Cross-References (`xref.dtx`)

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Hereinafter offers comprehensive support for cross-references in citations. The model is conceptually similar to LaTeX, in which the writer uses commands to label parts of the document and then references those labels. However, legal citation requires and *Hereinafter* supports much more complex cross-referencing. It is possible to label ranges of a document in addition to specific points, and the package automatically determines the best wording to describe the labeled regions. More importantly, use of cross-references is integrated into the citation system, so cross-references can include signals, parentheticals, and other features of citations.

1 Types of Cross-References

A cross-reference citation points to another part of the document, but the writer must specify whether that other part is a page, footnote, section, or other element of the document. Thus, the package must support different types of cross-references. The following types are currently supported.

- Points in or ranges of body text. In legal memoranda, these are cited by the page numbers where the range lies. For law review articles, they are cited with reference to the footnote numbers that the range encompasses.

- Footnotes, cited by the footnote number or range of numbers.

- Sections, cited by the fully qualified section number (e.g., "Section II.A.3").

- Floats (tables or figures), cited by the float type and number (e.g., "Figure 3").

2 Labeling Document Parts

The following commands are used to mark parts of a document with labels.

\hilabel[⟨*text*⟩]{⟨*label*⟩} labels the current point in text. It detects whether it is inside a footnote, table, figure, or body text, and adjusts the label accordingly.

\hiendlabel{⟨*label*⟩} closes a labeled range opened with \hilabel. Note that the type of text marked at the beginning and end must be the same (e.g.,

`\hilabel` called in a footnote cannot be followed by `\hiendlabel` in body text). Currently, only contiguous ranges can be labeled, although a desirable additional feature for the package would be support for non-contiguous cross-reference ranges.

Particularly for law review articles, it is sometimes desirable to cross-reference "notes x–y and accompanying text." This is done with `\hitanlabel` and `\hiendtanlabel`. There are also provided commands `\hiflabel` and `\hinotelabel` for labeling floats and footnotes, respectively.

```
\newcommand*\hilabel[2][]{%
    \@bsphack
    \@testcase
        \if@hi@note\fi{\hi@xref@writenote}%
        \ifx\@captype\@undefined\fi{\hi@xref@writetext}%
        \default{\hi@xref@writefloat}%
    {#2}{#1}%
    \@esphack
}
\newcommand*\hiendlabel[1]{%
    \hilabel{end:#1}%
}
\newcommand*\hitanlabel[2][]{%
    \@bsphack
    \hi@xref@writetan{#2}{#1}%
    \@esphack
}
\newcommand*\hiendtanlabel[1]{%
    \hitanlabel{end:#1}%
}
% Legacy code
\newcommand*\hiflabel[2][]{%
    \@bsphack
    \hi@xref@writefloat{#2}{#1}%
    \@esphack
}
\newcommand*\hinotelabel[2][]{%
    \@bsphack
    \hi@xref@writenote{#2}{#1}%
    \@esphack
}
```

`\hisectlabel{⟨label⟩}` labels the current section. `\hiendsectlabel{⟨label⟩}` labels an end of a section range.

For law review articles, top-level cross-references will use the word "Part" while other cross-references will use "Section." (The distinction is determined by whether the section number contains a dot.) For legal memoranda, "Section" will always be used. To change this, redefine the internal macro `\hi@xref@sect@choose`.

```
\newcommand*\hisectlabel[2][]{%
    \@bsphack
    \@expand{\hi@xref@sect@choose{#1}{#2}}{\@currentlabel}{i}%
    \@esphack
}
\def\hiendsectlabel#1{\hisectlabel{end:#1}}
```

Chooses the prefix word for section cross-references. This adds separate hooks for review-style and memorandum-style documents. #1 is the optional pre-supra/infra text, #2 the cross-reference name, and #3 the expanded section number.

```
\appto\hi@hooks@review{%
    \def\hi@xref@sect@choose#1#2#3{%
        \find@in{.}{#3}{%
            \@firstofthree{\hi@xref@sect@add{Section}{Sections}}%
        }{%
            \hi@xref@sect@add{Part}{Parts}%
        }{#1}{#2}{#3}%
    }%
```

```
        }
    \appto\hi@hooks@memo{%
        \def\hi@xref@sect@choose#1#2#3{%
            \hi@xref@sect@add{Section}{Sections}{#1}{#2}{#3}%
        }%
    }
    \make@find@in{.}
```

Adds the section cross-reference to the aux file. #1 is the singular section name, #2 the plural, #3 the pre-supra/infra text, #4 the reference name, and #5 the expanded section number.

```
    \def\hi@xref@sect@add#1#2#3#4#5{%
        \hi@xref@writetoaux{#4}{#3}{#1 }{#2 }{#5}{}{}%
    }
```

3   Internal Cross-Reference Tracking

Internally, we use the following to store cross-reference labeling information. For a given reference ⟨*name*⟩, we define \hir@⟨*name*⟩ to be not \relax, which determines whether to use *supra* or *infra*. We also write to the aux file a \newlabel command, defining reference ⟨*name*⟩ as a four-group value:

- Text before *supra/infra*

- Text before the reference number

- The reference number

- Text after the reference number

For ranges, we also emit to the aux file a second \newlabel command, defining reference end:⟨*name*⟩ as a two-group value:

- Text before the reference number if a plural form is needed

- The reference number at the end of the range

This macro constructs and writes the relevant line to the aux file. #1 is the name, #2 the pre-supra/infra text, #3 the pre-number text, #4 the plural pre-number text, #5 the number, #6 the post-number text, and #7 any pre-write command to execute on non-end cross-references (done within a group).

```
    \def\hi@xref@writetoaux#1#2#3#4#5#6#7{%
        \begingroup
            \find@start{end:}{#1}{%
                \protected@write\@auxout{}{\string\newlabel{#1}{{#4}{#5}}}%
                \hi@xref@checktype{#3}{#6}%
            }{%
                \protected@csxdef{hir@#1}{{#3}{#6}}%
                #7%
                \protected@write\@auxout{}{\string\newlabel{#1}{{#2}{#3}{#5}{#6}}}%
            }%
        \endgroup
    }
    \make@find@start{end:}
```

Checks that the type of end:⟨*label*⟩ matches the type of ⟨*label*⟩. #1 and #2 are the text surrounding the note number to use for checking; #3 is ⟨*label*⟩.

```
    \def\hi@xref@checktype#1#2#3{%
        \protected@edef\reserved@a{{#1}{#2}}%
        \expandafter\ifx\csname hir@#3\endcsname\reserved@a \else
            \hi@xref@checktype@err{#3}%
        \fi
    }
    \def\hi@xref@checktype@err#1{%
        \PackageError\hi@pkgname{%
            Cross-reference #1 was ended with a different type than it was
            opened with%
        }{%
            Make sure your \string\hilabel\space and \string\hiendlabel\space
            commands are placed in matching contexts (figures, footnotes, etc.)%
        }%
    }
```

The following `\hi@xref@write⟨type⟩` macros all write a particular data element to the aux file. #1 is the reference name, #2 the pre-supra/infra text.

```
\def\hi@xref@opt@noterefs{%
    \def\hi@xref@writetext##1##2{%
        \hi@xref@writetoaux{##1}{##2}{%
            text accompanying note
        }{%
            text accompanying notes
        }{\thefootnote}{}{\advance\c@footnote\@ne}%
    }
    \def\hi@xref@writetan##1##2{%
        \hi@xref@writetoaux{##1}{##2}{note }{notes }{\thefootnote}{ % space
            and accompanying text%
        }{\advance\c@footnote\@ne}%
    }
}
\def\hi@xref@opt@pagerefs{%
    \def\hi@xref@writetext##1##2{%
        \hi@xref@writetoaux{##1}{##2}{p. }{pp. }{\thepage}{}{}%
    }
    \def\hi@xref@writetan##1##2{%
        \hi@xref@writetoaux{##1}{##2}{p. }{pp. }{\thepage}{ and notes}{}%
    }
}
\appto\hi@hooks@review{\hi@xref@opt@noterefs}
\appto\hi@hooks@memo{\hi@xref@opt@pagerefs}
\def\hi@xref@writenote#1#2{%
    \hi@xref@writetoaux{#1}{#2}{note }{notes }{\thefootnote}{}{}%
}
\def\hi@xref@writefloat#1#2{%
    \hi@xref@writetoaux{#1}{#2}%
        {\csname \@captype name\endcsname\space}% Both Table and Figure can
        {\csname \@captype name\endcsname s }%    be pluralized with just `s'
        {\@currentlabel}{}{}%
}
```

4   Using Cross-References

The ordinary citation commands are used to produce a cross-reference citation, using the pseudo-reference this with the "page number" being the cross-reference label. For example, assuming that `section-i` is defined as a label:

```
\sentence{see this at section-i (providing
background)}.
```

As this example suggests, cross-reference citation items can include parentheticals and signals, just like ordinary citation items.

Cross-references to floats and sections can also be used inline, producing text like "Figure *X*." Again, the syntax mirrors inline citations for other references:

```
Data is shown in \inline{this at section-i}.
```

Defines the pseudo-reference macro for cross-citations. Note that there are no *id.* citations for cross-references, so that form is set to be the same as the full citation.

```
\def\fc@this{%
    \ifx\@this@page\relax \hi@xref@nopageerr \else
        \if@hi@inline
            \expandafter\hi@xref@inline\@this@page
        \else
            \expandafter\hi@xref@cite\@this@page
        \fi
    \fi
}
\def\hi@xref@nopageerr{%
    \PackageError\hi@pkgname{No page number given for cross-reference}{%
        Give the name of the cross-reference label as the page number%
    }%
```

```
    }
\def\hi@xref@inline#1#2#3{%
    \ifblank{#1}{#3}{#1}%
}
\def\hi@xref@cite#1#2#3{%
    \ifx\@this@opt\relax
        \hi@name@only{\ifblank{#1}{}{#1 }}%
    \else
        \@this@opt\space
    \fi
    #2 #3%
}
\let\idc@this\fc@this
```

\@this@page will be defined as a three-element macro: first, the text going before supra/infra, second, the word supra or infra, and third, the numbers going after.

```
\def\pc@this#1{%
    \@ifundefined{r@#1}{%
        \G@refundefinedtrue
        \PackageWarning\hi@pkgname{Reference `#1' undefined}%
        \def\@this@page{{}{}{\textbf{??#1}}}%
    }{%
        \@ifundefined{r@end:#1}{%
            \@expand{%
                \@unbrace{\hi@xref@noend{#1}}%
            }{\csname r@#1\endcsname}{ii}%
        }{%
            \@expand{%
                \@unbrace{%
                    \@expand{%
                        \@unbrace{\hi@xref@withend{#1}}%
                    }{\csname r@#1\endcsname}{ii}%
                }%
            }{\csname r@end:#1\endcsname}{ii}%
        }%
    }%
}
```

#1 is the reference name, #2–#5 are the parameters of the label.
```
\def\hi@xref@noend#1#2#3#4#5{%
    \hi@xref@withend{#1}{#2}{#3}{#4}{#5}{#3}{#4}%
}
```

#1 is the reference name, #2–#5 are the parameters of the label, #6-#7 are the parameters of the end label.
```
\def\hi@xref@withend#1#2#3#4#5#6#7{%
    \def\@this@page{{#2}}%
    \@ifundefined{hir@#1}{%
        \appto\@this@page{{\hi@fn@sig{infra}}}%
    }{%
        \appto\@this@page{{\hi@fn@sig{supra}}}%
    }%
    \def\reserved@a{#4}\def\reserved@b{#7}%
    \ifx\reserved@a\reserved@b
        \appto\@this@page{{#3#4#5}}%
    \else
        \appto\@this@page{{#6#4--#7#5}}%
    \fi
}
```