cref@currentlabel` definition will not persist beyond the end of the group. To transfer the information to the “outside”, we follow `algorithmicx`' own method for getting the label information into `\@currentlabel`: we define `\cref@currentlabel` within `algorithm` environments to refer specifically to macros that store the line number information. The package conveniently supplies a `\ALG@beginalgorithmic` hook, so we make use of it here.

```

3085 \g@addto@macro\ALG@beginalgorithmic{%
3086 \def\cref@currentlabel{%
3087 [line] [\arabic{ALG@line}] [\cref@currentprefix]\theALG@line}}%
3088 }{}% end of \ifpackageloaded{algorithmicx}

```

16.6.9 listings support

listings To support cross-references to listings produced by the `listings` package, all we need to do is alias the counter it uses, `\lstnumber`, to the “listing” cross-reference type.

```

3089 \ifpackageloaded{listings}{%
3090   \PackageInfo{cleveref}{`listings' support loaded}%
3091   \crefalias{lstlisting}{listing}%
3092   \crefalias{lstnumber}{line}%

```

However, supporting cross-references to the line numbers is unfortunately a little more complicated than simply aliasing the “`lstnumber`” counter to the “`line`” cross-reference type (above). `listings` calls `\refstepcounter` from its `\lsthk@EveryPar` hook. But the hook macro is expanded inside a group. So that `\refstepcounter` call is completely useless: neither the `\@currentlabel` nor the `\cref@currentlabel` definitions make it out of the group, so they have no effect on `\label` definitions!

To make line labels work, `listings` sets `\@currentlabel` to `\thelstnumber` at the beginning of a listing, via the `\lsthk@Init` hook, and it is *this* (and not `\refstepcounter`) which causes the current line number to be picked up by `\labels`. To get line numbers working with `cleveref` too, we need to replicate this for `\cref@currentlabel`, which is what the following hook code does.

```

\lsthk@Init
\lsthk@EveryPar
3093 \lst@AddToHook{Init}{%
3094   \def\cref@currentlabel{%
3095     [line] [\arabic{lstnumber}] [\cref@currentprefix]\thelstnumber}}%
3096 \lst@AddToHook{EveryPar}{%
3097   \expandafter\@cref@getprefix\cref@currentlabel\@nil\cref@currentprefix%
3098   \xdef\cref@currentprefix{\cref@currentprefix}}%
3099 }{}% end of \ifpackageloaded{listings}

```

16.6.10 algorithm2e support

algorithm2e When `hyperref` is not loaded, all we need to do to support the `algorithm2e` package is to alias its counters, `\algocf`, `\lgoLine` and `\algocfline`, to the “algorithm” and “line” cross-reference types.

```

3100 \ifpackageloaded{algorithm2e}{%
3101   \PackageInfo{cleveref}{`algorithm2e' support loaded}%
3102   \crefalias{algocf}{algorithm}%
3103   \crefalias{algocfline}{line}%
3104   \crefalias{AlgoLine}{line}%

```

When `hyperref` *is* loaded, `algorithm2e` does some trickery when stepping the line number counter to avoid getting duplicate hyperlink anchor names, and updates `\currentlabel` manually. Unfortunately, this by-passes both `\refstepcounter` and `\H@refstepcounter`, so `\cref@currentlabel` never gets updated. To fix this, we have to hack its `\lgocf@nl@sethref` macro to update `\ref@currentlabel` along with `\currentlabel`.

```

3105 \let\cref@old@algocf@nl@sethref\algocf@nl@sethref%
3106 \renewcommand{\algocf@nl@sethref}[1]{%
3107   \cref@old@algocf@nl@sethref{#1}%
3108   \cref@constructprefix{AlgoLine}{\cref@result}%
3109   \ifundefined{cref@AlgoLine@alias}%
3110     {\def\@tempa{AlgoLine}}%
3111     {\def\@tempa{\csname cref@AlgoLine@alias\endcsname}}%
3112   \xdef\cref@currentlabel{%
3113     [\@tempa] [\arabic{AlgoLine}] [\cref@result]%
3114     \csname p@AlgoLine\endcsname\csname theAlgoLine\endcsname}%
3115   }{}% end of \ifpackageloaded{algorithm2e}

```

16.6.11 subfig support

subfig The `subfig` package modifies `\refstepcounter` within floats. Most of the time, this isn’t a problem for `cleveref`, as `subfig`’s modified `\refstepcounter` calls `cleveref`’s version after it’s done its stuff. However, this breaks support the `\refstepcounter` optional argument, so we fix that here.

`Subfig` also redefines `\label` within subfloats, breaking `cleveref`’s optional

argument. We also fix that.

```
3116 \@ifpackageloaded{subfig}{%
3117   \PackageInfo{cleveref}{`subfig' support loaded}%
```

`\refsteponlycounter` `subfig` replaces `\refstepcounter` with `\refsteponlycounter` within floats, which calls the saved `cleveref` `\refstepcounter` after doing some extra `subfig`-related processing. We redefine `\refsteponlycounter` so that passing it an optional argument bypasses `subfig`'s code entirely and just calls the `cleveref` code directly. Since only `cleveref`-specific commands will ever pass an optional argument to `\refstepcounter`, this won't affect `subfig`'s use of `\refstepcounter`. We have to postpone this redefinition until the beginning of the document because `subfig` does.

```
3118   \AtBeginDocument{%
3119     \let\cref@old@refsteponlycounter\refsteponlycounter%
3120     \def\refsteponlycounter{%
3121       \@ifnextchar[\refstepcounter@optarg%
3122       \cref@old@refsteponlycounter%]
3123     }%
```

`\sf@sub@label` Inside a subfloat, `subfig` captures the current `\label` definition in `\sf@oldlabel`, `\sf@old@label` then replaces `\label` with `\subfloat@label`, which does additional argument and subfloat-related processing before calling `\sf@oldlabel`. This breaks `cleveref`'s `\label` optional argument.

We need to insert an extra layer of processing into the chain of redefined `\label` macro calls, to process `cleveref`'s optional argument. We do this by redefining `subfig`'s `\sf@sub@label` command to process `subfig`'s optional argument (which uses parentheses rather than square brackets) as usual, but then have it call `\cref@label` which stores `cleveref`'s `\label` command (recall that we're inside a subfloat here, where `subfig` has overridden the `\label` macro itself), to process `cleveref`'s own `\label` optional argument.

`\cref@label` would normally call the original `\label` definition stored in `\cref@old@label`, whereas here we want it to instead call `\sf@@sub@label`, the next layer of the `subfig` `\label` macro stack, otherwise we bypass the rest of the `subfig` processing and break it. So we temporarily let `\cref@old@label` to `\sf@@sub@label`, so that `\cref@label` hands back

to `subfig`'s `\label` processing when done. (We're inside a group, so `\cref@old@label` gets restored at the end of the subfloat.)

The final issue is that `subfig` captures the original `\label` definition in `\sf@oldlabel` at the beginning of the subfloat. But this captures `cleveref`'s definition,³⁴ instead of the original `\label` definition that needs to be called after `subfig` has finished its stuff. So, we let `\sf@oldlabel` to `\cref@old@label` before redefining the latter, so that the `subfig \label` stack calls the right thing once it's done its own processing. Oof!

```

3124 \def\sf@sub@label(#1){%
3125   \ifhyperrefloaded%
3126     \protected@edef\@currentlabelname{%
3127       \expandafter\strip@period #1\relax.\relax\@@}%
3128   \fi%
3129   \let\sf@oldlabel\cref@old@label%
3130   \let\cref@old@label\sf@sub@label%
3131   \cref@label}%
3132 }{}% end of \ifpackageloaded{subfig}

```

16.6.12 memoir subfig support

memoir We try to stay out of `memoir`'s way as much as possible, by using a separate set of parallel label definitions for `cleveref`, and leaving the standard labels alone for `memoir` and other packages to use as normal. The one remaining point of contention is the `\label` command itself.

`\sf@memsub@label` `memoir` contains its own internal re-implementation of `subfig`, which redefines `\@memoldlabel` `\label` in a very similar way. We therefore have to replicate the `subfig \cref@old@label` support for `memoir`'s internal re-implementation. (We have to postpone the redefinitions until the beginning of the document because `memoir` does, too.)

```

3133 \ifclassloaded{memoir}{%
3134   \AtBeginDocument{%
3135     \def\sf@memsub@label(#1){%
3136       \protected@edef\mem@currentlabelname{#1}%
3137       \let\@memoldlabel\cref@old@label%

```

³⁴Actually, because `subfig` always loads the `caption` package, it captures `cleveref`'s `caption`-related redefinition of `\label`.

```

3138      \let\cref@old@label\sf@@memsub@label%
3139      \cref@label}}}%
3140 }{}%
```

16.6.13 caption support

caption The **caption** package redefines `\label` within floats. Since version 3.2c, it is careful to redefine `\label` in a way that doesn't break any optional arguments introduced by other packages (such as **cleveref**'s), so we no longer need to add any compatibility hacks.

Earlier versions of **caption** do break **cleveref**'s optional argument, however, so we have to fix things here for those versions.

```

3141 \@ifpackageloaded{caption}{%
3142   \@ifpackagelater{caption}{2011/08/19}{}{%
3143     \PackageInfo{cleveref}{`caption' support loaded}%
```

```

\cref@old@caption@xlabel We fix the \label argument parsing by redefining \caption@xlabel, the
\cref@old@label macro which \label is let to inside floats, to juggle around the various
\cref@ORI@label cleveref and caption \label-processing macros so that everything ulti-
\caption@ORI@label mately gets processed correctly.
```

`\cref@label` stores **cleveref**'s `\label` redefinition (recall that we're inside a float here, where `\label` itself has been redefined by **caption**). `\cref@label` processes **cleveref**'s optional `\label` argument, if any. It then calls `\cref@old@label`. But we've let that to `\cref@old@caption@xlabel`, which stores the original `\caption@xlabel`. So the net effect is to insert an extra layer of optional argument processing between `\label` and `\caption@xlabel`, which can then proceed as before.

The final issue is that **caption** captures the original `\label` definition in `\caption@ORI@label`, but this picks up the **cleveref** redefinition, which is not what we want. So we let `\caption@ORI@label` to the original `\label` definition as captured by **cleveref**. Usually, that's stored in `\cref@old@label`, but we've temporarily redefined that. So we need to save what was originally preserved in `\cref@old@label` in `\cref@ORI@old@label`, and make `\caption@ORI@label` call that. Oof!


```

3144 \let\cref@old@caption@xlabel\caption@xlabel%
3145 \def\caption@xlabel{%
3146   \let\cref@ORI@label\cref@old@label%
3147   \let\cref@old@label\cref@old@caption@xlabel%
3148   \let\caption@ORI@label\cref@ORI@label%
3149   \cref@label}%

3150 }% end of \@ifpackagelater
3151 }{}% end of \@ifpackageloaded{caption}

```

16.6.14 aliascnt support

aliascnt For the `aliascnt` trick described in Section 6 of the documentation to work, we have to inform `cleveref` about how aliased counters get reset. `aliascnt`'s `\newaliascnt` command doesn't add the aliased counter to any reset list, but if the counter it's aliased to gets reset, the aliased counter will get reset too. In order for `cleveref` to correctly sort cross-references to the aliased counter, we have to add that counter to the appropriate reset list, even though that isn't necessary to actually reset the counter itself. We add this to the `\newaliascnt` command.

`\newaliascnt`

```

3152 \@ifpackageloaded{aliascnt}{%
3153   \PackageInfo{cleveref}{`aliascnt' support loaded}%
3154   \let\cref@old@newaliascnt\newaliascnt%
3155   \renewcommand*{\newaliascnt}[2]{%
3156     \cref@old@newaliascnt{#1}{#2}%
3157     \cref@resetby{#2}{\cref@result}%
3158     \ifx\cref@result\relax\else%
3159       \cref@addtoreset{#1}{\cref@result}%
3160     \fi}%
3161 }{}% end of \@ifpackageloaded{aliascnt}

```

16.7 Poor Man's cleveref

poorman The `poorman` option causes a `sed` script to automatically be written. When the original L^AT_EX source file is processed through this script, it strips out all the `cleveref` commands, typesetting all the reference formatting explicitly, and

using the standard `\ref` and `\pageref` commands to produce the references themselves.

```
3162 \DeclareOption{poorman}{%
3163   \PackageInfo{cleveref}{option `poorman' loaded}}%
```

`\cref@poorman@text` Define global macro `\cref@poorman@text` to store the text produced by the `\cref` commands, and open an output stream for writing the script before starting to process the document body.

```
3164   \gdef\cref@poorman@text{}%
3165   \AtBeginDocument{%
3166     \newwrite\@crefscript%
3167     \immediate\openout\@crefscript=\jobname.sed}%
```

`select@language` If `babel` is loaded, we add to the `\select@language` and `\foreign@language`
`foreign@language` commands to make them write substitution rules to the script that replace the cross-reference name and conjunction component macros with the appropriate language-dependent names. We use `sed` line-number addresses in the rules to ensure they are only applied to the regions in which that particular language was in use.

Note that we write substitution rules for the *previous* language block when the language is changed, because we need the rules to appear in the script *after* all the cross-reference substitution rules for that language block. `\cref@inputlineno` stores the input-file line-number of the start of the previous language block.

We postpone the redefinitions until the beginning of the document not only to ensure that they don't get clobbered by other package's redefinitions, but also because we don't want the redefinitions to take effect until after `babel` has called `\selectlanguage` for the main language (remember, the substitution rules for this first language block will get written at the next language change).

Note that, since we're writing to the script file within `\AtBeginDocument` and `\AtEndDocument`, this code has to come *after* the above `\AtBeginDocument` code which opens the script file for writing, and *before* the later `\AtEndDocument` code (below) which closes it.

The `\if@cref@switched@language` flag is set when a `babel` language switch-

ing command is called. It is checked by `\cref@writelanguagerules` when writing substitution rules.

```

3168 \newif\if@cref@switched@language%
3169 \@ifpackageloaded{babel}{%
3170   \AtBeginDocument{%
3171     \let\cref@old@select@language\select@language%
3172     \def\select@language{%
3173       \@cref@switched@language>true%
3174       \cref@writelanguagerules%
3175       \cref@old@select@language}%
3176     \let\cref@old@foreign@language\foreign@language%
3177     \def\foreign@language{%
3178       \@cref@switched@language>true%
3179       \cref@writelanguagerules%
3180       \cref@old@foreign@language}%
3181     \edef\cref@inputlineno{\the\inputlineno}}%
3182   }{}%
```

The final set of substitution rules gets written at the end of the document. This is the only set of rules that gets written if `babel` is not loaded.

```

3183 \AtEndDocument{%
3184   \let\select@language\cref@old@select@language%
3185   \let\foreign@language\cref@old@foreign@language%
3186   \cref@writelanguagerules}%

```

`\cref@writelanguagerules` `\cref@writelanguagerules` does the grunt work of writing out the necessary substitution rules.

```

3187 \def\cref@writelanguagerules{%
3188   \begingroup%
```

If `\if@cref@switched@language` hasn't been set, then we must be writing the final set of substitution rules at the end of a document in which no language switching command was ever used. In which case, the substitution rules don't specify a line-number address.

```

3189   \if@cref@switched@language%
3190     \edef\@address{\cref@inputlineno,\the\inputlineno}%
3191   \else%
3192     \def\@address{}%
```

```

3193 \fi%
3194 \expandafter\def\expandafter\cref@poorman@text\expandafter{%
3195 \crefrangeconjunction}%
3196 \expandafter\def\expandafter\@tempa\expandafter{%
3197 \expandafter{\@address}{\string\crefrangeconjunction}}%
3198 \expandafter\cref@writescrpt\@tempa%
3199 \expandafter\def\expandafter\cref@poorman@text\expandafter{%
3200 \crefrangepreconjunction}%
3201 \expandafter\def\expandafter\@tempa\expandafter{%
3202 \expandafter{\@address}{\string\crefrangepreconjunction}}%
3203 \expandafter\cref@writescrpt\@tempa%
3204 \expandafter\def\expandafter\cref@poorman@text\expandafter{%
3205 \crefrangepostconjunction}%
3206 \expandafter\def\expandafter\@tempa\expandafter{%
3207 \expandafter{\@address}{\string\crefrangepostconjunction}}%
3208 \expandafter\cref@writescrpt\@tempa%
3209 \expandafter\def\expandafter\cref@poorman@text\expandafter{%
3210 \crefpairconjunction}%
3211 \expandafter\def\expandafter\@tempa\expandafter{%
3212 \expandafter{\@address}{\string\crefpairconjunction}}%
3213 \expandafter\cref@writescrpt\@tempa%
3214 \expandafter\def\expandafter\cref@poorman@text\expandafter{%
3215 \crefmiddleconjunction}%
3216 \expandafter\def\expandafter\@tempa\expandafter{%
3217 \expandafter{\@address}{\string\crefmiddleconjunction}}%
3218 \expandafter\cref@writescrpt\@tempa%
3219 \expandafter\def\expandafter\cref@poorman@text\expandafter{%
3220 \creflastconjunction}%
3221 \expandafter\def\expandafter\@tempa\expandafter{%
3222 \expandafter{\@address}{\string\creflastconjunction}}%
3223 \expandafter\cref@writescrpt\@tempa%
3224 \expandafter\def\expandafter\cref@poorman@text\expandafter{%
3225 \crefpairgroupconjunction}%
3226 \expandafter\def\expandafter\@tempa\expandafter{%
3227 \expandafter{\@address}{\string\crefpairgroupconjunction}}%
3228 \expandafter\cref@writescrpt\@tempa%
3229 \expandafter\def\expandafter\cref@poorman@text\expandafter{%
3230 \crefmiddlegroupconjunction}%
3231 \expandafter\def\expandafter\@tempa\expandafter{%
3232 \expandafter{\@address}{\string\crefmiddlegroupconjunction}}%
3233 \expandafter\cref@writescrpt\@tempa%
3234 \expandafter\def\expandafter\cref@poorman@text\expandafter{%

```

```

3235      \creflastgroupconjunction}%
3236      \expandafter\def\expandafter\@tempa\expandafter{%
3237      \expandafter{\@address}{\string\creflastgroupconjunction}}%
3238      \expandafter\cref@writescrpt\@tempa%

```

We write substitution rules for all component-derived cross-reference formats, as listed in `\cref@label@types`.

```

3239      \let\@tempstack\cref@label@types%
3240      \cref@isstackfull{\@tempstack}%
3241      \@whiles\if@cref@stackfull\fi{%

```

`\cref@(type)@name` substitution rules.

```

3242      \edef\@tempa{\cref@stack@top{\@tempstack}}%
3243      \expandafter\expandafter\expandafter\def%
3244      \expandafter\expandafter\expandafter\cref@poorman@text%
3245      \expandafter\expandafter\expandafter{%
3246      \csname cref@\@tempa @name\endcsname}%
3247      \edef\@tempa{%
3248      \string\cref@\expandafter\noexpand\@tempa @name\space}%
3249      \expandafter\expandafter\expandafter\def%
3250      \expandafter\expandafter\expandafter\@tempa%
3251      \expandafter\expandafter\expandafter{%
3252      \expandafter\expandafter\expandafter{%
3253      \expandafter\@address\expandafter}%
3254      \expandafter{\@tempa}}%
3255      \expandafter\cref@writescrpt\@tempa%

```

`\cref@(type)@name@plural` substitution rules.

```

3256      \edef\@tempa{\cref@stack@top{\@tempstack}}%
3257      \expandafter\expandafter\expandafter\def%
3258      \expandafter\expandafter\expandafter\cref@poorman@text%
3259      \expandafter\expandafter\expandafter{%
3260      \csname cref@\@tempa @name@plural\endcsname}%
3261      \edef\@tempa{%
3262      \string\cref@\expandafter\noexpand\@tempa%
3263      @name@plural\space}%
3264      \expandafter\expandafter\expandafter\def%
3265      \expandafter\expandafter\expandafter\@tempa%
3266      \expandafter\expandafter\expandafter{%
3267      \expandafter\expandafter\expandafter{%

```

```

3268         \expandafter\@address\expandafter}%
3269         \expandafter{\@tempa}}%
3270         \expandafter\cref@writescrpt\@tempa%

```

`\Cref@<type>@name` substitution rules.

```

3271         \edef\@tempa{\cref@stack@top{\@tempstack}}%
3272         \expandafter\expandafter\expandafter\def%
3273         \expandafter\expandafter\expandafter\cref@poorman@text%
3274         \expandafter\expandafter\expandafter{%
3275         \csname Cref@\@tempa @name\endcsname}%
3276         \edef\@tempa{%
3277         \string\Cref@\expandafter\noexpand\@tempa @name\space}%
3278         \expandafter\expandafter\expandafter\def%
3279         \expandafter\expandafter\expandafter\@tempa%
3280         \expandafter\expandafter\expandafter{%
3281         \expandafter\expandafter\expandafter%
3282         {\expandafter\@address\expandafter}}%
3283         \expandafter{\@tempa}}%
3284         \expandafter\cref@writescrpt\@tempa%

```

`\Cref@<type>@name@plural` substitution rules.

```

3285         \edef\@tempa{\cref@stack@top{\@tempstack}}%
3286         \expandafter\expandafter\expandafter\def%
3287         \expandafter\expandafter\expandafter\cref@poorman@text%
3288         \expandafter\expandafter\expandafter{%
3289         \csname Cref@\@tempa @name@plural\endcsname}%
3290         \edef\@tempa{%
3291         \string\Cref@\expandafter\noexpand\@tempa%
3292         @name@plural\space}%
3293         \expandafter\expandafter\expandafter\def%
3294         \expandafter\expandafter\expandafter\@tempa%
3295         \expandafter\expandafter\expandafter{%
3296         \expandafter\expandafter\expandafter%
3297         {\expandafter\@address\expandafter}}%
3298         \expandafter{\@tempa}}%
3299         \expandafter\cref@writescrpt\@tempa%

```

After the loop over cross-reference types, we set `\cref@inputlineno` to the current input-file line, in preparation for the next language block.

```

3300         \cref@stack@pop{\@tempstack}%

```

```

3301      \cref@isstackfull{\@tempstack}}}%
3302  \endgroup%
3303  \edef\cref@inputlineno{\the\inputlineno}}}%

```

After processing the document body, we re-read in the temporary script file, and write it out again to the final `sed` script file, escaping regexp special characters in the process. The escaping is carried out by turning the regexp special characters into active characters, and defining them to expand to their escaped form. This involves a lot of juggling of catcodes and lccodes!

Both `\DeclareOption` and `\AtEndDocument` store their arguments in token lists, so all the following `TEX` code is already tokenised long before it is expanded and evaluated. Thus there is no (easy) way to change the catcodes of the characters appearing here before they are tokenised. In one way this is convenient: the catcode changes we make don't "take" until evaluated, so we can continue to use the standard `TEX` characters (`\`, `{`, `}` etc.) even after the lines containing the catcode commands. But in another, more significant, way, it is very inconvenient: it makes it difficult to define the regexp special characters as active characters, since it's impossible to directly create tokens with the correct char- and catcodes.

We get around this by creating the unusual charcode/catcode combinations using the `\lowercase` trick (`\lowercase` changes the charcodes of all characters in its argument to their lccodes, but *leaves their catcodes alone*). That way, the argument of `\AtEndDocument` is tokenised correctly, and when it comes to be expanded and evaluated, the `\lowercase` commands create tokens with the correct char- and catcodes.

```

3304  \AtEndDocument{%
3305    \immediate\closeout\@crefscrip%
3306    \newread\@crefscrip%
3307    \immediate\openin\@crefscrip=\jobname.sed%
3308    \begingroup%
3309    \newif\if@not@eof%
3310    \def\@eof{\par }%

```

Change catcodes of regexp special characters to make them active characters and define them to expand to their escaped forms. Change those of `TEX` special characters to make them normal letters.

```

3311 \catcode`. =13 \catcode`*=13%
3312 \catcode`[ =13 \catcode`] =13%
3313 \catcode`^ =13 \catcode`$ =13 %$
3314 \catcode`\ =0 \catcode`< =1 \catcode`> =2%
3315 \catcode`\\ =13 \catcode`\{ =12 \catcode`\} =12 \catcode`_ =12%
3316 \lccode`/ =92%
3317 \lccode`~ =92\lowercase{\def~{\string/\string/}}%
3318 \lccode`~ =42\lowercase{\def~{\string/\string*}}%
3319 \lccode`~ =46\lowercase{\def~{\string/\string.}}%
3320 \lccode`~ =91\lowercase{\def~{\string/\string[]}}%
3321 \lccode`~ =93\lowercase{\def~{\string/\string[]}}%
3322 \lccode`~ =94\lowercase{\def~{\string/\string^}}%
3323 \lccode`~ =36\lowercase{\def~{\string/\string$}}% $
3324 \lccode`~ =0 \lccode`/ =0 \catcode`~ =12%

```

Read lines from the temporary script file, expand them to escape regexp special characters, and store them in `\cref@poorman@text`.

```

3325 \def\cref@poorman@text{}%
3326 \immediate\read\@crefscript to \@tempa%
3327 \ifx\@tempa\@eof%
3328 \@not@eoffalse%
3329 \else%
3330 \@not@eoftrue%
3331 \edef\@tempa{\@tempa}%
3332 \fi%
3333 \@whiles\if@not@eof\fi{%
3334 \expandafter\g@addto@macro\expandafter%
3335 \cref@poorman@text\expandafter{\@tempa^^J}%
3336 \immediate\read\@crefscript to \@tempa%
3337 \ifx\@tempa\@eof%
3338 \@not@eoffalse%
3339 \else%
3340 \@not@eoftrue%
3341 \edef\@tempa{\@tempa}%
3342 \fi}%
3343 \endgroup%
3344 \immediate\closein\@crefscript%

```

Add some rules to remove other `cleveref` commands. We use the `\lowercase` trick again for writing the `\`, `{` and `}` characters. (This could be done in other

ways, but since we're in `\lowercase` mood, why not stick with it.)

```

3345 \begingroup%
3346 \lccode`|=92 \lccode`<=123 \lccode`>=125 \lccode`C=67%
3347 \lowercase{\def\@tempa{%[|
3348   s/||label|[[~]]*|]/||label/g}}%
3349 \expandafter\g@addto@macro\expandafter%
3350 \cref@poorman@text\expandafter{\@tempa^^J}%
3351 \lowercase{\edef\@tempa{s/||usepackage|(|[.|*|]|)|<0,1|><cleveref>//g}}%
3352 \expandafter\g@addto@macro\expandafter%
3353 \cref@poorman@text\expandafter{\@tempa^^J}%
3354 \lowercase{\edef\@tempa{s/||[cC]reformat<.*><.*>//g}}%
3355 \expandafter\g@addto@macro\expandafter%
3356 \cref@poorman@text\expandafter{\@tempa^^J}%
3357 \lowercase{\edef\@tempa{s/||[cC]refrangeformat<.*><.*>//g}}%
3358 \expandafter\g@addto@macro\expandafter%
3359 \cref@poorman@text\expandafter{\@tempa^^J}%
3360 \lowercase{\edef\@tempa{s/||[cC]refmultiformat<.*><.*><.*><.*>//g}}%
3361 \expandafter\g@addto@macro\expandafter%
3362 \cref@poorman@text\expandafter{\@tempa^^J}%
3363 \lowercase{\edef\@tempa{%
3364   s/||[cC]refrangemultiformat<.*><.*><.*><.*>//g}}%
3365 \expandafter\g@addto@macro\expandafter%
3366 \cref@poorman@text\expandafter{\@tempa^^J}%
3367 \lowercase{\edef\@tempa{s/||[cC]refname<.*><.*>//g}}%
3368 \expandafter\g@addto@macro\expandafter%
3369 \cref@poorman@text\expandafter{\@tempa^^J}%
3370 \lowercase{\edef\@tempa{s/||[cC]reflabelformat<.*><.*>//g}}%
3371 \expandafter\g@addto@macro\expandafter%
3372 \cref@poorman@text\expandafter{\@tempa^^J}%
3373 \lowercase{\edef\@tempa{s/||[cC]refrangelabelformat<.*><.*>//g}}%
3374 \expandafter\g@addto@macro\expandafter%
3375 \cref@poorman@text\expandafter{\@tempa^^J}%
3376 \lowercase{\edef\@tempa{s/||[cC]refdefaultlabelformat<.*><.*>//g}}%
3377 \expandafter\g@addto@macro\expandafter%
3378 \cref@poorman@text\expandafter{\@tempa^^J}%
3379 \lowercase{\edef\@tempa{%
3380   s/||renewcommand<||crefpairconjunction><.*><.*>//g}}%
3381 \expandafter\g@addto@macro\expandafter%
3382 \cref@poorman@text\expandafter{\@tempa^^J}%
3383 \lowercase{\edef\@tempa{%
3384   s/||renewcommand<||crefpairgroupconjunction><.*><.*>//g}}%

```

```

3385 \expandafter\g@addto@macro\expandafter%
3386 \cref@poorman@text\expandafter{\@tempa^^J}%
3387 \lowercase{\edef\@tempa{%
3388     s||renewcommand<||crefmiddleconjunction><.*>//g}}%
3389 \expandafter\g@addto@macro\expandafter%
3390 \cref@poorman@text\expandafter{\@tempa^^J}%
3391 \lowercase{\edef\@tempa{%
3392     s||renewcommand<||crefmiddlegroupconjunction><.*>//g}}%
3393 \expandafter\g@addto@macro\expandafter%
3394 \cref@poorman@text\expandafter{\@tempa^^J}%
3395 \lowercase{\edef\@tempa{%
3396     s||renewcommand<||creflastconjunction><.*>//g}}%
3397 \expandafter\g@addto@macro\expandafter%
3398 \cref@poorman@text\expandafter{\@tempa^^J}%
3399 \lowercase{\edef\@tempa{%
3400     s||renewcommand<||creflastgroupconjunction><.*>//g}}%
3401 \expandafter\g@addto@macro\expandafter%
3402 \cref@poorman@text\expandafter{\@tempa^^J}%
3403 \lowercase{\edef\@tempa{s||renewcommand<||[cC]ref><.*>//g}}%
3404 \expandafter\g@addto@macro\expandafter%
3405 \cref@poorman@text\expandafter{\@tempa^^J}%
3406 \lowercase{\edef\@tempa{s||renewcommand<||[cC]refrange><.*>//g}}%
3407 \expandafter\g@addto@macro\expandafter%
3408 \cref@poorman@text\expandafter{\@tempa^^J}%
3409 \endgroup%

```

Overwrite the script file with the new, escaped regexp rules.

```

3410 \newwrite\@crefscrip%
3411 \immediate\openout\@crefscrip=\jobname.sed%
3412 \immediate\write\@crefscrip{\cref@poorman@text}%
3413 \immediate\closeout\@crefscrip%
3414 }% end of \AtEndDocument

```

`\cref@writescript` The `\cref@writescript` utility macro does the actual writing of the substitution rule to the script. The first argument is the “address”, the second argument is the regexp pattern to match, whilst the substitution text is whatever is currently stored in `\cref@poorman@text`.

```

3415 \def\cref@getmeaning#1{\expandafter\@cref@getmeaning\meaning#1\@nil}%
3416 \def\@cref@getmeaning#1->#2\@nil{#2}%
3417 \def\cref@writescript#1#2{%

```

```

3418 \edef\@tempa{\cref@getmeaning{\cref@poorman@text}}%
3419 \immediate\write\@crefscript{#1 s/#2/\@tempa/g}}%

```

`\cref` To make use of all the `poorman` infrastructure defined above, we must redefine the `\Cref` fine the `cleveref` referencing commands themselves. There are two parts to this: at the very top layer of the cross-referencing macro stack, we redefine the user-level commands to first initialise `\cref@poorman@text` to the empty string, then typeset the reference as usual, and finally write a substitution rule to the `sed` script containing whatever has been accumulated in `\@crefnostar` `\cref@poorman@text`. At the very lowest layer of the macro stack, we redefine the macros that actually typeset the various parts of the references to additionally add a copy of whatever they typeset to `\cref@poorman@text`.

We first redefine the user-level referencing commands so that they write a substitution rule for the reference to the script, as well as typesetting the reference itself. Most of the redefinitions differ slightly depending on whether `hyperref` is loaded.

```

3420 \if@cref@hyperrefloaded\relax% hyperref loaded
3421 \def\@crefnostar#1#2{%
3422 \gdef\cref@poorman@text{}%
3423 \@cref{#1}{#2}%

```

We use a temporary `\@tempa` macro here, which makes use of the fact that the first character of `#1` is “c” for lower-case and “C” for upper-case in these commands, in order to write out the correct capitalisation in the substitution.

FIXME: We only resort to this because `\string\#1` doesn’t work. But there *must* be a better way to get a backslash character into the token stream, obviating the need for the ugly `\@tempa` macro.

```

3424 \def\@tempa##1##2\@nil{%
3425 \if##1c%
3426 \cref@writescript{}{\string\cref\string{#2\string}}%
3427 \else%
3428 \Cref@writescript{}{\string\Cref\string{#2\string}}%
3429 \fi}%
3430 \@tempa#1\@nil}%
3431 \def\@crefstar#1#2{%
3432 \gdef\cref@poorman@text{}%
3433 \@crefstarredtrue\@cref{#1}{#2}\@crefstarredfalse%

```

```

3434 \def\@tempa##1##2\@nil{%
3435 \if##1c%
3436 \cref@writescrpt{}{\string\cref*\string{#2\string}}%
3437 \else%
3438 \cref@writescrpt{}{\string\Cref*\string{#2\string}}%
3439 \fi}%
3440 \@tempa#1\@nil}%
3441 \def\@crefrangenostar#1#2#3{%
3442 \gdef\cref@poorman@text{}%
3443 \@setcrefrange{#2}{#3}{#1}{}%
3444 \def\@tempa##1##2\@nil{%
3445 \if##1c%
3446 \cref@writescrpt{}{%
3447 \string\crefrange\string{#2\string}\string{#3\string}}%
3448 \else%
3449 \cref@writescrpt{}{%
3450 \string\Crefrange\string{#2\string}\string{#3\string}}%
3451 \fi}%
3452 \@tempa#1\@nil}%
3453 \def\@crefrangestar#1#2#3{%
3454 \gdef\cref@poorman@text{}%
3455 \@crefstarredtrue\@setcrefrange{#2}{#3}{#1}{}\@crefstarredfalse%
3456 \def\@tempa##1##2\@nil{%
3457 \if##1c%
3458 \cref@writescrpt{}{%
3459 \string\crefrange*\string{#2\string}\string{#3\string}}%
3460 \else%
3461 \cref@writescrpt{}{%
3462 \string\Crefrange*\string{#2\string}\string{#3\string}}%
3463 \fi}%
3464 \@tempa#1\@nil}%
3465 \def\@cpagerefrangenostar#1#2#3{%
3466 \gdef\cref@poorman@text{}%
3467 \@setcpagerefrange{#2}{#3}{#1}{}%
3468 \def\@tempa##1##2\@nil{%
3469 \if##1c%
3470 \cref@writescrpt{}{%
3471 \string\cpagerefrange\string{#2\string}\string{#3\string}}%
3472 \else%
3473 \cref@writescrpt{}{%
3474 \string\Cpagerefrange\string{#2\string}\string{#3\string}}%
3475 \fi}%

```

```

3476 \@tempa#1\@nil}%
3477 \def\@cpagerefrangestart#1#2#3{%
3478 \gdef\cref@poorman@text{}%
3479 \@crefstarredtrue%
3480 \@setcpagerefrange{#2}{#3}{#1}{}%
3481 \@crefstarredfalse%
3482 \def\@tempa##1##2\@nil{%
3483 \if##1c%
3484 \cref@writescrpt{}{%
3485 \string\cpagerefrange*\string{#2\string}\string{#3\string}}%
3486 \else%
3487 \cref@writescrpt{}{%
3488 \string\Cpagerefrange*\string{#2\string}\string{#3\string}}%
3489 \fi}%
3490 \@tempa#1\@nil}%
3491 \def\@labelcrefnostar#1{%
3492 \gdef\cref@poorman@text{}%
3493 \@cref{labelcref}{#1}%
3494 \cref@writescrpt{}{\string\labelcref\string{#1\string}}}%
3495 \def\@labelcrefstar#1{%
3496 \gdef\cref@poorman@text{}%
3497 \@crefstarredtrue%
3498 \@cref{labelcref}{#1}%
3499 \@crefstarredfalse%
3500 \cref@writescrpt{}{\string\labelcref*\string{#1\string}}}%
3501 \def\@labelcpagerefnostar#1{%
3502 \gdef\cref@poorman@text{}%
3503 \@cref{labelcpageref}{#1}%
3504 \cref@writescrpt{}{\string\labelcpageref\string{#1\string}}}%
3505 \def\@labelcpagerefstar#1{%
3506 \gdef\cref@poorman@text{}%
3507 \@crefstarredtrue%
3508 \@cref{labelcpageref}{#1}%
3509 \@crefstarredfalse%
3510 \cref@writescrpt{}{\string\labelcpageref*\string{#1\string}}}%
3511 %
3512 \else% hyperref not loaded
3513 \DeclareRobustCommand{\cref}[1]{%
3514 \gdef\cref@poorman@text{}%
3515 \@cref{cref}{#1}%
3516 \cref@writescrpt{}{\string\cref\string{#1\string}}}%
3517 \DeclareRobustCommand{\Cref}[1]{%

```

```

3518 \gdef\cref@poorman@text{}%
3519 \@cref{Cref}{#1}%
3520 \cref@writescrpt{}{\string\Cref\string{#1\string}}}%
3521 \DeclareRobustCommand{\crefrange}[2]{%
3522 \gdef\cref@poorman@text{}%
3523 \@setcrefrange{#1}{#2}{cref}{}%
3524 \cref@writescrpt{}{%
3525 \string\crefrange\string{#1\string}\string{#2\string}}}%
3526 \DeclareRobustCommand{\Creffrange}[2]{%
3527 \gdef\cref@poorman@text{}%
3528 \@setcrefrange{#1}{#2}{Cref}{}%
3529 \cref@writescrpt{}{%
3530 \string\Creffrange\string{#1\string}\string{#2\string}}}%
3531 \DeclareRobustCommand{\cpageref}[1]{%
3532 \gdef\cref@poorman@text{}%
3533 \@cref{cpageref}{#1}%
3534 \cref@writescrpt{}{\string\cpageref\string{#1\string}}}%
3535 \DeclareRobustCommand{\Cpageref}[1]{%
3536 \gdef\cref@poorman@text{}%
3537 \@cref{Cpageref}{#1}%
3538 \cref@writescrpt{}{\string\Cpageref\string{#1\string}}}%
3539 \DeclareRobustCommand{\cpagerefrange}[2]{%
3540 \gdef\cref@poorman@text{}%
3541 \@setcpagerefrange{#1}{#2}{cref}{}%
3542 \cref@writescrpt{}{%
3543 \string\cpagerefrange\string{#1\string}\string{#2\string}}}%
3544 \DeclareRobustCommand{\Cpagerefrange}[2]{%
3545 \gdef\cref@poorman@text{}%
3546 \@setcpagerefrange{#1}{#2}{Cref}{}%
3547 \cref@writescrpt{}{%
3548 \string\Cpagerefrange\string{#1\string}\string{#2\string}}}%
3549 \DeclareRobustCommand{\labelcref}[1]{%
3550 \gdef\cref@poorman@text{}%
3551 \@cref{labelcref}{#1}%
3552 \cref@writescrpt{}{\string\labelcref\string{#1\string}}}%
3553 \DeclareRobustCommand{\labelcpageref}[1]{%
3554 \gdef\cref@poorman@text{}%
3555 \@cref{labelcpageref}{#1}%
3556 \cref@writescrpt{}{\string\labelcpageref\string{#1\string}}}%
3557 \fi% end of test for hyperref

```

\namecref The \namecref et al. commands don't do anything different when hyperref
\nameCref
\lcnameref
\namecrefs
\nameCrefs
\lcnamerefs

is loaded, so we don't need to test for `hyperref` when redefining them.

```

3558 \DeclareRobustCommand{\namecref}[1]{%
3559   \gdef\cref@poorman@text{%
3560     \@setnamecref{cref}{#1}{}}%
3561   \cref@writescrpt{}\string\namecref\string{#1\string}}}%
3562 \DeclareRobustCommand{\nameCref}[1]{%
3563   \gdef\cref@poorman@text{%
3564     \@setnamecref{Cref}{#1}{}}%
3565   \cref@writescrpt{}\string\nameCref\string{#1\string}}}%
3566 \DeclareRobustCommand{\lcnameref}[1]{%
3567   \gdef\cref@poorman@text{%
3568     \@setnamecref{Cref}{#1}{\MakeLowercase}%
3569     \cref@writescrpt{}\string\lcnameref\string{#1\string}}}%
3570 \DeclareRobustCommand{\namecrefs}[1]{%
3571   \gdef\cref@poorman@text{%
3572     \@setnamecref{cref}{#1}{@plural}}%
3573   \cref@writescrpt{}\string\namecrefs\string{#1\string}}}%
3574 \DeclareRobustCommand{\nameCrefs}[1]{%
3575   \gdef\cref@poorman@text{%
3576     \@setnamecref{Cref}{#1}{@plural}}%
3577   \cref@writescrpt{}\string\nameCrefs\string{#1\string}}}%
3578 \DeclareRobustCommand{\lcnamerefs}[1]{%
3579   \gdef\cref@poorman@text{%
3580     \@setnamecref{Cref}{#1}{@plural}{\MakeLowercase}%
3581     \cref@writescrpt{}\string\lcnamerefs\string{#1\string}}}%

```

`\setcref@pairgroupconjunction` Redefine `\@@@setcref`, `\@@@setcrefrange`, `\@@@setcpageref` and
`\setcref@middlegroupconjunction` `\@@@setcpagerefrange`, as well as the conjunction macros
`\setcref@lastgroupconjunction` `\@setcref@middlegroupconjunction`, `\@setcref@lastgroupconjunction` and
`\@setcref@pairgroupconjunction`, to append text they typeset to
the `\cref@poorman@text` macro, as well as actually doing the typesetting.

```

3582 \def\@setcref@pairgroupconjunction{%
3583   \crefpairgroupconjunction%
3584   \expandafter\g@addto@macro\expandafter\cref@poorman@text%
3585     \expandafter{\crefpairgroupconjunction}}%
3586 \def\@setcref@middlegroupconjunction{%
3587   \crefmiddlegroupconjunction%
3588   \expandafter\g@addto@macro\expandafter\cref@poorman@text%
3589     \expandafter{\crefmiddlegroupconjunction}}%
3590 \def\@setcref@lastgroupconjunction{%

```

```

3591 \creflastgroupconjunction%
3592 \expandafter\g@addto@macro\expandafter\cref@poorman@text%
3593 \expandafter{\creflastgroupconjunction}}%

```

\@@@setcref The necessary redefinitions of most of the cross-referencing commands differ slightly depending on whether hyperref is loaded or not.

```

\@@@setcpageref
\@@@setcpagerefrange
3594 \let\old@@@setcref\@@@setcref%
3595 \let\old@@@setcrefrange\@@@setcrefrange%
3596 \let\old@@@setcpageref\@@@setcpageref%
3597 \let\old@@@setcpagerefrange\@@@setcpagerefrange%
3598 \if@cref@hyperrefloaded\relax% hyperref loaded
3599 \def\@@@setcref#1#2{%
3600 \old@@@setcref{#1}{#2}%
3601 \if@crefstarred%
3602 \expandafter\g@addto@macro\expandafter\cref@poorman@text%
3603 \expandafter{#1{\ref*{#2}}{}}}%
3604 \else%
3605 \expandafter\g@addto@macro\expandafter\cref@poorman@text%
3606 \expandafter{#1{\ref{#2}}{}}}%
3607 \fi}%
3608 \def\@@@setcrefrange#1#2#3{%
3609 \old@@@setcrefrange{#1}{#2}{#3}%
3610 \if@crefstarred%
3611 \expandafter\g@addto@macro\expandafter\cref@poorman@text%
3612 \expandafter{#1{\ref*{#2}}{\ref*{#3}}{}}}%
3613 \else%
3614 \expandafter\g@addto@macro\expandafter\cref@poorman@text%
3615 \expandafter{#1{\ref{#2}}{\ref{#3}}{}}}%
3616 \fi}%
3617 \def\@@@setcpageref#1#2{%
3618 \old@@@setcpageref{#1}{#2}%
3619 \if@crefstarred%
3620 \expandafter\g@addto@macro\expandafter\cref@poorman@text%
3621 \expandafter{#1{\pageref*{#2}}{}}}%
3622 \else%
3623 \expandafter\g@addto@macro\expandafter\cref@poorman@text%
3624 \expandafter{#1{\pageref{#2}}{}}}%
3625 \fi}%
3626 \def\@@@setcpagerefrange#1#2#3{%
3627 \old@@@setcpagerefrange{#1}{#2}{#3}%
3628 \if@crefstarred%

```



```

3629      \expandafter\g@addto@macro\expandafter\cref@poorman@text%
3630      \expandafter{#1{\pageref*{#2}}{\pageref*{#3}}{}{}{}}%
3631      \else%
3632      \expandafter\g@addto@macro\expandafter\cref@poorman@text%
3633      \expandafter{#1{\pageref{#2}}{\pageref{#3}}{}{}{}}%
3634      \fi}%
3635 %
3636 \else% hyperref not loaded
3637 \def\@@@setcref#1#2{%
3638   \old@@@setcref{#1}{#2}%
3639   \expandafter\g@addto@macro\expandafter{%
3640     \expandafter\cref@poorman@text\expandafter}%
3641     \expandafter{#1{\ref{#2}}{}{}}}%
3642 \def\@@@setcrefrange#1#2#3{%
3643   \old@@@setcrefrange{#1}{#2}{#3}%
3644   \expandafter\g@addto@macro%
3645     \expandafter{\expandafter\cref@poorman@text\expandafter}%
3646     \expandafter{#1{\ref{#2}}{\ref{#3}}{}{}{}}}%
3647 \def\@@@setcpageref#1#2{%
3648   \old@@@setcpageref{#1}{#2}%
3649   \expandafter\g@addto@macro\expandafter{%
3650     \expandafter\cref@poorman@text\expandafter}%
3651     \expandafter{#1{\pageref{#2}}{}{}}}%
3652 \def\@@@setcpagerefrange#1#2#3{%
3653   \old@@@setcpagerefrange{#1}{#2}{#3}%
3654   \expandafter\g@addto@macro%
3655     \expandafter{\expandafter\cref@poorman@text\expandafter}%
3656     \expandafter{#1{\pageref{#2}}{\pageref{#3}}{}{}{}}}%
3657 \fi% end of hyperref test

```

`\@@@setnamecref` The `\namecref` et al. commands don't do anything different when `hyperref` is loaded, so we don't need to test for `hyperref` when redefining `\@@@setnamecref`.

```

3658 \let\old@@@setnamecref\@@@setnamecref%
3659 \def\@@@setnamecref#1#2{%
3660   \old@@@setnamecref{#1}{#2}%
3661   \expandafter\def\expandafter\@tempa\expandafter{#1}%
3662   \def\@tempb{#2}%
3663   \expandafter\expandafter\expandafter\g@addto@macro%
3664     \expandafter\expandafter\expandafter{%
3665       \expandafter\expandafter\expandafter\cref@poorman@text%
3666       \expandafter\expandafter\expandafter}%

```

```
3667 \expandafter\expandafter\expandafter{\expandafter\@tempb\@tempa}}%
```

`\varioreref` If `\varioreref` is loaded, do the same for the `\varioreref` commands.

```
3668 \@ifpackageloaded{varioreref}{%
3669 \AtBeginDocument{%
```

`\@@vpageref` We redefine `\@@vpageref` to make it write a substitution rule to the script, as well as typesetting the page reference.

```
3670 \def\@@vpageref#1[#2]#3{%
3671 \gdef\cref@poorman@text{%
3672 \cref\@@vpageref{#1}[#2]{#3}%
3673 \cref@writescrpt{}\string\vpageref\string{#3\string}}%
```

`\cref@vref` `\cref@vref` is similarly redefined to write a substitution rule.

```
3674 \let\old@cref@vref\cref@vref%
3675 \def\cref@vref#1#2{%
3676 \gdef\cref@poorman@text{%
3677 \old@cref@vref{#1}{#2}%
3678 \def\@tempa##1##2\@nil{%
3679 \if##1c%
3680 \if@crefstarred%
3681 \cref@writescrpt{}\string\vref*\string{#2\string}}%
3682 \else%
3683 \cref@writescrpt{}\string\vref\string{#2\string}}%
3684 \fi%
3685 \else%
3686 \if@crefstarred%
3687 \cref@writescrpt{}\string\Vref*\string{#2\string}}%
3688 \else%
3689 \cref@writescrpt{}\string\Vref\string{#2\string}}%
3690 \fi%
3691 \fi}%
3692 \@tempa#1\@nil}%%
```

`\cref@fullref` `\cref@fullref` and `\cref@vrefrange` are also redefined so that they write substitution rules. Strictly speaking, the starred variants of `\fullref` and `\vrefrange` are not defined when `hyperref` isn't loaded, so we could avoid

```

3693 \let\old@cref@fullref\cref@fullref%
3694 \def\cref@fullref#1#2{%
3695   \gdef\cref@poorman@text{%
3696     \old@cref@fullref{#1}{#2}%
3697   \def\@tempa##1##2\@nil{%
3698     \if##1c%
3699       \if@crefstarred%
3700         \cref@writescript{}\{\string\fullref*\string{#2\string}}%
3701       \else%
3702         \cref@writescript{}\{\string\fullref\string{#2\string}}%
3703       \fi%
3704     \else%
3705       \if@crefstarred%
3706         \cref@writescript{}\{\string\Fullref*\string{#2\string}}%
3707       \else%
3708         \cref@writescript{}\{\string\Fullref\string{#2\string}}%
3709       \fi%
3710     \fi}%
3711   \@tempa#1\@nil}%
3712 %
3713 \let\old@cref@vrefrange\cref@vrefrange%
3714 \def\cref@vrefrange#1#2#3{%
3715   \gdef\cref@poorman@text{%
3716     \old@cref@vrefrange{#1}{#2}{#3}%
3717   \def\@tempa##1##2\@nil{%
3718     \if##1c%
3719       \if@crefstarred%
3720         \cref@writescript{}\{%
3721           \string\vrefrange*\string{#2\string}\string{#3\string}}%
3722       \else%
3723         \cref@writescript{}\{%
3724           \string\vrefrange\string{#2\string}\string{#3\string}}%
3725       \fi%
3726     \else%
3727       \if@crefstarred%
3728         \cref@writescript{}\{%
3729           \string\Vrefrange*\string{#2\string}\string{#3\string}}%
3730       \else%
3731         \cref@writescript{}\{%

```

```

3732          \string\Vrefrange\string{#2\string}\string{#3\string}}%
3733          \fi%
3734          \fi}%
3735          \@tempa#1\@nil}%

```

`\@@@setvpageref` In order to get the appropriate substitution for `varioref` commands appended to `\cref@poorman@text`, we have to redefine `\@@@setvpageref` and `\@@@setvpagerefrange`, which perform the final typesetting of `varioref` page references, so that they append an appropriate substitution for the page reference they're typesetting.

```

3736      \def\@@@setvpageref#1[#2]#3{%
3737          \cref@old@vpageref{#1}[#2]{#3}%
3738          \g@addto@macro\cref@poorman@text{\vpageref{#3}}}%
3739      \def\@@@setvpagerefrange[#1]#2#3{%
3740          \vpagerefrange[#1]{#2}{#3}%
3741          \g@addto@macro\cref@poorman@text{\vpagerefrange{#2}{#3}}}%
3742      \def\@@@setfullpageref#1{%
3743          \reftextfaraway{#1}%
3744          \g@addto@macro\cref@poorman@text{\reftextfaraway{#1}}}%
3745      \def\@@@setfullpagerefrange#1#2{%
3746          \reftextpagerange{#1}{#2}%
3747          \g@addto@macro\cref@poorman@text{\reftextpagerange{#1}{#2}}}%

```

`\@setcref@space` Finally, we make sure the conjunctions also get appended to the

`\@setcref@pairconjunction` `\cref@poorman@text` substitution.

`\@setcref@middleconjunction`

```

3748      \def\@setcref@space{ % space here is deliberate
3749          \g@addto@macro\cref@poorman@text{ }}%
3750      \def\@setcref@pairconjunction{%
3751          \crefpairconjunction%
3752          \expandafter\g@addto@macro\expandafter\cref@poorman@text%
3753          \expandafter{\crefpairconjunction}}%
3754      \def\@setcref@middleconjunction{%
3755          \crefmiddleconjunction%
3756          \expandafter\g@addto@macro\expandafter\cref@poorman@text%
3757          \expandafter{\crefmiddleconjunction}}%
3758      \def\@setcref@lastconjunction{%
3759          \creflastconjunction%
3760          \expandafter\g@addto@macro\expandafter\cref@poorman@text%
3761          \expandafter{\creflastconjunction}}%
3762      }% end of \@AtBeginDocument

```

```

3763 }{}% end of \@ifpackageloaded{varioref}
3764 }% end of poorman option

```

16.8 Sort and Compress Options

sort The **sort**, **compress** or **nosort** options determine whether to sort and/or
compress compress lists of multiple references (default is to do both). They work simply
nosort by setting the `\if@cref@sort` and `\if@cref@compress` flags appropriately.

```

\if@cref@sort
\if@cref@compress
3765 \newif\if@cref@sort%
3766 \newif\if@cref@compress%

```

Default is to both sort and compress references.

```

3767 \@cref@sorttrue%
3768 \@cref@compresstrue%

```

Options override default.

```

3769 \DeclareOption{sort}{%
3770   \PackageInfo{cleveref}{sorting but not compressing references}%
3771   \@cref@sorttrue%
3772   \@cref@compressfalse}%
3773 \DeclareOption{compress}{%
3774   \PackageInfo{cleveref}{compressing but not sorting references}%
3775   \@cref@sortfalse%
3776   \@cref@compresstrue}%
3777 \DeclareOption{sort&compress}{%
3778   \PackageInfo{cleveref}{sorting and compressing references}%
3779   \@cref@sorttrue%
3780   \@cref@compresstrue}%
3781 \DeclareOption{nosort}{%
3782   \PackageInfo{cleveref}{neither sorting nor compressing references}%
3783   \@cref@sortfalse%
3784   \@cref@compressfalse}%

```

16.9 Capitalise Option

capitalise The **capitalise** option causes **cleveref** to always use the `\Cref*` variants
`\if@cref@capitalise` for typesetting cross-references, so that cross-reference names are always cap-

italised.

```
3785 \newif\if@cref@capitalise%
```

Disabled by default.

```
3786 \@cref@capitalisefalse%
```

Option overrides default.

```
3787 \DeclareOption{capitalise}{%
3788   \PackageInfo{cleveref}{always capitalise cross-reference names}%
3789   \@cref@capitalisetrue}%
3790 \DeclareOption{capitalize}{%
3791   \PackageInfo{cleveref}{always capitalise cross-reference names}%
3792   \@cref@capitalisetrue}%

```

16.10 Nameinlink Option

nameinlink The **nameinlink** option causes **cleveref** to include the cross-reference name **\if@cref@nameinlink** as part of the hyperlink target when the **hyperref** package is used.

```
3793 \newif\if@cref@nameinlink%
```

Disabled by default.

```
3794 \@cref@nameinlinkfalse%
```

Option overrides default.

```
3795 \DeclareOption{nameinlink}{%
3796   \PackageInfo{cleveref}{include cross-reference names in hyperlinks}%
3797   \@cref@nameinlinktrue}%

```

16.11 Noabbrev Option

noabbrev The **noabbrev** option causes **cleveref** to always use the full cross-reference names, instead of abbreviating some of the more common names in the middle of sentences.

```
3798 \newif\if@cref@abbrev%
```

Enabled by default.

```
3799 \@cref@abbrevtrue%
```

Option overrides default.

```
3800 \DeclareOption{noabbrev}{%
3801   \PackageInfo{cleveref}{no abbreviation of names}%
3802   \@cref@abbrevfalse}%
```

16.12 Language and babel Support

Default reference formats for different languages are supported via package options, in the usual way.

Any contributions of translations for missing languages are most welcome! If you can contribute definitions for a missing language, ideally you should add them below the existing ones (using those as a model), generate a patch against the original `cleveref-cn.dtx` file, and send the patch by email to the package author. However, if you don't know how to produce a patch, you can instead just send the translations as a plain text file.

`\cref@addto` Utility macro to use instead of `babel`'s flawed `\addto` (copied and modified from `varioref`).

```
3803 \def\cref@addto#1#2{%
3804   \@temptokena{#2}%
3805   \ifx#1\undefined%
3806     \edef#1{\the\@temptokena}%
3807   \else%
3808     \toks@\expandafter{#1}%
3809     \edef#1{\the\toks@\the\@temptokena}%
3810   \fi%
3811   \@temptokena{}\toks@\@temptokena}%
3812 \@onlypreamble\cref@addto%
```

`\cref@addlanguagedefs` Utility macro to add code to `\extras<language>` or `\captions<language>`, depending on whether `babel` or `polyglossia` are loaded.

```
3813 \long\def\cref@addlanguagedefs#1#2{%
3814   \@ifpackageloaded{polyglossia}%
```

```

3815   {\AtBeginDocument{%
3816       \ifcsdef{#1@loaded}{%
3817           \expandafter\cref@addto\csname captions#1\endcsname{#2}}{}}}%
3818   {\@ifpackageloaded{babel}{%
3819       \edef\@curroptions{\@optionlist{\@currname.\@currentt}}}%
3820       \@expandtwoargs\in@{, #1,}{, \@classoptionslist, \@curroptions,}%
3821       \ifin@%
3822       \AtBeginDocument{%
3823           \expandafter\cref@addto\csname extras#1\endcsname{#2}}}%
3824       \fi}}}%

```

Passing a language option to `cleveref` defines the cross-reference names and conjunctions as appropriate for that language. We can't make the definitions straight away, since they would prevent the automatic definition of the other capitalisation variant from working if the user chooses to change a default definition in the preamble, so we postpone them until the beginning of the document. However, if each language option were to simply define any formats that aren't already defined by the end of the preamble, the *first* language option would override all the others. Unfortunately, the convention in L^AT_EX and `babel` is for the *last* language option to take precedence. So we instead use the `\crefname@preamble` command to save the definitions in `\cref@⟨type⟩@name@preamble` etc., and after all the language options have been processed, use the contents of these to set the default definitions for any undefined formats.

For `babel` support, we add the appropriate redefinitions to the `\extras⟨language⟩` macro, which is called by `babel`'s `\selectlanguage` et al. commands. The main language (the last one listed in the options) is set up by an automatic call to `\selectlanguage` at the beginning of the document, which would clobber any redefinitions made by the user in the preamble. To avoid this, we postpone adding the redefinitions to `\extras⟨language⟩` until the beginning of the document. Since `cleveref` must always be loaded *after* `babel`, the redefinitions won't be added to `\extras⟨language⟩` until *after* `babel` has already called `\selectlanguage` for the main language. Thus the redefinitions will only be in effect when `\selectlanguage` is called explicitly within the document. (The definitions for the main language are taken care of by the language options passed to `cleveref`, independently of `babel`.)

Note that we define both capitalisation variants explicitly throughout, rather

than relying on the automatic definition of the other variant, in order to make the code produced by the poor man's `sed` script slightly cleaner.

16.12.1 English

`english` English definitions (these are used by default).

Set up the definitions used at the beginning of the document to define the formats created by the document preamble.

```

3825 \DeclareOption{english}{%
3826   \AtBeginDocument{%
3827     \def\crefrangeconjunction@preamble{ to\nobreakspace}%
3828     \def\crefrangepreconjunction@preamble{}%
3829     \def\crefrangepostconjunction@preamble{}%
3830     \def\crefpairconjunction@preamble{ and\nobreakspace}%
3831     \def\crefmiddleconjunction@preamble{, }%
3832     \def\creflastconjunction@preamble{ and\nobreakspace}%

```

We have to define the group conjunctions explicitly here, rather than relying on fall-back definitions in terms of the above conjunctions (see Section 16.13), in case any other language option defines them explicitly and we need to override those.

```

3833   \def\crefpairgroupconjunction@preamble{ and\nobreakspace}%
3834   \def\crefmiddlegroupconjunction@preamble{, }%
3835   \def\creflastgroupconjunction@preamble{, and\nobreakspace}%
3836   %
3837   \Crefname@preamble{equation}{Equation}{Equations}%
3838   \Crefname@preamble{figure}{Figure}{Figures}%
3839   \Crefname@preamble{table}{Table}{Tables}%
3840   \Crefname@preamble{page}{Page}{Pages}%
3841   \Crefname@preamble{part}{Part}{Parts}%
3842   \Crefname@preamble{chapter}{Chapter}{Chapters}%
3843   \Crefname@preamble{section}{Section}{Sections}%
3844   \Crefname@preamble{appendix}{Appendix}{Appendices}%
3845   \Crefname@preamble{enumi}{Item}{Items}%
3846   \Crefname@preamble{footnote}{Footnote}{Footnotes}%
3847   \Crefname@preamble{theorem}{Theorem}{Theorems}%
3848   \Crefname@preamble{lemma}{Lemma}{Lemmas}%
3849   \Crefname@preamble{corollary}{Corollary}{Corollaries}%

```

```

3850 \Crefname@preamble{proposition}{Proposition}{Propositions}%
3851 \Crefname@preamble{definition}{Definition}{Definitions}%
3852 \Crefname@preamble{result}{Result}{Results}%
3853 \Crefname@preamble{example}{Example}{Examples}%
3854 \Crefname@preamble{remark}{Remark}{Remarks}%
3855 \Crefname@preamble{note}{Note}{Notes}%
3856 \Crefname@preamble{algorithm}{Algorithm}{Algorithms}%
3857 \Crefname@preamble{listing}{Listing}{Listings}%
3858 \Crefname@preamble{line}{Line}{Lines}%
3859 %
3860 \if@cref@capitalise% capitalise set
3861 \if@cref@abbrev%
3862 \crefname@preamble{equation}{Eq.}{Eqs.}%
3863 \crefname@preamble{figure}{Fig.}{Figs.}%
3864 \else%
3865 \crefname@preamble{equation}{Equation}{Equations}%
3866 \crefname@preamble{figure}{Figure}{Figures}%
3867 \fi%
3868 \crefname@preamble{page}{Page}{Pages}%
3869 \crefname@preamble{table}{Table}{Tables}%
3870 \crefname@preamble{part}{Part}{Parts}%
3871 \crefname@preamble{chapter}{Chapter}{Chapters}%
3872 \crefname@preamble{section}{Section}{Sections}%
3873 \crefname@preamble{appendix}{Appendix}{Appendices}%
3874 \crefname@preamble{enumi}{Item}{Items}%
3875 \crefname@preamble{footnote}{Footnote}{Footnotes}%
3876 \crefname@preamble{theorem}{Theorem}{Theorems}%
3877 \crefname@preamble{lemma}{Lemma}{Lemmas}%
3878 \crefname@preamble{corollary}{Corollary}{Corollaries}%
3879 \crefname@preamble{proposition}{Proposition}{Propositions}%
3880 \crefname@preamble{definition}{Definition}{Definitions}%
3881 \crefname@preamble{result}{Result}{Results}%
3882 \crefname@preamble{example}{Example}{Examples}%
3883 \crefname@preamble{remark}{Remark}{Remarks}%
3884 \crefname@preamble{note}{Note}{Notes}%
3885 \crefname@preamble{algorithm}{Algorithm}{Algorithms}%
3886 \crefname@preamble{listing}{Listing}{Listings}%
3887 \crefname@preamble{line}{Line}{Lines}%
3888 %
3889 \else% capitalise unset
3890 \if@cref@abbrev%
3891 \crefname@preamble{equation}{eq.}{eqs.}%

```

```

3892     \crefname@preamble{figure}{fig.}{figs.}%
3893     \else%
3894     \crefname@preamble{equation}{equation}{equations}%
3895     \crefname@preamble{figure}{figure}{figures}%
3896     \fi%
3897     \crefname@preamble{page}{page}{pages}%
3898     \crefname@preamble{table}{table}{tables}%
3899     \crefname@preamble{part}{part}{parts}%
3900     \crefname@preamble{chapter}{chapter}{chapters}%
3901     \crefname@preamble{section}{section}{sections}%
3902     \crefname@preamble{appendix}{appendix}{appendices}%
3903     \crefname@preamble{enumi}{item}{items}%
3904     \crefname@preamble{footnote}{footnote}{footnotes}%
3905     \crefname@preamble{theorem}{theorem}{theorems}%
3906     \crefname@preamble{lemma}{lemma}{lemmas}%
3907     \crefname@preamble{corollary}{corollary}{corollaries}%
3908     \crefname@preamble{proposition}{proposition}{propositions}%
3909     \crefname@preamble{definition}{definition}{definitions}%
3910     \crefname@preamble{result}{result}{results}%
3911     \crefname@preamble{example}{example}{examples}%
3912     \crefname@preamble{remark}{remark}{remarks}%
3913     \crefname@preamble{note}{note}{notes}%
3914     \crefname@preamble{algorithm}{algorithm}{algorithms}%
3915     \crefname@preamble{listing}{listing}{listings}%
3916     \crefname@preamble{line}{line}{lines}%
3917     \fi%
3918     \def\cref@language{english}%
3919 }% end \AtBeginDocument and \DeclareOption

```

If using `babel` and the corresponding option is set, or if using `polyglossia` and the language has been loaded, add format definition commands to `\extras<language>` or `\captions<language>` so that language switching commands will change the cross-reference formats appropriately.

```

3920 \cref@addlanguagedefs{english}{%
3921   \PackageInfo{cleveref}{loaded `english' language definitions}%
3922   \renewcommand{\crefrangeconjunction}{ to\nobreakspace}%
3923   \renewcommand\crefrangepreconjunction{}%
3924   \renewcommand\crefrangepostconjunction{}%
3925   \renewcommand{\crefpairconjunction}{ and\nobreakspace}%
3926   \renewcommand{\crefmiddleconjunction}{, }%
3927   \renewcommand{\creflastconjunction}{ and\nobreakspace}%

```

```

3928 \renewcommand{\crefpairgroupconjunction}{ and\nobreakspace}%
3929 \renewcommand{\crefmiddlegroupconjunction}{, }%
3930 \renewcommand{\creflastgroupconjunction}{, and\nobreakspace}%
3931 %
3932 \Crefname{equation}{Equation}{Equations}%
3933 \Crefname{figure}{Figure}{Figures}%
3934 \Crefname{subfigure}{Figure}{Figures}%
3935 \Crefname{table}{Table}{Tables}%
3936 \Crefname{subtable}{Table}{Tables}%
3937 \Crefname{page}{Page}{Pages}%
3938 \Crefname{part}{Part}{Parts}%
3939 \Crefname{chapter}{Chapter}{Chapters}%
3940 \Crefname{section}{Section}{Sections}%
3941 \Crefname{subsection}{Section}{Sections}%
3942 \Crefname{subsubsection}{Section}{Sections}%
3943 \Crefname{appendix}{Appendix}{Appendices}%
3944 \Crefname{subappendix}{Appendix}{Appendices}%
3945 \Crefname{subsubappendix}{Appendix}{Appendices}%
3946 \Crefname{subsubsubappendix}{Appendix}{Appendices}%
3947 \Crefname{enumi}{Item}{Items}%
3948 \Crefname{enumii}{Item}{Items}%
3949 \Crefname{enumiii}{Item}{Items}%
3950 \Crefname{enumiv}{Item}{Items}%
3951 \Crefname{enumv}{Item}{Items}%
3952 \Crefname{footnote}{Footnote}{Footnotes}%
3953 \Crefname{theorem}{Theorem}{Theorems}%
3954 \Crefname{lemma}{Lemma}{Lemmas}%
3955 \Crefname{corollary}{Corollary}{Corollaries}%
3956 \Crefname{proposition}{Proposition}{Propositions}%
3957 \Crefname{definition}{Definition}{Definitions}%
3958 \Crefname{result}{Result}{Results}%
3959 \Crefname{example}{Example}{Examples}%
3960 \Crefname{remark}{Remark}{Remarks}%
3961 \Crefname{note}{Note}{Notes}%
3962 \Crefname{algorithm}{Algorithm}{Algorithms}%
3963 \Crefname{listing}{Listing}{Listings}%
3964 \Crefname{line}{Line}{Lines}%
3965 %
3966 \if@cref@capitalise% capitalise set
3967 \if@cref@abbrev%
3968 \crefname{equation}{Eq.}{Eqs.}%
3969 \crefname{figure}{Fig.}{Figs.}%

```

```

3970     \crefname{subfigure}{Fig.}{Figs.}%
3971 \else%
3972     \crefname{equation}{Equation}{Equations}%
3973     \crefname{figure}{Figure}{Figures}%
3974     \crefname{subfigure}{Figure}{Figures}%
3975 \fi%
3976 \crefname{page}{Page}{Pages}%
3977 \crefname{table}{Table}{Tables}%
3978 \crefname{subtable}{Table}{Tables}%
3979 \crefname{part}{Part}{Parts}%
3980 \crefname{chapter}{Chapter}{Chapters}%
3981 \crefname{section}{Section}{Sections}%
3982 \crefname{subsection}{Section}{Sections}%
3983 \crefname{subsubsection}{Section}{Sections}%
3984 \crefname{appendix}{Appendix}{Appendices}%
3985 \crefname{subappendix}{Appendix}{Appendices}%
3986 \crefname{subsubappendix}{Appendix}{Appendices}%
3987 \crefname{subsubsubappendix}{Appendix}{Appendices}%
3988 \crefname{enumi}{Item}{Items}%
3989 \crefname{enumii}{Item}{Items}%
3990 \crefname{enumiii}{Item}{Items}%
3991 \crefname{enumiv}{Item}{Items}%
3992 \crefname{enumv}{Item}{Items}%
3993 \crefname{footnote}{Footnote}{Footnotes}%
3994 \crefname{theorem}{Theorem}{Theorems}%
3995 \crefname{lemma}{Lemma}{Lemmas}%
3996 \crefname{corollary}{Corollary}{Corollaries}%
3997 \crefname{proposition}{Proposition}{Propositions}%
3998 \crefname{definition}{Definition}{Definitions}%
3999 \crefname{result}{Result}{Results}%
4000 \crefname{example}{Example}{Examples}%
4001 \crefname{remark}{Remark}{Remarks}%
4002 \crefname{note}{Note}{Notes}%
4003 \crefname{algorithm}{Algorithm}{Algorithms}%
4004 \crefname{listing}{Listing}{Listings}%
4005 \crefname{line}{Line}{Lines}%
4006 %
4007 \else%   capitalise unset
4008     \if@cref@abbrev%
4009         \crefname{equation}{eq.}{eqs.}%
4010         \crefname{figure}{fig.}{figs.}%
4011         \crefname{subfigure}{fig.}{figs.}%

```

```

4012 \else%
4013 \crefname{equation}{equation}{equations}%
4014 \crefname{figure}{figure}{figures}%
4015 \crefname{subfigure}{figure}{figures}%
4016 \fi%
4017 \crefname{table}{table}{tables}%
4018 \crefname{subtable}{table}{tables}%
4019 \crefname{page}{page}{pages}%
4020 \crefname{part}{part}{parts}%
4021 \crefname{chapter}{chapter}{chapters}%
4022 \crefname{section}{section}{sections}%
4023 \crefname{subsection}{section}{sections}%
4024 \crefname{subsubsection}{section}{sections}%
4025 \crefname{appendix}{appendix}{appendices}%
4026 \crefname{subappendix}{appendix}{appendices}%
4027 \crefname{subsubappendix}{appendix}{appendices}%
4028 \crefname{subsubsubappendix}{appendix}{appendices}%
4029 \crefname{enumi}{item}{items}%
4030 \crefname{enumii}{item}{items}%
4031 \crefname{enumiii}{item}{items}%
4032 \crefname{enumiv}{item}{items}%
4033 \crefname{enumv}{item}{items}%
4034 \crefname{footnote}{footnote}{footnotes}%
4035 \crefname{theorem}{theorem}{theorems}%
4036 \crefname{lemma}{lemma}{lemmas}%
4037 \crefname{corollary}{corollary}{corollaries}%
4038 \crefname{proposition}{proposition}{propositions}%
4039 \crefname{definition}{definition}{definitions}%
4040 \crefname{result}{result}{results}%
4041 \crefname{example}{example}{examples}%
4042 \crefname{remark}{remark}{remarks}%
4043 \crefname{note}{note}{notes}%
4044 \crefname{algorithm}{algorithm}{algorithms}%
4045 \crefname{listing}{listing}{listings}%
4046 \crefname{line}{line}{lines}%
4047 \fi}% end \cref@addlangagedefs

```

16.12.2 German

`german` German translations kindly provided by Stefan Pinnow, abbreviations by Natanael Arndt, and a few additions by the package author (so you know

to blame the latter for any errors!).

Set up the definitions used at the beginning of the document to define the formats created by the document preamble.

```

4048 \DeclareOption{german}{%
4049   \AtBeginDocument{%
4050     \def\crefrangeconjunction@preamble{ bis\nobreakspace}%
4051     \def\crefrangepreconjunction@preamble{}%
4052     \def\crefrangepostconjunction@preamble{}%
4053     \def\crefpairconjunction@preamble{ und\nobreakspace}%
4054     \def\crefmiddleconjunction@preamble{, }%
4055     \def\creflastconjunction@preamble{ und\nobreakspace}%

```

We don't want the extra comma before “und” that would be added by the default fall-back definitions in terms of the above conjunctions, so we define `\crefpairgroupconjunction` explicitly. In fact, we have to define the other group conjunctions explicitly too here, in case any other language option defines them explicitly and we need to override them.

```

4056   \def\crefpairgroupconjunction@preamble{ und\nobreakspace}%
4057   \def\crefmiddlegroupconjunction@preamble{, }%
4058   \def\creflastgroupconjunction@preamble{ und\nobreakspace}%
4059   %
4060   \Crefname@preamble{equation}{Gleichung}{Gleichungen}%
4061   \Crefname@preamble{figure}{Abbildung}{Abbildungen}%
4062   \Crefname@preamble{table}{Tabelle}{Tabellen}%
4063   \Crefname@preamble{page}{Seite}{Seiten}%
4064   \Crefname@preamble{part}{Teil}{Teile}%
4065   \Crefname@preamble{chapter}{Kapitel}{Kapitel}%
4066   \Crefname@preamble{section}{Abschnitt}{Abschnitte}%
4067   \Crefname@preamble{appendix}{Anhang}{Anh\ "ange}%
4068   \Crefname@preamble{enumi}{Punkt}{Punkte}%
4069   \Crefname@preamble{footnote}{Fu\ ss note}{Fu\ ss noten}%
4070   \Crefname@preamble{theorem}{Theorem}{Theoreme}%
4071   \Crefname@preamble{lemma}{Lemma}{Lemmata}%
4072   \Crefname@preamble{corollary}{Korollar}{Korollare}%
4073   \Crefname@preamble{proposition}{Satz}{S\ "atze}%
4074   \Crefname@preamble{definition}{Definition}{Definitionen}%
4075   \Crefname@preamble{result}{Ergebnis}{Ergebnisse}%
4076   \Crefname@preamble{example}{Beispiel}{Beispiele}%
4077   \Crefname@preamble{remark}{Bemerkung}{Bemerkungen}%

```

```

4078 \Crefname@preamble{note}{Anmerkung}{Anmerkungen}%
4079 \Crefname@preamble{algorithm}{Algorithmus}{Algorithmen}%
4080 \Crefname@preamble{listing}{Listing}{Listings}%
4081 \Crefname@preamble{line}{Zeile}{Zeilen}%
4082 %
4083 \if@cref@abbrev%
4084   \crefname@preamble{figure}{Abb.}{Abb.}%
4085 \else%
4086   \crefname@preamble{figure}{Abbildung}{Abbildungen}%
4087 \fi%
4088 \crefname@preamble{equation}{Gleichung}{Gleichungen}%
4089 \crefname@preamble{table}{Tabelle}{Tabellen}%
4090 \crefname@preamble{page}{Seite}{Seiten}%
4091 \crefname@preamble{part}{Teil}{Teile}%
4092 \crefname@preamble{chapter}{Kapitel}{Kapitel}%
4093 \crefname@preamble{section}{Abschnitt}{Abschnitte}%
4094 \crefname@preamble{appendix}{Anhang}{Anh\ "ange}%
4095 \crefname@preamble{enumi}{Punkt}{Punkte}%
4096 \crefname@preamble{footnote}{Fu\ss note}{Fu\ss noten}%
4097 \crefname@preamble{theorem}{Theorem}{Theoreme}%
4098 \crefname@preamble{lemma}{Lemma}{Lemmata}%
4099 \crefname@preamble{corollary}{Korollar}{Korollare}%
4100 \crefname@preamble{proposition}{Satz}{S\ "atze}%
4101 \crefname@preamble{definition}{Definition}{Definitionen}%
4102 \crefname@preamble{result}{Ergebnis}{Ergebnisse}%
4103 \crefname@preamble{example}{Beispiel}{Beispiele}%
4104 \crefname@preamble{remark}{Bemerkung}{Bemerkungen}%
4105 \crefname@preamble{note}{Anmerkung}{Anmerkungen}%
4106 \crefname@preamble{algorithm}{Algorithmus}{Algorithmen}%
4107 \crefname@preamble{listing}{Listing}{Listings}%
4108 \crefname@preamble{line}{Zeile}{Zeilen}%
4109 \def\cref@language{german}%
4110 }}% end \AtBeginDocument and \DeclareOption

```

If using `babel` and the corresponding option is set, or if using `polyglossia` and the language has been loaded, add format definition commands to `\extras<language>` or `\captions<language>` so that language switching commands will change the cross-reference formats appropriately.

```

4111 \cref@addlanguagedefs{german}{%
4112   \PackageInfo{cleveref}{loaded `german language definitions}%
4113   \renewcommand{\crefrangeconjunction}{ bis\nobreakspace}%

```



```

4114 \renewcommand\crefrangepreconjunction{}%
4115 \renewcommand\crefrangepostconjunction{}%
4116 \renewcommand{\crefpairconjunction}{ und\nobreakspace}%
4117 \renewcommand{\crefmiddleconjunction}{, }%
4118 \renewcommand{\creflastconjunction}{ und\nobreakspace}%
4119 \renewcommand{\crefpairgroupconjunction}{ und\nobreakspace}%
4120 \renewcommand{\crefmiddlegroupconjunction}{, }%
4121 \renewcommand{\creflastgroupconjunction}{ und\nobreakspace}%
4122 %
4123 \Crefname{equation}{Gleichung}{Gleichungen}%
4124 \Crefname{figure}{Abbildung}{Abbildungen}%
4125 \Crefname{subfigure}{Abbildung}{Abbildungen}%
4126 \Crefname{table}{Tabelle}{Tabellen}%
4127 \Crefname{subtable}{Tabelle}{Tabellen}%
4128 \Crefname{page}{Seite}{Seiten}%
4129 \Crefname{part}{Teil}{Teile}%
4130 \Crefname{chapter}{Kapitel}{Kapitel}%
4131 \Crefname{section}{Abschnitt}{Abschnitte}%
4132 \Crefname{subsection}{Abschnitt}{Abschnitte}%
4133 \Crefname{subsubsection}{Abschnitt}{Abschnitte}%
4134 \Crefname{appendix}{Anhang}{Anh\ "ange}%
4135 \Crefname{subappendix}{Anhang}{Anh\ "ange}%
4136 \Crefname{subsubappendix}{Anhang}{Anh\ "ange}%
4137 \Crefname{subsubsubappendix}{Anhang}{Anh\ "ange}%
4138 \Crefname{enumi}{Punkt}{Punkte}%
4139 \Crefname{enumii}{Punkt}{Punkte}%
4140 \Crefname{enumiii}{Punkt}{Punkte}%
4141 \Crefname{enumiv}{Punkt}{Punkte}%
4142 \Crefname{enumv}{Punkt}{Punkte}%
4143 \Crefname{footnote}{Fu\ss note}{Fu\ss noten}%
4144 \Crefname{theorem}{Theorem}{Theoreme}%
4145 \Crefname{lemma}{Lemma}{Lemmata}%
4146 \Crefname{corollary}{Korollar}{Korollare}%
4147 \Crefname{proposition}{Satz}{S\ "atze}%
4148 \Crefname{definition}{Definition}{Definitionen}%
4149 \Crefname{result}{Ergebnis}{Ergebnisse}%
4150 \Crefname{example}{Beispiel}{Beispiele}%
4151 \Crefname{remark}{Bemerkung}{Bemerkungen}%
4152 \Crefname{note}{Anmerkung}{Anmerkungen}%
4153 \Crefname{algorithm}{Algorithmus}{Algorithmen}%
4154 \Crefname{listing}{Listing}{Listings}%
4155 \Crefname{line}{Zeile}{Zeilen}%

```

```

4156 %
4157 \if@cref@abbrev%
4158   \crefname{figure}{Abb.}{Abb.}%
4159   \crefname{subfigure}{Abb.}{Abb.}%
4160 \else%
4161   \crefname{figure}{Abbildung}{Abbildungen}%
4162   \crefname{subfigure}{Abbildung}{Abbildungen}%
4163 \fi%
4164 \crefname{equation}{Gleichung}{Gleichungen}%
4165 \crefname{table}{Tabelle}{Tabellen}%
4166 \crefname{subtable}{Tabelle}{Tabellen}%
4167 \crefname{page}{Seite}{Seiten}%
4168 \crefname{part}{Teil}{Teile}%
4169 \crefname{chapter}{Kapitel}{Kapitel}%
4170 \crefname{section}{Abschnitt}{Abschnitte}%
4171 \crefname{subsection}{Abschnitt}{Abschnitte}%
4172 \crefname{subsubsection}{Abschnitt}{Abschnitte}%
4173 \crefname{appendix}{Anhang}{Anh\ "ange}%
4174 \crefname{subappendix}{Anhang}{Anh\ "ange}%
4175 \crefname{subsubappendix}{Anhang}{Anh\ "ange}%
4176 \crefname{subsubsubappendix}{Anhang}{Anh\ "ange}%
4177 \crefname{enumi}{Punkt}{Punkte}%
4178 \crefname{enumii}{Punkt}{Punkte}%
4179 \crefname{enumiii}{Punkt}{Punkte}%
4180 \crefname{enumiv}{Punkt}{Punkte}%
4181 \crefname{enumv}{Punkt}{Punkte}%
4182 \crefname{footnote}{Fu\ss note}{Fu\ss noten}%
4183 \crefname{theorem}{Theorem}{Theoreme}%
4184 \crefname{lemma}{Lemma}{Lemmata}%
4185 \crefname{corollary}{Korollar}{Korollare}%
4186 \crefname{proposition}{Satz}{S\ "atze}%
4187 \crefname{definition}{Definition}{Definitionen}%
4188 \crefname{result}{Ergebnis}{Ergebnisse}%
4189 \crefname{example}{Beispiel}{Beispiele}%
4190 \crefname{remark}{Bemerkung}{Bemerkungen}%
4191 \crefname{note}{Anmerkung}{Anmerkungen}%
4192 \crefname{algorithm}{Algorithmus}{Algorithmen}%
4193 \crefname{listing}{Listing}{Listings}%
4194 \crefname{line}{Zeile}{Zeilen}}% end \cref@addlangagedefs

```

`ngerman` It so happens that none of the cross-reference names differ in the “Neuerechtschreibung”, so we make `ngerman` execute `german`.

```

4195 \DeclareOption{ngerman}{%
4196   \ExecuteOptions{german}%
4197   \def\cref@language{ngerman}}%

```

However, we still need to add the definitions to `\extrasngerman` (note the “n”) so that `\selectlanguage` etc. will work.

```

4198 \cref@addlanguagedefs{ngerman}{%
4199   \PackageInfo{cleveref}{loaded `ngerman' language definitions}%
4200   \renewcommand{\crefrangeconjunction}{ bis\nobreakspace}%
4201   \renewcommand\crefrangepreconjunction{}%
4202   \renewcommand\crefrangepostconjunction{}%
4203   \renewcommand{\crefpairconjunction}{ und\nobreakspace}%
4204   \renewcommand{\crefmiddleconjunction}{, }%
4205   \renewcommand{\creflastconjunction}{ und\nobreakspace}%
4206   \renewcommand{\crefpairgroupconjunction}{ und\nobreakspace}%
4207   \renewcommand{\crefmiddlegroupconjunction}{, }%
4208   \renewcommand{\creflastgroupconjunction}{ und\nobreakspace}%
4209   %
4210   \Crefname{equation}{Gleichung}{Gleichungen}%
4211   \Crefname{figure}{Abbildung}{Abbildungen}%
4212   \Crefname{subfigure}{Abbildung}{Abbildungen}%
4213   \Crefname{table}{Tabelle}{Tabellen}%
4214   \Crefname{subtable}{Tabelle}{Tabellen}%
4215   \Crefname{page}{Seite}{Seiten}%
4216   \Crefname{part}{Teil}{Teile}%
4217   \Crefname{chapter}{Kapitel}{Kapitel}%
4218   \Crefname{section}{Abschnitt}{Abschnitte}%
4219   \Crefname{subsection}{Abschnitt}{Abschnitte}%
4220   \Crefname{subsubsection}{Abschnitt}{Abschnitte}%
4221   \Crefname{appendix}{Anhang}{Anh"ange}%
4222   \Crefname{subappendix}{Anhang}{Anh"ange}%
4223   \Crefname{subsubappendix}{Anhang}{Anh"ange}%
4224   \Crefname{subsubsubappendix}{Anhang}{Anh"ange}%
4225   \Crefname{enumi}{Punkt}{Punkte}%
4226   \Crefname{enumii}{Punkt}{Punkte}%
4227   \Crefname{enumiii}{Punkt}{Punkte}%
4228   \Crefname{enumiv}{Punkt}{Punkte}%
4229   \Crefname{enumv}{Punkt}{Punkte}%
4230   \Crefname{footnote}{Fu"ss note}{Fu"ss noten}%
4231   \Crefname{theorem}{Theorem}{Theoreme}%
4232   \Crefname{lemma}{Lemma}{Lemmata}%

```

```

4233 \Crefname{corollary}{Korollar}{Korollare}%
4234 \Crefname{proposition}{Satz}{S\ "atze}%
4235 \Crefname{definition}{Definition}{Definitionen}%
4236 \Crefname{result}{Ergebnis}{Ergebnisse}%
4237 \Crefname{example}{Beispiel}{Beispiele}%
4238 \Crefname{remark}{Bemerkung}{Bemerkungen}%
4239 \Crefname{note}{Anmerkung}{Anmerkungen}%
4240 \Crefname{algorithm}{Algorithmus}{Algorithmen}%
4241 \Crefname{listing}{Listing}{Listings}%
4242 \Crefname{line}{Zeile}{Zeilen}%
4243 %
4244 \if@cref@abbrev%
4245   \crefname{figure}{Abb.}{Abb.}%
4246   \crefname{subfigure}{Abb.}{Abb.}%
4247 \else%
4248   \crefname{figure}{Abbildung}{Abbildungen}%
4249   \crefname{subfigure}{Abbildung}{Abbildungen}%
4250 \fi%
4251 \crefname{equation}{Gleichung}{Gleichungen}%
4252 \crefname{table}{Tabelle}{Tabellen}%
4253 \crefname{subtable}{Tabelle}{Tabellen}%
4254 \crefname{page}{Seite}{Seiten}%
4255 \crefname{part}{Teil}{Teile}%
4256 \crefname{chapter}{Kapitel}{Kapitel}%
4257 \crefname{section}{Abschnitt}{Abschnitte}%
4258 \crefname{subsection}{Abschnitt}{Abschnitte}%
4259 \crefname{subsubsection}{Abschnitt}{Abschnitte}%
4260 \crefname{appendix}{Anhang}{Anh\ "ange}%
4261 \crefname{subappendix}{Anhang}{Anh\ "ange}%
4262 \crefname{subsubappendix}{Anhang}{Anh\ "ange}%
4263 \crefname{subsubsubappendix}{Anhang}{Anh\ "ange}%
4264 \crefname{enumi}{Punkt}{Punkte}%
4265 \crefname{enumii}{Punkt}{Punkte}%
4266 \crefname{enumiii}{Punkt}{Punkte}%
4267 \crefname{enumiv}{Punkt}{Punkte}%
4268 \crefname{enumv}{Punkt}{Punkte}%
4269 \crefname{footnote}{Fu\ss note}{Fu\ss noten}%
4270 \crefname{theorem}{Theorem}{Theoreme}%
4271 \crefname{lemma}{Lemma}{Lemmata}%
4272 \crefname{corollary}{Korollar}{Korollare}%
4273 \crefname{proposition}{Satz}{S\ "atze}%
4274 \crefname{definition}{Definition}{Definitionen}%

```

```

4275 \crefname{result}{Ergebnis}{Ergebnisse}%
4276 \crefname{example}{Beispiel}{Beispiele}%
4277 \crefname{remark}{Bemerkung}{Bemerkungen}%
4278 \crefname{note}{Anmerkung}{Anmerkungen}%
4279 \crefname{algorithm}{Algorithmus}{Algorithmen}%
4280 \crefname{listing}{Listing}{Listings}%
4281 \crefname{line}{Zeile}{Zeilen}}% end \cref@addlangagedefs

```

16.12.3 Dutch

dutch Dutch translations kindly contributed by Philip Hölzenspies and Tom Marcoen.

Set up the definitions used at the beginning of the document to define the formats created by the document preamble.

```

4282 \DeclareOption{dutch}{%
4283   \AtBeginDocument{%
4284     \def\crefrangeconjunction@preamble{ tot\nobreakspace}%
4285     \def\crefrangepreconjunction@preamble{}%
4286     \def\crefrangepostconjunction@preamble{}%
4287     \def\crefpairconjunction@preamble{ en\nobreakspace}%
4288     \def\crefmiddleconjunction@preamble{, }%
4289     \def\creflastconjunction@preamble{ en\nobreakspace}%

```

As in German, we don't want the extra comma before “en” that would be added by the default fall-back definitions in terms of the above conjunctions, so we define `\crefpairgroupconjunction` explicitly. In fact, we have to define the other group conjunctions explicitly too here, in case any other language option defines them explicitly and we need to override them.

```

4290   \def\crefpairgroupconjunction@preamble{ en\nobreakspace}%
4291   \def\crefmiddlegroupconjunction@preamble{, }%
4292   \def\creflastgroupconjunction@preamble{ en\nobreakspace}%
4293 %
4294   \Crefname@preamble{equation}{Vergel\ij{}king}{Vergel\ij{}kingen}%
4295   \Crefname@preamble{figure}{Figuur}{Figuren}%
4296   \Crefname@preamble{table}{Tabel}{Tabellen}%
4297   \Crefname@preamble{page}{Pagina}{Pagina's}%
4298   \Crefname@preamble{part}{Deel}{Delen}%
4299   \Crefname@preamble{chapter}{Hoofdstuk}{Hoofdstukken}%

```

```

4300 \Crefname@preamble{section}{Paragraaf}{Paragrafen}%
4301 \Crefname@preamble{appendix}{Appendix}{Appendices}%
4302 \Crefname@preamble{enumi}{Punt}{Punten}%
4303 \Crefname@preamble{footnote}{Voetnoot}{Voetnoten}%
4304 \Crefname@preamble{lemma}{Lemma}{Lemma's}%
4305 \Crefname@preamble{corollary}{Corollarium}{Corollaria}%
4306 \Crefname@preamble{proposition}{Bewering}{Beweringen}%
4307 \Crefname@preamble{definition}{Definitie}{Definities}%
4308 \Crefname@preamble{result}{Resultaat}{Resultaten}%
4309 \Crefname@preamble{example}{Voorbeeld}{Voorbeelden}%
4310 \Crefname@preamble{remark}{Opmerking}{Opmerkingen}%
4311 \Crefname@preamble{note}{Aantekening}{Aantekeningen}%
4312 \Crefname@preamble{algorithm}{Algoritme}{Algoritmen}%
4313 \Crefname@preamble{listing}{Listing}{Listings}%
4314 \Crefname@preamble{line}{Lijn}{Lijnen}%
4315 %
4316 \if@cref@capitalise% capitalise set
4317 \if@cref@abbrev%
4318 \crefname@preamble{equation}{Verg.}{Verg.'s}%
4319 \crefname@preamble{figure}{Fig.}{Fig.'s}%
4320 \else%
4321 \crefname@preamble{equation}{Vergel\ij{}king}{Vergel\ij{}kingen}%
4322 \crefname@preamble{figure}{Figuur}{Figuren}%
4323 \fi%
4324 \crefname@preamble{page}{Pagina}{Pagina's}%
4325 \crefname@preamble{table}{Tabel}{Tabellen}%
4326 \crefname@preamble{part}{Deel}{Delen}%
4327 \crefname@preamble{chapter}{Hoofdstuk}{Hoofdstukken}%
4328 \crefname@preamble{section}{Paragraaf}{Paragrafen}%
4329 \crefname@preamble{appendix}{Appendix}{Appendices}%
4330 \crefname@preamble{enumi}{Punt}{Punten}%
4331 \crefname@preamble{footnote}{Voetnoot}{Voetnoten}%
4332 \crefname@preamble{theorem}{Theorema}{Theorema's}%
4333 \crefname@preamble{lemma}{Lemma}{Lemma's}%
4334 \crefname@preamble{corollary}{Corollarium}{Corollaria}%
4335 \crefname@preamble{proposition}{Bewering}{Beweringen}%
4336 \crefname@preamble{definition}{Definitie}{Definities}%
4337 \crefname@preamble{result}{Resultaat}{Resultaten}%
4338 \crefname@preamble{example}{Voorbeeld}{Voorbeelden}%
4339 \crefname@preamble{remark}{Opmerking}{Opmerkingen}%
4340 \crefname@preamble{note}{Aantekening}{Aantekeningen}%
4341 \crefname@preamble{algorithm}{Algoritme}{Algoritmen}%

```

```

4342 \crefname@preamble{listing}{Listing}{Listings}%
4343 \crefname@preamble{line}{Lijn}{Lijnen}%
4344 %
4345 \else% capitalise unset
4346 \if@cref@abbrev%
4347 \crefname@preamble{equation}{verg.}{verg.'s}%
4348 \crefname@preamble{figure}{fig.}{fig.'s}%
4349 \else%
4350 \crefname@preamble{equation}{vergel\ij{}king}{vergel\ij{}kingen}%
4351 \crefname@preamble{figure}{figuur}{figuren}%
4352 \fi%
4353 \crefname@preamble{page}{pagina}{pagina's}%
4354 \crefname@preamble{table}{tabel}{tabellen}%
4355 \crefname@preamble{part}{deel}{delen}%
4356 \crefname@preamble{chapter}{hoofdstuk}{hoofdstukken}%
4357 \crefname@preamble{section}{paragraaf}{paragrafen}%
4358 \crefname@preamble{appendix}{appendix}{appendices}%
4359 \crefname@preamble{enumi}{punt}{punten}%
4360 \crefname@preamble{footnote}{voetnoot}{voetnoten}%
4361 \crefname@preamble{theorem}{theorema}{theorema's}%
4362 \crefname@preamble{lemma}{lemma}{lemma's}%
4363 \crefname@preamble{corollary}{corollarium}{corollaria}%
4364 \crefname@preamble{proposition}{bewering}{beweringen}%
4365 \crefname@preamble{definition}{definitie}{definities}%
4366 \crefname@preamble{result}{resultaat}{resultaten}%
4367 \crefname@preamble{example}{voorbeeld}{voorbeelden}%
4368 \crefname@preamble{remark}{opmerking}{opmerkingen}%
4369 \crefname@preamble{note}{aantekening}{aantekeningen}%
4370 \crefname@preamble{algorithm}{algoritme}{algoritmen}%
4371 \crefname@preamble{listing}{listing}{listings}%
4372 \crefname@preamble{line}{lijn}{lijnen}%
4373 \fi%
4374 \def\cref@language{dutch}%
4375 }% end \DeclareOption and \AtBeginDocument

```

If using `babel` and the corresponding option is set, or if using `polyglossia` and the language has been loaded, add format definition commands to `\extras<language>` or `\captions<language>` so that language switching commands will change the cross-reference formats appropriately.

```

4376 \cref@addlanguagedefs{dutch}{%
4377 \PackageInfo{cleveref}{loaded `dutch' language definitions}%

```

```

4378 \renewcommand{\crefrangeconjunction}{ tot\nobreakspace}%
4379 \renewcommand\crefrangepreconjunction{}%
4380 \renewcommand\crefrangepostconjunction{}%
4381 \renewcommand{\crefpairconjunction}{ en\nobreakspace}%
4382 \renewcommand{\crefmiddleconjunction}{, }%
4383 \renewcommand{\creflastconjunction}{ en\nobreakspace}%
4384 \renewcommand{\crefpairgroupconjunction}{ en\nobreakspace}%
4385 \renewcommand{\crefmiddlegroupconjunction}{, }%
4386 \renewcommand{\creflastgroupconjunction}{ en\nobreakspace}%
4387 %
4388 \Crefname{equation}{Vergel\ij{}king}{Vergel\ij{}kingen}%
4389 \Crefname{figure}{Figuur}{Figuren}%
4390 \Crefname{subfigure}{Figuur}{Figuren}%
4391 \Crefname{table}{Tabel}{Tabellen}%
4392 \Crefname{subtable}{Tabel}{Tabellen}%
4393 \Crefname{page}{Pagina}{Pagina's}%
4394 \Crefname{part}{Deel}{Delen}%
4395 \Crefname{chapter}{Hoofdstuk}{Hoofdstuken}%
4396 \Crefname{section}{Paragraaf}{Paragrafen}%
4397 \Crefname{subsection}{Paragraaf}{Paragrafen}%
4398 \Crefname{subsubsection}{Paragraaf}{Paragrafen}%
4399 \Crefname{appendix}{Appendix}{Appendices}%
4400 \Crefname{subappendix}{Appendix}{Appendices}%
4401 \Crefname{subsubappendix}{Appendix}{Appendices}%
4402 \Crefname{subsubsubappendix}{Appendix}{Appendices}%
4403 \Crefname{enumi}{Punt}{Punten}%
4404 \Crefname{enumii}{Punt}{Punten}%
4405 \Crefname{enumiii}{Punt}{Punten}%
4406 \Crefname{enumiv}{Punt}{Punten}%
4407 \Crefname{enumv}{Punt}{Punten}%
4408 \Crefname{footnote}{Voetnote}{Voetnoten}%
4409 \Crefname{theorem}{Theorema}{Theorema's}%
4410 \Crefname{lemma}{Lemma}{Lemma's}%
4411 \Crefname{corollary}{Corollarium}{Corollaria}%
4412 \Crefname{proposition}{Bewering}{Beweringen}%
4413 \Crefname{definition}{Definitie}{Definities}%
4414 \Crefname{result}{Resultaat}{Resultaten}%
4415 \Crefname{example}{Voorbeeld}{Voorbeelden}%
4416 \Crefname{remark}{Opmerking}{Opmerkingen}%
4417 \Crefname{note}{Aantekening}{Aantekeningen}%
4418 \Crefname{algorithm}{Algoritme}{Algoritmen}%
4419 \Crefname{listing}{Listing}{Listings}%

```



```

4420 \Crefname{line}{Lijn}{Lijnen}%
4421 %
4422 \if@cref@capitalise% capitalise set
4423 \if@cref@abbrev%
4424 \crefname{equation}{Verg.}{Verg's.}%
4425 \crefname{figure}{Fig.}{Fig's.}%
4426 \crefname{subfigure}{Fig.}{Fig's.}%
4427 \else%
4428 \crefname{equation}{Vergel\ij{}king}{Vergel\ij{}kingen}%
4429 \crefname{figure}{Figuur}{Figuren}%
4430 \crefname{subfigure}{Figuur}{Figuren}%
4431 \fi%
4432 \crefname{table}{Tabel}{Tabellen}%
4433 \crefname{subtable}{Tabel}{Tabellen}%
4434 \crefname{page}{Pagina}{Pagina's}%
4435 \crefname{part}{Deel}{Delen}%
4436 \crefname{chapter}{Hoofdstuk}{Hoofdstukken}%
4437 \crefname{section}{Paragraaf}{Paragrafen}%
4438 \crefname{appendix}{Appendix}{Appendices}%
4439 \crefname{enumi}{Punt}{Punten}%
4440 \crefname{footnote}{Voetnote}{Voetnoten}%
4441 \crefname{theorem}{Theorema}{Theorema's}%
4442 \crefname{lemma}{Lemma}{Lemma's}%
4443 \crefname{corollary}{Corollarium}{Corollaria}%
4444 \crefname{proposition}{Bewering}{Beweringen}%
4445 \crefname{definition}{Definitie}{Definities}%
4446 \crefname{result}{Resultaat}{Resultaten}%
4447 \crefname{example}{Voorbeeld}{Voorbeelden}%
4448 \crefname{remark}{Opmerking}{Opmerkingen}%
4449 \crefname{note}{Aantekening}{Aantekeningen}%
4450 \crefname{algorithm}{Algoritme}{Algoritmen}%
4451 \crefname{listing}{Listing}{Listings}%
4452 \crefname{line}{Lijn}{Lijnen}%
4453 %
4454 \else% capitalise unset
4455 \if@cref@abbrev%
4456 \crefname{equation}{verg.}{verg's.}%
4457 \crefname{figure}{fig.}{fig's.}%
4458 \crefname{subfigure}{fig.}{fig's.}%
4459 \else%
4460 \crefname{equation}{vergel\ij{}king}{vergel\ij{}kingen}%
4461 \crefname{figure}{figuur}{figuren}%

```

```

4462     \crefname{subfigure}{figuur}{figuren}%
4463     \fi%
4464     \crefname{table}{tabel}{tabellen}%
4465     \crefname{subtable}{tabel}{tabellen}%
4466     \crefname{page}{pagina}{pagina's}%
4467     \crefname{part}{deel}{delen}%
4468     \crefname{chapter}{hoofdstuk}{hoofdstukken}%
4469     \crefname{section}{paragraaf}{paragrafen}%
4470     \crefname{appendix}{appendix}{appendices}%
4471     \crefname{enumi}{punt}{punten}%
4472     \crefname{footnote}{voetnote}{voetnoten}%
4473     \crefname{theorem}{theorema}{theorema's}%
4474     \crefname{lemma}{lemma}{lemma's}%
4475     \crefname{corollary}{corollarium}{corollaria}%
4476     \crefname{proposition}{bewering}{beweringen}%
4477     \crefname{definition}{definitie}{definities}%
4478     \crefname{result}{resultaat}{resultaten}%
4479     \crefname{example}{voorbeeld}{voorbeelden}%
4480     \crefname{remark}{opmerking}{opmerkingen}%
4481     \crefname{note}{aantekening}{aantekeningen}%
4482     \crefname{algorithm}{algoritme}{algoritmen}%
4483     \crefname{listing}{listing}{listings}%
4484     \crefname{line}{lijn}{lijnen}%
4485     \fi}% end \cref@addlanguagedefs

```

16.12.4 French

french French translations attempted by the package author (please report any corrections that might be needed!).

Set up the definitions used at the beginning of the document to define the formats created by the document preamble.

```

4486 \DeclareOption{french}{%
4487   \AtBeginDocument{%
4488     \def\crefrangeconjunction@preamble{ \`a\nobreakspace}%
4489     \def\crefrangepreconjunction@preamble{}%
4490     \def\crefrangepostconjunction@preamble{}%
4491     \def\crefpairconjunction@preamble{ et\nobreakspace}%
4492     \def\crefmiddleconjunction@preamble{, }%
4493     \def\creflastconjunction@preamble{ et\nobreakspace}%

```

Erring on the side of caution, I've left off the extra comma before “et” between groups, pending more knowledgeable input on punctuation rules from a native French speaker.

```

4494 \def\crefpairgroupconjunction@preamble{ et\nobreakspace}%
4495 \def\crefmiddlegroupconjunction@preamble{, }%
4496 \def\creflastgroupconjunction@preamble{, et\nobreakspace}%
4497 %
4498 \Crefname@preamble{equation}{\ 'E}quation}{\ 'E}quations}%
4499 \Crefname@preamble{figure}{Figure}{Figures}%
4500 \Crefname@preamble{table}{Tableau}{Tableaux}%
4501 \Crefname@preamble{page}{Page}{Pages}%
4502 \Crefname@preamble{part}{Partie}{Parties}%
4503 \Crefname@preamble{chapter}{Chapitre}{Chapitres}%
4504 \Crefname@preamble{section}{Section}{Sections}%
4505 \Crefname@preamble{appendix}{Annexe}{Annexes}%
4506 \Crefname@preamble{enumi}{Point}{Points}%
4507 \Crefname@preamble{footnote}{Note}{Notes}%
4508 \Crefname@preamble{theorem}{Th\ 'eor\ `eme}{Th\ 'eor\ `emes}%
4509 \Crefname@preamble{lemma}{Lemme}{Lemmes}%
4510 \Crefname@preamble{corollary}{Corollaire}{Corollaires}%
4511 \Crefname@preamble{proposition}{Proposition}{Propositions}%
4512 \Crefname@preamble{definition}{D\ 'efinition}{D\ 'efinitions}%
4513 \Crefname@preamble{result}{R\ 'esultat}{R\ 'esultats}%
4514 \Crefname@preamble{example}{Exemple}{Exemples}%
4515 \Crefname@preamble{remark}{Remarque}{Remarques}%
4516 \Crefname@preamble{algorithm}{Algorithme}{Algorithmes}%
4517 \Crefname@preamble{listing}{Liste}{Listes}%
4518 \Crefname@preamble{line}{Ligne}{Lignes}%
4519 %
4520 \if@cref@capitalise% capitalise set
4521 \crefname@preamble{equation}{\ 'E}quation}{\ 'E}quations}%
4522 \crefname@preamble{figure}{Figure}{Figures}%
4523 \crefname@preamble{table}{Tableau}{Tableaux}%
4524 \crefname@preamble{page}{Page}{Pages}%
4525 \crefname@preamble{part}{Partie}{Parties}%
4526 \crefname@preamble{chapter}{Chapitre}{Chapitres}%
4527 \crefname@preamble{section}{Section}{Sections}%
4528 \crefname@preamble{appendix}{Annexe}{Annexes}%
4529 \crefname@preamble{enumi}{Point}{Points}%
4530 \crefname@preamble{footnote}{Note}{Notes}%
4531 \crefname@preamble{theorem}{Th\ 'eor\ `eme}{Th\ 'eor\ `emes}%

```

```

4532 \crefname@preamble{lemma}{Lemme}{Lemmes}%
4533 \crefname@preamble{corollary}{Corollaire}{Corollaires}%
4534 \crefname@preamble{proposition}{Proposition}{Propositions}%
4535 \crefname@preamble{definition}{D\'efinition}{D\'efinitions}%
4536 \crefname@preamble{result}{R\'esultat}{R\'esultats}%
4537 \crefname@preamble{example}{Exemple}{Exemples}%
4538 \crefname@preamble{remark}{Remarque}{Remarques}%
4539 \crefname@preamble{note}{Commentaire}{Commentaires}%
4540 \crefname@preamble{algorithm}{Algorithme}{Algorithmes}%
4541 \crefname@preamble{listing}{Liste}{Listes}%
4542 \crefname@preamble{line}{Ligne}{Lignes}%
4543 %
4544 \else% capitalise unset
4545 \crefname@preamble{equation}{\('equation}{\('equations}%
4546 \crefname@preamble{figure}{figure}{figures}%
4547 \crefname@preamble{table}{tableau}{tableaux}%
4548 \crefname@preamble{page}{page}{pages}%
4549 \crefname@preamble{part}{partie}{parties}%
4550 \crefname@preamble{chapter}{chapitre}{chapitres}%
4551 \crefname@preamble{section}{section}{sections}%
4552 \crefname@preamble{appendix}{annexe}{annexes}%
4553 \crefname@preamble{enumi}{point}{points}%
4554 \crefname@preamble{footnote}{note}{notes}%
4555 \crefname@preamble{theorem}{th\'eor\`eme}{th\'eor\`emes}%
4556 \crefname@preamble{lemma}{lemme}{lemmes}%
4557 \crefname@preamble{corollary}{corollaire}{corollaires}%
4558 \crefname@preamble{proposition}{proposition}{propositions}%
4559 \crefname@preamble{definition}{d\'efinition}{d\'efinitions}%
4560 \crefname@preamble{result}{r\'esultat}{r\'esultats}%
4561 \crefname@preamble{example}{exemple}{exemples}%
4562 \crefname@preamble{remark}{remarque}{remarques}%
4563 \crefname@preamble{note}{commentaire}{commentaires}%
4564 \crefname@preamble{algorithm}{algorithme}{algorithmes}%
4565 \crefname@preamble{listing}{liste}{listes}%
4566 \crefname@preamble{line}{ligne}{lignes}%
4567 \fi%
4568 \def\cref@language{french}%
4569 }}% end \DeclareOption and \AtBeginDocument

```

If using `babel` and the corresponding option is set, or if using `polyglossia` and the language has been loaded, add format definition commands to `\extras<language>` or `\captions<language>` so that language switching com-

mands will change the cross-reference formats appropriately.

```

4570 \cref@addlanguagedefs{french}{%
4571   \PackageInfo{cleveref}{loaded `french' language definitions}%
4572   \renewcommand{\crefrangeconjunction}{\`a\nobreakspace}%
4573   \renewcommand\crefrangepreconjunction{}%
4574   \renewcommand\crefrangepostconjunction{}%
4575   \renewcommand{\crefpairconjunction}{et\nobreakspace}%
4576   \renewcommand{\crefmiddleconjunction}{,}%
4577   \renewcommand{\creflastconjunction}{et\nobreakspace}%
4578   \renewcommand{\crefpairgroupconjunction}{et\nobreakspace}%
4579   \renewcommand{\crefmiddlegroupconjunction}{,}%
4580   \renewcommand{\creflastgroupconjunction}{et\nobreakspace}%
4581   %
4582   \Crefname{equation}{\`E}quation}{\`E}quations}%
4583   \Crefname{figure}{Figure}{Figures}%
4584   \Crefname{subfigure}{Figure}{Figures}%
4585   \Crefname{table}{Tableau}{Tableaux}%
4586   \Crefname{subtable}{Tableau}{Tableaux}%
4587   \Crefname{page}{Page}{Pages}%
4588   \Crefname{part}{Partie}{Parties}%
4589   \Crefname{chapter}{Chapitre}{Chapitres}%
4590   \Crefname{section}{Section}{Sections}%
4591   \Crefname{subsection}{Section}{Sections}%
4592   \Crefname{subsubsection}{Section}{Sections}%
4593   \Crefname{appendix}{Annexe}{Annexes}%
4594   \Crefname{subappendix}{Annexe}{Annexes}%
4595   \Crefname{subsubappendix}{Annexe}{Annexes}%
4596   \Crefname{subsubsubappendix}{Annexe}{Annexes}%
4597   \Crefname{enumi}{Point}{Points}%
4598   \Crefname{enumii}{Point}{Points}%
4599   \Crefname{enumiii}{Point}{Points}%
4600   \Crefname{enumiv}{Point}{Points}%
4601   \Crefname{enumv}{Point}{Points}%
4602   \Crefname{footnote}{Note}{Notes}%
4603   \Crefname{theorem}{Th\`eor\`eme}{Th\`eor\`emes}%
4604   \Crefname{lemma}{Lemme}{Lemmes}%
4605   \Crefname{corollary}{Corollaire}{Corollaires}%
4606   \Crefname{proposition}{Proposition}{Propositions}%
4607   \Crefname{definition}{D\`efinition}{D\`efinitions}%
4608   \Crefname{result}{R\`esultat}{R\`esultats}%
4609   \Crefname{example}{Exemple}{Exemples}%

```

```

4610 \Crefname{remark}{Remarque}{Remarques}%
4611 \Crefname{note}{Commentaire}{Commentaires}%
4612 \Crefname{algorithm}{Algorithme}{Algorithmes}%
4613 \Crefname{listing}{Liste}{Listes}%
4614 \Crefname{line}{Ligne}{Lignes}%
4615 %
4616 \if@cref@capitalise% capitalise set
4617 \crefname{equation}{\`E}quation}{\`E}quations}%
4618 \crefname{figure}{Figure}{Figures}%
4619 \crefname{subfigure}{Figure}{Figures}%
4620 \crefname{table}{Tableau}{Tableaux}%
4621 \crefname{subtable}{Tableau}{Tableaux}%
4622 \crefname{page}{Page}{Pages}%
4623 \crefname{part}{Partie}{Parties}%
4624 \crefname{chapter}{Chapitre}{Chapitres}%
4625 \crefname{section}{Section}{Sections}%
4626 \crefname{subsection}{Section}{Sections}%
4627 \crefname{subsubsection}{Section}{Sections}%
4628 \crefname{appendix}{Annexe}{Annexes}%
4629 \crefname{subappendix}{Annexe}{Annexes}%
4630 \crefname{subsubappendix}{Annexe}{Annexes}%
4631 \crefname{subsubsubappendix}{Annexe}{Annexes}%
4632 \crefname{enumi}{Point}{Points}%
4633 \crefname{enumii}{Point}{Points}%
4634 \crefname{enumiii}{Point}{Points}%
4635 \crefname{enumiv}{Point}{Points}%
4636 \crefname{enumv}{Point}{Points}%
4637 \crefname{footnote}{Note}{Notes}%
4638 \crefname{theorem}{Th\'eor\`eme}{Th\'eor\`emes}%
4639 \crefname{lemma}{Lemme}{Lemmes}%
4640 \crefname{corollary}{Corollaire}{Corollaires}%
4641 \crefname{proposition}{Proposition}{Propositions}%
4642 \crefname{definition}{D\'efinition}{D\'efinitions}%
4643 \crefname{result}{R\'esultat}{R\'esultats}%
4644 \crefname{example}{Exemple}{Exemples}%
4645 \crefname{remark}{Remarque}{Remarques}%
4646 \crefname{note}{Commentaire}{Commentaires}%
4647 \crefname{algorithm}{Algorithme}{Algorithmes}%
4648 \crefname{listing}{Liste}{Listes}%
4649 \crefname{line}{Ligne}{Lignes}%
4650 %
4651 \else% capitalise unset

```

```

4652 \crefname{equation}{\e}quation}{\e}quations}%
4653 \crefname{figure}{figure}{figures}%
4654 \crefname{subfigure}{figure}{figures}%
4655 \crefname{table}{tableau}{tableaux}%
4656 \crefname{subtable}{tableau}{tableaux}%
4657 \crefname{page}{page}{pages}%
4658 \crefname{part}{partie}{parties}%
4659 \crefname{chapter}{chapitre}{chapitres}%
4660 \crefname{section}{section}{sections}%
4661 \crefname{subsection}{section}{sections}%
4662 \crefname{subsubsection}{section}{sections}%
4663 \crefname{appendix}{annexe}{annexes}%
4664 \crefname{subappendix}{annexe}{annexes}%
4665 \crefname{subsubappendix}{annexe}{annexes}%
4666 \crefname{subsubsubappendix}{annexe}{annexes}%
4667 \crefname{enumi}{point}{points}%
4668 \crefname{enumii}{point}{points}%
4669 \crefname{enumiii}{point}{points}%
4670 \crefname{enumiv}{point}{points}%
4671 \crefname{enumv}{point}{points}%
4672 \crefname{footnote}{note}{notes}%
4673 \crefname{theorem}{th\`eor\`eme}{th\`eor\`emes}%
4674 \crefname{lemma}{lemme}{lemmes}%
4675 \crefname{corollary}{corollaire}{corollaires}%
4676 \crefname{proposition}{proposition}{propositions}%
4677 \crefname{definition}{d\`efinition}{d\`efinitions}%
4678 \crefname{result}{r\`esultat}{r\`esultats}%
4679 \crefname{example}{exemple}{exemples}%
4680 \crefname{remark}{remarque}{remarques}%
4681 \crefname{note}{commentaire}{commentaires}%
4682 \crefname{algorithm}{algorithm}{algorithmes}%
4683 \crefname{listing}{liste}{listes}%
4684 \crefname{line}{ligne}{lignes}%
4685 \fi}% end \cref@loadlanguagedefs

```

16.12.5 Spanish

`spanish` Spanish translations generously contributed by Gonzalo Medina.

Set up the definitions used at the beginning of the document to define the

formats created by the document preamble.

```

4686 \DeclareOption{spanish}{%
4687   \AtBeginDocument{%
4688     \def\crefrangeconjunction@preamble{ a\nobreakspace}%
4689     \def\crefrangepreconjunction@preamble{}%
4690     \def\crefrangepostconjunction@preamble{}%
4691     \def\crefpairconjunction@preamble{ y\nobreakspace}%
4692     \def\crefmiddleconjunction@preamble{, }%
4693     \def\creflastconjunction@preamble{ y\nobreakspace}%
4694     \def\crefpairgroupconjunction@preamble{ y\nobreakspace}%
4695     \def\crefmiddlegroupconjunction@preamble{, }%
4696     \def\creflastgroupconjunction@preamble{ y\nobreakspace}%
4697   %
4698   \Crefname@preamble{equation}{Ecuaci\'}{Ecuaciones}%
4699   \Crefname@preamble{figure}{Figura}{Figuras}%
4700   \Crefname@preamble{table}{Cuadro}{Cuadros}%
4701   \Crefname@preamble{page}{P\'}{aginas}%
4702   \Crefname@preamble{part}{Parte}{Partes}%
4703   \Crefname@preamble{chapter}{Cap\'}{itulos}%
4704   \Crefname@preamble{section}{Apartado}{Apartados}%
4705   \Crefname@preamble{appendix}{Ap\'}{endices}%
4706   \Crefname@preamble{enumi}{Punto}{Puntos}%
4707   \Crefname@preamble{footnote}{Nota}{Notas}%
4708   \Crefname@preamble{theorem}{Teorema}{Teoremas}%
4709   \Crefname@preamble{lemma}{Lema}{Lemas}%
4710   \Crefname@preamble{corollary}{Corolario}{Corolarios}%
4711   \Crefname@preamble{proposition}{Proposici\'}{Proposiciones}%
4712   \Crefname@preamble{definition}{Definici\'}{Definiciones}%
4713   \Crefname@preamble{result}{Resultado}{Resultados}%
4714   \Crefname@preamble{example}{Ejemplo}{Ejemplos}%
4715   \Crefname@preamble{remark}{Observaci\'}{Observaciones}%
4716   \Crefname@preamble{note}{Nota}{Notas}%
4717   \Crefname@preamble{algorithm}{Algoritmo}{Algoritmos}%
4718   \Crefname@preamble{listing}{Listado}{Listados}%
4719   \Crefname@preamble{line}{L\'}{ineas}%
4720 %
4721 \if@cref@capitalise% capitalise set
4722   \crefname@preamble{equation}{Ecuaci\'}{Ecuaciones}%
4723   \crefname@preamble{figure}{Figura}{Figuras}%
4724   \crefname@preamble{table}{Cuadro}{Cuadros}%
4725   \crefname@preamble{page}{P\'}{aginas}%

```



```

4726 \crefname@preamble{part}{Parte}{Partes}%
4727 \crefname@preamble{chapter}{Cap\ 'itulo}{Cap\ 'itulos}%
4728 \crefname@preamble{section}{Apartado}{Apartados}%
4729 \crefname@preamble{appendix}{Ap\ 'endice}{Ap\ 'endices}%
4730 \crefname@preamble{enumi}{Punto}{Puntos}%
4731 \crefname@preamble{footnote}{Nota}{Notas}%
4732 \crefname@preamble{theorem}{Teorema}{Teoremas}%
4733 \crefname@preamble{lemma}{Lema}{Lemas}%
4734 \crefname@preamble{corollary}{Corolario}{Corolarios}%
4735 \crefname@preamble{proposition}{Proposici\ 'on}{Proposiciones}%
4736 \crefname@preamble{definition}{Definici\ 'on}{Definiciones}%
4737 \crefname@preamble{result}{Resultado}{Resultados}%
4738 \crefname@preamble{example}{Ejemplo}{Ejemplos}%
4739 \crefname@preamble{remark}{Observaci\ 'on}{Observaciones}%
4740 \crefname@preamble{note}{Nota}{Notas}%
4741 \crefname@preamble{algorithm}{Algoritmo}{Algoritmos}%
4742 \crefname@preamble{listing}{Listado}{Listados}%
4743 \crefname@preamble{line}{L\ 'inea}{L\ 'ineas}%
4744 %
4745 \else% capitalise unset
4746 \crefname@preamble{equation}{ecuaci\ 'on}{ecuaciones}%
4747 \crefname@preamble{figure}{figura}{figuras}%
4748 \crefname@preamble{table}{cuadro}{cuadros}%
4749 \crefname@preamble{page}{p\ 'agina}{p\ 'aginas}%
4750 \crefname@preamble{part}{parte}{partes}%
4751 \crefname@preamble{chapter}{cap\ 'itulo}{cap\ 'itulos}%
4752 \crefname@preamble{section}{apartado}{apartados}%
4753 \crefname@preamble{appendix}{ap\ 'endice}{ap\ 'endices}%
4754 \crefname@preamble{enumi}{punto}{puntos}%
4755 \crefname@preamble{footnote}{nota}{notas}%
4756 \crefname@preamble{theorem}{teorema}{teoremas}%
4757 \crefname@preamble{lemma}{lema}{lemas}%
4758 \crefname@preamble{corollary}{corolario}{corolarios}%
4759 \crefname@preamble{proposition}{proposici\ 'on}{proposiciones}%
4760 \crefname@preamble{definition}{definici\ 'on}{definiciones}%
4761 \crefname@preamble{result}{resultado}{resultados}%
4762 \crefname@preamble{example}{ejemplo}{ejemplos}%
4763 \crefname@preamble{remark}{observaci\ 'on}{observaciones}%
4764 \crefname@preamble{note}{nota}{notas}%
4765 \crefname@preamble{algorithm}{algoritmo}{algoritmos}%
4766 \crefname@preamble{listing}{listado}{listados}%
4767 \crefname@preamble{line}{l\ 'inea}{l\ 'ineas}%

```

```

4768 \fi%
4769 \def\cref@language{spanish}%
4770 }}% end \DeclareOption and \AtBeginDocument

```

If using `babel` and the corresponding option is set, or if using `polyglossia` and the language has been loaded, add format definition commands to `\extras<language>` or `\captions<language>` so that language switching commands will change the cross-reference formats appropriately.

```

4771 \cref@addlanguagedefs{spanish}{%
4772 \PackageInfo{cleveref}{loaded `spanish' language definitions}%
4773 \renewcommand{\crefrangeconjunction}{ a\nobreakspace}%
4774 \renewcommand{\crefrangepreconjunction}{}%
4775 \renewcommand{\crefrangepostconjunction}{}%
4776 \renewcommand{\crefpairconjunction}{ y\nobreakspace}%
4777 \renewcommand{\crefmiddleconjunction}{, }%
4778 \renewcommand{\creflastconjunction}{ y\nobreakspace}%
4779 \renewcommand{\crefpairgroupconjunction}{ y\nobreakspace}%
4780 \renewcommand{\crefmiddlegroupconjunction}{, }%
4781 \renewcommand{\creflastgroupconjunction}{ y\nobreakspace}%
4782 %
4783 \Crefname{equation}{Ecuaci\`on}{Ecuaciones}%
4784 \Crefname{figure}{Figura}{Figuras}%
4785 \Crefname{subfigure}{Figura}{Figuras}%
4786 \Crefname{table}{Cuadro}{Cuadros}%
4787 \Crefname{subtable}{Cuadro}{Cuadros}%
4788 \Crefname{page}{P\`agina}{P\`aginas}%
4789 \Crefname{part}{Parte}{Partes}%
4790 \Crefname{chapter}{Cap\`itulo}{Cap\`itulos}%
4791 \Crefname{section}{Apartado}{Apartados}%
4792 \Crefname{subsection}{Apartado}{Apartados}%
4793 \Crefname{subsubsection}{Apartado}{Apartados}%
4794 \Crefname{appendix}{Ap\`endice}{Ap\`endices}%
4795 \Crefname{subappendix}{Ap\`endice}{Ap\`endices}%
4796 \Crefname{subsubappendix}{Ap\`endice}{Ap\`endices}%
4797 \Crefname{subsubsubappendix}{Ap\`endice}{Ap\`endices}%
4798 \Crefname{enumi}{Punto}{Puntos}%
4799 \Crefname{enumii}{Punto}{Puntos}%
4800 \Crefname{enumiii}{Punto}{Puntos}%
4801 \Crefname{enumiv}{Punto}{Puntos}%
4802 \Crefname{enumv}{Punto}{Puntos}%
4803 \Crefname{footnote}{Nota}{Notas}%

```

```

4804 \Crefname{theorem}{Teorema}{Teoremas}%
4805 \Crefname{lemma}{Lema}{Lemas}%
4806 \Crefname{corollary}{Corolario}{Corolarios}%
4807 \Crefname{proposition}{Proposici\'}{Proposiciones}%
4808 \Crefname{definition}{Definici\'}{Definiciones}%
4809 \Crefname{result}{Resultado}{Resultados}%
4810 \Crefname{example}{Ejemplo}{Ejemplos}%
4811 \Crefname{remark}{Observaci\'}{Observaci\'}%
4812 \Crefname{note}{Nota}{Notas}%
4813 \Crefname{algorithm}{Algoritmo}{Algoritmos}%
4814 \Crefname{listing}{Listado}{Listados}%
4815 \Crefname{line}{L\'}{L\'}%
4816 %
4817 \if@cref@capitalise% capitalise set
4818 \crefname{equation}{Ecuaci\'}{Ecuaciones}%
4819 \crefname{figure}{Figura}{Figuras}%
4820 \crefname{subfigure}{Figura}{Figuras}%
4821 \crefname{table}{Cuadro}{Cuadros}%
4822 \crefname{subtable}{Cuadro}{Cuadros}%
4823 \crefname{page}{P\'}{P\'}%
4824 \crefname{part}{Parte}{Partes}%
4825 \crefname{chapter}{Cap\'}{Cap\'}%
4826 \crefname{section}{Apartado}{Apartados}%
4827 \crefname{subsection}{Apartado}{Apartados}%
4828 \crefname{subsubsection}{Apartado}{Apartados}%
4829 \crefname{appendix}{Ap\'}{Ap\'}%
4830 \crefname{subappendix}{Ap\'}{Ap\'}%
4831 \crefname{subsubappendix}{Ap\'}{Ap\'}%
4832 \crefname{subsubsubappendix}{Ap\'}{Ap\'}%
4833 \crefname{enumi}{Punto}{Puntos}%
4834 \crefname{enumii}{Punto}{Puntos}%
4835 \crefname{enumiii}{Punto}{Puntos}%
4836 \crefname{enumiv}{Punto}{Puntos}%
4837 \crefname{enumv}{Punto}{Puntos}%
4838 \crefname{footnote}{Nota}{Notas}%
4839 \crefname{theorem}{Teorema}{Teoremas}%
4840 \crefname{lemma}{Lema}{Lemas}%
4841 \crefname{corollary}{Corolario}{Corolarios}%
4842 \crefname{proposition}{Proposici\'}{Proposiciones}%
4843 \crefname{definition}{Definici\'}{Definiciones}%
4844 \crefname{result}{Resultado}{Resultados}%
4845 \crefname{example}{Ejemplo}{Ejemplos}%

```

```

4846 \crefname{remark}{Observaci\on}{Observaci\ones}%
4847 \crefname{note}{Nota}{Notas}%
4848 \crefname{algorithm}{Algoritmo}{Algoritmos}%
4849 \crefname{listing}{Listado}{Listados}%
4850 \crefname{line}{L\ineas}{L\ineas}%
4851 %
4852 \else% capitalise unset
4853 \crefname{equation}{ecuaci\on}{ecuaciones}%
4854 \crefname{figure}{figura}{figuras}%
4855 \crefname{subfigure}{figura}{figuras}%
4856 \crefname{table}{cuadro}{cuadros}%
4857 \crefname{subtable}{cuadro}{cuadros}%
4858 \crefname{page}{p\agina}{p\aginas}%
4859 \crefname{part}{parte}{partes}%
4860 \crefname{chapter}{cap\itulo}{cap\itulos}%
4861 \crefname{section}{apartado}{apartados}%
4862 \crefname{subsection}{apartado}{apartados}%
4863 \crefname{subsubsection}{apartado}{apartados}%
4864 \crefname{appendix}{ap\endice}{ap\endices}%
4865 \crefname{subappendix}{ap\endice}{ap\endices}%
4866 \crefname{subsubappendix}{ap\endice}{ap\endices}%
4867 \crefname{subsubsubappendix}{ap\endice}{ap\endices}%
4868 \crefname{enumi}{punto}{puntos}%
4869 \crefname{enumii}{punto}{puntos}%
4870 \crefname{enumiii}{punto}{puntos}%
4871 \crefname{enumiv}{punto}{puntos}%
4872 \crefname{enumv}{punto}{puntos}%
4873 \crefname{footnote}{nota}{notas}%
4874 \crefname{theorem}{teorema}{teoremas}%
4875 \crefname{lemma}{lema}{lemas}%
4876 \crefname{corollary}{corolario}{corolarios}%
4877 \crefname{proposition}{proposici\on}{proposiciones}%
4878 \crefname{definition}{definici\on}{definiciones}%
4879 \crefname{result}{resultado}{resultados}%
4880 \crefname{example}{ejemplo}{ejemplos}%
4881 \crefname{remark}{observaci\on}{observaci\ones}%
4882 \crefname{note}{nota}{notas}%
4883 \crefname{algorithm}{algoritmo}{algoritmos}%
4884 \crefname{listing}{listado}{listados}%
4885 \crefname{line}{l\ineas}{l\ineas}%
4886 \fi}% end \cref@loadlanguagedefs

```

16.12.6 Italian

`italian` Italian translations kindly contributed by Massimo Redaelli.

Set up the definitions used at the beginning of the document to define the formats created by the document preamble.

```

4887 \DeclareOption{italian}{%
4888   \AtBeginDocument{%
4889     \def\crefrangeconjunction@preamble{ a\nobreakspace}%
4890     \def\crefrangepreconjunction@preamble{ da\nobreakspace}%
4891     \def\crefrangepostconjunction@preamble{}%
4892     \def\crefpairconjunction@preamble{ e\nobreakspace}%
4893     \def\crefmiddleconjunction@preamble{, }%
4894     \def\creflastconjunction@preamble{ e\nobreakspace}%

```

We have to define the group conjunctions explicitly here, rather than relying on fall-back definitions in terms of the above conjunctions (see Section 16.13), in case any other language option defines them explicitly and we need to override those.

```

4895   \def\crefpairgroupconjunction@preamble{ e\nobreakspace}%
4896   \def\crefmiddlegroupconjunction@preamble{, }%
4897   \def\creflastgroupconjunction@preamble{ e\nobreakspace}%
4898   %
4899   \Crefname@preamble{equation}{Equazione}{Equazioni}%
4900   \Crefname@preamble{figure}{Figura}{Figure}%
4901   \Crefname@preamble{table}{Tabella}{Tabelle}%
4902   \Crefname@preamble{page}{Pagina}{Pagine}%
4903   \Crefname@preamble{part}{Parte}{Parti}%
4904   \Crefname@preamble{chapter}{Capitolo}{Capitoli}%
4905   \Crefname@preamble{section}{Sezione}{Sezioni}%
4906   \Crefname@preamble{appendix}{Appendice}{Appendici}%
4907   \Crefname@preamble{enumi}{Voce}{Voci}%
4908   \Crefname@preamble{footnote}{Nota}{Note}%
4909   \Crefname@preamble{theorem}{Teorema}{Teoremi}%
4910   \Crefname@preamble{lemma}{Lemma}{Lemmi}%
4911   \Crefname@preamble{corollary}{Corollario}{Corollari}%
4912   \Crefname@preamble{proposition}{Proposizione}{Proposizioni}%
4913   \Crefname@preamble{definition}{Definizioni}{Definizioni}%
4914   \Crefname@preamble{result}{Risultato}{Risultati}%
4915   \Crefname@preamble{example}{esempio}{esempi}%

```

```

4916 \Crefname@preamble{remark}{Osservazione}{Osservazioni}%
4917 \Crefname@preamble{note}{Nota}{Note}%
4918 \Crefname@preamble{algorithm}{Algoritmo}{Algoritmi}%
4919 \Crefname@preamble{listing}{Elenco}{Elenchi}%
4920 \Crefname@preamble{line}{Linea}{Linee}%
4921 %
4922 \if@cref@capitalise% capitalise set
4923 \if@cref@abbrev%
4924 \crefname@preamble{equation}{Eq.}{Eq.}%
4925 \crefname@preamble{figure}{Fig.}{Fig.}%
4926 \else%
4927 \crefname@preamble{equation}{Equazione}{Equazioni}%
4928 \crefname@preamble{figure}{Figura}{Figure}%
4929 \fi%
4930 \crefname@preamble{table}{Tabella}{Tabelle}%
4931 \crefname@preamble{page}{Pagina}{Pagine}%
4932 \crefname@preamble{part}{Parte}{Parti}%
4933 \crefname@preamble{chapter}{Capitolo}{Capitoli}%
4934 \crefname@preamble{section}{Sezione}{Sezioni}%
4935 \crefname@preamble{appendix}{Appendice}{Appendici}%
4936 \crefname@preamble{enumi}{Voce}{Voci}%
4937 \crefname@preamble{footnote}{Nota}{Note}%
4938 \crefname@preamble{theorem}{Teorema}{Teoremi}%
4939 \crefname@preamble{lemma}{Lemma}{Lemmi}%
4940 \crefname@preamble{corollary}{Corollario}{Corollari}%
4941 \crefname@preamble{proposition}{Proposizione}{Proposizioni}%
4942 \crefname@preamble{definition}{Definizione}{Definizioni}%
4943 \crefname@preamble{result}{Risultato}{Risultati}%
4944 \crefname@preamble{example}{Esempio}{Esempi}%
4945 \crefname@preamble{remark}{Osservazione}{Osservazioni}%
4946 \crefname@preamble{note}{Nota}{Note}%
4947 \crefname@preamble{algorithm}{Algoritmo}{Algoritmi}%
4948 \crefname@preamble{listing}{Elenco}{Elenchi}%
4949 \crefname@preamble{line}{Linea}{Linee}%
4950 %
4951 \else% capitalise unset
4952 \if@cref@abbrev%
4953 \crefname@preamble{equation}{eq.}{eq.}%
4954 \crefname@preamble{figure}{fig.}{fig.}%
4955 \else%
4956 \crefname@preamble{equation}{equazione}{equazioni}%
4957 \crefname@preamble{figure}{figura}{figure}%

```

```

4958     \fi%
4959     \crefname@preamble{table}{tabella}{tabelle}%
4960     \crefname@preamble{page}{pagina}{pagine}%
4961     \crefname@preamble{part}{parte}{parti}%
4962     \crefname@preamble{chapter}{capitolo}{capitoli}%
4963     \crefname@preamble{section}{sezione}{sezioni}%
4964     \crefname@preamble{appendix}{appendice}{appendici}%
4965     \crefname@preamble{enumi}{voce}{voci}%
4966     \crefname@preamble{footnote}{nota}{note}%
4967     \crefname@preamble{theorem}{teorema}{teoremi}%
4968     \crefname@preamble{lemma}{lemma}{lemmi}%
4969     \crefname@preamble{corollary}{corollario}{corollari}%
4970     \crefname@preamble{proposition}{proposizione}{proposizioni}%
4971     \crefname@preamble{definition}{definizione}{definizioni}%
4972     \crefname@preamble{result}{risultato}{risultati}%
4973     \crefname@preamble{example}{esempio}{esempi}%
4974     \crefname@preamble{remark}{osservazione}{osservazioni}%
4975     \crefname@preamble{note}{nota}{note}%
4976     \crefname@preamble{algorithm}{algoritmo}{algoritmi}%
4977     \crefname@preamble{listing}{elenco}{elenchi}%
4978     \crefname@preamble{line}{linea}{linee}%
4979     \fi%
4980     \def\cref@language{italian}%
4981 }}% end \DeclareOption and \AtBeginDocument

```

If using `babel` and the corresponding option is set, or if using `polyglossia` and the language has been loaded, add format definition commands to `\extras<language>` or `\captions<language>` so that language switching commands will change the cross-reference formats appropriately.

```

4982 \cref@addlanguagedefs{italian}{%
4983   \PackageInfo{cleveref}{loaded `italian' language definitions}%
4984   \renewcommand{\crefrangeconjunction}{ a\nobreakspace}%
4985   \renewcommand\crefrangepreconjunction{da\nobreakspace}%
4986   \renewcommand\crefrangepostconjunction{}%
4987   \renewcommand{\crefpairconjunction}{ e\nobreakspace}%
4988   \renewcommand{\crefmiddleconjunction}{, }%
4989   \renewcommand{\creflastconjunction}{ e\nobreakspace}%
4990   \renewcommand{\crefpairgroupconjunction}{ e\nobreakspace}%
4991   \renewcommand{\crefmiddlegroupconjunction}{, }%
4992   \renewcommand{\creflastgroupconjunction}{ e\nobreakspace}%
4993 }%

```

```

4994 \Crefname{equation}{Equazione}{Equazioni}%
4995 \Crefname{figure}{Figura}{Figure}%
4996 \Crefname{subfigure}{Figura}{Figure}%
4997 \Crefname{table}{Tabella}{Tabelle}%
4998 \Crefname{subtable}{Tabella}{Tabelle}%
4999 \Crefname{page}{Pagina}{Pagine}%
5000 \Crefname{part}{Parte}{Parti}%
5001 \Crefname{chapter}{Capitolo}{Capitoli}%
5002 \Crefname{section}{Sezione}{Sezioni}%
5003 \Crefname{subsection}{Sezione}{Sezioni}%
5004 \Crefname{subsubsection}{Sezione}{Sezioni}%
5005 \Crefname{appendix}{Appendice}{Appendici}%
5006 \Crefname{subappendix}{Appendice}{Appendici}%
5007 \Crefname{subsubappendix}{Appendice}{Appendici}%
5008 \Crefname{subsubsubappendix}{Appendice}{Appendici}%
5009 \Crefname{enumi}{Voce}{Voci}%
5010 \Crefname{enumii}{Voce}{Voci}%
5011 \Crefname{enumiii}{Voce}{Voci}%
5012 \Crefname{enumiv}{Voce}{Voci}%
5013 \Crefname{enumv}{Voce}{Voci}%
5014 \Crefname{footnote}{Nota}{Note}%
5015 \Crefname{theorem}{Teorema}{Teoremi}%
5016 \Crefname{lemma}{Lemma}{Lemmi}%
5017 \Crefname{corollary}{Corollario}{Corollari}%
5018 \Crefname{proposition}{Proposizione}{Proposizioni}%
5019 \Crefname{definition}{Definizione}{Definizione}%
5020 \Crefname{result}{Risultato}{Risultati}%
5021 \Crefname{example}{esempio}{esempi}%
5022 \Crefname{remark}{Osservazione}{Osservazioni}%
5023 \Crefname{note}{Nota}{Note}%
5024 \Crefname{algorithm}{Algoritmo}{Algoritmi}%
5025 \Crefname{listing}{Elenco}{Elenchi}%
5026 \Crefname{line}{Linea}{Linee}%
5027 %
5028 \if@cref@capitalise% capitalise set
5029 \if@cref@abbrev%
5030 \crefname{equation}{Eq.}{Eq.}%
5031 \crefname{figure}{Fig.}{Fig.}%
5032 \crefname{subfigure}{Fig.}{Fig.}%
5033 \else%
5034 \crefname{equation}{Equazione}{Equazioni}%
5035 \crefname{figure}{Figura}{Figure}%

```



```

5036     \crefname{figure}{Figura}{Figure}%
5037     \fi%
5038     \crefname{table}{Tabella}{Tabelle}%
5039     \crefname{page}{Pagina}{Pagine}%
5040     \crefname{subtable}{Tabella}{Tabelle}%
5041     \crefname{part}{Parte}{Parti}%
5042     \crefname{chapter}{Capitolo}{Capitoli}%
5043     \crefname{section}{Sezione}{Sezioni}%
5044     \crefname{subsection}{Sezione}{Sezioni}%
5045     \crefname{subsubsection}{Sezione}{Sezioni}%
5046     \crefname{appendix}{Appendice}{Appendici}%
5047     \crefname{subappendix}{Appendice}{Appendici}%
5048     \crefname{subsubappendix}{Appendice}{Appendici}%
5049     \crefname{subsubsubappendix}{Appendice}{Appendici}%
5050     \crefname{enumi}{Voce}{Voci}%
5051     \crefname{enumii}{Voce}{Voci}%
5052     \crefname{enumiii}{Voce}{Voci}%
5053     \crefname{enumiv}{Voce}{Voci}%
5054     \crefname{enumv}{Voce}{Voci}%
5055     \crefname{footnote}{Nota}{Note}%
5056     \crefname{theorem}{Teorema}{Teoremi}%
5057     \crefname{lemma}{Lemma}{Lemmi}%
5058     \crefname{corollary}{Corollario}{Corollari}%
5059     \crefname{proposition}{Proposizione}{Proposizioni}%
5060     \crefname{definition}{Definizione}{Definizione}%
5061     \crefname{result}{Risultato}{Risultati}%
5062     \crefname{example}{Esempio}{Esempi}%
5063     \crefname{remark}{Osservazione}{Osservazioni}%
5064     \crefname{note}{Nota}{Note}%
5065     \crefname{algorithm}{Algoritmo}{Algoritmi}%
5066     \crefname{listing}{Elenco}{Elenchi}%
5067     \crefname{line}{Linea}{Linee}%
5068 %
5069 \else% capitalise unset
5070     \if@cref@abbrev%
5071         \crefname{equation}{eq.}{eq.}%
5072         \crefname{figure}{fig.}{fig.}%
5073         \crefname{subfigure}{fig.}{fig.}%
5074     \else%
5075         \crefname{equation}{equazione}{equazioni}%
5076         \crefname{figure}{figura}{figure}%
5077         \crefname{figure}{figura}{figure}%

```

```

5078 \fi%
5079 \crefname{table}{tabella}{tabelle}%
5080 \crefname{page}{pagina}{pagine}%
5081 \crefname{subtable}{tabella}{tabelle}%
5082 \crefname{part}{parte}{parti}%
5083 \crefname{chapter}{capitolo}{capitoli}%
5084 \crefname{section}{sezione}{sezioni}%
5085 \crefname{subsection}{sezione}{sezioni}%
5086 \crefname{subsubsection}{sezione}{sezioni}%
5087 \crefname{appendix}{appendice}{appendici}%
5088 \crefname{subappendix}{appendice}{appendici}%
5089 \crefname{subsubappendix}{appendice}{appendici}%
5090 \crefname{subsubsubappendix}{appendice}{appendici}%
5091 \crefname{enumi}{voce}{voci}%
5092 \crefname{enumii}{voce}{voci}%
5093 \crefname{enumiii}{voce}{voci}%
5094 \crefname{enumiv}{voce}{voci}%
5095 \crefname{enumv}{voce}{voci}%
5096 \crefname{footnote}{nota}{note}%
5097 \crefname{theorem}{teorema}{teoremi}%
5098 \crefname{lemma}{lemma}{lemmi}%
5099 \crefname{corollary}{corollario}{corollari}%
5100 \crefname{proposition}{proposizione}{proposizioni}%
5101 \crefname{definition}{definizione}{definizione}%
5102 \crefname{result}{risultato}{risultati}%
5103 \crefname{example}{esempio}{esempi}%
5104 \crefname{remark}{osservazione}{osservazioni}%
5105 \crefname{note}{nota}{note}%
5106 \crefname{algorithm}{algoritmo}{algoritmi}%
5107 \crefname{listing}{elenco}{elenchi}%
5108 \crefname{line}{linea}{linee}%
5109 \fi}% end \cref@loadlanguagedefs

```

16.12.7 Russian

russian Russian translations generously contributed by Aleksander Gorohovski.

Set up the definitions used at the beginning of the document to define the formats created by the document preamble.

```

5110 \DeclareOption{russian}{%

```

```

5111 \AtBeginDocument{%
5112   \def\crefrangeconjunction@preamble{--}%
5113   \def\crefrangepreconjunction@preamble{}%
5114   \def\crefrangepostconjunction@preamble{}%
5115   \def\crefpairconjunction@preamble{ \cyri\nobreakspace}%
5116   \def\crefmiddleconjunction@preamble{, }%
5117   \def\creflastconjunction@preamble{ \cyri\nobreakspace}%

```

We have to define the group conjunctions explicitly here, rather than relying on fall-back definitions in terms of the above conjunctions (see Section 16.13), in case any other language option defines them explicitly and we need to override those.

```

5118   \def\crefpairgroupconjunction@preamble{ \cyri\nobreakspace}%
5119   \def\crefmiddlegroupconjunction@preamble{, }%
5120   \def\creflastgroupconjunction@preamble%
5121     {, \cyra\ \cyrt\cyra\cyrk\cyrzh\cyre\nobreakspace}%
5122 %
5123   \Crefname@preamble{equation}%
5124   {\CYRF\cyro\cyrr\cyrm\cyru\cyrl\cyra}%
5125   {\CYRF\cyro\cyrr\cyrm\cyru\cyrl\cyrery}%
5126   \Crefname@preamble{figure}%
5127   {\CYRR\cyri\cyrs\cyru\cyrn\cyro\cyrk}%
5128   {\CYRR\cyri\cyrs\cyru\cyrn\cyrk\cyri}%
5129   \Crefname@preamble{table}%
5130   {\CYRT\cyra\cyrb\cyrl\cyri\cyrc\cyra}%
5131   {\CYRT\cyra\cyrb\cyrl\cyri\cyrc\cyrery}%
5132   \Crefname@preamble{enumi}%
5133   {\CYRP\cyru\cyrn\cyrk\cyrt}%
5134   {\CYRP\cyru\cyrn\cyrk\cyrt\cyrery}%
5135   \Crefname@preamble{chapter}%
5136   {\CYRG\cyrl\cyra\cyrv\cyra}%
5137   {\CYRG\cyrl\cyra\cyrv\cyrery}%
5138   \Crefname@preamble{section}%
5139   {\CYRR\cyra\cyrz\cyrd\cyre\cyrl}%
5140   {\CYRR\cyra\cyrz\cyrd\cyre\cyrl\cyrery}%
5141   \Crefname@preamble{appendix}%
5142   {\CYRP\cyrr\cyri\cyrl\cyro\cyrzh\cyre\cyrn\cyri\cyre}%
5143   {\CYRP\cyrr\cyri\cyrl\cyro\cyrzh\cyre\cyrn\cyri\cyrya}%
5144   \Crefname@preamble{footnote}%
5145   {\CYRS\cyrn\cyro\cyrs\cyrk\cyra}%
5146   {\CYRS\cyrn\cyro\cyrs\cyrk\cyri}%

```

```

5147 \Crefname@preamble{theorem}%
5148 {\CYRT\cyre\cyro\cyrr\cyre\cym\cyra}%
5149 {\CYRT\cyre\cyro\cyrr\cyre\cym\cyrery}%
5150 \Crefname@preamble{lemma}%
5151 {\CYRL\cyre\cym\cym\cyra}%
5152 {\CYRL\cyre\cym\cym\cyrery}%
5153 \Crefname@preamble{corollary}%
5154 {\CYRV\cyrery\cyrv\cyro\cyrd}%
5155 {\CYRV\cyrery\cyrv\cyro\cyrd\cyrery}%
5156 \Crefname@preamble{proposition}%
5157 {\CYRU\cyrt\cyrv\cyre\cyrr\cyrz\cyrd\cyre\cym\cyri\cyre}%
5158 {\CYRU\cyrt\cyrv\cyre\cyrr\cyrz\cyrd\cyre\cym\cyri\cyrya}%
5159 \Crefname@preamble{definition}%
5160 {\CYRO\cyrp\cyrr\cyre\cyrd\cyre\cyl\cyre\cym\cyri\cyre}%
5161 {\CYRO\cyrp\cyrr\cyre\cyrd\cyre\cyl\cyre\cym\cyri\cyrya}%
5162 \Crefname@preamble{result}%
5163 {\CYRR\cyre\cyrz\cyru\cyl\cysfts\cyrt\cyra\cyrt}%
5164 {\CYRR\cyre\cyrz\cyru\cyl\cysfts\cyrt\cyra\cyrt\cyrery}%
5165 \Crefname@preamble{example}%
5166 {\CYRP\cyrr\cyri\cym\cyre\cyrr}%
5167 {\CYRP\cyrr\cyri\cym\cyre\cyrr\cyrery}%
5168 \Crefname@preamble{remark}%
5169 {\CYRP\cyrr\cyri\cym\cyre\cyrch\cyra\cym\cyri\cyre}%
5170 {\CYRP\cyrr\cyri\cym\cyre\cyrch\cyra\cym\cyri\cyrya}%
5171 \Crefname@preamble{note}%
5172 {\CYRZ\cyra\cym\cyre\cyrt\cyrk\cyra}%
5173 {\CYRZ\cyra\cym\cyre\cyrt\cyrk\cyri}%
5174 \Crefname@preamble{algorithm}%
5175 {\CYRA\cyl\cyrg\cyro\cyrr\cyri\cyrt\cym}%
5176 {\CYRA\cyl\cyrg\cyro\cyrr\cyri\cyrt\cym\cyrery}%
5177 \Crefname@preamble{listing}%
5178 {\CYRL\cyri\cys\cyrt\cyri\cym\cyrg}%
5179 {\CYRL\cyri\cys\cyrt\cyri\cym\cyrg\cyri}%
5180 \Crefname@preamble{line}%
5181 {\CYRS\cyrt\cyrr\cyro\cyrk\cyra}%
5182 {\CYRS\cyrt\cyrr\cyro\cyrk\cyri}%
5183 \Crefname@preamble{page}%
5184 {\CYRS\cyrt\cyrr\cyra\cym\cyri\cyrc\cyra}%
5185 {\CYRS\cyrt\cyrr\cyra\cym\cyri\cyrc\cyrery}%
5186 \Crefname@preamble{part}%
5187 {\CYRCH\cyra\cys\cyrt\cysfts}%
5188 {\CYRCH\cyra\cys\cyrt\cyri}%

```

```

5189 %
5190 \if@cref@capitalise% capitalise set
5191 \if@cref@abbrev% abbrev set
5192 \crefname@preamble{equation}%
5193 {\CYRF-\cyrl.}%
5194 {\CYRF-\cyrl.}%
5195 \crefname@preamble{figure}%
5196 {\CYRR\cyri\cyrs.}%
5197 {\CYRR\cyri\cyrs.}%
5198 \crefname@preamble{table}%
5199 {\CYRT\cyra\cyrb\cyrl.}%
5200 {\CYRT\cyra\cyrb\cyrl.}%
5201 \crefname@preamble{enumi}%
5202 {\CYRP.}%
5203 {\CYRP.\cyrp.}%
5204 \else%
5205 \crefname@preamble{equation}%
5206 {\CYRF\cyro\cyrr\cyrm\cyru\cyrl\cyra}%
5207 {\CYRF\cyro\cyrr\cyrm\cyru\cyrl\cyrery}%
5208 \crefname@preamble{figure}%
5209 {\CYRR\cyri\cyrs\cyru\cyrn\cyro\cyrk}%
5210 {\CYRR\cyri\cyrs\cyru\cyrn\cyrk\cyri}%
5211 \crefname@preamble{table}%
5212 {\CYRT\cyra\cyrb\cyrl\cyri\cyrc\cyra}%
5213 {\CYRT\cyra\cyrb\cyrl\cyri\cyrc\cyrery}%
5214 \crefname@preamble{enumi}%
5215 {\CYRP\cyru\cyrn\cyrk\cyrt}%
5216 {\CYRP\cyru\cyrn\cyrk\cyrt\cyrery}%
5217 \fi%
5218 \crefname@preamble{chapter}%
5219 {\CYRG\cyrl\cyra\cyrv\cyra}%
5220 {\CYRG\cyrl\cyra\cyrv\cyrery}%
5221 \crefname@preamble{section}%
5222 {\CYRR\cyra\cyrz\cyrd\cyre\cyrl}%
5223 {\CYRR\cyra\cyrz\cyrd\cyre\cyrl\cyrery}%
5224 \crefname@preamble{appendix}%
5225 {\CYRP\cyrr\cyri\cyrl\cyro\cyrz\cyre\cyrn\cyri\cyre}%
5226 {\CYRP\cyrr\cyri\cyrl\cyro\cyrz\cyre\cyrn\cyri\cyrya}%
5227 \crefname@preamble{footnote}%
5228 {\CYRS\cyrn\cyro\cyrs\cyrk\cyra}%
5229 {\CYRS\cyrn\cyro\cyrs\cyrk\cyri}%
5230 \crefname@preamble{theorem}%

```

```

5231      {\CYRT\cyre\cyro\cyrr\cyre\cyrm\cyra}%
5232      {\CYRT\cyre\cyro\cyrr\cyre\cyrm\cyrery}%
5233      \crefname@preamble{lemma}%
5234      {\CYRL\cyre\cyrm\cyrm\cyra}%
5235      {\CYRL\cyre\cyrm\cyrm\cyrery}%
5236      \crefname@preamble{corollary}%
5237      {\CYRV\cyrery\cyrv\cyro\cyrd}%
5238      {\CYRV\cyrery\cyrv\cyro\cyrd\cyrery}%
5239      \crefname@preamble{proposition}%
5240      {\CYRU\cyrt\cyrv\cyre\cyrr\cyrzh\cyrd\cyre\cyrn\cyri\cyre}%
5241      {\CYRU\cyrt\cyrv\cyre\cyrr\cyrzh\cyrd\cyre\cyrn\cyri\cyrya}%
5242      \crefname@preamble{definition}%
5243      {\CYRO\cyrp\cyrr\cyre\cyrd\cyre\cyrl\cyre\cyrn\cyri\cyre}%
5244      {\CYRO\cyrp\cyrr\cyre\cyrd\cyre\cyrl\cyre\cyrn\cyri\cyrya}%
5245      \crefname@preamble{result}%
5246      {\CYRR\cyre\cyrz\cyru\cyrl\cyrsftsn\cyrt\cyra\cyrt}%
5247      {\CYRR\cyre\cyrz\cyru\cyrl\cyrsftsn\cyrt\cyra\cyrt\cyrery}%
5248      \crefname@preamble{example}%
5249      {\CYRP\cyrr\cyri\cyrm\cyre\cyrr}%
5250      {\CYRP\cyrr\cyri\cyrm\cyre\cyrr\cyrery}%
5251      \crefname@preamble{remark}%
5252      {\CYRP\cyrr\cyri\cyrm\cyre\cyrch\cyra\cyrn\cyri\cyre}%
5253      {\CYRP\cyrr\cyri\cyrm\cyre\cyrch\cyra\cyrn\cyri\cyrya}%
5254      \crefname@preamble{note}%
5255      {\CYRZ\cyra\cyrm\cyre\cyrt\cyrk\cyra}%
5256      {\CYRZ\cyra\cyrm\cyre\cyrt\cyrk\cyri}%
5257      \crefname@preamble{algorithm}%
5258      {\CYRA\cyrl\cyrg\cyro\cyrr\cyri\cyrt\cyrm}%
5259      {\CYRA\cyrl\cyrg\cyro\cyrr\cyri\cyrt\cyrm\cyrery}%
5260      \crefname@preamble{listing}%
5261      {\CYRL\cyri\cyrs\cyrt\cyri\cyrn\cyrg}%
5262      {\CYRL\cyri\cyrs\cyrt\cyri\cyrn\cyrg\cyri}%
5263      \crefname@preamble{line}%
5264      {\CYRS\cyrt\cyrr\cyro\cyrk\cyra}%
5265      {\CYRS\cyrt\cyrr\cyro\cyrk\cyri}%
5266      \crefname@preamble{page}%
5267      {\CYRS\cyrt\cyrr\cyra\cyrn\cyri\cyrc\cyra}%
5268      {\CYRS\cyrt\cyrr\cyra\cyrn\cyri\cyrc\cyrery}%
5269      \crefname@preamble{part}%
5270      {\CYRCH\cyra\cyrs\cyrt\cyrsftsn}%
5271      {\CYRCH\cyra\cyrs\cyrt\cyri}%
5272      %

```

```

5273 \else% capitalise unset
5274 \if@ceref@abbrev% abbrev set
5275 \crefname@preamble{equation}%
5276 {\cyrf-\cyrl.}%
5277 {\cyrf-\cyrl.}%
5278 \crefname@preamble{figure}%
5279 {\cyrr\cyri\cyrs.}%
5280 {\cyrr\cyri\cyrs.}%
5281 \crefname@preamble{table}%
5282 {\cyrt\cyra\cyrb\cyrl.}%
5283 {\cyrt\cyra\cyrb\cyrl.}%
5284 \crefname@preamble{enumi}%
5285 {\cyrp.}%
5286 {\cyrp.\cyrp.}%
5287 \crefname@preamble{chapter}%
5288 {\cyrg\cyrl\cyra\cyrv.}%
5289 {\cyrg\cyrl\cyra\cyrv.}%
5290 \crefname@preamble{section}%
5291 {\cyrr\cyra\cyrz\cyrd.}%
5292 {\cyrr\cyra\cyrz\cyrd\cyre\cyrl.}%
5293 \crefname@preamble{appendix}%
5294 {\cyrp\cyrr\cyri\cyrl\cyro\cyrzh.}%
5295 {\cyrp\cyrr\cyri\cyrl\cyro\cyrzh.}%
5296 \crefname@preamble{footnote}%
5297 {\cyrs\cyrn\cyro\cyrs\cyrk.}%
5298 {\cyrs\cyrn\cyro\cyrs\cyrk.}%
5299 \crefname@preamble{theorem}%
5300 {\cyrt\cyre\cyro\cyrr\cyre\cyrm.}%
5301 {\cyrt\cyre\cyro\cyrr\cyre\cyrm.}%
5302 \crefname@preamble{lemma}%
5303 {\cyrl\cyre\cyrm\cyrm.}%
5304 {\cyrl\cyre\cyrm\cyrm.}%
5305 \crefname@preamble{corollary}%
5306 {\cyrv\cyrery\cyrv\cyro\cyrd}%
5307 {\cyrv\cyrery\cyrv\cyro\cyrd.}%
5308 \crefname@preamble{proposition}%
5309 {\cyru\cyrt\cyrv\cyre\cyrr\cyrzh\cyrd.}%
5310 {\cyru\cyrt\cyrv\cyre\cyrr\cyrzh\cyrd.}%
5311 \crefname@preamble{definition}%
5312 {\cyro\cyrp\cyrr\cyre\cyrd\cyre\cyrl\cyre\cyrn.}%
5313 {\cyro\cyrp\cyrr\cyre\cyrd\cyre\cyrl\cyre\cyrn.}%
5314 \crefname@preamble{result}%

```

```

5315         {\cyrr\cyre\cyrz\cyru\cyrl\cyrsftsn\cyrt.}%
5316         {\cyrr\cyre\cyrz\cyru\cyrl\cyrsftsn\cyrt.}%
5317         \crefname@preamble{example}%
5318         {\cyrp\cyrr\cyri\cyrm.}%
5319         {\cyrp\cyrr\cyri\cyrm\cyre\cyrr.}%
5320         \crefname@preamble{remark}%
5321         {\cyrp\cyrr\cyri\cyrm\cyre\cyrch.}%
5322         {\cyrp\cyrr\cyri\cyrm\cyre\cyrch.}%
5323         \crefname@preamble{note}%
5324         {\cyrz\cyra\cyrm\cyre\cyrt\cyrk.}%
5325         {\cyrz\cyra\cyrm\cyre\cyrt\cyrk.}%
5326         \crefname@preamble{algorithm}%
5327         {\cyra\cyrl\cyrg.}%
5328         {\cyra\cyrl\cyrg.}%
5329         \crefname@preamble{listing}%
5330         {\cyrl\cyri\cyrs\cyrt\cyri\cyrn.}%
5331         {\cyrl\cyri\cyrs\cyrt\cyri\cyrn\cyrg.}%
5332         \crefname@preamble{line}%
5333         {\cyrs\cyrt\cyrr\cyrk.}%
5334         {\cyrs\cyrt\cyrr\cyrk.}%
5335         \else% abbrev unset
5336         \crefname@preamble{equation}%
5337         {\cyrf\cyro\cyrr\cyrm\cyru\cyrl\cyra}%
5338         {\cyrf\cyro\cyrr\cyrm\cyru\cyrl\cyrery}%
5339         \crefname@preamble{figure}%
5340         {\cyrr\cyri\cyrs\cyru\cyrn\cyro\cyrk}%
5341         {\cyrr\cyri\cyrs\cyru\cyrn\cyrk\cyri}%
5342         \crefname@preamble{table}%
5343         {\cyrt\cyra\cyrb\cyrl\cyri\cyrc\cyra}%
5344         {\cyrt\cyra\cyrb\cyrl\cyri\cyrc\cyrery}%
5345         \crefname@preamble{enumi}%
5346         {\cyrp\cyru\cyrn\cyrk\cyrt}%
5347         {\cyrp\cyru\cyrn\cyrk\cyrt\cyrery}%
5348         \crefname@preamble{chapter}%
5349         {\cyrg\cyrl\cyra\cyrv\cyra}%
5350         {\cyrg\cyrl\cyra\cyrv\cyrery}%
5351         \crefname@preamble{section}%
5352         {\cyrr\cyra\cyrz\cyrd\cyre\cyrl}%
5353         {\cyrr\cyra\cyrz\cyrd\cyre\cyrl\cyrery}%
5354         \crefname@preamble{appendix}%
5355         {\cyrp\cyrr\cyri\cyrl\cyro\cyrz\cyre\cyrn\cyri\cyre}%
5356         {\cyrp\cyrr\cyri\cyrl\cyro\cyrz\cyre\cyrn\cyri\cyrya}%

```



```

5357 \crefname@preamble{footnote}%
5358     {\cyr\cyrn\cyro\cyr\cyrk\cyra}%
5359     {\cyr\cyrn\cyro\cyr\cyrk\cyri}%
5360 \crefname@preamble{theorem}%
5361     {\cyrt\cyre\cyro\cyrr\cyre\cyrm\cyra}%
5362     {\cyrt\cyre\cyro\cyrr\cyre\cyrm\cyrery}%
5363 \crefname@preamble{lemma}%
5364     {\cyrl\cyre\cyrm\cyrm\cyra}%
5365     {\cyrl\cyre\cyrm\cyrm\cyrery}%
5366 \crefname@preamble{corollary}%
5367     {\cyrv\cyrery\cyrv\cyro\cyrd}%
5368     {\cyrv\cyrery\cyrv\cyro\cyrd\cyrery}%
5369 \crefname@preamble{proposition}%
5370     {\cyru\cyrt\cyrv\cyre\cyrr\cyrz\cyrd\cyre\cyrn\cyri\cyre}%
5371     {\cyru\cyrt\cyrv\cyre\cyrr\cyrz\cyrd\cyre\cyrn\cyri\cyrya}%
5372 \crefname@preamble{definition}%
5373     {\cyro\cyrp\cyrr\cyre\cyrd\cyre\cyrl\cyre\cyrn\cyri\cyre}%
5374     {\cyro\cyrp\cyrr\cyre\cyrd\cyre\cyrl\cyre\cyrn\cyri\cyrya}%
5375 \crefname@preamble{result}%
5376     {\cyrr\cyre\cyrz\cyru\cyrl\cyrsftsn\cyrt\cyra\cyrt}%
5377     {\cyrr\cyre\cyrz\cyru\cyrl\cyrsftsn\cyrt\cyra\cyrt\cyrery}%
5378 \crefname@preamble{example}%
5379     {\cyrp\cyrr\cyri\cyrm\cyre\cyrr}%
5380     {\cyrp\cyrr\cyri\cyrm\cyre\cyrr\cyrery}%
5381 \crefname@preamble{remark}%
5382     {\cyrp\cyrr\cyri\cyrm\cyre\cyrch\cyra\cyrn\cyri\cyre}%
5383     {\cyrp\cyrr\cyri\cyrm\cyre\cyrch\cyra\cyrn\cyri\cyrya}%
5384 \crefname@preamble{note}%
5385     {\cyrz\cyra\cyrm\cyre\cyrt\cyrk\cyra}%
5386     {\cyrz\cyra\cyrm\cyre\cyrt\cyrk\cyri}%
5387 \crefname@preamble{algorithm}%
5388     {\cyra\cyrl\cyrg\cyro\cyrr\cyri\cyrt\cyrm}%
5389     {\cyra\cyrl\cyrg\cyro\cyrr\cyri\cyrt\cyrm\cyrery}%
5390 \crefname@preamble{listing}%
5391     {\cyrl\cyri\cyrs\cyrt\cyri\cyrn\cyrg}%
5392     {\cyrl\cyri\cyrs\cyrt\cyri\cyrn\cyrg\cyri}%
5393 \crefname@preamble{line}%
5394     {\cyr\cyrt\cyrr\cyro\cyrk\cyra}%
5395     {\cyr\cyrt\cyrr\cyro\cyrk\cyri}%
5396 \fi%
5397 \crefname@preamble{page}%
5398     {\cyr\cyrt\cyrr\cyra\cyrn\cyri\cyrc\cyre}%

```

```

5399      {\cyrs\cyrt\cyrr\cyra\cyrn\cyri\cyrc\cyra\cyrh}%
5400      \crefname@preamble{part}%
5401      {\cyrch\cyra\cyrs\cyrt\cyrsftsn}%
5402      {\cyrch\cyra\cyrs\cyrt\cyri}%
5403      \fi%
5404      \def\cref@language{russian}%
5405      }}% end \DeclareOption and \AtBeginDocument

```

If using `babel` and the corresponding option is set, or if using `polyglossia` and the language has been loaded, add format definition commands to `\extras<language>` or `\captions<language>` so that language switching commands will change the cross-reference formats appropriately.

```

5406 \cref@addlanguagedefs{russian}{%
5407   \PackageInfo{cleveref}{loaded `russian' language definitions}%
5408   \renewcommand{\crefrangeconjunction}{--}%
5409   \renewcommand{\crefrangepreconjunction}{%
5410     \renewcommand{\crefrangepostconjunction}{%
5411       \renewcommand{\crefpairconjunction}{\cyri\nobreakspace}%
5412       \renewcommand{\crefmiddleconjunction}{, }%
5413       \renewcommand{\creflastconjunction}{\cyri\nobreakspace}%
5414       \renewcommand{\crefpairgroupconjunction}{\cyri\nobreakspace}%
5415       \renewcommand{\crefmiddlegroupconjunction}{, }%
5416       \renewcommand{\creflastgroupconjunction}%
5417       {, \cyra\ \cyrt\cyra\cyrk\cyrzh\cyre\nobreakspace}%
5418       %
5419       \Crefname{page}%
5420       {\CYRS\cyrt\cyrr\cyra\cyrn\cyri\cyrc\cyra}%
5421       {\CYRS\cyrt\cyrr\cyra\cyrn\cyri\cyrc\cyrery}%
5422       \Crefname{equation}%
5423       {\CYRF\cyro\cyrr\cyrm\cyru\cyrl\cyra}%
5424       {\CYRF\cyro\cyrr\cyrm\cyru\cyrl\cyrery}%
5425       \Crefname{figure}%
5426       {\CYRR\cyri\cyrs\cyru\cyrn\cyro\cyrk}%
5427       {\CYRR\cyri\cyrs\cyru\cyrn\cyrk\cyri}%
5428       \Crefname{subfigure}%
5429       {\CYRR\cyri\cyrs\cyru\cyrn\cyro\cyrk}%
5430       {\CYRR\cyri\cyrs\cyru\cyrn\cyrk\cyri}%
5431       \Crefname{table}%
5432       {\CYRT\cyra\cyrb\cyrl\cyri\cyrc\cyra}%
5433       {\CYRT\cyra\cyrb\cyrl\cyri\cyrc\cyrery}%
5434       \Crefname{subtable}%

```

```

5435     {\CYRT\cyra\cyrb\cyr1\cyri\cyrc\cyra}%
5436     {\CYRT\cyra\cyrb\cyr1\cyri\cyrc\cyrery}%
5437     \Crefname{part}%
5438     {\CYRCH\cyra\cyrs\cyrt\cyrsftsn}%
5439     {\CYRCH\cyra\cyrs\cyrt\cyri}%
5440     \Crefname{chapter}%
5441     {\CYRG\cyr1\cyra\cyrv\cyra}%
5442     {\CYRG\cyr1\cyra\cyrv\cyrery}%
5443     \Crefname{section}%
5444     {\CYRR\cyra\cyrz\cyrd\cyre\cyr1}%
5445     {\CYRR\cyra\cyrz\cyrd\cyre\cyr1\cyrery}%
5446     \Crefname{subsection}%
5447     {\CYRR\cyra\cyrz\cyrd\cyre\cyr1}%
5448     {\CYRR\cyra\cyrz\cyrd\cyre\cyr1\cyrery}%
5449     \Crefname{subsubsection}%
5450     {\CYRR\cyra\cyrz\cyrd\cyre\cyr1}%
5451     {\CYRR\cyra\cyrz\cyrd\cyre\cyr1\cyrery}%
5452     \Crefname{appendix}%
5453     {\CYRP\cyrr\cyri\cyr1\cyro\cyrrzh\cyre\cyrn\cyri\cyre}%
5454     {\CYRP\cyrr\cyri\cyr1\cyro\cyrrzh\cyre\cyrn\cyri\cyrya}%
5455     \Crefname{subappendix}%
5456     {\CYRP\cyrr\cyri\cyr1\cyro\cyrrzh\cyre\cyrn\cyri\cyre}%
5457     {\CYRP\cyrr\cyri\cyr1\cyro\cyrrzh\cyre\cyrn\cyri\cyrya}%
5458     \Crefname{subsubappendix}%
5459     {\CYRP\cyrr\cyri\cyr1\cyro\cyrrzh\cyre\cyrn\cyri\cyre}%
5460     {\CYRP\cyrr\cyri\cyr1\cyro\cyrrzh\cyre\cyrn\cyri\cyrya}%
5461     \Crefname{subsubsubappendix}%
5462     {\CYRP\cyrr\cyri\cyr1\cyro\cyrrzh\cyre\cyrn\cyri\cyre}%
5463     {\CYRP\cyrr\cyri\cyr1\cyro\cyrrzh\cyre\cyrn\cyri\cyrya}%
5464     \Crefname{enumi}%
5465     {\CYRP\cyru\cyrn\cyrk\cyrt}%
5466     {\CYRP\cyru\cyrn\cyrk\cyrt\cyrery}%
5467     \Crefname{enumii}%
5468     {\CYRP\cyru\cyrn\cyrk\cyrt}%
5469     {\CYRP\cyru\cyrn\cyrk\cyrt\cyrery}%
5470     \Crefname{enumiii}%
5471     {\CYRP\cyru\cyrn\cyrk\cyrt}%
5472     {\CYRP\cyru\cyrn\cyrk\cyrt\cyrery}%
5473     \Crefname{enumiv}%
5474     {\CYRP\cyru\cyrn\cyrk\cyrt}%
5475     {\CYRP\cyru\cyrn\cyrk\cyrt\cyrery}%
5476     \Crefname{enumv}%

```

```

5477     {\CYRP\cyru\cyrn\cyrk\cyrt}%
5478     {\CYRP\cyru\cyrn\cyrk\cyrt\cyrery}%
5479     \Crefname{footnote}%
5480     {\CYRS\cyrn\cyro\cyrs\cyrk\cyra}%
5481     {\CYRS\cyrn\cyro\cyrs\cyrk\cyri}%
5482     \Crefname{theorem}%
5483     {\CYRT\cyre\cyro\cyrr\cyre\cyrm\cyra}%
5484     {\CYRT\cyre\cyro\cyrr\cyre\cyrm\cyrery}%
5485     \Crefname{lemma}%
5486     {\CYRL\cyre\cyrm\cyrm\cyra}%
5487     {\CYRL\cyre\cyrm\cyrm\cyrery}%
5488     \Crefname{corollary}%
5489     {\CYRV\cyrery\cyrv\cyro\cyrd}%
5490     {\CYRV\cyrery\cyrv\cyro\cyrd\cyrery}%
5491     \Crefname{proposition}%
5492     {\CYRU\cyrt\cyrv\cyre\cyrr\cyrrzh\cyrd\cyre\cyrn\cyri\cyre}%
5493     {\CYRU\cyrt\cyrv\cyre\cyrr\cyrrzh\cyrd\cyre\cyrn\cyri\cyrya}%
5494     \Crefname{definition}%
5495     {\CYRO\cyrp\cyrr\cyre\cyrd\cyre\cyrl\cyre\cyrn\cyri\cyre}%
5496     {\CYRO\cyrp\cyrr\cyre\cyrd\cyre\cyrl\cyre\cyrn\cyri\cyrya}%
5497     \Crefname{result}%
5498     {\CYRR\cyre\cyrz\cyru\cyrl\cyrsftsn\cyrt\cyra\cyrt}%
5499     {\CYRR\cyre\cyrz\cyru\cyrl\cyrsftsn\cyrt\cyra\cyrt\cyrery}%
5500     \Crefname{example}%
5501     {\CYRP\cyrr\cyri\cyrm\cyre\cyrr}%
5502     {\CYRP\cyrr\cyri\cyrm\cyre\cyrr\cyrery}%
5503     \Crefname{remark}%
5504     {\CYRP\cyrr\cyri\cyrm\cyre\cyrch\cyra\cyrn\cyri\cyre}%
5505     {\CYRP\cyrr\cyri\cyrm\cyre\cyrch\cyra\cyrn\cyri\cyrya}%
5506     \Crefname{note}%
5507     {\CYRZ\cyra\cyrm\cyre\cyrt\cyrk\cyra}%
5508     {\CYRZ\cyra\cyrm\cyre\cyrt\cyrk\cyri}%
5509     \Crefname{algorithm}%
5510     {\CYRA\cyrl\cyrg\cyro\cyrr\cyri\cyrt\cyrm}%
5511     {\CYRA\cyrl\cyrg\cyro\cyrr\cyri\cyrt\cyrm\cyrery}%
5512     \Crefname{listing}%
5513     {\CYRL\cyri\cyrs\cyrt\cyri\cyrn\cyrg}%
5514     {\CYRL\cyri\cyrs\cyrt\cyri\cyrn\cyrg\cyri}%
5515     \Crefname{line}%
5516     {\CYRS\cyrt\cyrr\cyro\cyrk\cyra}%
5517     {\CYRS\cyrt\cyrr\cyro\cyrk\cyri}%
5518     %

```

```

5519 \if@cref@capitalise% capitalise set
5520 \if@cref@abbrev% abbrev set
5521 \crefname{equation}%
5522   {\CYRF-\cyr1.}%
5523   {\CYRF-\cyr1.}%
5524 \crefname{figure}%
5525   {\CYRR\cyri\cyrs.}%
5526   {\CYRR\cyri\cyrs.}%
5527 \crefname{subfigure}%
5528   {\CYRR\cyri\cyrs.}%
5529   {\CYRR\cyri\cyrs.}%
5530 \crefname{table}%
5531   {\CYRT\cyra\cyrb\cyr1.}%
5532   {\CYRT\cyra\cyrb\cyr1.}%
5533 \crefname{subtable}%
5534   {\CYRT\cyra\cyrb\cyr1.}%
5535   {\CYRT\cyra\cyrb\cyr1.}%
5536 \crefname{enumi}%
5537   {\CYRP.}%
5538   {\CYRP.\cyrp.}%
5539 \crefname{enumii}%
5540   {\CYRP.}%
5541   {\CYRP.\cyrp.}%
5542 \crefname{enumiii}%
5543   {\CYRP.}%
5544   {\CYRP.\cyrp.}%
5545 \crefname{enumiv}%
5546   {\CYRP.}%
5547   {\CYRP.\cyrp.}%
5548 \crefname{enumv}%
5549   {\CYRP.}%
5550   {\CYRP.\cyrp.}%
5551 \else% abbrev unset
5552 \crefname{equation}%
5553   {\CYRF\cyro\cyrr\cyrm\cyru\cyr1\cyra}%
5554   {\CYRF\cyro\cyrr\cyrm\cyru\cyr1\cyrery}%
5555 \crefname{figure}%
5556   {\CYRR\cyri\cyrs\cyru\cyrn\cyro\cyrk}%
5557   {\CYRR\cyri\cyrs\cyru\cyrn\cyrk\cyri}%
5558 \crefname{subfigure}%
5559   {\CYRR\cyri\cyrs\cyru\cyrn\cyro\cyrk}%
5560   {\CYRR\cyri\cyrs\cyru\cyrn\cyrk\cyri}%

```

```

5561 \crefname{table}%
5562 {\CYRT\cyra\cyrb\cyrl\cyri\cyrc\cyra}%
5563 {\CYRT\cyra\cyrb\cyrl\cyri\cyrc\cyrery}%
5564 \crefname{subtable}%
5565 {\CYRT\cyra\cyrb\cyrl\cyri\cyrc\cyra}%
5566 {\CYRT\cyra\cyrb\cyrl\cyri\cyrc\cyrery}%
5567 \crefname{enumi}%
5568 {\CYRP\cyru\cyrn\cyrk\cyrt}%
5569 {\CYRP\cyru\cyrn\cyrk\cyrt\cyrery}%
5570 \crefname{enumii}%
5571 {\CYRP\cyru\cyrn\cyrk\cyrt}%
5572 {\CYRP\cyru\cyrn\cyrk\cyrt\cyrery}%
5573 \crefname{enumiii}%
5574 {\CYRP\cyru\cyrn\cyrk\cyrt}%
5575 {\CYRP\cyru\cyrn\cyrk\cyrt\cyrery}%
5576 \crefname{enumiv}%
5577 {\CYRP\cyru\cyrn\cyrk\cyrt}%
5578 {\CYRP\cyru\cyrn\cyrk\cyrt\cyrery}%
5579 \crefname{enumv}%
5580 {\CYRP\cyru\cyrn\cyrk\cyrt}%
5581 {\CYRP\cyru\cyrn\cyrk\cyrt\cyrery}%
5582 \fi%
5583 \crefname{page}%
5584 {\CYRS\cyrt\cyrr\cyra\cyrn\cyri\cyrc\cyra}%
5585 {\CYRS\cyrt\cyrr\cyra\cyrn\cyri\cyrc\cyrery}%
5586 \crefname{part}%
5587 {\CYRCH\cyra\cyrs\cyrt\cyrsftsn}%
5588 {\CYRCH\cyra\cyrs\cyrt\cyri}%
5589 \crefname{chapter}%
5590 {\CYRG\cyrl\cyra\cyrv\cyra}%
5591 {\CYRG\cyrl\cyra\cyrv\cyrery}%
5592 \crefname{section}%
5593 {\CYRR\cyra\cyrz\cyrd\cyre\cyrl}%
5594 {\CYRR\cyra\cyrz\cyrd\cyre\cyrl\cyrery}%
5595 \crefname{subsection}%
5596 {\CYRR\cyra\cyrz\cyrd\cyre\cyrl}%
5597 {\CYRR\cyra\cyrz\cyrd\cyre\cyrl\cyrery}%
5598 \crefname{subsubsection}%
5599 {\CYRR\cyra\cyrz\cyrd\cyre\cyrl}%
5600 {\CYRR\cyra\cyrz\cyrd\cyre\cyrl\cyrery}%
5601 \crefname{appendix}%
5602 {\CYRP\cyrr\cyri\cyrl\cyro\cyrzh\cyre\cyrn\cyri\cyre}%

```

```

5603      {\CYRP\cyrr\cyri\cyrl\cyro\cyrrzh\cyre\cyrn\cyri\cyrya}%
5604      \crefname{subappendix}%
5605      {\CYRP\cyrr\cyri\cyrl\cyro\cyrrzh\cyre\cyrn\cyri\cyre}%
5606      {\CYRP\cyrr\cyri\cyrl\cyro\cyrrzh\cyre\cyrn\cyri\cyrya}%
5607      \crefname{subsubappendix}%
5608      {\CYRP\cyrr\cyri\cyrl\cyro\cyrrzh\cyre\cyrn\cyri\cyre}%
5609      {\CYRP\cyrr\cyri\cyrl\cyro\cyrrzh\cyre\cyrn\cyri\cyrya}%
5610      \crefname{subsubsubappendix}%
5611      {\CYRP\cyrr\cyri\cyrl\cyro\cyrrzh\cyre\cyrn\cyri\cyre}%
5612      {\CYRP\cyrr\cyri\cyrl\cyro\cyrrzh\cyre\cyrn\cyri\cyrya}%
5613      \crefname{footnote}%
5614      {\CYRS\cyrn\cyro\cyrs\cyrk\cyra}%
5615      {\CYRS\cyrn\cyro\cyrs\cyrk\cyri}%
5616      \crefname{theorem}%
5617      {\CYRT\cyre\cyro\cyrr\cyre\cyrm\cyra}%
5618      {\CYRT\cyre\cyro\cyrr\cyre\cyrm\cyrery}%
5619      \crefname{lemma}%
5620      {\CYRL\cyre\cyrm\cyrm\cyra}%
5621      {\CYRL\cyre\cyrm\cyrm\cyrery}%
5622      \crefname{corollary}%
5623      {\CYRV\cyrery\cyrv\cyro\cyrd}%
5624      {\CYRV\cyrery\cyrv\cyro\cyrd\cyrery}%
5625      \crefname{proposition}%
5626      {\CYRU\cyrt\cyrv\cyre\cyrr\cyrrzh\cyrd\cyre\cyrn\cyri\cyre}%
5627      {\CYRU\cyrt\cyrv\cyre\cyrr\cyrrzh\cyrd\cyre\cyrn\cyri\cyrya}%
5628      \crefname{definition}%
5629      {\CYRO\cyrp\cyrr\cyre\cyrd\cyre\cyrl\cyre\cyrn\cyri\cyre}%
5630      {\CYRO\cyrp\cyrr\cyre\cyrd\cyre\cyrl\cyre\cyrn\cyri\cyrya}%
5631      \crefname{result}%
5632      {\CYRR\cyre\cyrz\cyru\cyrl\cyrsftsn\cyrt\cyra\cyrt}%
5633      {\CYRR\cyre\cyrz\cyru\cyrl\cyrsftsn\cyrt\cyra\cyrt\cyrery}%
5634      \crefname{example}%
5635      {\CYRP\cyrr\cyri\cyrm\cyre\cyrr}%
5636      {\CYRP\cyrr\cyri\cyrm\cyre\cyrr\cyrery}%
5637      \crefname{remark}%
5638      {\CYRP\cyrr\cyri\cyrm\cyre\cyrch\cyra\cyrn\cyri\cyre}%
5639      {\CYRP\cyrr\cyri\cyrm\cyre\cyrch\cyra\cyrn\cyri\cyrya}%
5640      \crefname{note}%
5641      {\CYRZ\cyra\cyrm\cyre\cyrt\cyrk\cyra}%
5642      {\CYRZ\cyra\cyrm\cyre\cyrt\cyrk\cyri}%
5643      \crefname{algorithm}%
5644      {\CYRA\cyrl\cyrg\cyro\cyrr\cyri\cyrt\cyrm}%

```

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5645     {\CYRA\cyrl\cyrg\cyro\cyrr\cyri\cyrt\cym\cyrery}%
5646 \crefname{listing}%
5647     {\CYRL\cyri\cyrs\cyrt\cyri\cym\cyrg}%
5648     {\CYRL\cyri\cyrs\cyrt\cyri\cym\cyrg\cyri}%
5649 \crefname{line}%
5650     {\CYRS\cyrt\cyrr\cyro\cyrk\cyra}%
5651     {\CYRS\cyrt\cyrr\cyro\cyrk\cyri}%
5652 %
5653 \else% capitalise unset
5654 \if@ceref@abbrev% abbrev set
5655 \crefname{equation}%
5656     {\cyrf-\cyrl.}%
5657     {\cyrf-\cyrl.}%
5658 \crefname{chapter}%
5659     {\cyrg\cyrl\cyra\cyrv.}%
5660     {\cyrg\cyrl\cyra\cyrv.}%
5661 \crefname{section}%
5662     {\cyrr\cyra\cyrz\cyrd.}%
5663     {\cyrr\cyra\cyrz\cyrd\cyre\cyrl.}%
5664 \crefname{subsection}%
5665     {\cyrr\cyra\cyrz\cyrd.}%
5666     {\cyrr\cyra\cyrz\cyrd\cyre\cyrl.}%
5667 \crefname{subsubsection}%
5668     {\cyrr\cyra\cyrz\cyrd.}%
5669     {\cyrr\cyra\cyrz\cyrd\cyre\cyrl.}%
5670 \crefname{appendix}%
5671     {\cyrp\cyrr\cyri\cyrl\cyro\cyrzh.}%
5672     {\cyrp\cyrr\cyri\cyrl\cyro\cyrzh.}%
5673 \crefname{subappendix}%
5674     {\cyrp\cyrr\cyri\cyrl\cyro\cyrzh.}%
5675     {\cyrp\cyrr\cyri\cyrl\cyro\cyrzh.}%
5676 \crefname{subsubappendix}%
5677     {\cyrp\cyrr\cyri\cyrl\cyro\cyrzh.}%
5678     {\cyrp\cyrr\cyri\cyrl\cyro\cyrzh.}%
5679 \crefname{subsubsubappendix}%
5680     {\cyrp\cyrr\cyri\cyrl\cyro\cyrzh.}%
5681     {\cyrp\cyrr\cyri\cyrl\cyro\cyrzh.}%
5682 \crefname{enumi}%
5683     {\cyrp.}%
5684     {\cyrp.\cyrp.}%
5685 \crefname{enumii}%
5686     {\cyrp.}%

```



```

5687      {\cyrp.\cyrp.}%
5688      \crefname{enumiii}%
5689      {\cyrp.}%
5690      {\cyrp.\cyrp.}%
5691      \crefname{enumiv}%
5692      {\cyrp.}%
5693      {\cyrp.\cyrp.}%
5694      \crefname{enumv}%
5695      {\cyrp.}%
5696      {\cyrp.\cyrp.}%
5697      \crefname{footnote}%
5698      {\cyrp\cyrn\cyro\cyrp\cyrk.}%
5699      {\cyrp\cyrn\cyro\cyrp\cyrk.}%
5700      \crefname{figure}%
5701      {\cyrp\cyrn\cyrp.}%
5702      {\cyrp\cyrn\cyrp.}%
5703      \crefname{subfigure}%
5704      {\cyrp\cyrn\cyrp.}%
5705      {\cyrp\cyrn\cyrp.}%
5706      \crefname{table}%
5707      {\cyrp\cyrn\cyrp\cyrk.}%
5708      {\cyrp\cyrn\cyrp\cyrk.}%
5709      \crefname{subtable}%
5710      {\cyrp\cyrn\cyrp\cyrk.}%
5711      {\cyrp\cyrn\cyrp\cyrk.}%
5712      \crefname{theorem}%
5713      {\cyrp\cyrn\cyro\cyrp\cyrp\cyrp.}%
5714      {\cyrp\cyrn\cyro\cyrp\cyrp\cyrp.}%
5715      \crefname{lemma}%
5716      {\cyrp\cyrn\cyrp\cyrp.}%
5717      {\cyrp\cyrn\cyrp\cyrp.}%
5718      \crefname{corollary}%
5719      {\cyrp\cyrn\cyrp\cyro\cyrp}%
5720      {\cyrp\cyrn\cyrp\cyro\cyrp.}%
5721      \crefname{proposition}%
5722      {\cyrp\cyrn\cyrp\cyrp\cyrp\cyrp\cyrp.}%
5723      {\cyrp\cyrn\cyrp\cyrp\cyrp\cyrp\cyrp.}%
5724      \crefname{definition}%
5725      {\cyrp\cyrp\cyrp\cyrp\cyrp\cyrp\cyrp\cyrp.}%
5726      {\cyrp\cyrp\cyrp\cyrp\cyrp\cyrp\cyrp\cyrp.}%
5727      \crefname{result}%
5728      {\cyrp\cyrp\cyrp\cyrp\cyrp\cyrp\cyrp\cyrp.}%

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5729      {\cyrr\cyre\cyrz\cyru\cyrl\cyrsftsn\cyrt.}%
5730      \crefname{example}%
5731      {\cyrp\cyrr\cyri\cyrm.}%
5732      {\cyrp\cyrr\cyri\cyrm\cyre\cyrr.}%
5733      \crefname{remark}%
5734      {\cyrp\cyrr\cyri\cyrm\cyre\cyrch.}%
5735      {\cyrp\cyrr\cyri\cyrm\cyre\cyrch.}%
5736      \crefname{note}%
5737      {\cyrz\cyra\cyrm\cyre\cyrt\cyrk.}%
5738      {\cyrz\cyra\cyrm\cyre\cyrt\cyrk.}%
5739      \crefname{algorithm}%
5740      {\cyra\cyrl\cyrg.}%
5741      {\cyra\cyrl\cyrg.}%
5742      \crefname{listing}%
5743      {\cyrl\cyri\cyrs\cyrt\cyri\cyrn.}%
5744      {\cyrl\cyri\cyrs\cyrt\cyri\cyrn\cyrg.}%
5745      \crefname{line}%
5746      {\cyrs\cyrt\cyrr\cyrk.}%
5747      {\cyrs\cyrt\cyrr\cyrk.}%
5748      \else%   abbrev unset
5749      \crefname{equation}%
5750      {\cyrf\cyro\cyrr\cyrm\cyru\cyrl\cyra}%
5751      {\cyrf\cyro\cyrr\cyrm\cyru\cyrl\cyrery}%
5752      \crefname{figure}%
5753      {\cyrr\cyri\cyrs\cyru\cyrn\cyro\cyrk}%
5754      {\cyrr\cyri\cyrs\cyru\cyrn\cyrk\cyri}%
5755      \crefname{subfigure}%
5756      {\cyrr\cyri\cyrs\cyru\cyrn\cyro\cyrk}%
5757      {\cyrr\cyri\cyrs\cyru\cyrn\cyrk\cyri}%
5758      \crefname{table}%
5759      {\cyrt\cyra\cyrb\cyrl\cyri\cyrc\cyra}%
5760      {\cyrt\cyra\cyrb\cyrl\cyri\cyrc\cyrery}%
5761      \crefname{subtable}%
5762      {\cyrt\cyra\cyrb\cyrl\cyri\cyrc\cyra}%
5763      {\cyrt\cyra\cyrb\cyrl\cyri\cyrc\cyrery}%
5764      \crefname{enumi}%
5765      {\cyrp\cyru\cyrn\cyrk\cyrt}%
5766      {\cyrp\cyru\cyrn\cyrk\cyrt\cyrery}%
5767      \crefname{enumii}%
5768      {\cyrp\cyru\cyrn\cyrk\cyrt}%
5769      {\cyrp\cyru\cyrn\cyrk\cyrt\cyrery}%
5770      \crefname{enumiii}%

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5771      {\cyrp\cyru\cyrn\cyrk\cyrt}%
5772      {\cyrp\cyru\cyrn\cyrk\cyrt\cyrery}%
5773      \crefname{enumiv}%
5774      {\cyrp\cyru\cyrn\cyrk\cyrt}%
5775      {\cyrp\cyru\cyrn\cyrk\cyrt\cyrery}%
5776      \crefname{enumv}%
5777      {\cyrp\cyru\cyrn\cyrk\cyrt}%
5778      {\cyrp\cyru\cyrn\cyrk\cyrt\cyrery}%
5779      \crefname{chapter}%
5780      {\cyrg\cyrl\cyra\cyrv\cyra}%
5781      {\cyrg\cyrl\cyra\cyrv\cyrery}%
5782      \crefname{section}%
5783      {\cyrr\cyra\cyrz\cyrd\cyre\cyrl}%
5784      {\cyrr\cyra\cyrz\cyrd\cyre\cyrl\cyrery}%
5785      \crefname{subsection}%
5786      {\cyrr\cyra\cyrz\cyrd\cyre\cyrl}%
5787      {\cyrr\cyra\cyrz\cyrd\cyre\cyrl\cyrery}%
5788      \crefname{subsubsection}%
5789      {\cyrr\cyra\cyrz\cyrd\cyre\cyrl}%
5790      {\cyrr\cyra\cyrz\cyrd\cyre\cyrl\cyrery}%
5791      \crefname{appendix}%
5792      {\cyrp\cyrr\cyri\cyrl\cyro\cyrz\cyre\cyrn\cyri\cyre}%
5793      {\cyrp\cyrr\cyri\cyrl\cyro\cyrz\cyre\cyrn\cyri\cyrya}%
5794      \crefname{subappendix}%
5795      {\cyrp\cyrr\cyri\cyrl\cyro\cyrz\cyre\cyrn\cyri\cyre}%
5796      {\cyrp\cyrr\cyri\cyrl\cyro\cyrz\cyre\cyrn\cyri\cyrya}%
5797      \crefname{subsubappendix}%
5798      {\cyrp\cyrr\cyri\cyrl\cyro\cyrz\cyre\cyrn\cyri\cyre}%
5799      {\cyrp\cyrr\cyri\cyrl\cyro\cyrz\cyre\cyrn\cyri\cyrya}%
5800      \crefname{subsubsubappendix}%
5801      {\cyrp\cyrr\cyri\cyrl\cyro\cyrz\cyre\cyrn\cyri\cyre}%
5802      {\cyrp\cyrr\cyri\cyrl\cyro\cyrz\cyre\cyrn\cyri\cyrya}%
5803      \crefname{footnote}%
5804      {\cyrs\cyrn\cyro\cyrs\cyrk\cyra}%
5805      {\cyrs\cyrn\cyro\cyrs\cyrk\cyri}%
5806      \crefname{theorem}%
5807      {\cyrt\cyre\cyro\cyrr\cyre\cyrm\cyra}%
5808      {\cyrt\cyre\cyro\cyrr\cyre\cyrm\cyrery}%
5809      \crefname{lemma}%
5810      {\cyrl\cyre\cyrm\cyrm\cyra}%
5811      {\cyrl\cyre\cyrm\cyrm\cyrery}%
5812      \crefname{corollary}%

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5813     {\cyrv\cyrery\cyrv\cyro\cyrd}%
5814     {\cyrv\cyrery\cyrv\cyro\cyrd\cyrery}%
5815     \crefname{proposition}%
5816     {\cyru\cyrt\cyrv\cyre\cyrr\cyrz\cyrd\cyre\cyrn\cyri\cyre}%
5817     {\cyru\cyrt\cyrv\cyre\cyrr\cyrz\cyrd\cyre\cyrn\cyri\cyrya}%
5818     \crefname{definition}%
5819     {\cyro\cyrp\cyrr\cyre\cyrd\cyre\cyrl\cyre\cyrn\cyri\cyre}%
5820     {\cyro\cyrp\cyrr\cyre\cyrd\cyre\cyrl\cyre\cyrn\cyri\cyrya}%
5821     \crefname{result}%
5822     {\cyrr\cyre\cyrz\cyru\cyrl\cyrsftsn\cyrt\cyra\cyrt}%
5823     {\cyrr\cyre\cyrz\cyru\cyrl\cyrsftsn\cyrt\cyra\cyrt\cyrery}%
5824     \crefname{example}%
5825     {\cyrp\cyrr\cyri\cyrn\cyre\cyrr}%
5826     {\cyrp\cyrr\cyri\cyrn\cyre\cyrr\cyrery}%
5827     \crefname{remark}%
5828     {\cyrp\cyrr\cyri\cyrn\cyre\cyrch\cyra\cyrn\cyri\cyre}%
5829     {\cyrp\cyrr\cyri\cyrn\cyre\cyrch\cyra\cyrn\cyri\cyrya}%
5830     \crefname{note}%
5831     {\cyrz\cyra\cyrn\cyre\cyrt\cyrk\cyra}%
5832     {\cyrz\cyra\cyrn\cyre\cyrt\cyrk\cyri}%
5833     \crefname{algorithm}%
5834     {\cyra\cyrl\cyrg\cyro\cyrr\cyri\cyrt\cyrn}%
5835     {\cyra\cyrl\cyrg\cyro\cyrr\cyri\cyrt\cyrn\cyrery}%
5836     \crefname{listing}%
5837     {\cyrl\cyri\cyrs\cyrt\cyri\cyrn\cyrg}%
5838     {\cyrl\cyri\cyrs\cyrt\cyri\cyrn\cyrg\cyri}%
5839     \crefname{line}%
5840     {\cyrs\cyrt\cyrr\cyro\cyrk\cyra}%
5841     {\cyrs\cyrt\cyrr\cyro\cyrk\cyri}%
5842     \fi%
5843     \crefname{page}%
5844     {\cyrs\cyrt\cyrr\cyra\cyrn\cyri\cyrc\cyre}%
5845     {\cyrs\cyrt\cyrr\cyra\cyrn\cyri\cyrc\cyra\cyrh}%
5846     \crefname{part}%
5847     {\cyrch\cyra\cyrs\cyrt\cyrsftsn}%
5848     {\cyrch\cyra\cyrs\cyrt\cyri}%
5849     \fi}% end \cref@loadlanguagedefs

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16.12.8 Ukrainian

ukrainian Ukrainian translations courtesy of Aleksander Gorohovski.

Set up the definitions used at the beginning of the document to define the formats created by the document preamble.

```

5850 \DeclareOption{ukrainian}{%
5851   \AtBeginDocument{%
5852     \def\crefrangeconjunction@preamble{--}%
5853     \def\crefrangepreconjunction@preamble{}%
5854     \def\crefrangepostconjunction@preamble{}%
5855     \def\crefpairconjunction@preamble{ \cyrii\nobreakspace}%
5856     \def\crefmiddleconjunction@preamble{, }%
5857     \def\creflastconjunction@preamble{ \cyrii\nobreakspace}%

```

We have to define the group conjunctions explicitly here, rather than relying on fall-back definitions in terms of the above conjunctions (see Section 16.13), in case any other language option defines them explicitly and we need to override those.

```

5858   \def\crefpairgroupconjunction@preamble{ \cyrt\cyra\nobreakspace}%
5859   \def\crefmiddlegroupconjunction@preamble{, }%
5860   \def\creflastgroupconjunction@preamble%
5861     {, \cyra\ \cyrt\cyra\cyrk\cyro\cyrrzh\nobreakspace}%
5862 %
5863   \Crefname@preamble{equation}%
5864     {\CYRF\cyro\cyrr\cyrm\cyru\cyrl\cyra}%
5865     {\CYRF\cyro\cyrr\cyrm\cyru\cyrl\cyri}%
5866   \Crefname@preamble{figure}%
5867     {\CYRR\cyri\cyrs\cyru\cyrn\cyro\cyrk}%
5868     {\CYRR\cyri\cyrs\cyru\cyrn\cyrk\cyri}%
5869   \Crefname@preamble{table}%
5870     {\CYRT\cyra\cyrb\cyrl\cyri\cyrc\cyrya}%
5871     {\CYRT\cyra\cyrb\cyrl\cyri\cyrc\cyrii}%
5872   \Crefname@preamble{enumi}%
5873     {\CYRP\cyru\cyrn\cyrk\cyrt}%
5874     {\CYRP\cyru\cyrn\cyrk\cyrt\cyri}%
5875   \Crefname@preamble{chapter}%
5876     {\CYRG\cyrl\cyra\cyrv\cyra}%
5877     {\CYRG\cyrl\cyra\cyrv\cyri}%
5878   \Crefname@preamble{section}%
5879     {\CYRR\cyro\cyrz\cyrd\cyrii\cyrl}%
5880     {\CYRR\cyro\cyrz\cyrd\cyrii\cyrl\cyri}%
5881   \Crefname@preamble{appendix}%
5882     {\CYRD\cyro\cyrd\cyra\cyrt\cyro\cyrk}%

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5883      {\CYRD\cyro\cyrd\cyra\cyrt\cyrk\cyri}%
5884      \Crefname@preamble{footnote}%
5885      {\CYRV\cyri\cyrn\cyro\cyrk\cyra}%
5886      {\CYRV\cyri\cyrn\cyro\cyrk\cyri}%
5887      \Crefname@preamble{theorem}%
5888      {\CYRT\cyre\cyro\cyrr\cyre\cyrn\cyra}%
5889      {\CYRT\cyre\cyro\cyrr\cyre\cyrn\cyri}%
5890      \Crefname@preamble{lemma}%
5891      {\CYRL\cyre\cyrn\cyrn\cyra}%
5892      {\CYRL\cyre\cyrn\cyrn\cyri}%
5893      \Crefname@preamble{corollary}%
5894      {\CYRV\cyri\cyrn\cyro\cyrv\cyro\cyrk}%
5895      {\CYRV\cyri\cyrn\cyro\cyrv\cyrk\cyri}%
5896      \Crefname@preamble{proposition}%
5897      {\CYRT\cyrv\cyre\cyrr\cyrd\cyrz\cyre\cyrn\cyrn\cyrya}%
5898      {\CYRT\cyrv\cyre\cyrr\cyrd\cyrz\cyre\cyrn\cyrn\cyrya}%
5899      \Crefname@preamble{definition}%
5900      {\CYRV\cyri\cyrz\cyrn\cyra\cyrch\cyre\cyrn\cyrn\cyrya}%
5901      {\CYRV\cyri\cyrz\cyrn\cyra\cyrch\cyre\cyrn\cyrn\cyrya}%
5902      \Crefname@preamble{result}%
5903      {\CYRR\cyre\cyrz\cyru\cyrl\cyrn\cyrt\cyra\cyrt}%
5904      {\CYRR\cyre\cyrz\cyru\cyrl\cyrn\cyrt\cyra\cyrt\cyri}%
5905      \Crefname@preamble{example}%
5906      {\CYRP\cyrr\cyri\cyrk\cyrl\cyra\cyrd}%
5907      {\CYRP\cyrr\cyri\cyrk\cyrl\cyra\cyrd\cyri}%
5908      \Crefname@preamble{remark}%
5909      {\CYRP\cyrr\cyri\cyrn\cyrii\cyrt\cyrk\cyra}%
5910      {\CYRP\cyrr\cyri\cyrn\cyrii\cyrt\cyrk\cyri}%
5911      \Crefname@preamble{note}%
5912      {\CYRZ\cyra\cyrn\cyrii\cyrt\cyrk\cyra}%
5913      {\CYRZ\cyra\cyrn\cyrii\cyrt\cyrk\cyri}%
5914      \Crefname@preamble{algorithm}%
5915      {\CYRA\cyrl\cyrg\cyro\cyrr\cyri\cyrt\cyrn}%
5916      {\CYRA\cyrl\cyrg\cyro\cyrr\cyri\cyrt\cyrn\cyri}%
5917      \Crefname@preamble{listing}%
5918      {\CYRL\cyrii\cyrn\cyrt\cyri\cyrn\cyrg}%
5919      {\CYRL\cyrii\cyrn\cyrt\cyri\cyrn\cyrg\cyri}%
5920      \Crefname@preamble{line}%
5921      {\CYRS\cyrt\cyrr\cyro\cyrk\cyra}%
5922      {\CYRS\cyrt\cyrr\cyro\cyrk\cyri}%
5923      \Crefname@preamble{page}%
5924      {\CYRS\cyrt\cyro\cyrr\cyri\cyrn\cyrk\cyra}%

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5925      {\CYRS\cyrt\cyro\cyrr\cyrii\cyrn\cyrk\cyri}%
5926      \Crefname@preamble{part}%
5927      {\CYRCH\cyra\cyrs\cyrt\cyri\cyrn\cyra}%
5928      {\CYRCH\cyra\cyrs\cyrt\cyri\cyrn\cyri}%
5929      %
5930      \if@cref@capitalise%   capitalise set
5931      \if@cref@abbrev%     abbrev set
5932      \crefname@preamble{equation}%
5933      {\CYRF-\cyrl.}%
5934      {\CYRF-\cyrl.}%
5935      \crefname@preamble{figure}%
5936      {\CYRR\cyri\cyrs.}%
5937      {\CYRR\cyri\cyrs.}%
5938      \crefname@preamble{table}%
5939      {\CYRT\cyra\cyrb\cyrl.}%
5940      {\CYRT\cyra\cyrb\cyrl.}%
5941      \crefname@preamble{enumi}%
5942      {\CYRP.}%
5943      {\CYRP.\cyrp.}%
5944      \else%
5945      \crefname@preamble{equation}%
5946      {\CYRF\cyro\cyrr\cyrm\cyru\cyrl\cyra}%
5947      {\CYRF\cyro\cyrr\cyrm\cyru\cyrl\cyri}%
5948      \crefname@preamble{figure}%
5949      {\CYRR\cyri\cyrs\cyru\cyrn\cyro\cyrk}%
5950      {\CYRR\cyri\cyrs\cyru\cyrn\cyrk\cyri}%
5951      \crefname@preamble{table}%
5952      {\CYRT\cyra\cyrb\cyrl\cyri\cyrc\cyrya}%
5953      {\CYRT\cyra\cyrb\cyrl\cyri\cyrc\cyrii}%
5954      \crefname@preamble{enumi}%
5955      {\CYRP\cyru\cyrn\cyrk\cyrt}%
5956      {\CYRP\cyru\cyrn\cyrk\cyrt\cyri}%
5957      \fi%
5958      \crefname@preamble{chapter}%
5959      {\CYRG\cyrl\cyra\cyrv\cyra}%
5960      {\CYRG\cyrl\cyra\cyrv\cyri}%
5961      \crefname@preamble{section}%
5962      {\CYRR\cyro\cyrz\cyrd\cyrii\cyrl}%
5963      {\CYRR\cyro\cyrz\cyrd\cyrii\cyrl\cyri}%
5964      \crefname@preamble{appendix}%
5965      {\CYRD\cyro\cyrd\cyra\cyrt\cyro\cyrk}%
5966      {\CYRD\cyro\cyrd\cyra\cyrt\cyrk\cyri}%

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5967 \crefname@preamble{footnote}%
5968 {\CYRV\cyri\cyrn\cyro\cyrs\cyrk\cyra}%
5969 {\CYRV\cyri\cyrn\cyro\cyrs\cyrk\cyri}%
5970 \crefname@preamble{theorem}%
5971 {\CYRT\cyre\cyro\cyrr\cyre\cyrm\cyra}%
5972 {\CYRT\cyre\cyro\cyrr\cyre\cyrm\cyri}%
5973 \crefname@preamble{lemma}%
5974 {\CYRL\cyre\cyrm\cyrm\cyra}%
5975 {\CYRL\cyre\cyrm\cyrm\cyri}%
5976 \crefname@preamble{corollary}%
5977 {\CYRV\cyri\cyrs\cyrn\cyro\cyrv\cyro\cyrk}%
5978 {\CYRV\cyri\cyrs\cyrn\cyro\cyrv\cyrk\cyri}%
5979 \crefname@preamble{proposition}%
5980 {\CYRT\cyrv\cyre\cyrr\cyrd\cyrz\cyre\cyrn\cyrn\cyrya}%
5981 {\CYRT\cyrv\cyre\cyrr\cyrd\cyrz\cyre\cyrn\cyrn\cyrya}%
5982 \crefname@preamble{definition}%
5983 {\CYRV\cyri\cyrz\cyrn\cyra\cyrch\cyre\cyrn\cyrn\cyrya}%
5984 {\CYRV\cyri\cyrz\cyrn\cyra\cyrch\cyre\cyrn\cyrn\cyrya}%
5985 \crefname@preamble{result}%
5986 {\CYRR\cyre\cyrz\cyru\cyrl\cyrsftsn\cyrt\cyra\cyrt}%
5987 {\CYRR\cyre\cyrz\cyru\cyrl\cyrsftsn\cyrt\cyra\cyrt\cyri}%
5988 \crefname@preamble{example}%
5989 {\CYRP\cyrr\cyri\cyrk\cyrl\cyra\cyrd}%
5990 {\CYRP\cyrr\cyri\cyrk\cyrl\cyra\cyrd\cyri}%
5991 \crefname@preamble{remark}%
5992 {\CYRP\cyrr\cyri\cyrm\cyrii\cyrt\cyrk\cyra}%
5993 {\CYRP\cyrr\cyri\cyrm\cyrii\cyrt\cyrk\cyri}%
5994 \crefname@preamble{note}%
5995 {\CYRZ\cyra\cyrm\cyrii\cyrt\cyrk\cyra}%
5996 {\CYRZ\cyra\cyrm\cyrii\cyrt\cyrk\cyri}%
5997 \crefname@preamble{algorithm}%
5998 {\CYRA\cyrl\cyrg\cyro\cyrr\cyri\cyrt\cyrm}%
5999 {\CYRA\cyrl\cyrg\cyro\cyrr\cyri\cyrt\cyrm\cyri}%
6000 \crefname@preamble{listing}%
6001 {\CYRL\cyrii\cyrs\cyrt\cyri\cyrn\cyrg}%
6002 {\CYRL\cyrii\cyrs\cyrt\cyri\cyrn\cyrg\cyri}%
6003 \crefname@preamble{line}%
6004 {\CYRS\cyrt\cyrr\cyro\cyrk\cyra}%
6005 {\CYRS\cyrt\cyrr\cyro\cyrk\cyri}%
6006 \crefname@preamble{page}%
6007 {\CYRS\cyrt\cyro\cyrr\cyri\cyrn\cyrk\cyra}%
6008 {\CYRS\cyrt\cyro\cyrr\cyrii\cyrn\cyrk\cyri}%

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6009     \crefname@preamble{part}%
6010         {\CYRCH\cyra\cyrs\cyrt\cyri\cyrn\cyra}%
6011         {\CYRCH\cyra\cyrs\cyrt\cyri\cyrn\cyri}%
6012 %
6013 \else%   capitalise unset
6014     \if@cref@abbrev%   abbrev set
6015         \crefname@preamble{equation}%
6016             {\cyrf-\cyrl.}%
6017             {\cyrf-\cyrl.}%
6018         \crefname@preamble{figure}%
6019             {\cyrr\cyri\cyrs.}%
6020             {\cyrr\cyri\cyrs.}%
6021         \crefname@preamble{table}%
6022             {\cyrt\cyra\cyrb\cyrl.}%
6023             {\cyrt\cyra\cyrb\cyrl.}%
6024         \crefname@preamble{enumi}%
6025             {\cyrp.}%
6026             {\cyrp.\cyrp.}%
6027         \crefname@preamble{chapter}%
6028             {\cyrg\cyrl\cyra\cyrv.}%
6029             {\cyrg\cyrl\cyra\cyrv.}%
6030         \crefname@preamble{section}%
6031             {\cyrr\cyro\cyrz\cyrd.}%
6032             {\cyrr\cyro\cyrz\cyrd\cyrii\cyrl.}%
6033         \crefname@preamble{appendix}%
6034             {\cyrd\cyro\cyrd\cyra\cyrt.}%
6035             {\cyrd\cyro\cyrd\cyra\cyrt\cyrk.}%
6036         \crefname@preamble{footnote}%
6037             {\cyrv\cyri\cyrn\cyro\cyrs\cyrk.}%
6038             {\cyrv\cyri\cyrn\cyro\cyrs\cyrk.}%
6039         \crefname@preamble{theorem}%
6040             {\cyrt\cyre\cyro\cyrr\cyre\cyrm.}%
6041             {\cyrt\cyre\cyro\cyrr\cyre\cyrm.}%
6042         \crefname@preamble{lemma}%
6043             {\cyrl\cyre\cyrm\cyrm.}%
6044             {\cyrl\cyre\cyrm\cyrm.}%
6045         \crefname@preamble{corollary}%
6046             {\cyrv\cyri\cyrs\cyrn\cyro\cyrv.}%
6047             {\cyrv\cyri\cyrs\cyrn\cyro\cyrv\cyrk.}%
6048         \crefname@preamble{proposition}%
6049             {\cyrt\cyrv\cyre\cyrr\cyrd\cyrzh\cyre\cyrn\cyrn.}%
6050             {\cyrt\cyrv\cyre\cyrr\cyrd\cyrzh\cyre\cyrn\cyrn.}%

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6051 \crefname@preamble{definition}%
6052 {\cyrv\cyri\cyrz\cyrn\cyra\cyrch\cyre\cyrn\cyrn.}%
6053 {\cyrv\cyri\cyrz\cyrn\cyra\cyrch\cyre\cyrn\cyrn.}%
6054 \crefname@preamble{result}%
6055 {\cyrr\cyre\cyrz\cyru\cyrl\cyrsftsn\cyrt.}%
6056 {\cyrr\cyre\cyrz\cyru\cyrl\cyrsftsn\cyrt\cyra\cyrt.}%
6057 \crefname@preamble{example}%
6058 {\cyrp\cyrr\cyri\cyrk\cyrl.}%
6059 {\cyrp\cyrr\cyri\cyrk\cyrl\cyra\cyrd.}%
6060 \crefname@preamble{remark}%
6061 {\cyrp\cyrr\cyri\cyrm\cyrii\cyrt.}%
6062 {\cyrp\cyrr\cyri\cyrm\cyrii\cyrt.}%
6063 \crefname@preamble{note}%
6064 {\cyrz\cyra\cyrm\cyrii\cyrt.}%
6065 {\cyrz\cyra\cyrm\cyrii\cyrt.}%
6066 \crefname@preamble{algorithm}%
6067 {\cyra\cyrl\cyrg.}%
6068 {\cyra\cyrl\cyrg.}%
6069 \crefname@preamble{listing}%
6070 {\cyrl\cyrii\cyrs\cyrt\cyri\cyrn.}%
6071 {\cyrl\cyrii\cyrs\cyrt\cyri\cyrn\cyrg.}%
6072 \crefname@preamble{line}%
6073 {\cyrs\cyrt\cyrr\cyrk.}%
6074 {\cyrs\cyrt\cyrr\cyrk.}%
6075 \else% abbrev unset
6076 \crefname@preamble{equation}%
6077 {\cyrf\cyro\cyrr\cyrm\cyru\cyrl\cyra}%
6078 {\cyrf\cyro\cyrr\cyrm\cyru\cyrl\cyri}%
6079 \crefname@preamble{figure}%
6080 {\cyrr\cyri\cyrs\cyru\cyrn\cyro\cyrk}%
6081 {\cyrr\cyri\cyrs\cyru\cyrn\cyrk\cyri}%
6082 \crefname@preamble{table}%
6083 {\cyrt\cyra\cyrb\cyrl\cyri\cyrc\cyrya}%
6084 {\cyrt\cyra\cyrb\cyrl\cyri\cyrc\cyrii}%
6085 \crefname@preamble{enumi}%
6086 {\cyrp\cyru\cyrn\cyrk\cyrt}%
6087 {\cyrp\cyru\cyrn\cyrk\cyrt\cyri}%
6088 \crefname@preamble{chapter}%
6089 {\cyrg\cyrl\cyra\cyrv\cyra}%
6090 {\cyrg\cyrl\cyra\cyrv\cyri}%
6091 \crefname@preamble{section}%
6092 {\cyrr\cyro\cyrz\cyrd\cyrii\cyrl}%

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6093      {\cyrr\cyro\cyrz\cyrd\cyrii\cyrl\cyri}%
6094      \crefname@preamble{appendix}%
6095      {\cyrd\cyro\cyrd\cyra\cyrt\cyro\cyrk}%
6096      {\cyrd\cyro\cyrd\cyra\cyrt\cyrk\cyri}%
6097      \crefname@preamble{footnote}%
6098      {\cyrv\cyri\cyrn\cyro\cyrs\cyrk\cyra}%
6099      {\cyrv\cyri\cyrn\cyro\cyrs\cyrk\cyri}%
6100      \crefname@preamble{theorem}%
6101      {\cyrt\cyre\cyro\cyrr\cyre\cyrn\cyra}%
6102      {\cyrt\cyre\cyro\cyrr\cyre\cyrn\cyri}%
6103      \crefname@preamble{lemma}%
6104      {\cyrl\cyre\cyrn\cyrn\cyra}%
6105      {\cyrl\cyre\cyrn\cyrn\cyri}%
6106      \crefname@preamble{corollary}%
6107      {\cyrv\cyri\cyrs\cyrn\cyro\cyrv\cyro\cyrk}%
6108      {\cyrv\cyri\cyrs\cyrn\cyro\cyrv\cyrk\cyri}%
6109      \crefname@preamble{proposition}%
6110      {\cyrt\cyrv\cyre\cyrr\cyrd\cyrzh\cyre\cyrn\cyrn\cyrya}%
6111      {\cyrt\cyrv\cyre\cyrr\cyrd\cyrzh\cyre\cyrn\cyrn\cyrya}%
6112      \crefname@preamble{definition}%
6113      {\cyrv\cyri\cyrz\cyrn\cyra\cyrch\cyre\cyrn\cyrn\cyrya}%
6114      {\cyrv\cyri\cyrz\cyrn\cyra\cyrch\cyre\cyrn\cyrn\cyrya}%
6115      \crefname@preamble{result}%
6116      {\cyrr\cyre\cyrz\cyru\cyrl\cyrsftsn\cyrt\cyra\cyrt}%
6117      {\cyrr\cyre\cyrz\cyru\cyrl\cyrsftsn\cyrt\cyra\cyrt\cyri}%
6118      \crefname@preamble{example}%
6119      {\cyrp\cyrr\cyri\cyrk\cyrl\cyra\cyrd}%
6120      {\cyrp\cyrr\cyri\cyrk\cyrl\cyra\cyrd\cyri}%
6121      \crefname@preamble{remark}%
6122      {\cyrp\cyrr\cyri\cyrn\cyrii\cyrt\cyrk\cyra}%
6123      {\cyrp\cyrr\cyri\cyrn\cyrii\cyrt\cyrk\cyri}%
6124      \crefname@preamble{note}%
6125      {\cyrz\cyra\cyrn\cyrii\cyrt\cyrk\cyra}%
6126      {\cyrz\cyra\cyrn\cyrii\cyrt\cyrk\cyri}%
6127      \crefname@preamble{algorithm}%
6128      {\cyra\cyrl\cyrg\cyro\cyrr\cyri\cyrt\cyrn}%
6129      {\cyra\cyrl\cyrg\cyro\cyrr\cyri\cyrt\cyrn\cyri}%
6130      \crefname@preamble{listing}%
6131      {\cyrl\cyrii\cyrs\cyrt\cyri\cyrn\cyrg}%
6132      {\cyrl\cyrii\cyrs\cyrt\cyri\cyrn\cyrg\cyri}%
6133      \crefname@preamble{line}%
6134      {\cyrs\cyrt\cyrr\cyro\cyrk\cyra}%

```

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6135         {\cyrs\cyrt\cyrr\cyro\cyrk\cyri}%
6136     \fi%
6137     \crefname@preamble{page}%
6138         {\cyrs\cyrt\cyro\cyrr\cyri\cyrn\cyrc\cyrii}%
6139         {\cyrs\cyrt\cyro\cyrr\cyrii\cyrn\cyrk\cyra\cyrh}%
6140     \crefname@preamble{part}%
6141         {\cyrch\cyra\cyrs\cyrt\cyri\cyrn\cyra}%
6142         {\cyrch\cyra\cyrs\cyrt\cyri\cyrn\cyri}%
6143     \fi%
6144     \def\cref@language{ukrainian}%
6145 }}% end \DeclareOption and \AtBeginDocument

```

If using `babel` and the corresponding option is set, or if using `polyglossia` and the language has been loaded, add format definition commands to `\extras<language>` or `\captions<language>` so that language switching commands will change the cross-reference formats appropriately.

```

6146 \cref@addlanguagedefs{ukrainian}{%
6147   \PackageInfo{cleveref}{loaded `ukrainian' language definitions}%
6148   \renewcommand{\crefrangeconjunction}{--}%
6149   \renewcommand\crefrangepreconjunction{}%
6150   \renewcommand\crefrangepostconjunction{}%
6151   \renewcommand{\crefpairconjunction}{\ \cyrii\nobreakspace}%
6152   \renewcommand{\crefmiddleconjunction}{, }%
6153   \renewcommand{\creflastconjunction}{\ \cyrii\nobreakspace}%
6154   \renewcommand{\crefpairgroupconjunction}%
6155     { \cyrt\cyra\nobreakspace}%
6156   \renewcommand{\crefmiddlegroupconjunction}{, }%
6157   \renewcommand{\creflastgroupconjunction}%
6158     {, \cyra\ \cyrt\cyra\cyrk\cyro\cyrz\nobreakspace}%
6159   %
6160   \Crefname{equation}%
6161     {\CYRF\cyro\cyrr\cyrm\cyru\cyrl\cyra}%
6162     {\CYRF\cyro\cyrr\cyrm\cyru\cyrl\cyri}%
6163   \Crefname{figure}%
6164     {\CYRR\cyri\cyrs\cyru\cyrn\cyro\cyrk}%
6165     {\CYRR\cyri\cyrs\cyru\cyrn\cyrk\cyri}%
6166   \Crefname{subfigure}%
6167     {\CYRR\cyri\cyrs\cyru\cyrn\cyro\cyrk}%
6168     {\CYRR\cyri\cyrs\cyru\cyrn\cyrk\cyri}%
6169   \Crefname{table}%
6170     {\CYRT\cyra\cyrb\cyrl\cyri\cyrc\cyrya}%

```

```

6171     {\CYRT\cyra\cyrb\cyrl\cyri\cyrc\cyrii}%
6172 \Crefname{subtable}%
6173     {\CYRT\cyra\cyrb\cyrl\cyri\cyrc\cyrya}%
6174     {\CYRT\cyra\cyrb\cyrl\cyri\cyrc\cyrii}%
6175 \Crefname{enumi}%
6176     {\CYRP\cyru\cyrn\cyrk\cyrt}%
6177     {\CYRP\cyru\cyrn\cyrk\cyrt\cyri}%
6178 \Crefname{enumii}%
6179     {\CYRP\cyru\cyrn\cyrk\cyrt}%
6180     {\CYRP\cyru\cyrn\cyrk\cyrt\cyri}%
6181 \Crefname{enumiii}%
6182     {\CYRP\cyru\cyrn\cyrk\cyrt}%
6183     {\CYRP\cyru\cyrn\cyrk\cyrt\cyri}%
6184 \Crefname{enumiv}%
6185     {\CYRP\cyru\cyrn\cyrk\cyrt}%
6186     {\CYRP\cyru\cyrn\cyrk\cyrt\cyri}%
6187 \Crefname{enumv}%
6188     {\CYRP\cyru\cyrn\cyrk\cyrt}%
6189     {\CYRP\cyru\cyrn\cyrk\cyrt\cyri}%
6190 \Crefname{chapter}%
6191     {\CYRG\cyrl\cyra\cyrv\cyra}%
6192     {\CYRG\cyrl\cyra\cyrv\cyri}%
6193 \Crefname{section}%
6194     {\CYRR\cyro\cyrz\cyrd\cyrii\cyrl}%
6195     {\CYRR\cyro\cyrz\cyrd\cyrii\cyrl\cyri}%
6196 \Crefname{subsection}%
6197     {\CYRR\cyro\cyrz\cyrd\cyrii\cyrl}%
6198     {\CYRR\cyro\cyrz\cyrd\cyrii\cyrl\cyri}%
6199 \Crefname{subsubsection}%
6200     {\CYRR\cyro\cyrz\cyrd\cyrii\cyrl}%
6201     {\CYRR\cyro\cyrz\cyrd\cyrii\cyrl\cyri}%
6202 \Crefname{appendix}%
6203     {\CYRD\cyro\cyrd\cyra\cyrt\cyro\cyrk}%
6204     {\CYRD\cyro\cyrd\cyra\cyrt\cyrk\cyri}%
6205 \Crefname{subappendix}%
6206     {\CYRD\cyro\cyrd\cyra\cyrt\cyro\cyrk}%
6207     {\CYRD\cyro\cyrd\cyra\cyrt\cyrk\cyri}%
6208 \Crefname{subsubappendix}%
6209     {\CYRD\cyro\cyrd\cyra\cyrt\cyro\cyrk}%
6210     {\CYRD\cyro\cyrd\cyra\cyrt\cyrk\cyri}%
6211 \Crefname{subsubsubappendix}%
6212     {\CYRD\cyro\cyrd\cyra\cyrt\cyro\cyrk}%

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6213     {\CYRD\cyro\cyrd\cyra\cyrt\cyrk\cyri}%
6214 \Crefname{footnote}%
6215     {\CYRV\cyri\cyrn\cyro\cyrs\cyrk\cyra}%
6216     {\CYRV\cyri\cyrn\cyro\cyrs\cyrk\cyri}%
6217 \Crefname{theorem}%
6218     {\CYRT\cyre\cyro\cyrr\cyre\cyrm\cyra}%
6219     {\CYRT\cyre\cyro\cyrr\cyre\cyrm\cyri}%
6220 \Crefname{lemma}%
6221     {\CYRL\cyre\cyrm\cyrm\cyra}%
6222     {\CYRL\cyre\cyrm\cyrm\cyri}%
6223 \Crefname{corollary}%
6224     {\CYRV\cyri\cyrs\cyrn\cyro\cyrv\cyro\cyrk}%
6225     {\CYRV\cyri\cyrs\cyrn\cyro\cyrv\cyrk\cyri}%
6226 \Crefname{proposition}%
6227     {\CYRT\cyrv\cyre\cyrr\cyrd\cyrz\cyre\cyrn\cyrn\cyrya}%
6228     {\CYRT\cyrv\cyre\cyrr\cyrd\cyrz\cyre\cyrn\cyrn\cyrya}%
6229 \Crefname{definition}%
6230     {\CYRV\cyri\cyrz\cyrn\cyra\cyrch\cyre\cyrn\cyrn\cyrya}%
6231     {\CYRV\cyri\cyrz\cyrn\cyra\cyrch\cyre\cyrn\cyrn\cyrya}%
6232 \Crefname{result}%
6233     {\CYRR\cyre\cyrz\cyru\cyrl\cyrsftsn\cyrt\cyra\cyrt}%
6234     {\CYRR\cyre\cyrz\cyru\cyrl\cyrsftsn\cyrt\cyra\cyrt\cyri}%
6235 \Crefname{example}%
6236     {\CYRP\cyrr\cyri\cyrk\cyrl\cyra\cyrd}%
6237     {\CYRP\cyrr\cyri\cyrk\cyrl\cyra\cyrd\cyri}%
6238 \Crefname{remark}%
6239     {\CYRP\cyrr\cyri\cyrm\cyrii\cyrt\cyrk\cyra}%
6240     {\CYRP\cyrr\cyri\cyrm\cyrii\cyrt\cyrk\cyri}%
6241 \Crefname{note}%
6242     {\CYRZ\cyra\cyrm\cyrii\cyrt\cyrk\cyra}%
6243     {\CYRZ\cyra\cyrm\cyrii\cyrt\cyrk\cyri}%
6244 \Crefname{algorithm}%
6245     {\CYRA\cyrl\cyrg\cyro\cyrr\cyri\cyrt\cyrm}%
6246     {\CYRA\cyrl\cyrg\cyro\cyrr\cyri\cyrt\cyrm\cyri}%
6247 \Crefname{listing}%
6248     {\CYRL\cyrii\cyrs\cyrt\cyri\cyrn\cyrg}%
6249     {\CYRL\cyrii\cyrs\cyrt\cyri\cyrn\cyrg\cyri}%
6250 \Crefname{line}%
6251     {\CYRS\cyrt\cyrr\cyro\cyrk\cyra}%
6252     {\CYRS\cyrt\cyrr\cyro\cyrk\cyri}%
6253 \Crefname{page}%
6254     {\CYRS\cyrt\cyro\cyrr\cyri\cyrn\cyrk\cyra}%

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6255     {\CYRS\cyrt\cyro\cyrr\cyrii\cyrn\cyrk\cyri}%
6256 \Crefname{part}%
6257     {\CYRCH\cyra\cyrs\cyrt\cyri\cyrn\cyra}%
6258     {\CYRCH\cyra\cyrs\cyrt\cyri\cyrn\cyri}%
6259 %
6260 \if@cref@capitalise% capitalise set
6261 \if@cref@abbrev% abbrev set
6262     \crefname{equation}%
6263         {\CYRF-\cyrl.}%
6264         {\CYRF-\cyrl.}%
6265     \crefname{figure}%
6266         {\CYRR\cyri\cyrs.}%
6267         {\CYRR\cyri\cyrs.}%
6268     \crefname{subfigure}%
6269         {\CYRR\cyri\cyrs.}%
6270         {\CYRR\cyri\cyrs.}%
6271     \crefname{table}%
6272         {\CYRT\cyra\cyrb\cyrl.}%
6273         {\CYRT\cyra\cyrb\cyrl.}%
6274     \crefname{subtable}%
6275         {\CYRT\cyra\cyrb\cyrl.}%
6276         {\CYRT\cyra\cyrb\cyrl.}%
6277     \crefname{enumi}%
6278         {\CYRP.}%
6279         {\CYRP.\cyrp.}%
6280     \crefname{enumii}%
6281         {\CYRP.}%
6282         {\CYRP.\cyrp.}%
6283     \crefname{enumiii}%
6284         {\CYRP.}%
6285         {\CYRP.\cyrp.}%
6286     \crefname{enumiv}%
6287         {\CYRP.}%
6288         {\CYRP.\cyrp.}%
6289     \crefname{enumv}%
6290         {\CYRP.}%
6291         {\CYRP.\cyrp.}%
6292 \else% abbrev unset
6293     \crefname{equation}%
6294         {\CYRF\cyro\cyrr\cyrn\cyru\cyrl\cyra}%
6295         {\CYRF\cyro\cyrr\cyrn\cyru\cyrl\cyri}%
6296     \crefname{figure}%

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6297      {\CYRR\cyri\cyrs\cyru\cyrn\cyro\cyrk}%
6298      {\CYRR\cyri\cyrs\cyru\cyrn\cyrk\cyri}%
6299      \crefname{subfigure}%
6300      {\CYRR\cyri\cyrs\cyru\cyrn\cyro\cyrk}%
6301      {\CYRR\cyri\cyrs\cyru\cyrn\cyrk\cyri}%
6302      \crefname{table}%
6303      {\CYRT\cyra\cyrb\cyrl\cyri\cyrc\cyrya}%
6304      {\CYRT\cyra\cyrb\cyrl\cyri\cyrc\cyrii}%
6305      \crefname{subtable}%
6306      {\CYRT\cyra\cyrb\cyrl\cyri\cyrc\cyrya}%
6307      {\CYRT\cyra\cyrb\cyrl\cyri\cyrc\cyrii}%
6308      \crefname{enumi}%
6309      {\CYRP\cyru\cyrn\cyrk\cyrt}%
6310      {\CYRP\cyru\cyrn\cyrk\cyrt\cyri}%
6311      \crefname{enumii}%
6312      {\CYRP\cyru\cyrn\cyrk\cyrt}%
6313      {\CYRP\cyru\cyrn\cyrk\cyrt\cyri}%
6314      \crefname{enumiii}%
6315      {\CYRP\cyru\cyrn\cyrk\cyrt}%
6316      {\CYRP\cyru\cyrn\cyrk\cyrt\cyri}%
6317      \crefname{enumiv}%
6318      {\CYRP\cyru\cyrn\cyrk\cyrt}%
6319      {\CYRP\cyru\cyrn\cyrk\cyrt\cyri}%
6320      \crefname{enumv}%
6321      {\CYRP\cyru\cyrn\cyrk\cyrt}%
6322      {\CYRP\cyru\cyrn\cyrk\cyrt\cyri}%
6323      \fi%
6324      \crefname{chapter}%
6325      {\CYRG\cyrl\cyra\cyrv\cyra}%
6326      {\CYRG\cyrl\cyra\cyrv\cyri}%
6327      \crefname{section}%
6328      {\CYRR\cyro\cyrz\cyrd\cyrii\cyrl}%
6329      {\CYRR\cyro\cyrz\cyrd\cyrii\cyrl\cyri}%
6330      \crefname{subsection}%
6331      {\CYRR\cyro\cyrz\cyrd\cyrii\cyrl}%
6332      {\CYRR\cyro\cyrz\cyrd\cyrii\cyrl\cyri}%
6333      \crefname{subsubsection}%
6334      {\CYRR\cyro\cyrz\cyrd\cyrii\cyrl}%
6335      {\CYRR\cyro\cyrz\cyrd\cyrii\cyrl\cyri}%
6336      \crefname{appendix}%
6337      {\CYRD\cyro\cyrd\cyra\cyrt\cyro\cyrk}%
6338      {\CYRD\cyro\cyrd\cyra\cyrt\cyrk\cyri}%

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6339 \crefname{subappendix}%
6340     {\CYRD\cyro\cyrd\cyra\cyrt\cyro\cyrk}%
6341     {\CYRD\cyro\cyrd\cyra\cyrt\cyrk\cyri}%
6342 \crefname{subsubappendix}%
6343     {\CYRD\cyro\cyrd\cyra\cyrt\cyro\cyrk}%
6344     {\CYRD\cyro\cyrd\cyra\cyrt\cyrk\cyri}%
6345 \crefname{subsubsubappendix}%
6346     {\CYRD\cyro\cyrd\cyra\cyrt\cyro\cyrk}%
6347     {\CYRD\cyro\cyrd\cyra\cyrt\cyrk\cyri}%
6348 \crefname{footnote}%
6349     {\CYRV\cyri\cyrn\cyro\cyrs\cyrk\cyra}%
6350     {\CYRV\cyri\cyrn\cyro\cyrs\cyrk\cyri}%
6351 \crefname{theorem}%
6352     {\CYRT\cyre\cyro\cyrr\cyre\cyrm\cyra}%
6353     {\CYRT\cyre\cyro\cyrr\cyre\cyrm\cyri}%
6354 \crefname{lemma}%
6355     {\CYRL\cyre\cyrm\cyrm\cyra}%
6356     {\CYRL\cyre\cyrm\cyrm\cyri}%
6357 \crefname{corollary}%
6358     {\CYRV\cyri\cyrs\cyrn\cyro\cyrv\cyro\cyrk}%
6359     {\CYRV\cyri\cyrs\cyrn\cyro\cyrv\cyrk\cyri}%
6360 \crefname{proposition}%
6361     {\CYRT\cyrv\cyre\cyrr\cyrd\cyrz\cyre\cyrn\cyrn\cyrya}%
6362     {\CYRT\cyrv\cyre\cyrr\cyrd\cyrz\cyre\cyrn\cyrn\cyrya}%
6363 \crefname{definition}%
6364     {\CYRV\cyri\cyrz\cyrn\cyra\cyrch\cyre\cyrn\cyrn\cyrya}%
6365     {\CYRV\cyri\cyrz\cyrn\cyra\cyrch\cyre\cyrn\cyrn\cyrya}%
6366 \crefname{result}%
6367     {\CYRR\cyre\cyrz\cyru\cyrl\cyrsftsn\cyrt\cyra\cyrt}%
6368     {\CYRR\cyre\cyrz\cyru\cyrl\cyrsftsn\cyrt\cyra\cyrt\cyri}%
6369 \crefname{example}%
6370     {\CYRP\cyrr\cyri\cyrk\cyrl\cyra\cyrd}%
6371     {\CYRP\cyrr\cyri\cyrk\cyrl\cyra\cyrd\cyri}%
6372 \crefname{remark}%
6373     {\CYRP\cyrr\cyri\cyrm\cyrii\cyrt\cyrk\cyra}%
6374     {\CYRP\cyrr\cyri\cyrm\cyrii\cyrt\cyrk\cyri}%
6375 \crefname{note}%
6376     {\CYRZ\cyra\cyrm\cyrii\cyrt\cyrk\cyra}%
6377     {\CYRZ\cyra\cyrm\cyrii\cyrt\cyrk\cyri}%
6378 \crefname{algorithm}%
6379     {\CYRA\cyrl\cyrg\cyro\cyrr\cyri\cyrt\cyrm}%
6380     {\CYRA\cyrl\cyrg\cyro\cyrr\cyri\cyrt\cyrm\cyri}%

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6381 \crefname{listing}%
6382     {\CYRL\cyrii\cyrs\cyrt\cyri\cyrn\cyrg}%
6383     {\CYRL\cyrii\cyrs\cyrt\cyri\cyrn\cyrg\cyri}%
6384 \crefname{line}%
6385     {\CYRS\cyrt\cyrr\cyro\cyrk\cyra}%
6386     {\CYRS\cyrt\cyrr\cyro\cyrk\cyri}%
6387 \crefname{page}%
6388     {\CYRS\cyrt\cyro\cyrr\cyri\cyrn\cyrk\cyra}%
6389     {\CYRS\cyrt\cyro\cyrr\cyrii\cyrn\cyrk\cyri}%
6390 \crefname{part}%
6391     {\CYRCH\cyra\cyrs\cyrt\cyri\cyrn\cyra}%
6392     {\CYRCH\cyra\cyrs\cyrt\cyri\cyrn\cyri}%
6393 %
6394 \else% capitalise unset
6395 \if@ceref@abbrev% abbrev set
6396 \crefname{equation}%
6397     {\cyrf-\cyrl.}%
6398     {\cyrf-\cyrl.}%
6399 \crefname{chapter}%
6400     {\cyrg\cyrl\cyra\cyrv.}%
6401     {\cyrg\cyrl\cyra\cyrv.}%
6402 \crefname{section}%
6403     {\cyrr\cyro\cyrz\cyrd.}%
6404     {\cyrr\cyro\cyrz\cyrd\cyrii\cyrl.}%
6405 \crefname{subsection}%
6406     {\cyrr\cyro\cyrz\cyrd.}%
6407     {\cyrr\cyro\cyrz\cyrd\cyrii\cyrl.}%
6408 \crefname{subsubsection}%
6409     {\cyrr\cyro\cyrz\cyrd.}%
6410     {\cyrr\cyro\cyrz\cyrd\cyrii\cyrl.}%
6411 \crefname{appendix}%
6412     {\cyrd\cyro\cyrd\cyra\cyrt.}%
6413     {\cyrd\cyro\cyrd\cyra\cyrt\cyrk.}%
6414 \crefname{subappendix}%
6415     {\cyrd\cyro\cyrd\cyra\cyrt.}%
6416     {\cyrd\cyro\cyrd\cyra\cyrt\cyrk.}%
6417 \crefname{subsubappendix}%
6418     {\cyrd\cyro\cyrd\cyra\cyrt.}%
6419     {\cyrd\cyro\cyrd\cyra\cyrt\cyrk.}%
6420 \crefname{subsubsubappendix}%
6421     {\cyrd\cyro\cyrd\cyra\cyrt.}%
6422     {\cyrd\cyro\cyrd\cyra\cyrt\cyrk.}%

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6423 \crefname{enumi}%
6424 {\cyrp.}%
6425 {\cyrp.\cyrp.}%
6426 \crefname{enumii}%
6427 {\cyrp.}%
6428 {\cyrp.\cyrp.}%
6429 \crefname{enumiii}%
6430 {\cyrp.}%
6431 {\cyrp.\cyrp.}%
6432 \crefname{enumiv}%
6433 {\cyrp.}%
6434 {\cyrp.\cyrp.}%
6435 \crefname{enumv}%
6436 {\cyrp.}%
6437 {\cyrp.\cyrp.}%
6438 \crefname{footnote}%
6439 {\cyrv\cyri\cyrn\cyro\cyrs\cyrk.}%
6440 {\cyrv\cyri\cyrn\cyro\cyrs\cyrk.}%
6441 \crefname{figure}%
6442 {\cyrr\cyri\cyrs.}%
6443 {\cyrr\cyri\cyrs.}%
6444 \crefname{subfigure}%
6445 {\cyrr\cyri\cyrs.}%
6446 {\cyrr\cyri\cyrs.}%
6447 \crefname{table}%
6448 {\cyrt\cyra\cyrb\cyrl.}%
6449 {\cyrt\cyra\cyrb\cyrl.}%
6450 \crefname{subtable}%
6451 {\cyrt\cyra\cyrb\cyrl.}%
6452 {\cyrt\cyra\cyrb\cyrl.}%
6453 \crefname{theorem}%
6454 {\cyrt\cyre\cyro\cyrr\cyre\cyrm.}%
6455 {\cyrt\cyre\cyro\cyrr\cyre\cyrm.}%
6456 \crefname{lemma}%
6457 {\cyrl\cyre\cyrm\cyrm.}%
6458 {\cyrl\cyre\cyrm\cyrm.}%
6459 \crefname{corollary}%
6460 {\cyrv\cyri\cyrs\cyrn\cyro\cyrv.}%
6461 {\cyrv\cyri\cyrs\cyrn\cyro\cyrv\cyrk.}%
6462 \crefname{proposition}%
6463 {\cyrt\cyrv\cyre\cyrr\cyrd\cyrzh\cyre\cyrn\cyrn.}%
6464 {\cyrt\cyrv\cyre\cyrr\cyrd\cyrzh\cyre\cyrn\cyrn.}%

```

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6465 \crefname{definition}%
6466 {\cyrv\cyri\cyrz\cyrn\cyra\cyrch\cyre\cyrn\cyrn.}%
6467 {\cyrv\cyri\cyrz\cyrn\cyra\cyrch\cyre\cyrn\cyrn.}%
6468 \crefname{result}%
6469 {\cyrr\cyre\cyrz\cyru\cyrl\cyrsftsn\cyrt.}%
6470 {\cyrr\cyre\cyrz\cyru\cyrl\cyrsftsn\cyrt\cyra\cyrt.}%
6471 \crefname{example}%
6472 {\cyrp\cyrr\cyri\cyrk\cyrl.}%
6473 {\cyrp\cyrr\cyri\cyrk\cyrl\cyra\cyrd.}%
6474 \crefname{remark}%
6475 {\cyrp\cyrr\cyri\cyrm\cyrii\cyrt.}%
6476 {\cyrp\cyrr\cyri\cyrm\cyrii\cyrt.}%
6477 \crefname{note}%
6478 {\cyrz\cyra\cyrm\cyrii\cyrt.}%
6479 {\cyrz\cyra\cyrm\cyrii\cyrt.}%
6480 \crefname{algorithm}%
6481 {\cyra\cyrl\cyrg.}%
6482 {\cyra\cyrl\cyrg.}%
6483 \crefname{listing}%
6484 {\cyrl\cyrii\cyrs\cyrt\cyri\cyrn.}%
6485 {\cyrl\cyrii\cyrs\cyrt\cyri\cyrn\cyrg.}%
6486 \crefname{line}%
6487 {\cyrs\cyrt\cyrr\cyrk.}%
6488 {\cyrs\cyrt\cyrr\cyrk.}%
6489 \else% abbrev unset
6490 \crefname{equation}%
6491 {\cyrf\cyro\cyrr\cyrm\cyru\cyrl\cyra}%
6492 {\cyrf\cyro\cyrr\cyrm\cyru\cyrl\cyri}%
6493 \crefname{figure}%
6494 {\cyrr\cyri\cyrs\cyru\cyrn\cyro\cyrk}%
6495 {\cyrr\cyri\cyrs\cyru\cyrn\cyrk\cyri}%
6496 \crefname{subfigure}%
6497 {\cyrr\cyri\cyrs\cyru\cyrn\cyro\cyrk}%
6498 {\cyrr\cyri\cyrs\cyru\cyrn\cyrk\cyri}%
6499 \crefname{table}%
6500 {\cyrt\cyra\cyrb\cyrl\cyri\cyrc\cyrya}%
6501 {\cyrt\cyra\cyrb\cyrl\cyri\cyrc\cyrii}%
6502 \crefname{subtable}%
6503 {\cyrt\cyra\cyrb\cyrl\cyri\cyrc\cyrya}%
6504 {\cyrt\cyra\cyrb\cyrl\cyri\cyrc\cyrii}%
6505 \crefname{enumi}%
6506 {\cyrp\cyru\cyrn\cyrk\cyrt}%

```

```

6507      {\cyrp\cyru\cyrn\cyrk\cyrt\cyri}%
6508      \crefname{enumii}%
6509      {\cyrp\cyru\cyrn\cyrk\cyrt}%
6510      {\cyrp\cyru\cyrn\cyrk\cyrt\cyri}%
6511      \crefname{enumiii}%
6512      {\cyrp\cyru\cyrn\cyrk\cyrt}%
6513      {\cyrp\cyru\cyrn\cyrk\cyrt\cyri}%
6514      \crefname{enumiv}%
6515      {\cyrp\cyru\cyrn\cyrk\cyrt}%
6516      {\cyrp\cyru\cyrn\cyrk\cyrt\cyri}%
6517      \crefname{enumv}%
6518      {\cyrp\cyru\cyrn\cyrk\cyrt}%
6519      {\cyrp\cyru\cyrn\cyrk\cyrt\cyri}%
6520      \crefname{chapter}%
6521      {\cyrg\cyrl\cyra\cyrv\cyra}%
6522      {\cyrg\cyrl\cyra\cyrv\cyri}%
6523      \crefname{section}%
6524      {\cyrr\cyro\cyrz\cyrd\cyrii\cyrl}%
6525      {\cyrr\cyro\cyrz\cyrd\cyrii\cyrl\cyri}%
6526      \crefname{subsection}%
6527      {\cyrr\cyro\cyrz\cyrd\cyrii\cyrl}%
6528      {\cyrr\cyro\cyrz\cyrd\cyrii\cyrl\cyri}%
6529      \crefname{subsubsection}%
6530      {\cyrr\cyro\cyrz\cyrd\cyrii\cyrl}%
6531      {\cyrr\cyro\cyrz\cyrd\cyrii\cyrl\cyri}%
6532      \crefname{appendix}%
6533      {\cyrd\cyro\cyrd\cyra\cyrt\cyro\cyrk}%
6534      {\cyrd\cyro\cyrd\cyra\cyrt\cyrk\cyri}%
6535      \crefname{subappendix}%
6536      {\cyrd\cyro\cyrd\cyra\cyrt\cyro\cyrk}%
6537      {\cyrd\cyro\cyrd\cyra\cyrt\cyrk\cyri}%
6538      \crefname{subsubappendix}%
6539      {\cyrd\cyro\cyrd\cyra\cyrt\cyro\cyrk}%
6540      {\cyrd\cyro\cyrd\cyra\cyrt\cyrk\cyri}%
6541      \crefname{subsubsubappendix}%
6542      {\cyrd\cyro\cyrd\cyra\cyrt\cyro\cyrk}%
6543      {\cyrd\cyro\cyrd\cyra\cyrt\cyrk\cyri}%
6544      \crefname{footnote}%
6545      {\cyrv\cyri\cyrn\cyro\cyrs\cyrk\cyra}%
6546      {\cyrv\cyri\cyrn\cyro\cyrs\cyrk\cyri}%
6547      \crefname{theorem}%
6548      {\cyrt\cyre\cyro\cyrr\cyre\cyrm\cyra}%

```

```

6549      {\cyrt\cyre\cyro\cyrr\cyre\cyrm\cyri}%
6550      \crefname{lemma}%
6551      {\cyr1\cyre\cyrm\cyrm\cyra}%
6552      {\cyr1\cyre\cyrm\cyrm\cyri}%
6553      \crefname{corollary}%
6554      {\cyrv\cyri\cyrs\cyrn\cyro\cyrv\cyro\cyrk}%
6555      {\cyrv\cyri\cyrs\cyrn\cyro\cyrv\cyrk\cyri}%
6556      \crefname{proposition}%
6557      {\cyrt\cyrv\cyre\cyrr\cyrd\cyrzh\cyre\cyrn\cyrn\cyrya}%
6558      {\cyrt\cyrv\cyre\cyrr\cyrd\cyrzh\cyre\cyrn\cyrn\cyrya}%
6559      \crefname{definition}%
6560      {\cyrv\cyri\cyrz\cyrn\cyra\cyrch\cyre\cyrn\cyrn\cyrya}%
6561      {\cyrv\cyri\cyrz\cyrn\cyra\cyrch\cyre\cyrn\cyrn\cyrya}%
6562      \crefname{result}%
6563      {\cyrr\cyre\cyrz\cyru\cyr1\cyrsftsn\cyrt\cyra\cyrt}%
6564      {\cyrr\cyre\cyrz\cyru\cyr1\cyrsftsn\cyrt\cyra\cyrt\cyri}%
6565      \crefname{example}%
6566      {\cyrp\cyrr\cyri\cyrk\cyr1\cyra\cyrd}%
6567      {\cyrp\cyrr\cyri\cyrk\cyr1\cyra\cyrd\cyri}%
6568      \crefname{remark}%
6569      {\cyrp\cyrr\cyri\cyrm\cyrii\cyrt\cyrk\cyra}%
6570      {\cyrp\cyrr\cyri\cyrm\cyrii\cyrt\cyrk\cyri}%
6571      \crefname{note}%
6572      {\cyrz\cyra\cyrm\cyrii\cyrt\cyrk\cyra}%
6573      {\cyrz\cyra\cyrm\cyrii\cyrt\cyrk\cyri}%
6574      \crefname{algorithm}%
6575      {\cyra\cyr1\cyrg\cyro\cyrr\cyri\cyrt\cyrm}%
6576      {\cyra\cyr1\cyrg\cyro\cyrr\cyri\cyrt\cyrm\cyri}%
6577      \crefname{listing}%
6578      {\cyr1\cyrii\cyrs\cyrt\cyri\cyrn\cyrg}%
6579      {\cyr1\cyrii\cyrs\cyrt\cyri\cyrn\cyrg\cyri}%
6580      \crefname{line}%
6581      {\cyrs\cyrt\cyrr\cyro\cyrk\cyra}%
6582      {\cyrs\cyrt\cyrr\cyro\cyrk\cyri}%
6583      \fi%
6584      \crefname{page}%
6585      {\cyrs\cyrt\cyro\cyrr\cyri\cyrn\cyrc\cyrii}%
6586      {\cyrs\cyrt\cyro\cyrr\cyrii\cyrn\cyrk\cyra\cyrh}%
6587      \crefname{part}%
6588      {\cyrch\cyra\cyrs\cyrt\cyri\cyrn\cyra}%
6589      {\cyrch\cyra\cyrs\cyrt\cyri\cyrn\cyri}%
6590      \fi}% end \cref@loadlanguagedefs

```

16.12.9 Norwegian

norsk Norwegian translations kindly donated by Sveinung Heggen.

Set up the definitions used at the beginning of the document to define the formats created by the document preamble.

```

6591 \DeclareOption{norsk}{%
6592   \AtBeginDocument{%
6593     \def\crefrangeconjunction@preamble{ til\nobreakspace}%
6594     \def\crefrangepreconjunction@preamble{}%
6595     \def\crefrangepostconjunction@preamble{}%
6596     \def\crefpairconjunction@preamble{ og\nobreakspace}%
6597     \def\crefmiddleconjunction@preamble{, }%
6598     \def\creflastconjunction@preamble{ og\nobreakspace}%

```

We have to define the group conjunctions explicitly here, rather than relying on fall-back definitions in terms of the above conjunctions (see Section 16.13), in case any other language option defines them explicitly and we need to override those.

```

6599   \def\crefpairgroupconjunction@preamble{ og\nobreakspace}%
6600   \def\crefmiddlegroupconjunction@preamble{, }%
6601   \def\creflastgroupconjunction@preamble{ og\nobreakspace}%
6602 %
6603   \Crefname@preamble{equation}{Likning}{Likningene}%
6604   \Crefname@preamble{figure}{Figur}{Figurene}%
6605   \Crefname@preamble{table}{Tabell}{Tabellene}%
6606   \Crefname@preamble{page}{Side}{Siden}%
6607   \Crefname@preamble{part}{Del}{Delene}%
6608   \Crefname@preamble{chapter}{Kapittel}{Kapitlene}%
6609   \Crefname@preamble{section}{Avsnitt}{Avsnittene}%
6610   \Crefname@preamble{appendix}{Tillegg}{Tilleggene}%
6611   \Crefname@preamble{enumi}{Punkt}{Punktene}%
6612   \Crefname@preamble{footnote}{Fotnote}{Fotnotene}%
6613   \Crefname@preamble{theorem}{Teorem}{Teoremene}%
6614   \Crefname@preamble{lemma}{Lemma}{Lemma}%
6615   \Crefname@preamble{corollary}{Korollar}{Korollarene}%
6616   \Crefname@preamble{proposition}{\P aa stand}{\P aa standene}%
6617   \Crefname@preamble{definition}{Definisjon}{Definisjonene}%
6618   \Crefname@preamble{result}{Resultat}{Resultatene}%
6619   \Crefname@preamble{example}{Eksempel}{Eksempelene}%

```

```

6620 \Crefname@preamble{remark}{Bemerkning}{Bemerkningene}%
6621 \Crefname@preamble{note}{Note}{Notene}%
6622 \Crefname@preamble{algorithm}{Algoritme}{Algoritmene}%
6623 \Crefname@preamble{listing}{Opplisting}{Opplistingene}%
6624 \Crefname@preamble{line}{Linje}{Linjene}%
6625 %
6626 \if@cref@capitalise%
6627   \crefname@preamble{page}{Side}{Siden}%
6628   \crefname@preamble{equation}{Likning}{Likningene}%
6629   \crefname@preamble{figure}{Figur}{Figurene}%
6630   \crefname@preamble{table}{Tabell}{Tabellene}%
6631   \crefname@preamble{part}{Del}{Delene}%
6632   \crefname@preamble{chapter}{Kapittel}{Kapitlene}%
6633   \crefname@preamble{section}{Avsnitt}{Avsnittene}%
6634   \crefname@preamble{appendix}{Tillegg}{Tilleggene}%
6635   \crefname@preamble{enumi}{Punkt}{Punktene}%
6636   \crefname@preamble{footnote}{Fotnote}{Fotnotene}%
6637   \crefname@preamble{theorem}{Teorem}{Teoremene}%
6638   \crefname@preamble{lemma}{Lemma}{Lemma}%
6639   \crefname@preamble{corollary}{Korollar}{Korollarene}%
6640   \crefname@preamble{proposition}{P\aa stand}{P\aa standene}%
6641   \crefname@preamble{definition}{Definisjon}{Definisjonene}%
6642   \crefname@preamble{result}{Resultat}{Resultatene}%
6643   \crefname@preamble{example}{Eksempel}{Eksempelene}%
6644   \crefname@preamble{remark}{Bemerkning}{Bemerkningene}%
6645   \crefname@preamble{note}{Note}{Notene}%
6646   \crefname@preamble{algorithm}{Algoritme}{Algoritmene}%
6647   \crefname@preamble{listing}{Opplisting}{Opplistingene}%
6648   \crefname@preamble{line}{Linje}{Linjene}%
6649 %
6650 \else%
6651   \crefname@preamble{equation}{likning}{likningene}%
6652   \crefname@preamble{figure}{figur}{figurene}%
6653   \crefname@preamble{table}{tabell}{tabeller}%
6654   \crefname@preamble{page}{side}{siden}%
6655   \crefname@preamble{part}{del}{delene}%
6656   \crefname@preamble{chapter}{kapittel}{kapitlene}%
6657   \crefname@preamble{section}{avsnitt}{avsnittene}%
6658   \crefname@preamble{appendix}{tillegg}{tilleggene}%
6659   \crefname@preamble{enumi}{punkt}{punktene}%
6660   \crefname@preamble{footnote}{fotnote}{fotnotene}%
6661   \crefname@preamble{theorem}{teorem}{teoremene}%

```



```

6662 \crefname@preamble{lemma}{lemma}{lemma}%
6663 \crefname@preamble{corollary}{korollar}{korollarene}%
6664 \crefname@preamble{proposition}{p\aa stand}{p\aa standene}%
6665 \crefname@preamble{definition}{definisjon}{definisjonene}%
6666 \crefname@preamble{result}{resultat}{resultatene}%
6667 \crefname@preamble{example}{eksempel}{eksempelene}%
6668 \crefname@preamble{remark}{bemerkning}{bemerkningene}%
6669 \crefname@preamble{note}{note}{notene}%
6670 \crefname@preamble{algorithm}{algoritme}{algoritmene}%
6671 \crefname@preamble{listing}{opplisting}{opplistingene}%
6672 \crefname@preamble{line}{linje}{linjene}%
6673 \fi%
6674 \def\cref@language{norsk}%
6675 }}% end \DeclareOption and \AtBeginDocument

```

If using `babel` and the corresponding option is set, or if using `polyglossia` and the language has been loaded, add format definition commands to `\extras{language}` or `\captions{language}` so that language switching commands will change the cross-reference formats appropriately.

```

6676 \cref@addlanguagedefs{norsk}{%
6677 \PackageInfo{cleveref}{loaded `norsk' language definitions}%
6678 \renewcommand{\crefrangeconjunction}{ til\nobreakspace}%
6679 \renewcommand\crefrangepreconjunction{}%
6680 \renewcommand\crefrangepostconjunction{}%
6681 \renewcommand{\crefpairconjunction}{ og\nobreakspace}%
6682 \renewcommand{\crefmiddleconjunction}{,}%
6683 \renewcommand{\creflastconjunction}{ og\nobreakspace}%
6684 \renewcommand{\crefpairgroupconjunction}{ og\nobreakspace}%
6685 \renewcommand{\crefmiddlegroupconjunction}{,}%
6686 \renewcommand{\creflastgroupconjunction}{ og\nobreakspace}%
6687 %
6688 \Crefname{equation}{Likning}{Likningene}%
6689 \Crefname{figure}{Figur}{Figurene}%
6690 \Crefname{subfigure}{Figur}{Figurene}%
6691 \Crefname{table}{Tabell}{Tabellene}%
6692 \Crefname{subtable}{Tabell}{Tabellene}%
6693 \Crefname{page}{Side}{Siden}%
6694 \Crefname{part}{Del}{Delene}%
6695 \Crefname{chapter}{Kapittel}{Kapitlene}%
6696 \Crefname{section}{Avsnitt}{Avsnittene}%
6697 \Crefname{subsection}{Avsnitt}{Avsnittene}%

```

```

6698 \Crefname{subsubsection}{Avsnitt}{Avsnittene}%
6699 \Crefname{appendix}{Tillegg}{Tilleggene}%
6700 \Crefname{subappendix}{Tillegg}{Tilleggene}%
6701 \Crefname{subsubappendix}{Tillegg}{Tilleggene}%
6702 \Crefname{subsubsubappendix}{Tillegg}{Tilleggene}%
6703 \Crefname{enumi}{Punkt}{Punktene}%
6704 \Crefname{enumii}{Punkt}{Punktene}%
6705 \Crefname{enumiii}{Punkt}{Punktene}%
6706 \Crefname{enumiv}{Punkt}{Punktene}%
6707 \Crefname{enumv}{Punkt}{Punktene}%
6708 \Crefname{footnote}{Fotnote}{Fotnotene}%
6709 \Crefname{theorem}{Teorem}{Teoremene}%
6710 \Crefname{lemma}{Lemma}{Lemma}%
6711 \Crefname{corollary}{Korollar}{Korollarene}%
6712 \Crefname{proposition}{P\aa stand}{P\aa standene}%
6713 \Crefname{definition}{Definisjon}{Definisjonene}%
6714 \Crefname{result}{Resultat}{Resultatene}%
6715 \Crefname{example}{Eksempel}{Eksempelene}%
6716 \Crefname{remark}{Bemerkning}{Bemerkningene}%
6717 \Crefname{note}{Note}{Notene}%
6718 \Crefname{algorithm}{Algoritme}{Algoritmene}%
6719 \Crefname{listing}{Opplisting}{Opplistingene}%
6720 \Crefname{line}{Linje}{Linjene}%
6721 %
6722 \if@cref@capitalise%
6723 \crefname{equation}{Likning}{Likningene}%
6724 \crefname{figure}{Figur}{Figurene}%
6725 \crefname{subfigure}{Figur}{Figurene}%
6726 \crefname{table}{Tabell}{Tabellene}%
6727 \crefname{subtable}{Tabell}{Tabellene}%
6728 \crefname{page}{Side}{Siden}%
6729 \crefname{part}{Del}{Delene}%
6730 \crefname{chapter}{Kapittel}{Kapitlene}%
6731 \crefname{section}{Avsnitt}{Avsnittene}%
6732 \crefname{subsection}{Avsnitt}{Avsnittene}%
6733 \crefname{subsubsection}{Avsnitt}{Avsnittene}%
6734 \crefname{appendix}{Tillegg}{Tilleggene}%
6735 \crefname{subappendix}{Tillegg}{Tilleggene}%
6736 \crefname{subsubappendix}{Tillegg}{Tilleggene}%
6737 \crefname{subsubsubappendix}{Tillegg}{Tilleggene}%
6738 \crefname{enumi}{Punkt}{Punktene}%
6739 \crefname{enumii}{Punkt}{Punktene}%

```

```

6740 \crefname{enumiii}{Punkt}{Punktene}%
6741 \crefname{enumiv}{Punkt}{Punktene}%
6742 \crefname{enumv}{Punkt}{Punktene}%
6743 \crefname{footnote}{Fotnote}{Fotnotene}%
6744 \crefname{theorem}{Teorem}{Teoremene}%
6745 \crefname{lemma}{Lemma}{Lemma}%
6746 \crefname{corollary}{Korollar}{Korollarene}%
6747 \crefname{proposition}{P\aa stand}{P\aa standene}%
6748 \crefname{definition}{Definisjon}{Definisjonene}%
6749 \crefname{result}{Resultat}{Resultatene}%
6750 \crefname{example}{Eksempel}{Eksempelene}%
6751 \crefname{remark}{Bemerkning}{Bemerkningene}%
6752 \crefname{note}{Note}{Notene}%
6753 \crefname{algorithm}{Algoritme}{Algoritmene}%
6754 \crefname{listing}{Opplisting}{Opplistingene}%
6755 \crefname{line}{Linje}{Linjene}%
6756 %
6757 \else%
6758 \crefname{equation}{likning}{likningene}%
6759 \crefname{figure}{figur}{figurene}%
6760 \crefname{subfigure}{figur}{figurene}%
6761 \crefname{table}{tabell}{tabellene}%
6762 \crefname{subtable}{tabell}{tabellene}%
6763 \crefname{page}{side}{siden}%
6764 \crefname{part}{del}{delene}%
6765 \crefname{chapter}{kapittel}{kapitlene}%
6766 \crefname{section}{avsnitt}{avsnittene}%
6767 \crefname{subsection}{avsnitt}{avsnittene}%
6768 \crefname{subsubsection}{avsnitt}{avsnittene}%
6769 \crefname{appendix}{tillegg}{tilleggene}%
6770 \crefname{subappendix}{tillegg}{tilleggene}%
6771 \crefname{subsubappendix}{tillegg}{tilleggene}%
6772 \crefname{subsubsubappendix}{tillegg}{tilleggene}%
6773 \crefname{enumi}{punkt}{punktene}%
6774 \crefname{enumii}{punkt}{punktene}%
6775 \crefname{enumiii}{punkt}{punktene}%
6776 \crefname{enumiv}{punkt}{punktene}%
6777 \crefname{enumv}{punkt}{punktene}%
6778 \crefname{footnote}{fotnote}{fotnotene}%
6779 \crefname{theorem}{teorem}{teoremene}%
6780 \crefname{lemma}{lemma}{lemma}%
6781 \crefname{corollary}{korollar}{korollarene}%

```

```

6782 \crefname{proposition}{p\aa stand}{p\aa standene}%
6783 \crefname{definition}{definisjon}{definisjonene}%
6784 \crefname{result}{resultat}{resultatene}%
6785 \crefname{example}{eksempel}{eksempelene}%
6786 \crefname{remark}{bemerkning}{bemerkningene}%
6787 \crefname{note}{note}{notene}%
6788 \crefname{algorithm}{algoritme}{algoritmene}%
6789 \crefname{listing}{opplisting}{opplistingene}%
6790 \crefname{line}{linje}{linjene}%
6791 \fi}% end \cref@loadlanguagedefs

```

16.12.10 Danish

danish Danish translations courtesy of Benjamin Høyer.

Set up the definitions used at the beginning of the document to define the formats created by the document preamble.

```

6792 \DeclareOption{danish}{%
6793   \AtBeginDocument{%
6794     \def\crefrangeconjunction@preamble{ til\nobreakspace}%
6795     \def\crefrangepreconjunction@preamble{}%
6796     \def\crefrangepostconjunction@preamble{}%
6797     \def\crefpairconjunction@preamble{ og\nobreakspace}%
6798     \def\crefmiddleconjunction@preamble{, }%
6799     \def\creflastconjunction@preamble{ og\nobreakspace}%

```

We have to define the group conjunctions explicitly here, rather than relying on fall-back definitions in terms of the above conjunctions (see Section 16.13), in case any other language option defines them explicitly and we need to override those.

```

6800 \def\crefpairgroupconjunction@preamble{ og\nobreakspace}%
6801 \def\crefmiddlegroupconjunction@preamble{, }%
6802 \def\creflastgroupconjunction@preamble{ og\nobreakspace}%
6803 %
6804 \Crefname@preamble{equation}{Ligning}{Ligninger}%
6805 \Crefname@preamble{figure}{Figur}{Figurer}%
6806 \Crefname@preamble{table}{Tabel}{Tabeller}%
6807 \Crefname@preamble{page}{Side}{Sider}%
6808 \Crefname@preamble{part}{Del}{Dele}%

```

```

6809 \Crefname@preamble{chapter}{Kapitel}{Kapitler}%
6810 \Crefname@preamble{section}{Afsnit}{Afsnit}%
6811 \Crefname@preamble{appendix}{Appendiks}{Appendiks}%
6812 \Crefname@preamble{enumi}{Punkt}{Punkter}%
6813 \Crefname@preamble{footnote}{Fodnote}{Fodnoter}%
6814 \Crefname@preamble{theorem}{Teorem}{Teoremer}%
6815 \Crefname@preamble{lemma}{Lemma}{Lemma}%
6816 \Crefname@preamble{corollary}{F\o lgeslutning}{F\o lgeslutninger}%
6817 \Crefname@preamble{proposition}{Udsagn}{Udsagn}%
6818 \Crefname@preamble{definition}{Definition}{Definitioner}%
6819 \Crefname@preamble{result}{Resultat}{Resultater}%
6820 \Crefname@preamble{example}{Eksempel}{Eksempler}%
6821 \Crefname@preamble{remark}{Bem\ae rkning}{Bem\ae rkninger}%
6822 \Crefname@preamble{note}{Note}{Noter}%
6823 \Crefname@preamble{algorithm}{Algoritme}{Algoritmer}%
6824 \Crefname@preamble{line}{Linje}{Linjer}%
6825 %
6826 \if@cref@capitalise%
6827   \crefname@preamble{equation}{Ligning}{Ligninger}%
6828   \crefname@preamble{figure}{Figur}{Figurer}%
6829   \crefname@preamble{table}{Tabel}{Tabeller}%
6830   \crefname@preamble{page}{Side}{Sider}%
6831   \crefname@preamble{part}{Del}{Dele}%
6832   \crefname@preamble{chapter}{Kapitel}{Kapitler}%
6833   \crefname@preamble{section}{Afsnit}{Afsnit}%
6834   \crefname@preamble{appendix}{Appendiks}{Appendiks}%
6835   \crefname@preamble{enumi}{Punkt}{Punkter}%
6836   \crefname@preamble{footnote}{Fodnote}{Fodnoter}%
6837   \crefname@preamble{theorem}{Teorem}{Teoremer}%
6838   \crefname@preamble{lemma}{Lemma}{Lemma}%
6839   \crefname@preamble{corollary}{F\o lgeslutning}{F\o lgeslutninger}%
6840   \crefname@preamble{proposition}{Udsagn}{Udsagn}%
6841   \crefname@preamble{definition}{Definition}{Definitioner}%
6842   \crefname@preamble{result}{Resultat}{Resultater}%
6843   \crefname@preamble{example}{Eksempel}{Eksempler}%
6844   \crefname@preamble{remark}{Bem\ae rkning}{Bem\ae rkninger}%
6845   \crefname@preamble{note}{Note}{Noter}%
6846   \crefname@preamble{algorithm}{Algoritme}{Algoritmer}%
6847   \crefname@preamble{line}{Linje}{Linjer}%
6848 %
6849 \else%
6850   \crefname@preamble{equation}{ligning}{ligninger}%

```

```

6851 \crefname@preamble{figure}{figur}{figurer}%
6852 \crefname@preamble{table}{tabel}{tabeller}%
6853 \crefname@preamble{page}{side}{sider}%
6854 \crefname@preamble{part}{del}{dele}%
6855 \crefname@preamble{chapter}{kapitel}{kapitler}%
6856 \crefname@preamble{section}{afsnit}{afsnit}%
6857 \crefname@preamble{appendix}{appendiks}{appendiks}%
6858 \crefname@preamble{enumi}{punkt}{punkter}%
6859 \crefname@preamble{footnote}{fodnote}{fodnoter}%
6860 \crefname@preamble{theorem}{teorem}{teoremer}%
6861 \crefname@preamble{lemma}{lemma}{lemma}%
6862 \crefname@preamble{corollary}{f\o lgeslutning}{f\o lgeslutninger}%
6863 \crefname@preamble{proposition}{udsagn}{udsagn}%
6864 \crefname@preamble{definition}{definition}{definitioner}%
6865 \crefname@preamble{result}{resultat}{resultater}%
6866 \crefname@preamble{example}{eksempel}{eksempler}%
6867 \crefname@preamble{remark}{bem\ae rkning}{bem\ae rkninger}%
6868 \crefname@preamble{note}{note}{noter}%
6869 \crefname@preamble{algorithm}{algoritme}{algoritmer}%
6870 \crefname@preamble{line}{linje}{linjer}%
6871 \fi%
6872 \def\cref@language{danish}%
6873 }}% end \DeclareOption and \AtBeginDocument

```

If using `babel` and the corresponding option is set, or if using `polyglossia` and the language has been loaded, add format definition commands to `\extras<language>` or `\captions<language>` so that language switching commands will change the cross-reference formats appropriately.

```

6874 \cref@addlanguagedefs{danish}{%
6875 \PackageInfo{cleveref}{loaded `danish' language definitions}%
6876 \renewcommand{\crefrangeconjunction@preamble}{ til\nobreakspace}%
6877 \renewcommand{\crefrangepreconjunction@preamble}{}%
6878 \renewcommand{\crefrangepostconjunction@preamble}{}%
6879 \renewcommand{\crefpairconjunction@preamble}{ og\nobreakspace}%
6880 \renewcommand{\crefmiddleconjunction@preamble}{, }%
6881 \renewcommand{\creflastconjunction@preamble}{ og\nobreakspace}%
6882 \renewcommand{\crefpairgroupconjunction@preamble}{ og\nobreakspace}%
6883 \renewcommand{\crefmiddlegroupconjunction@preamble}{, }%
6884 \renewcommand{\creflastgroupconjunction@preamble}{ og\nobreakspace}%
6885 %
6886 \Crefname{equation}{Ligning}{Ligninger}%

```

```

6887 \Crefname{figure}{Figur}{Figurer}%
6888 \Crefname{subfigure}{Figur}{Figurer}%
6889 \Crefname{table}{Tabel}{Tabeller}%
6890 \Crefname{subtable}{Tabel}{Tabeller}%
6891 \Crefname{page}{Side}{Sider}%
6892 \Crefname{part}{Del}{Dele}%
6893 \Crefname{chapter}{Kapitel}{Kapitler}%
6894 \Crefname{section}{Afsnit}{Afsnit}%
6895 \Crefname{subsection}{Afsnit}{Afsnit}%
6896 \Crefname{subsubsection}{Afsnit}{Afsnit}%
6897 \Crefname{appendix}{Appendiks}{Appendiks}%
6898 \Crefname{subappendix}{Appendiks}{Appendiks}%
6899 \Crefname{subsubappendix}{Appendiks}{Appendiks}%
6900 \Crefname{subsubsubappendix}{Appendiks}{Appendiks}%
6901 \Crefname{enumi}{Punkt}{Punkter}%
6902 \Crefname{enumii}{Punkt}{Punkter}%
6903 \Crefname{enumiii}{Punkt}{Punkter}%
6904 \Crefname{enumiv}{Punkt}{Punkter}%
6905 \Crefname{enumv}{Punkt}{Punkter}%
6906 \Crefname{footnote}{Fodnote}{Fodnoter}%
6907 \Crefname{theorem}{Teorem}{Teoremer}%
6908 \Crefname{lemma}{Lemma}{Lemma}%
6909 \Crefname{corollary}{F\o lgeslutning}{F\o lgeslutninger}%
6910 \Crefname{proposition}{Udsagn}{Udsagn}%
6911 \Crefname{definition}{Definition}{Definitioner}%
6912 \Crefname{result}{Resultat}{Resultater}%
6913 \Crefname{example}{Eksempel}{Eksempler}%
6914 \Crefname{remark}{Bem\ae rkning}{Bem\ae rkninger}%
6915 \Crefname{note}{Note}{Noter}%
6916 \Crefname{algorithm}{Algoritme}{Algoritmer}%
6917 \Crefname{line}{Linje}{Linjer}%
6918 %
6919 \if@cref@capitalise%
6920   \crefname{equation}{Ligning}{Ligninger}%
6921   \crefname{figure}{Figur}{Figurer}%
6922   \crefname{subfigure}{Figur}{Figurer}%
6923   \crefname{table}{Tabel}{Tabeller}%
6924   \crefname{subtable}{Tabel}{Tabeller}%
6925   \crefname{page}{Side}{Sider}%
6926   \crefname{part}{Del}{Dele}%
6927   \crefname{chapter}{Kapitel}{Kapitler}%
6928   \crefname{section}{Afsnit}{Afsnit}%

```

```

6929 \crefname{subsection}{Afsnit}{Afsnit}%
6930 \crefname{subsubsection}{Afsnit}{Afsnit}%
6931 \crefname{appendix}{Appendiks}{Appendiks}%
6932 \crefname{subappendix}{Appendiks}{Appendiks}%
6933 \crefname{subsubappendix}{Appendiks}{Appendiks}%
6934 \crefname{subsubsubappendix}{Appendiks}{Appendiks}%
6935 \crefname{enumi}{Punkt}{Punkter}%
6936 \crefname{enumii}{Punkt}{Punkter}%
6937 \crefname{enumiii}{Punkt}{Punkter}%
6938 \crefname{enumiv}{Punkt}{Punkter}%
6939 \crefname{enumv}{Punkt}{Punkter}%
6940 \crefname{footnote}{Fodnote}{Fodnoter}%
6941 \crefname{theorem}{Teorem}{Teoremer}%
6942 \crefname{lemma}{Lemma}{Lemma}%
6943 \crefname{corollary}{F\o lgeslutning}{F\o lgeslutninger}%
6944 \crefname{proposition}{Udsagn}{Udsagn}%
6945 \crefname{definition}{Definition}{Definitioner}%
6946 \crefname{result}{Resultat}{Resultater}%
6947 \crefname{example}{Eksempel}{Eksempler}%
6948 \crefname{remark}{Bem\ae rkning}{Bem\ae rkninger}%
6949 \crefname{note}{Note}{Noter}%
6950 \crefname{algorithm}{Algoritme}{Algoritmer}%
6951 \crefname{line}{Linje}{Linjer}%
6952 %
6953 \else%
6954 \crefname{equation}{ligning}{ligninger}%
6955 \crefname{figure}{figur}{figurer}%
6956 \crefname{subfigure}{figur}{figurer}%
6957 \crefname{table}{tabel}{tabeller}%
6958 \crefname{subtable}{tabel}{tabeller}%
6959 \crefname{page}{side}{sider}%
6960 \crefname{part}{del}{dele}%
6961 \crefname{chapter}{kapitel}{kapitler}%
6962 \crefname{section}{afsnit}{afsnit}%
6963 \crefname{subsection}{afsnit}{afsnit}%
6964 \crefname{subsubsection}{afsnit}{afsnit}%
6965 \crefname{appendix}{appendiks}{appendiks}%
6966 \crefname{subappendix}{appendiks}{appendiks}%
6967 \crefname{subsubappendix}{appendiks}{appendiks}%
6968 \crefname{subsubsubappendix}{appendiks}{appendiks}%
6969 \crefname{enumi}{punkt}{punkter}%
6970 \crefname{enumii}{punkt}{punkter}%

```



```

6971 \crefname{enumiii}{punkt}{punkter}%
6972 \crefname{enumiv}{punkt}{punkter}%
6973 \crefname{enumv}{punkt}{punkter}%
6974 \crefname{footnote}{fodnote}{fodnoter}%
6975 \crefname{theorem}{teorem}{teoremer}%
6976 \crefname{lemma}{lemma}{lemma}%
6977 \crefname{corollary}{f\o lgeslutning}{f\o lgeslutninger}%
6978 \crefname{proposition}{udsagn}{udsagn}%
6979 \crefname{definition}{definition}{definitioner}%
6980 \crefname{result}{resultat}{resultater}%
6981 \crefname{example}{eksempel}{eksempler}%
6982 \crefname{remark}{bem\ae rkning}{bem\ae rkninger}%
6983 \crefname{note}{note}{noter}%
6984 \crefname{algorithm}{algoritme}{algoritmer}%
6985 \crefname{line}{linje}{linjer}%
6986 \fi}% end \cref@loadlanguagedefs

```

16.12.11 Esperanto

esperanto Esperanto translations courtesy of Johannes Mueller.

Set up the definitions used at the beginning of the document to define the formats created by the document preamble.

```

6987 \DeclareOption{esperanto}{%
6988 \AtBeginDocument{%
6989 \def\crefrangeconjunction@preamble{ \^gis\nobreakspace}%
6990 \def\crefrangepreconjunction@preamble{%
6991 \def\crefrangepostconjunction@preamble{%
6992 \def\crefpairconjunction@preamble{ kaj\nobreakspace}%
6993 \def\crefmiddleconjunction@preamble{, }%
6994 \def\creflastconjunction@preamble{ kaj\nobreakspace}%
6995 \def\crefpairgroupconjunction@preamble{ kaj\nobreakspace}%
6996 \def\crefmiddlegroupconjunction@preamble{, }%
6997 \def\creflastgroupconjunction@preamble{ kaj\nobreakspace}%
6998 %
6999 \Crefname@preamble{equation}{Ekvacio}{Ekvacioj}%
7000 \Crefname@preamble{part}{Parto}{Partoj}%
7001 \Crefname@preamble{chapter}{\^Capitro}{\^Capitroj}%
7002 \Crefname@preamble{section}{Sekcio}{Sekcioj}%
7003 \Crefname@preamble{appendix}{Aldono}{Aldonoj}%

```

```

7004 \Crefname@preamble{enumi}{Punkto}{Punktoj}%
7005 \Crefname@preamble{footnote}{Piednoto}{Piednotoj}%
7006 \Crefname@preamble{figure}{Figuro}{Figuroj}%
7007 \Crefname@preamble{table}{Tabelo}{Tabeloj}%
7008 \Crefname@preamble{theorem}{Teoremo}{Teoremoj}%
7009 \Crefname@preamble{lemma}{Lemo}{Lemoj}%
7010 \Crefname@preamble{corollary}{Korolario}{Korolarioj}%
7011 \Crefname@preamble{proposition}{Propozicio}{Propozicioj}%
7012 \Crefname@preamble{definition}{Defino}{Definoj}%
7013 \Crefname@preamble{result}{Rezulto}{Rezultoj}%
7014 \Crefname@preamble{example}{Ekzemplo}{Ekzemploj}%
7015 \Crefname@preamble{remark}{Rimarko}{Rimarkoj}%
7016 \Crefname@preamble{note}{Noto}{Notoj}%
7017 \Crefname@preamble{algorithm}{Algoritmo}{Algoritmoj}%
7018 \Crefname@preamble{listing}{Listado}{Listadoj}%
7019 \Crefname@preamble{line}{Linio}{Linioj}%
7020 %
7021 \if@cref@capitalise%
7022   \crefname@preamble{equation}{Ekvacio}{Ekvacioj}%
7023   \crefname@preamble{part}{Parto}{Partoj}%
7024   \crefname@preamble{chapter}{\^Capitro}{\^Capitroj}%
7025   \crefname@preamble{section}{Sekcio}{Sekcioj}%
7026   \crefname@preamble{appendix}{Aldono}{Aldonoj}%
7027   \crefname@preamble{enumi}{Punkto}{Punktoj}%
7028   \crefname@preamble{footnote}{Piednoto}{Piednotoj}%
7029   \crefname@preamble{figure}{Figuro}{Figuroj}%
7030   \crefname@preamble{table}{Tabelo}{Tabeloj}%
7031   \crefname@preamble{theorem}{Teoremo}{Teoremoj}%
7032   \crefname@preamble{lemma}{Lemo}{Lemoj}%
7033   \crefname@preamble{corollary}{Korolario}{Korolarioj}%
7034   \crefname@preamble{proposition}{Propozicio}{Propozicioj}%
7035   \crefname@preamble{definition}{Defino}{Definoj}%
7036   \crefname@preamble{result}{Rezulto}{Rezultoj}%
7037   \crefname@preamble{example}{Ekzemplo}{Ekzemploj}%
7038   \crefname@preamble{remark}{Rimarko}{Rimarkoj}%
7039   \crefname@preamble{note}{Noto}{Notoj}%
7040   \crefname@preamble{algorithm}{Algoritmo}{Algoritmoj}%
7041   \crefname@preamble{listing}{Listado}{Listadoj}%
7042   \crefname@preamble{line}{Linio}{Linioj}%
7043 %
7044 \else%
7045   \crefname@preamble{equation}{ekvacio}{ekvacioj}%

```

```

7046 \crefname@preamble{part}{parto}{partoj}%
7047 \crefname@preamble{chapter}{\^capitro}{\^capitroj}%
7048 \crefname@preamble{section}{sekcio}{sekcioj}%
7049 \crefname@preamble{appendix}{aldono}{aldonoj}%
7050 \crefname@preamble{enumi}{punkto}{punktoj}%
7051 \crefname@preamble{footnote}{piednoto}{piednotoj}%
7052 \crefname@preamble{figure}{figuro}{figuroj}%
7053 \crefname@preamble{table}{tabelo}{tabeloj}%
7054 \crefname@preamble{theorem}{teoremo}{teoremoj}%
7055 \crefname@preamble{lemma}{lemo}{lemoj}%
7056 \crefname@preamble{corollary}{korolario}{korolarioj}%
7057 \crefname@preamble{proposition}{propozicio}{propozicioj}%
7058 \crefname@preamble{definition}{defino}{definoj}%
7059 \crefname@preamble{result}{rezulto}{rezultoj}%
7060 \crefname@preamble{example}{ekzemplo}{ekzemploj}%
7061 \crefname@preamble{remark}{rimarko}{rimarkoj}%
7062 \crefname@preamble{note}{noto}{notoj}%
7063 \crefname@preamble{algorithm}{algoritmo}{algoritmoj}%
7064 \crefname@preamble{listing}{listado}{listadoj}%
7065 \crefname@preamble{line}{linio}{linioj}%
7066 \fi%
7067 \def\cref@language{esperanto}%
7068 }% end \DeclareOption and \AtBeginDocument
7069 % \end{macrocode}
7070 %
7071 % If using \package{babel} and the corresponding option is set, or if
7072 % using \package{polyglossia} and the language has been loaded, add
7073 % format definition commands to \cmd{\extras}\meta{language} or
7074 % \cmd{\captions}\meta{language} so that language switching commands will
7075 % change the cross-reference formats appropriately.
7076 % \begin{macrocode}
7077 \cref@addlanguagedefs{esperanto}{%
7078 \PackageInfo{cleveref}{loaded `esperanto' language definitions}%
7079 \renewcommand{\crefrangeconjunction}{\^gis\nobreakspace}%
7080 \renewcommand{\crefrangepreconjunction}{}%
7081 \renewcommand{\crefrangepostconjunction}{}%
7082 \renewcommand{\crefpairconjunction}{ kaj\nobreakspace}%
7083 \renewcommand{\crefmiddleconjunction}{, }%
7084 \renewcommand{\creflastconjunction}{ kaj\nobreakspace}%
7085 \renewcommand{\crefpairgroupconjunction}{ kaj\nobreakspace}%
7086 \renewcommand{\crefmiddlegroupconjunction}{, }%
7087 \renewcommand{\creflastgroupconjunction}{ kaj\nobreakspace}%

```

```

7088 %
7089 \Crefname{equation}{Ekvacio}{Ekvacioj}%
7090 \Crefname{part}{Parto}{Partoj}%
7091 \Crefname{chapter}{\^Capitro}{\^Capitroj}%
7092 \Crefname{section}{Sekcio}{Sekcioj}%
7093 \Crefname{appendix}{Aldono}{Aldonoj}%
7094 \Crefname{enumi}{Punkto}{Punktoj}%
7095 \Crefname{footnote}{Piednoto}{Piednotoj}%
7096 \Crefname{figure}{Figuro}{Figuroj}%
7097 \Crefname{table}{Tabelo}{Tabeloj}%
7098 \Crefname{theorem}{Teoremo}{Teoremoj}%
7099 \Crefname{lemma}{Lemo}{Lemoj}%
7100 \Crefname{corollary}{Korolario}{Korolarioj}%
7101 \Crefname{proposition}{Propozicio}{Propozicioj}%
7102 \Crefname{definition}{Defino}{Definoj}%
7103 \Crefname{result}{Rezulto}{Rezultoj}%
7104 \Crefname{example}{Ekzemplo}{Ekzemploj}%
7105 \Crefname{remark}{Rimarko}{Rimarkoj}%
7106 \Crefname{note}{Noto}{Notoj}%
7107 \Crefname{algorithm}{Algoritmo}{Algoritmoj}%
7108 \Crefname{listing}{Listado}{Listadoj}%
7109 \Crefname{line}{Linio}{Linioj}%
7110 %
7111 \if@cref@capitalise%
7112 \crefname{equation}{Ekvacio}{Ekvacioj}%
7113 \crefname{part}{Parto}{Partoj}%
7114 \crefname{chapter}{\^Capitro}{\^Capitroj}%
7115 \crefname{section}{Sekcio}{Sekcioj}%
7116 \crefname{appendix}{Aldono}{Aldonoj}%
7117 \crefname{enumi}{Punkto}{Punktoj}%
7118 \crefname{footnote}{Piednoto}{Piednotoj}%
7119 \crefname{figure}{Figuro}{Figuroj}%
7120 \crefname{table}{Tabelo}{Tabeloj}%
7121 \crefname{theorem}{Teoremo}{Teoremoj}%
7122 \crefname{lemma}{Lemo}{Lemoj}%
7123 \crefname{corollary}{Korolario}{Korolarioj}%
7124 \crefname{proposition}{Propozicio}{Propozicioj}%
7125 \crefname{definition}{Defino}{Definoj}%
7126 \crefname{result}{Rezulto}{Rezultoj}%
7127 \crefname{example}{Ekzemplo}{Ekzemploj}%
7128 \crefname{remark}{Rimarko}{Rimarkoj}%
7129 \crefname{note}{Noto}{Notoj}%

```

```

7130 \crefname{algorithm}{Algoritmo}{Algoritmoj}%
7131 \crefname{listing}{Listado}{Listadoj}%
7132 \crefname{line}{Linio}{Linioj}%
7133 %
7134 \else%
7135 \crefname{equation}{ekvacio}{ekvacioj}%
7136 \crefname{part}{parto}{partoj}%
7137 \crefname{chapter}{\^capitro}{\^capitroj}%
7138 \crefname{section}{sekcio}{sekcioj}%
7139 \crefname{appendix}{aldono}{aldonoj}%
7140 \crefname{enumi}{punkto}{punktoj}%
7141 \crefname{footnote}{piednoto}{piednotoj}%
7142 \crefname{figure}{figuro}{figuroj}%
7143 \crefname{table}{tabelo}{tabeloj}%
7144 \crefname{theorem}{teoremo}{teoremoj}%
7145 \crefname{lemma}{lemo}{lemoj}%
7146 \crefname{corollary}{korolario}{korolarioj}%
7147 \crefname{proposition}{propozicio}{propozicioj}%
7148 \crefname{definition}{defino}{definoj}%
7149 \crefname{result}{rezulto}{rezultoj}%
7150 \crefname{example}{ekzemplo}{ekzemploj}%
7151 \crefname{remark}{rimarko}{rimarkoj}%
7152 \crefname{note}{noto}{notoj}%
7153 \crefname{algorithm}{algoritmo}{algoritmoj}%
7154 \crefname{listing}{listado}{listadoj}%
7155 \crefname{line}{linio}{linioj}%
7156 \fi}% end \cref@loadlanguagedefs

```

16.12.12 Swedish

swedish Swedish definitions thanks to Simon Sigurdhsson.

Set up the definitions used at the beginning of the document to define the formats created by the document preamble.

```

7157 \DeclareOption{swedish}{%
7158 \AtBeginDocument{%
7159 \def\crefrangeconjunction@preamble{ till\nobreakspace}%
7160 \def\crefrangepreconjunction@preamble{}%
7161 \def\crefrangepostconjunction@preamble{}%
7162 \def\crefpairconjunction@preamble{ och\nobreakspace}%

```

```

7163 \def\crefmiddleconjunction@preamble{, }%
7164 \def\creflastconjunction@preamble{ och\nobreakspace}%

```

We have to define the group conjunctions explicitly here, rather than relying on fall-back definitions in terms of the above conjunctions (see Section 16.13), in case any other language option defines them explicitly and we need to override those.

```

7165 \def\crefpairgroupconjunction@preamble{ och\nobreakspace}%
7166 \def\crefmiddlegroupconjunction@preamble{, }%
7167 \def\creflastgroupconjunction@preamble{, och\nobreakspace}%
7168 %
7169 \Crefname@preamble{equation}{Ekvation}{Ekvation}%
7170 \Crefname@preamble{figure}{Figur}{Figur}%
7171 \Crefname@preamble{table}{Tabell}{Tabell}%
7172 \Crefname@preamble{page}{Sida}{Sida}%
7173 \Crefname@preamble{part}{Del}{Del}%
7174 \Crefname@preamble{chapter}{Kapitel}{Kapitel}%
7175 \Crefname@preamble{section}{Avsnitt}{Avsnitt}%
7176 \Crefname@preamble{appendix}{Appendix}{Appendix}%
7177 \Crefname@preamble{enumi}{Punkt}{Punkt}%
7178 \Crefname@preamble{footnote}{Fotnot}{Fotnot}%
7179 \Crefname@preamble{theorem}{Sats}{Sats}%
7180 \Crefname@preamble{lemma}{Lemma}{Lemmas}%
7181 \Crefname@preamble{corollary}{F\ "oljdsats}{F\ "oljdsats}%
7182 \Crefname@preamble{proposition}{Proposition}{Proposition}%
7183 \Crefname@preamble{definition}{Definition}{Definition}%
7184 \Crefname@preamble{result}{Resultat}{Resultat}%
7185 \Crefname@preamble{example}{Exempel}{Exempel}%
7186 \Crefname@preamble{remark}{Anm\ "arkning}{Anm\ "arkning}%
7187 \Crefname@preamble{note}{Notering}{Notering}%
7188 \Crefname@preamble{algorithm}{Algorit}{Algorit}%
7189 \Crefname@preamble{listing}{Kodlistning}{Kodlistning}%
7190 \Crefname@preamble{line}{Rad}{Rad}%
7191 %
7192 \if@cref@capitalise% capitalise set
7193 \if@cref@abbrev%
7194 \crefname@preamble{equation}{Ekv.}{Ekv.}%
7195 \crefname@preamble{figure}{Fig.}{Fig.}%
7196 \else%
7197 \crefname@preamble{equation}{Ekvation}{Ekvation}%
7198 \crefname@preamble{figure}{Figur}{Figur}%

```

```

7199     \fi%
7200     \crefname@preamble{page}{Sida}{Sida}%
7201     \crefname@preamble{table}{Tabell}{Tabell}%
7202     \crefname@preamble{part}{Del}{Del}%
7203     \crefname@preamble{chapter}{Kapitel}{Kapitel}%
7204     \crefname@preamble{section}{Avsnitt}{Avsnitt}%
7205     \crefname@preamble{appendix}{Appendix}{Appendix}%
7206     \crefname@preamble{enumi}{Punkt}{Punkt}%
7207     \crefname@preamble{footnote}{Fotnot}{Fotnot}%
7208     \crefname@preamble{theorem}{Sats}{Sats}%
7209     \crefname@preamble{lemma}{Lemma}{Lemmas}%
7210     \crefname@preamble{corollary}{F\oljdsats}{F\oljdsats}%
7211     \crefname@preamble{proposition}{Proposition}{Proposition}%
7212     \crefname@preamble{definition}{Definition}{Definition}%
7213     \crefname@preamble{result}{Resultat}{Resultat}%
7214     \crefname@preamble{example}{Exempel}{Exempel}%
7215     \crefname@preamble{remark}{Anm\arkning}{Anm\arkning}%
7216     \crefname@preamble{note}{Notering}{Notering}%
7217     \crefname@preamble{algorithm}{Algoritm}{Algoritm}%
7218     \crefname@preamble{listing}{Kodlistning}{Kodlistning}%
7219     \crefname@preamble{line}{Rad}{Rad}%
7220 %
7221 \else%   capitalise unset
7222     \if@cref@abbrev%
7223         \crefname@preamble{equation}{ekv.}{ekv.}%
7224         \crefname@preamble{figure}{fig.}{fig.}%
7225         \crefname@preamble{page}{s.}{ss.}%
7226     \else%
7227         \crefname@preamble{equation}{ekvation}{ekvation}%
7228         \crefname@preamble{figure}{figur}{figur}%
7229         \crefname@preamble{page}{sida}{sida}%
7230     \fi%
7231     \crefname@preamble{table}{tabell}{tabell}%
7232     \crefname@preamble{part}{del}{del}%
7233     \crefname@preamble{chapter}{kapitel}{kapitel}%
7234     \crefname@preamble{section}{avsnitt}{avsnitt}%
7235     \crefname@preamble{appendix}{appendix}{appendix}%
7236     \crefname@preamble{enumi}{punkt}{punkt}%
7237     \crefname@preamble{footnote}{fotnot}{fotnot}%
7238     \crefname@preamble{theorem}{sats}{sats}%
7239     \crefname@preamble{lemma}{lemma}{lemmas}%
7240     \crefname@preamble{corollary}{f\oljdsats}{f\oljdsats}%

```

```

7241 \crefname@preamble{proposition}{proposition}{proposition}%
7242 \crefname@preamble{definition}{definition}{definition}%
7243 \crefname@preamble{result}{resultat}{resultat}%
7244 \crefname@preamble{example}{exempel}{exempel}%
7245 \crefname@preamble{remark}{anm\"arkning}{anm\"arkning}%
7246 \crefname@preamble{note}{notering}{notering}%
7247 \crefname@preamble{algorithm}{algorit}{algorit}%
7248 \crefname@preamble{listing}{kodlistning}{kodlistning}%
7249 \crefname@preamble{line}{rad}{rad}%
7250 \fi%
7251 \def\cref@language{swedish}%
7252 }}% end \AtBeginDocument and \DeclareOption

```

If using `babel` and the corresponding option is set, or if using `polyglossia` and the language has been loaded, add format definition commands to `\extras{language}` or `\captions{language}` so that language switching commands will change the cross-reference formats appropriately.

```

7253 \cref@addlanguagedefs{swedish}{%
7254 \PackageInfo{cleveref}{loaded 'swedish' language definitions}%
7255 \renewcommand{\crefrangeconjunction}{till\nobreakspace}%
7256 \renewcommand\crefrangepreconjunction{}%
7257 \renewcommand\crefrangepostconjunction{}%
7258 \renewcommand{\crefpairconjunction}{och\nobreakspace}%
7259 \renewcommand{\crefmiddleconjunction}{,}%
7260 \renewcommand{\creflastconjunction}{och\nobreakspace}%
7261 \renewcommand{\crefpairgroupconjunction}{and\nobreakspace}%
7262 \renewcommand{\crefmiddlegroupconjunction}{,}%
7263 \renewcommand{\creflastgroupconjunction}{, and\nobreakspace}%
7264 %
7265 \Crefname{equation}{Ekvation}{Ekvation}%
7266 \Crefname{figure}{Figur}{Figur}%
7267 \Crefname{subfigure}{Figur}{Figur}%
7268 \Crefname{table}{Tabell}{Tabell}%
7269 \Crefname{subtable}{Tabell}{Tabell}%
7270 \Crefname{page}{Sida}{Sida}%
7271 \Crefname{part}{Del}{Del}%
7272 \Crefname{chapter}{Kapitel}{Kapitel}%
7273 \Crefname{section}{Avsnitt}{Avsnitt}%
7274 \Crefname{subsection}{Avsnitt}{Avsnitt}%
7275 \Crefname{subsubsection}{Avsnitt}{Avsnitt}%
7276 \Crefname{appendix}{Appendix}{Appendix}%

```



```

7277 \Crefname{subappendix}{Appendix}{Appendix}%
7278 \Crefname{subsubappendix}{Appendix}{Appendix}%
7279 \Crefname{subsubsubappendix}{Appendix}{Appendix}%
7280 \Crefname{enumi}{Punkt}{Punkt}%
7281 \Crefname{enumii}{Punkt}{Punkt}%
7282 \Crefname{enumiii}{Punkt}{Punkt}%
7283 \Crefname{enumiv}{Punkt}{Punkt}%
7284 \Crefname{enumv}{Punkt}{Punkt}%
7285 \Crefname{footnote}{Fotnot}{Fotnot}%
7286 \Crefname{theorem}{Sats}{Sats}%
7287 \Crefname{lemma}{Lemma}{Lemmas}%
7288 \Crefname{corollary}{F\"oljdsats}{F\"oljdsats}%
7289 \Crefname{proposition}{Proposition}{Proposition}%
7290 \Crefname{definition}{Definition}{Definition}%
7291 \Crefname{result}{Resultat}{Resultat}%
7292 \Crefname{example}{Exempel}{Exempel}%
7293 \Crefname{remark}{Anm\"arkning}{Anm\"arkning}%
7294 \Crefname{note}{Notering}{Notering}%
7295 \Crefname{algorithm}{Algoritm}{Algoritm}%
7296 \Crefname{listing}{Kodlistning}{Kodlistning}%
7297 \Crefname{line}{Rad}{Rad}%
7298 %
7299 \if@cref@capitalise% capitalise set
7300 \if@cref@abbrev%
7301 \crefname{equation}{Ekv.}{Ekv.}%
7302 \crefname{figure}{Fig.}{Fig.}%
7303 \crefname{subfigure}{Fig.}{Fig.}%
7304 \else%
7305 \crefname{equation}{Ekvation}{Ekvation}%
7306 \crefname{figure}{Figur}{Figur}%
7307 \crefname{subfigure}{Figur}{Figur}%
7308 \fi%
7309 \crefname{page}{Sida}{Sida}%
7310 \crefname{table}{Tabell}{Tabell}%
7311 \crefname{subtable}{Tabell}{Tabell}%
7312 \crefname{part}{Del}{Del}%
7313 \crefname{chapter}{Kapitel}{Kapitel}%
7314 \crefname{section}{Avsnitt}{Avsnitt}%
7315 \crefname{subsection}{Avsnitt}{Avsnitt}%
7316 \crefname{subsubsection}{Avsnitt}{Avsnitt}%
7317 \crefname{appendix}{Appendix}{Appendix}%
7318 \crefname{subappendix}{Appendix}{Appendix}%

```

```

7319 \crefname{subsubappendix}{Appendix}{Appendix}%
7320 \crefname{subsubsubappendix}{Appendix}{Appendix}%
7321 \crefname{enumi}{Punkt}{Punkt}%
7322 \crefname{enumii}{Punkt}{Punkt}%
7323 \crefname{enumiii}{Punkt}{Punkt}%
7324 \crefname{enumiv}{Punkt}{Punkt}%
7325 \crefname{enumv}{Punkt}{Punkt}%
7326 \crefname{footnote}{Fotnot}{Fotnot}%
7327 \crefname{theorem}{Sats}{Sats}%
7328 \crefname{lemma}{Lemma}{Lemmas}%
7329 \crefname{corollary}{F"oljdsats}{F"oljdsats}%
7330 \crefname{proposition}{Proposition}{Proposition}%
7331 \crefname{definition}{Definition}{Definition}%
7332 \crefname{result}{Resultat}{Resultat}%
7333 \crefname{example}{Exempel}{Exempel}%
7334 \crefname{remark}{Anm"arkning}{Anm"arkning}%
7335 \crefname{note}{Notering}{Notering}%
7336 \crefname{algorithm}{Algoritm}{Algoritm}%
7337 \crefname{listing}{Kodlistning}{Kodlistnings}%
7338 \crefname{line}{Rad}{Rad}%
7339 %
7340 \else% capitalise unset
7341 \if@cref@abbrev%
7342 \crefname{equation}{ekv.}{ekv.}%
7343 \crefname{figure}{fig.}{fig.}%
7344 \crefname{subfigure}{fig.}{fig.}%
7345 \crefname{page}{s.}{ss.}%
7346 \else%
7347 \crefname{equation}{ekvation}{ekvation}%
7348 \crefname{figure}{figur}{figur}%
7349 \crefname{subfigure}{figur}{figur}%
7350 \crefname{page}{sida}{sida}%
7351 \fi%
7352 \crefname{table}{tabell}{tabell}%
7353 \crefname{subtable}{tabell}{tabell}%
7354 \crefname{part}{del}{del}%
7355 \crefname{chapter}{kapitel}{kapitel}%
7356 \crefname{section}{avsnitt}{avsnitt}%
7357 \crefname{subsection}{avsnitt}{avsnitt}%
7358 \crefname{subsubsection}{avsnitt}{avsnitt}%
7359 \crefname{appendix}{appendix}{appendix}%
7360 \crefname{subappendix}{appendix}{appendix}%

```

```

7361 \crefname{subsubappendix}{appendix}{appendix}%
7362 \crefname{subsubsubappendix}{appendix}{appendix}%
7363 \crefname{enumi}{punkt}{punkt}%
7364 \crefname{enumii}{punkt}{punkt}%
7365 \crefname{enumiii}{punkt}{punkt}%
7366 \crefname{enumiv}{punkt}{punkt}%
7367 \crefname{enumv}{punkt}{punkt}%
7368 \crefname{footnote}{fotnot}{fotnot}%
7369 \crefname{theorem}{sats}{sats}%
7370 \crefname{lemma}{lemma}{lemmas}%
7371 \crefname{corollary}{f"oljdsats}{f"oljdsats}%
7372 \crefname{proposition}{proposition}{proposition}%
7373 \crefname{definition}{definition}{definition}%
7374 \crefname{result}{resultat}{resultat}%
7375 \crefname{example}{exempel}{exempel}%
7376 \crefname{remark}{anm"arkning}{anm"arkning}%
7377 \crefname{note}{notering}{notering}%
7378 \crefname{algorithm}{algoritm}{algoritm}%
7379 \crefname{listing}{kodlistning}{kodlistnings}%
7380 \crefname{line}{rad}{rad}%
7381 \fi}% end \cref@addlangagedefs

```

16.12.13 Brazilian

brazilian Brazilian translations courtesy of Paulo Roberto Massa Cereda.

```

7382 \DeclareOption{brazilian}{%
7383 \AtBeginDocument{%
7384 \def\crefrangeconjunction@preamble{ a\nobreakspace}%
7385 \def\crefrangepreconjunction@preamble{}%
7386 \def\crefrangepostconjunction@preamble{}%
7387 \def\crefpairconjunction@preamble{ e\nobreakspace}%
7388 \def\crefmiddleconjunction@preamble{, }%
7389 \def\creflastconjunction@preamble{ e\nobreakspace}%

```

We have to define the group conjunctions explicitly here, rather than relying on fall-back definitions in terms of the above conjunctions (see Section 16.13), in case any other language option defines them explicitly and we need to override those.

```

7390 \def\crefpairgroupconjunction@preamble{ e\nobreakspace}%

```

```

7391 \def\crefmiddlegroupconjunction@preamble{, }%
7392 \def\creflastgroupconjunction@preamble{, e\nobreakspace}%
7393 %
7394 \Crefname@preamble{equation}{Equa\c c\~ao}{Equa\c c\~oes}%
7395 \Crefname@preamble{figure}{Figura}{Figuras}%
7396 \Crefname@preamble{table}{Tabela}{Tabelas}%
7397 \Crefname@preamble{page}{P\'agina}{P\'aginas}%
7398 \Crefname@preamble{part}{Parte}{Partes}%
7399 \Crefname@preamble{chapter}{Cap\'itulo}{Cap\'itulos}%
7400 \Crefname@preamble{section}{Se\c c\~ao}{Se\c c\~oes}%
7401 \Crefname@preamble{appendix}{Ap\~endice}{Ap\~endices}%
7402 \Crefname@preamble{enumi}{Item}{Itens}%
7403 \Crefname@preamble{footnote}{Nota de rodap\'e}{Notas de rodap\'e}%
7404 \Crefname@preamble{theorem}{Teorema}{Teoremas}%
7405 \Crefname@preamble{lemma}{Lema}{Lemas}%
7406 \Crefname@preamble{corollary}{Corol\'ario}{Corol\'arios}%
7407 \Crefname@preamble{proposition}{Proposi\c c\~ao}{Proposi\c c\~oes}%
7408 \Crefname@preamble{definition}{Defini\c c\~ao}{Defini\c c\~oes}%
7409 \Crefname@preamble{result}{Resultado}{Resultados}%
7410 \Crefname@preamble{example}{Exemplo}{Exemplos}%
7411 \Crefname@preamble{remark}{Observa\c c\~ao}{Observa\c c\~oes}%
7412 \Crefname@preamble{note}{Nota}{Notas}%
7413 \Crefname@preamble{algorithm}{Algoritmo}{Algoritmos}%
7414 \Crefname@preamble{listing}{Listagem}{Listagens}%
7415 \Crefname@preamble{line}{Linha}{Linhas}%
7416 %
7417 \if@cref@capitalise% capitalise set
7418 \if@cref@abbrev%
7419 \crefname@preamble{equation}{Eq.}{Eqs.}%
7420 \crefname@preamble{figure}{Fig.}{Figs.}%
7421 \else%
7422 \crefname@preamble{equation}{Equa\c c\~ao}{Equa\c c\~oes}%
7423 \crefname@preamble{figure}{Figura}{Figuras}%
7424 \fi%
7425 \crefname@preamble{page}{P\'agina}{P\'aginas}%
7426 \crefname@preamble{table}{Tabela}{Tabelas}%
7427 \crefname@preamble{part}{Parte}{Partes}%
7428 \crefname@preamble{chapter}{Cap\'itulo}{Cap\'itulos}%
7429 \crefname@preamble{section}{Se\c c\~ao}{Se\c c\~oes}%
7430 \crefname@preamble{appendix}{Ap\~endice}{Ap\~endices}%
7431 \crefname@preamble{enumi}{Item}{Itens}%
7432 \crefname@preamble{footnote}{Nota de rodap\'e}{Notas de rodap\'e}%

```

```

7433 \crefname@preamble{theorem}{Teorema}{Teoremas}%
7434 \crefname@preamble{lemma}{Lema}{Lemas}%
7435 \crefname@preamble{corollary}{Corol\`ario}{Corol\`arios}%
7436 \crefname@preamble{proposition}{Proposi\c c\~ao}{Proposi\c c\~oes}%
7437 \crefname@preamble{definition}{Defini\c c\~ao}{Defini\c c\~oes}%
7438 \crefname@preamble{result}{Resultado}{Resultados}%
7439 \crefname@preamble{example}{Exemplo}{Exemplos}%
7440 \crefname@preamble{remark}{Observa\c c\~ao}{Observa\c c\~oes}%
7441 \crefname@preamble{note}{Nota}{Notas}%
7442 \crefname@preamble{algorithm}{Algoritmo}{Algoritmos}%
7443 \crefname@preamble{listing}{Listagem}{Listagens}%
7444 \crefname@preamble{line}{Linha}{Linhas}%
7445 %
7446 \else% capitalise unset
7447 \if@cref@abbrev%
7448 \crefname@preamble{equation}{eq.}{eqs.}%
7449 \crefname@preamble{figure}{fig.}{figs.}%
7450 \else%
7451 \crefname@preamble{equation}{equa\c c\~ao}{equa\c c\~oes}%
7452 \crefname@preamble{figure}{figura}{figuras}%
7453 \fi%
7454 \crefname@preamble{page}{p\`agina}{p\`aginas}%
7455 \crefname@preamble{table}{tabela}{tabelas}%
7456 \crefname@preamble{part}{parte}{partes}%
7457 \crefname@preamble{chapter}{cap\`itulo}{cap\`itulos}%
7458 \crefname@preamble{section}{se\c c\~ao}{se\c c\~oes}%
7459 \crefname@preamble{appendix}{ap\`endice}{ap\`endices}%
7460 \crefname@preamble{enumi}{item}{itens}%
7461 \crefname@preamble{footnote}{nota de rodap\`e}{notas de rodap\`e}%
7462 \crefname@preamble{theorem}{teorema}{teoremas}%
7463 \crefname@preamble{lemma}{lema}{lemas}%
7464 \crefname@preamble{corollary}{corol\`ario}{corol\`arios}%
7465 \crefname@preamble{proposition}{proposi\c c\~ao}{proposi\c c\~oes}%
7466 \crefname@preamble{definition}{defini\c c\~ao}{defini\c c\~oes}%
7467 \crefname@preamble{result}{resultado}{resultados}%
7468 \crefname@preamble{example}{exemplo}{exemplos}%
7469 \crefname@preamble{remark}{observa\c c\~ao}{observa\c c\~oes}%
7470 \crefname@preamble{note}{nota}{notas}%
7471 \crefname@preamble{algorithm}{algoritmo}{algoritmos}%
7472 \crefname@preamble{listing}{listagem}{listagens}%
7473 \crefname@preamble{line}{linha}{linhas}%
7474 \fi%

```

```

7475 \def\cref@language{brazilian}%
7476 }}% end \AtBeginDocument and \DeclareOption

```

If using `babel` and the corresponding option is set, or if using `polyglossia` and the language has been loaded, add format definition commands to `\extras⟨language⟩` or `\captions⟨language⟩` so that language switching commands will change the cross-reference formats appropriately.

```

7477 \cref@addlanguagedefs{brazilian}{%
7478 \PackageInfo{cleveref}{loaded 'brazilian' language definitions}%
7479 \renewcommand{\crefrangeconjunction}{ a\nobreakspace}%
7480 \renewcommand\crefrangepreconjunction{}%
7481 \renewcommand\crefrangepostconjunction{}%
7482 \renewcommand{\crefpairconjunction}{ e\nobreakspace}%
7483 \renewcommand{\crefmiddleconjunction}{, }%
7484 \renewcommand{\creflastconjunction}{ e\nobreakspace}%
7485 \renewcommand{\crefpairgroupconjunction}{ e\nobreakspace}%
7486 \renewcommand{\crefmiddlegroupconjunction}{, }%
7487 \renewcommand{\creflastgroupconjunction}{ e\nobreakspace}%
7488 %
7489 \Crefname{equation}{Equa\c c\~ao}{Equa\c c\~oes}%
7490 \Crefname{figure}{Figura}{Figuras}%
7491 \Crefname{subfigure}{Figura}{Figuras}%
7492 \Crefname{table}{Tabela}{Tabelas}%
7493 \Crefname{subtable}{Tabela}{Tabelas}%
7494 \Crefname{page}{P\`agina}{P\`aginas}%
7495 \Crefname{part}{Parte}{Partes}%
7496 \Crefname{chapter}{Cap\`itulo}{Cap\`itulos}%
7497 \Crefname{section}{Se\c c\~ao}{Se\c c\~oes}%
7498 \Crefname{subsection}{Se\c c\~ao}{Se\c c\~oes}%
7499 \Crefname{subsubsection}{Se\c c\~ao}{Se\c c\~oes}%
7500 \Crefname{appendix}{Ap\`endice}{Ap\`endices}%
7501 \Crefname{subappendix}{Ap\`endice}{Ap\`endices}%
7502 \Crefname{subsubappendix}{Ap\`endice}{Ap\`endices}%
7503 \Crefname{subsubsubappendix}{Ap\`endice}{Ap\`endices}%
7504 \Crefname{enumi}{Item}{Itens}%
7505 \Crefname{enumii}{Item}{Itens}%
7506 \Crefname{enumiii}{Item}{Itens}%
7507 \Crefname{enumiv}{Item}{Itens}%
7508 \Crefname{enumv}{Item}{Itens}%
7509 \Crefname{footnote}{Nota de rodap\`e}{Notas de rodap\`e}%
7510 \Crefname{theorem}{Teorema}{Teoremas}%

```

```

7511 \Crefname{lemma}{Lema}{Lemas}%
7512 \Crefname{corollary}{Corol\`ario}{Corol\`arios}%
7513 \Crefname{proposition}{Proposi\c c\~ao}{Proposi\c c\~oes}%
7514 \Crefname{definition}{Defini\c c\~ao}{Defini\c c\~oes}%
7515 \Crefname{result}{Resultado}{Resultados}%
7516 \Crefname{example}{Exemplo}{Exemplos}%
7517 \Crefname{remark}{Observa\c c\~ao}{Observa\c c\~oes}%
7518 \Crefname{note}{Nota}{Notas}%
7519 \Crefname{algorithm}{Algoritmo}{Algoritmos}%
7520 \Crefname{listing}{Listagem}{Listagens}%
7521 \Crefname{line}{Linha}{Linhas}%
7522 %
7523 \if@cref@capitalise% capitalise set
7524 \if@cref@abbrev%
7525 \crefname{equation}{Eq.}{Eqs.}%
7526 \crefname{figure}{Fig.}{Figs.}%
7527 \crefname{subfigure}{Fig.}{Figs.}%
7528 \else%
7529 \crefname{equation}{Equa\c c\~ao}{Equa\c c\~oes}%
7530 \crefname{figure}{Figura}{Figuras}%
7531 \crefname{subfigure}{Figura}{Figuras}%
7532 \fi%
7533 \crefname{page}{P\`agina}{P\`aginas}%
7534 \crefname{table}{Tabela}{Tabelas}%
7535 \crefname{subtable}{Tabela}{Tabelas}%
7536 \crefname{part}{Parte}{Partes}%
7537 \crefname{chapter}{Cap\`itulo}{Cap\`itulos}%
7538 \crefname{section}{Se\c c\~ao}{Se\c c\~oes}%
7539 \crefname{subsection}{Se\c c\~ao}{Se\c c\~oes}%
7540 \crefname{subsubsection}{Se\c c\~ao}{Se\c c\~oes}%
7541 \crefname{appendix}{Ap\`endice}{Ap\`endices}%
7542 \crefname{subappendix}{Ap\`endice}{Ap\`endices}%
7543 \crefname{subsubappendix}{Ap\`endice}{Ap\`endices}%
7544 \crefname{subsubsubappendix}{Ap\`endice}{Ap\`endices}%
7545 \crefname{enumi}{Item}{Itens}%
7546 \crefname{enumii}{Item}{Itens}%
7547 \crefname{enumiii}{Item}{Itens}%
7548 \crefname{enumiv}{Item}{Itens}%
7549 \crefname{enumv}{Item}{Itens}%
7550 \crefname{footnote}{Nota de rodap\`e}{Notas de rodap\`e}%
7551 \crefname{theorem}{Teorema}{Teoremas}%
7552 \crefname{lemma}{Lema}{Lemas}%

```

```

7553 \crefname{corollary}{Corol\'}{Corol\'arios}%
7554 \crefname{proposition}{Proposi\c c\~ao}{Proposi\c c\~oes}%
7555 \crefname{definition}{Defini\c c\~ao}{Defini\c c\~oes}%
7556 \crefname{result}{Resultado}{Resultados}%
7557 \crefname{example}{Exemplo}{Exemplos}%
7558 \crefname{remark}{Observa\c c\~ao}{Observa\c c\~oes}%
7559 \crefname{note}{Nota}{Notas}%
7560 \crefname{algorithm}{Algoritmo}{Algoritmos}%
7561 \crefname{listing}{Listagem}{Listagens}%
7562 \crefname{line}{Linha}{Linhas}%
7563 %
7564 \else% capitalise unset
7565 \if@cref@abbrev%
7566 \crefname{equation}{eq.}{eqs.}%
7567 \crefname{figure}{fig.}{figs.}%
7568 \crefname{subfigure}{fig.}{figs.}%
7569 \else%
7570 \crefname{equation}{equa\c c\~ao}{equa\c c\~oes}%
7571 \crefname{figure}{figura}{figuras}%
7572 \crefname{subfigure}{figura}{figuras}%
7573 \fi%
7574 \crefname{table}{tabela}{tabelas}%
7575 \crefname{subtable}{tabela}{tabelas}%
7576 \crefname{page}{p\'agina}{p\'aginas}%
7577 \crefname{part}{parte}{partes}%
7578 \crefname{chapter}{cap\'itulo}{cap\'itulos}%
7579 \crefname{section}{se\c c\~ao}{se\c c\~oes}%
7580 \crefname{subsection}{se\c c\~ao}{se\c c\~oes}%
7581 \crefname{subsubsection}{se\c c\~ao}{se\c c\~oes}%
7582 \crefname{appendix}{ap\^endice}{ap\^endices}%
7583 \crefname{subappendix}{ap\^endice}{ap\^endices}%
7584 \crefname{subsubappendix}{ap\^endice}{ap\^endices}%
7585 \crefname{subsubsubappendix}{ap\^endice}{ap\^endices}%
7586 \crefname{enumi}{item}{itens}%
7587 \crefname{enumii}{item}{itens}%
7588 \crefname{enumiii}{item}{itens}%
7589 \crefname{enumiv}{item}{itens}%
7590 \crefname{enumv}{item}{itens}%
7591 \crefname{footnote}{nota de rodap\'e}{notas de rodap\'e}%
7592 \crefname{theorem}{teorema}{teoremas}%
7593 \crefname{lemma}{lema}{lemas}%
7594 \crefname{corollary}{corol\'}{corol\'arios}%

```



```

7595 \crefname{proposition}{proposi\c c\~ao}{proposi\c c\~oes}%
7596 \crefname{definition}{defini\c c\~ao}{defini\c c\~oes}%
7597 \crefname{result}{resultado}{resultados}%
7598 \crefname{example}{exemplo}{exemplos}%
7599 \crefname{remark}{observa\c c\~ao}{observa\c c\~oes}%
7600 \crefname{note}{nota}{notas}%
7601 \crefname{algorithm}{algoritmo}{algoritmos}%
7602 \crefname{listing}{listagem}{listagens}%
7603 \crefname{line}{linha}{linhas}%
7604 \fi}% end \cref@addlangagedefs

```

16.12.14 Catalan

catalan Catalan definitions thanks to Rafel Jaume Deya and Eva Bosch Roura.

Set up the definitions used at the beginning of the document to define the formats created by the document preamble.

```

7605 \DeclareOption{catalan}{%
7606   \AtBeginDocument{%
7607     \def\crefrangeconjunction@preamble{ a\nobreakspace}%
7608     \def\crefrangepreconjunction@preamble{}%
7609     \def\crefrangepostconjunction@preamble{}%
7610     \def\crefpairconjunction@preamble{ i\nobreakspace}%
7611     \def\crefmiddleconjunction@preamble{, }%
7612     \def\creflastconjunction@preamble{ i\nobreakspace}%

```

We have to define the group conjunctions explicitly here, rather than relying on fall-back definitions in terms of the above conjunctions (see Section 16.13), in case any other language option defines them explicitly and we need to override those.

```

7613 \def\crefpairgroupconjunction@preamble{ i\nobreakspace}%
7614 \def\crefmiddlegroupconjunction@preamble{, }%
7615 \def\creflastgroupconjunction@preamble{ i\nobreakspace}%
7616 %
7617 \Crefname@preamble{equation}{Equaci\~o}{Equacions}%
7618 \Crefname@preamble{figure}{Gr\`afic}{Gr\`afics}%
7619 \Crefname@preamble{table}{Taula}{Taulles}%
7620 \Crefname@preamble{page}{P\`agina}{P\`agines}%
7621 \Crefname@preamble{part}{Part}{Parts}%

```

```

7622 \Crefname@preamble{chapter}{Cap\`itol}{Cap\`itols}%
7623 \Crefname@preamble{section}{Secci\`o}{Seccions}%
7624 \Crefname@preamble{appendix}{Ap\`endix}{Ap\`endixs}%
7625 \Crefname@preamble{enumi}{Punt}{Punts}%
7626 \Crefname@preamble{footnote}{Nota}{Notes}%
7627 \Crefname@preamble{theorem}{Teorema}{Teoremes}%
7628 \Crefname@preamble{lemma}{Lema}{Lemes}%
7629 \Crefname@preamble{corollary}{Coro\lgem ari}{Coro\lgem aris}%
7630 \Crefname@preamble{proposition}{Proposici\`o}{Proposicions}%
7631 \Crefname@preamble{definition}{Definici\`o}{Definicions}%
7632 \Crefname@preamble{result}{Resultat}{Resultats}%
7633 \Crefname@preamble{example}{Exemple}{Exemples}%
7634 \Crefname@preamble{remark}{Observaci\`o}{Observacions}%
7635 \Crefname@preamble{note}{Nota}{Notes}%
7636 \Crefname@preamble{algorithm}{Algorisme}{Algorismes}%
7637 \Crefname@preamble{listing}{Llistat}{Llistats}%
7638 \Crefname@preamble{line}{L\`inia}{L\`inies}%
7639 %
7640 \if@cref@capitalise% capitalise set
7641 \crefname@preamble{equation}{Equaci\`o}{Equacions}%
7642 \crefname@preamble{figure}{Gr\`afic}{Gr\`afics}%
7643 \crefname@preamble{table}{Taula}{Taules}%
7644 \crefname@preamble{page}{P\`agina}{P\`agines}%
7645 \crefname@preamble{part}{Part}{Parts}%
7646 \crefname@preamble{chapter}{Cap\`itol}{Cap\`itols}%
7647 \crefname@preamble{section}{Secci\`o}{Seccions}%
7648 \crefname@preamble{appendix}{Ap\`endix}{Ap\`endixs}%
7649 \crefname@preamble{enumi}{Punt}{Punts}%
7650 \crefname@preamble{footnote}{Nota}{Notes}%
7651 \crefname@preamble{theorem}{Teorema}{Teoremes}%
7652 \crefname@preamble{lemma}{Lema}{Lemes}%
7653 \crefname@preamble{corollary}{Coro\lgem ari}{Coro\lgem aris}%
7654 \crefname@preamble{proposition}{Proposici\`o}{Proposicions}%
7655 \crefname@preamble{definition}{Definici\`o}{Definicions}%
7656 \crefname@preamble{result}{Resultat}{Resultats}%
7657 \crefname@preamble{example}{Exemple}{Exemples}%
7658 \crefname@preamble{remark}{Observaci\`o}{Observacions}%
7659 \crefname@preamble{note}{Nota}{Notes}%
7660 \crefname@preamble{algorithm}{Algorisme}{Algorismes}%
7661 \crefname@preamble{listing}{Llistat}{Llistats}%
7662 \crefname@preamble{line}{L\`inia}{L\`inies}%
7663 %

```

```

7664 \else% capitalise unset
7665 \crefname@preamble{equation}{equaci\`o}{equacions}%
7666 \crefname@preamble{figure}{gr\`afic}{gr\`afics}%
7667 \crefname@preamble{table}{taula}{taules}%
7668 \crefname@preamble{page}{p\`agina}{p\`agines}%
7669 \crefname@preamble{part}{part}{parts}%
7670 \crefname@preamble{chapter}{cap\`itol}{cap\`itols}%
7671 \crefname@preamble{section}{secci\`o}{seccions}%
7672 \crefname@preamble{appendix}{ap\`endix}{ap\`endixs}%
7673 \crefname@preamble{enumi}{punt}{punts}%
7674 \crefname@preamble{footnote}{nota}{notes}%
7675 \crefname@preamble{theorem}{teorema}{teoremes}%
7676 \crefname@preamble{lemma}{lema}{lemes}%
7677 \crefname@preamble{corollary}{coro\`l·gem ari}{coro\`l·gem aris}%
7678 \crefname@preamble{proposition}{proposici\`o}{proposicions}%
7679 \crefname@preamble{definition}{definici\`o}{definicions}%
7680 \crefname@preamble{result}{resultat}{resultats}%
7681 \crefname@preamble{example}{exemple}{exemples}%
7682 \crefname@preamble{remark}{observaci\`o}{observacions}%
7683 \crefname@preamble{note}{nota}{notes}%
7684 \crefname@preamble{algorithm}{algorisme}{algorismes}%
7685 \crefname@preamble{listing}{l·listat}{l·listats}%
7686 \crefname@preamble{line}{l\`inia}{l\`inies}%
7687 \fi%
7688 \def\cref@language{catalan}%
7689 }}% end \AtBeginDocument and \DeclareOption

```

If using `babel` and the corresponding option is set, or if using `polyglossia` and the language has been loaded, add format definition commands to `\extras<language>` or `\captions<language>` so that language switching commands will change the cross-reference formats appropriately.

```

7690 \cref@addlanguagedefs{catalan}{%
7691 \PackageInfo{cleveref}{loaded `catalan language definitions}%
7692 \renewcommand{\crefrangeconjunction}{ a\nobreakspace}%
7693 \renewcommand{\crefrangepreconjunction}{}%
7694 \renewcommand{\crefrangepostconjunction}{}%
7695 \renewcommand{\crefpairconjunction}{ i\nobreakspace}%
7696 \renewcommand{\crefmiddleconjunction}{, }%
7697 \renewcommand{\creflastconjunction}{ i\nobreakspace}%
7698 \renewcommand{\crefpairgroupconjunction}{ i\nobreakspace}%
7699 \renewcommand{\crefmiddlegroupconjunction}{, }%

```

```

7700 \renewcommand{\creflastgroupconjunction}{ i\nobreakspace}%
7701 %
7702 \Crefname{equation}{Equaci\`o}{Equacions}%
7703 \Crefname{figure}{Gr\`afic}{Gr\`afics}%
7704 \Crefname{subfigure}{Gr\`afic}{Gr\`afics}%
7705 \Crefname{table}{Taula}{Taules}%
7706 \Crefname{subtable}{Taula}{Taules}%
7707 \Crefname{page}{P\`agina}{P\`aginas}%
7708 \Crefname{part}{Part}{Parts}%
7709 \Crefname{chapter}{Cap\`itol}{Cap\`itols}%
7710 \Crefname{section}{Secci\`o}{Seccions}%
7711 \Crefname{subsection}{Secci\`o}{Seccions}%
7712 \Crefname{subsubsection}{Secci\`o}{Seccions}%
7713 \Crefname{appendix}{Ap\`endix}{Ap\`endixs}%
7714 \Crefname{subappendix}{Ap\`endix}{Ap\`endixs}%
7715 \Crefname{subsubappendix}{Ap\`endix}{Ap\`endixs}%
7716 \Crefname{subsubsubappendix}{Ap\`endix}{Ap\`endixs}%
7717 \Crefname{enumi}{Punt}{Punts}%
7718 \Crefname{enumii}{Punt}{Punts}%
7719 \Crefname{enumiii}{Punt}{Punts}%
7720 \Crefname{enumiv}{Punt}{Punts}%
7721 \Crefname{enumv}{Punt}{Punts}%
7722 \Crefname{footnote}{Nota}{Notes}%
7723 \Crefname{theorem}{Teorema}{Teoremes}%
7724 \Crefname{lemma}{Lema}{Lemes}%
7725 \Crefname{corollary}{Coro\`lgem ari}{Coro\`lgem aris}%
7726 \Crefname{proposition}{Proposici\`o}{Proposicions}%
7727 \Crefname{definition}{Definici\`o}{Definicions}%
7728 \Crefname{result}{Resultat}{Resultats}%
7729 \Crefname{example}{Exemple}{Exemples}%
7730 \Crefname{remark}{Observaci\`o}{Observacions}%
7731 \Crefname{note}{Nota}{Notes}%
7732 \Crefname{algorithm}{Algorisme}{Algorismes}%
7733 \Crefname{listing}{Llistat}{Llistats}%
7734 \Crefname{line}{L\`inia}{L\`inies}%
7735 %
7736 \if@cref@capitalise% capitalise set
7737 \crefname{equation}{Equaci\`o}{Equacions}%
7738 \crefname{figure}{Gr\`afic}{Gr\`afics}%
7739 \crefname{subfigure}{Gr\`afic}{Gr\`afics}%
7740 \crefname{table}{Taula}{Taules}%
7741 \crefname{subtable}{Taula}{Taules}%

```

```

7742 \crefname{page}{P\`agina}{P\`aginas}%
7743 \crefname{part}{Part}{Parts}%
7744 \crefname{chapter}{Cap\`itol}{Cap\`itols}%
7745 \crefname{section}{Secci\`o}{Seccions}%
7746 \crefname{subsection}{Secci\`o}{Seccions}%
7747 \crefname{subsubsection}{Secci\`o}{Seccions}%
7748 \crefname{appendix}{Ap\`endix}{Ap\`endixs}%
7749 \crefname{subappendix}{Ap\`endix}{Ap\`endixs}%
7750 \crefname{subsubappendix}{Ap\`endix}{Ap\`endixs}%
7751 \crefname{subsubsubappendix}{Ap\`endix}{Ap\`endixs}%
7752 \crefname{enumi}{Punt}{Punts}%
7753 \crefname{enumii}{Punt}{Punts}%
7754 \crefname{enumiii}{Punt}{Punts}%
7755 \crefname{enumiv}{Punt}{Punts}%
7756 \crefname{enumv}{Punt}{Punts}%
7757 \crefname{footnote}{Nota}{Notes}%
7758 \crefname{theorem}{Teorema}{Teoremes}%
7759 \crefname{lemma}{Lema}{Lemes}%
7760 \crefname{corollary}{Coro\`l·gem ari}{Coro\`l·gem aris}%
7761 \crefname{proposition}{Proposici\`o}{Proposicions}%
7762 \crefname{definition}{Definici\`o}{Definicions}%
7763 \crefname{result}{Resultat}{Resultats}%
7764 \crefname{example}{Exemple}{Exemples}%
7765 \crefname{remark}{Observaci\`o}{Observacions}%
7766 \crefname{note}{Nota}{Notes}%
7767 \crefname{algorithm}{Algorisme}{Algorismes}%
7768 \crefname{listing}{Llistat}{Llistats}%
7769 \crefname{line}{L\`inia}{L\`inies}%
7770 %
7771 \else% capitalise unset
7772 \crefname{equation}{equaci\`o}{equacions}%
7773 \crefname{figure}{gr\`afic}{gr\`afics}%
7774 \crefname{subfigure}{gr\`afic}{gr\`afics}%
7775 \crefname{table}{taula}{taules}%
7776 \crefname{subtable}{taula}{taules}%
7777 \crefname{page}{p\`agina}{p\`aginas}%
7778 \crefname{part}{part}{parts}%
7779 \crefname{chapter}{cap\`itol}{cap\`itols}%
7780 \crefname{section}{secci\`o}{seccions}%
7781 \crefname{subsection}{secci\`o}{seccions}%
7782 \crefname{subsubsection}{secci\`o}{seccions}%
7783 \crefname{appendix}{ap\`endix}{ap\`endixs}%

```

```

7784 \crefname{subappendix}{ap\`endix}{ap\`endixs}%
7785 \crefname{subsubappendix}{ap\`endix}{ap\`endixs}%
7786 \crefname{subsubsubappendix}{ap\`endix}{ap\`endixs}%
7787 \crefname{enumi}{punt}{punts}%
7788 \crefname{enumii}{punt}{punts}%
7789 \crefname{enumiii}{punt}{punts}%
7790 \crefname{enumiv}{punt}{punts}%
7791 \crefname{enumv}{punt}{punts}%
7792 \crefname{footnote}{nota}{notes}%
7793 \crefname{theorem}{teorema}{teoremes}%
7794 \crefname{lemma}{lema}{lemes}%
7795 \crefname{corollary}{coro\lgem ari}{coro\lgem aris}%
7796 \crefname{proposition}{proposici\`o}{proposicions}%
7797 \crefname{definition}{definici\`o}{definicions}%
7798 \crefname{result}{resultat}{resultats}%
7799 \crefname{example}{exemple}{exemples}%
7800 \crefname{remark}{observaci\`o}{observacions}%
7801 \crefname{note}{nota}{notes}%
7802 \crefname{algorithm}{algorisme}{algorismes}%
7803 \crefname{listing}{l·listat}{l·listats}%
7804 \crefname{line}{l\`inia}{l\`inies}%
7805 \fi}% end \cref@loadlanguagedefs

```

16.13 Default Cross-Reference Formats

The `capitalise` and `nameinlink` options must be processed before we process any language options and define the default formats, so that they take effect in the default format definitions. Therefore, we have to manually check whether they're present, and force processing of those before the other options.

```

7806 \edef\@curroptions{\@optionlist{\@currname.\@currentt}}%
7807 \@expandtwoargs\in@{,capitalise,}%
7808 ,\@classoptionslist,\@curroptions,}%
7809 \ifin@%
7810 \ExecuteOptions{capitalise}%
7811 \else%
7812 \@expandtwoargs\in@{,capitalize,}%
7813 ,\@classoptionslist,\@curroptions,}%
7814 \ifin@%
7815 \ExecuteOptions{capitalise}%
7816 \fi%

```

```

7817 \fi%
7818 \@expandtwoargs\in@{,nameinlink,}%
7819   ,\@classoptionslist,\@curroptions,}%
7820 \ifin@%
7821   \ExecuteOptions{nameinlink}%
7822 \fi%

```

`\crefdefaultlabelformat` Define the default label formats, which don't depend on language. We override `\creflabelformat` the default format for equations, to follow the near universal convention of enclosing equation labels in parentheses. However, if the `nameinlink` option is enabled, the end of the hyperlink must come outside the group or it will cause L^AT_EX grouping errors, so we must define it differently in that case.

```

7823 \crefdefaultlabelformat{#2#1#3}%
7824 \if@cref@nameinlink%
7825   \creflabelformat{equation}{#2\textup{(#1)}#3}%
7826 \else%
7827   \creflabelformat{equation}{\textup{(#2#1#3)}}%
7828 \fi%

```

Set up the default English format definitions, then process options in the order they were supplied.

```

7829 \@ifpackageloaded{polyglossia}%
7830   {\ifcsdef{language}%
7831     {\ExecuteOptions{language}}%
7832     {\PackageWarning{cleveref}%
7833       {'polyglossia' loaded but default language not set
7834         - defaulting to english}%
7835       \ExecuteOptions{english}}}%
7836   {\ExecuteOptions{english}}%
7837 \ProcessOptions*\relax%

```

Define the component-derived formats.

```

7838 \AtBeginDocument{%

```

Use whatever's in the `...@preamble` definitions at the beginning of the document to set up the default cross-reference names, unless overridden by explicit definitions.

```

7839   \edef\@tempa{%

```

```

7840 \expandafter\noexpand\csname extras\cref@language\endcsname}%
7841 \@ifundefined{crefrangeconjunction}{%
7842 \let\crefrangeconjunction\crefrangeconjunction@preamble%
7843 }{%
7844 \expandafter\def\expandafter\@tempb\expandafter{%
7845 \expandafter\renewcommand\expandafter%
7846 {\expandafter\crefrangeconjunction\expandafter}%
7847 \expandafter{\crefrangeconjunction}}%
7848 \expandafter\expandafter\expandafter\cref@addto%
7849 \expandafter\@tempa\expandafter{\@tempb}%
7850 }%
7851 \@ifundefined{crefrangepreconjunction}{%
7852 \let\crefrangepreconjunction\crefrangepreconjunction@preamble%
7853 }{%
7854 \expandafter\def\expandafter\@tempb\expandafter{%
7855 \expandafter\renewcommand\expandafter%
7856 {\expandafter\crefrangepreconjunction\expandafter}%
7857 \expandafter{\crefrangepreconjunction}}%
7858 \expandafter\expandafter\expandafter\cref@addto%
7859 \expandafter\@tempa\expandafter{\@tempb}%
7860 }%
7861 \@ifundefined{crefrangepostconjunction}{%
7862 \let\crefrangepostconjunction\crefrangepostconjunction@preamble%
7863 }{%
7864 \expandafter\def\expandafter\@tempb\expandafter{%
7865 \expandafter\renewcommand\expandafter%
7866 {\expandafter\crefrangepostconjunction\expandafter}%
7867 \expandafter{\crefrangepostconjunction}}%
7868 \expandafter\expandafter\expandafter\cref@addto%
7869 \expandafter\@tempa\expandafter{\@tempb}%
7870 }%

```

If the group conjunctions haven't been defined, but explicit definitions *have* been given for the reference list conjunctions, define the group conjunctions to be identical to the reference conjunctions.

```

7871 \@ifundefined{crefpairconjunction}{%
7872 \let\crefpairconjunction\crefpairconjunction@preamble%
7873 }{%
7874 \expandafter\def\expandafter\@tempb\expandafter{%
7875 \expandafter\renewcommand\expandafter%
7876 {\expandafter\crefpairconjunction\expandafter}%

```



```

7877 \expandafter{\crefpairconjunction}}%
7878 \expandafter\expandafter\expandafter\cref@addto%
7879 \expandafter\@tempa\expandafter{\@tempb}%
7880 \@ifundefined{crefpairgroupconjunction}{%
7881 \let\crefpairgroupconjunction\crefpairconjunction}{}%
7882 }%
7883 \@ifundefined{crefmiddleconjunction}{%
7884 \let\crefmiddleconjunction\crefmiddleconjunction@preamble%
7885 }{%
7886 \expandafter\def\expandafter\@tempb\expandafter{%
7887 \expandafter\renewcommand\expandafter%
7888 {\expandafter\crefmiddleconjunction\expandafter}%
7889 \expandafter{\crefmiddleconjunction}}%
7890 \expandafter\expandafter\expandafter\cref@addto%
7891 \expandafter\@tempa\expandafter{\@tempb}%
7892 \@ifundefined{crefmiddlegroupconjunction}{%
7893 \let\crefmiddlegroupconjunction\crefmiddleconjunction}{}%
7894 }%
7895 \@ifundefined{creflastconjunction}{%
7896 \let\creflastconjunction\creflastconjunction@preamble%
7897 }{%
7898 \expandafter\def\expandafter\@tempb\expandafter{%
7899 \expandafter\renewcommand\expandafter%
7900 {\expandafter\creflastconjunction\expandafter}%
7901 \expandafter{\creflastconjunction}}%
7902 \expandafter\expandafter\expandafter\cref@addto%
7903 \expandafter\@tempa\expandafter{\@tempb}%

```

Define the last group conjunction to include an extra comma.

```

7904 \@ifundefined{creflastgroupconjunction}{%
7905 \edef\creflastgroupconjunction{, \creflastconjunction}}{%
7906 }%
7907 \@ifundefined{crefpairgroupconjunction}{%
7908 \let\crefpairgroupconjunction%
7909 \crefpairgroupconjunction@preamble%
7910 }{%
7911 \expandafter\def\expandafter\@tempb\expandafter{%
7912 \expandafter\renewcommand\expandafter%
7913 {\expandafter\crefpairgroupconjunction\expandafter}%
7914 \expandafter{\crefpairgroupconjunction}}%
7915 \expandafter\expandafter\expandafter\cref@addto%
7916 \expandafter\@tempa\expandafter{\@tempb}%

```

```

7917 }%
7918 \@ifundefined{crefmiddlegroupconjunction}{%
7919   \let\crefmiddlegroupconjunction%
7920     \crefmiddlegroupconjunction@preamble%
7921 }{%
7922   \expandafter\def\expandafter\@tempb\expandafter{%
7923     \expandafter\renewcommand\expandafter%
7924       {\expandafter\crefmiddlegroupconjunction\expandafter}%
7925     \expandafter{\crefmiddlegroupconjunction}}%
7926   \expandafter\expandafter\expandafter\cref@addto%
7927     \expandafter\@tempa\expandafter{\@tempb}%
7928 }%
7929 \@ifundefined{creflastgroupconjunction}{%
7930   \let\creflastgroupconjunction%
7931     \creflastgroupconjunction@preamble%
7932 }{%
7933   \expandafter\def\expandafter\@tempb\expandafter{%
7934     \expandafter\renewcommand\expandafter%
7935       {\expandafter\creflastgroupconjunction\expandafter}%
7936     \expandafter{\creflastgroupconjunction}}%
7937   \expandafter\expandafter\expandafter\cref@addto%
7938     \expandafter\@tempa\expandafter{\@tempb}%
7939 }%

```

Define any undefined formats listed in `\cref@label@types` using the components.

```

7940 \let\@tempstack\cref@label@types%
7941 \cref@isstackfull{\@tempstack}%
7942 \@whiles\if@cref@stackfull\fi{%
7943   \edef\@tempa{\cref@stack@top{\@tempstack}}%
7944   \@ifundefined{cref@\@tempa @name}{%
7945     \expandafter\def\expandafter\@tempb\expandafter{%
7946       \csname cref@\@tempa @name\endcsname}%
7947     \expandafter\def\expandafter\@tempc\expandafter{%
7948       \csname cref@\@tempa @name@preamble\endcsname}%
7949     \expandafter\expandafter\expandafter%
7950       \let\expandafter\@tempb\@tempc%
7951     \expandafter\def\expandafter\@tempb\expandafter{%
7952       \csname cref@\@tempa @name@plural\endcsname}%
7953     \expandafter\def\expandafter\@tempc\expandafter{%
7954       \csname cref@\@tempa @name@plural@preamble\endcsname}%

```

```

7955 \expandafter\expandafter\expandafter%
7956 \let\expandafter\@tempb\@tempc%
7957 }{%
7958 \edef\@tempb{%
7959 \expandafter\noexpand\csname extras\cref@language\endcsname}%
7960 \expandafter\def\expandafter\@tempc\expandafter{%
7961 \expandafter\crefname\expandafter{\@tempa}}%
7962 \expandafter\expandafter\expandafter\cref@addto%
7963 \expandafter\expandafter\expandafter\@tempc%
7964 \expandafter\expandafter\expandafter{%
7965 \expandafter\expandafter\expandafter{%
7966 \csname cref@\@tempa @name\endcsname}}%
7967 \expandafter\expandafter\expandafter\cref@addto%
7968 \expandafter\expandafter\expandafter\@tempc%
7969 \expandafter\expandafter\expandafter{%
7970 \expandafter\expandafter\expandafter{%
7971 \csname cref@\@tempa @name@plural\endcsname}}%
7972 \expandafter\expandafter\expandafter\cref@addto%
7973 \expandafter\@tempb\expandafter{\@tempc}%
7974 }%
7975 \@ifundefined{Cref@\@tempa @name}{%
7976 \expandafter\def\expandafter\@tempb\expandafter{%
7977 \csname Cref@\@tempa @name\endcsname}%
7978 \expandafter\def\expandafter\@tempc\expandafter{%
7979 \csname Cref@\@tempa @name@preamble\endcsname}%
7980 \expandafter\expandafter\expandafter%
7981 \let\expandafter\@tempb\@tempc%
7982 \expandafter\def\expandafter\@tempb\expandafter{%
7983 \csname Cref@\@tempa @name@plural\endcsname}%
7984 \expandafter\def\expandafter\@tempc\expandafter{%
7985 \csname Cref@\@tempa @name@plural@preamble\endcsname}%
7986 \expandafter\expandafter\expandafter%
7987 \let\expandafter\@tempb\@tempc%
7988 }{%
7989 \edef\@tempb{%
7990 \expandafter\noexpand\csname extras\cref@language\endcsname}%
7991 \expandafter\def\expandafter\@tempc\expandafter{%
7992 \expandafter\Crefname\expandafter{\@tempa}}%
7993 \expandafter\expandafter\expandafter\cref@addto%
7994 \expandafter\expandafter\expandafter\@tempc%
7995 \expandafter\expandafter\expandafter{%
7996 \expandafter\expandafter\expandafter{%

```

```

7997      \csname Cref@\@tempa @name\endcsname}}}%
7998      \expandafter\expandafter\expandafter\cref@addto%
7999      \expandafter\expandafter\expandafter\@tempc%
8000      \expandafter\expandafter\expandafter{%
8001      \expandafter\expandafter\expandafter{%
8002      \csname Cref@\@tempa @name@plural\endcsname}}}%
8003      \expandafter\expandafter\expandafter\cref@addto%
8004      \expandafter\@tempb\expandafter{\@tempc}%
8005  }%

```

We only define the reference-range and multi-reference formats if the plural form of the name is defined in the corresponding `\cref{type}@name@plural`. Though `\crefname` and `\Crefname` always define both the singular and plural forms together, cross-reference names can also be defined automatically by `\newtheorem`, which can only define the singular form. For symmetry, we apply the same logic to the normal cross-reference format definition (only defining it if the singular form of the name is defined in `\cref{type}@name`), though this should always be the case.

```

8006      \@ifundefined{cref@\@tempa @format}{%
8007      \@ifundefined{cref@\@tempa @name}{}}{%
8008      \expandafter\@crefdefineformat\expandafter{\@tempa}}}{}%
8009      \@ifundefined{crefrange@\@tempa @format}{%
8010      \@ifundefined{cref@\@tempa @name@plural}}}{}%
8011      \expandafter\@crefrangedefineformat\expandafter{\@tempa}}}{}%
8012      \@ifundefined{cref@\@tempa @format@first}{%
8013      \@ifundefined{cref@\@tempa @name@plural}}}{}%
8014      \expandafter\@crefdefinemultiformat\expandafter{\@tempa}}}{}%
8015      \@ifundefined{crefrange@\@tempa @format@first}{%
8016      \@ifundefined{cref@\@tempa @name@plural}}}{}%
8017      \expandafter\@crefrangedefinemultiformat%
8018      \expandafter{\@tempa}}}{}%
8019      \cref@stack@pop{\@tempstack}%
8020      \cref@isstackfull{\@tempstack}}}%

```

If formats for subsections are undefined, define them to be identical to the formats for sections. Similarly for subsections within appendices, subfigures, subtables, subequations and enums.

```

8021      \@crefcopyformats{section}{subsection}%
8022      \@crefcopyformats{subsection}{subsubsection}%

```

```

8023 \@crefcopyformats{appendix}{subappendix}%
8024 \@crefcopyformats{subappendix}{subsubappendix}%
8025 \@crefcopyformats{figure}{subfigure}%
8026 \@crefcopyformats{table}{subtable}%
8027 \@crefcopyformats{equation}{subequation}%
8028 %
8029 \@crefcopyformats{enumi}{enumii}%
8030 \@crefcopyformats{enumii}{enumiii}%
8031 \@crefcopyformats{enumiii}{enumiv}%
8032 \@crefcopyformats{enumiv}{enumv}%

```

Definition of default `\labelcref` formats also needs to be postponed until beginning of document, in case `\crefdefaultlabelformat` has been modified.

```

8033 \@labelcrefdefinedefaultformats%
8034 %
8035 \let\cref@language\relax%
8036 }% end of \AtBeginDocument

```

16.14 `cleveref.cfg` Config File

`cleveref.cfg` If \LaTeX can find a `cleveref.cfg` file in its search path, then we read in whatever's in it. The intended use of `cleveref.cfg` is to make it easy for authors to customise the cross-reference formats for all their documents, without having to manually include the definitions in every document preamble. In order for these customisations to override the default formats, we input `cleveref.cfg` right at the end, after the rest of `cleveref` has loaded.

```

8037 \InputIfFileExists{cleveref.cfg}%
8038 {\PackageInfo{cleveref}{reading definitions from cleveref.cfg}}{}%

```