bib2gls: a command line Java application to convert .bib files to glossaries-extra.sty resource files

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The bib2gls command line application can be used to extract glossary information stored in a .bib file and convert it into glossary entry definitions that can be read using glossaries-extra’s \GlsXtrLoadResources command. When used in combination with the record package option, bib2gls can select only those entries that have been used in the document, as well as any dependent entries, which reduces the \TeX resources required by not defining unnecessary commands.

Since bib2gls can also sort and collate the recorded locations present in the .aux file, it can simultaneously by-pass the need to use makeindex or xindy, although bib2gls can be used together with an external indexing application if required. (For example, if a custom xindy rule is needed.)

An additional build may be required to ensure the locations are up-to-date as the page-breaking may be slightly different on the first \TeX run due to the unknown references being replaced with ?? which can be significantly shorter than the actual text produced when the reference is known.

Note that bib2gls is a Java application, and requires at least Java 8.\footnote{The List.sort method used to sort the entries was only introduced to Java 8.} Additionally, glossaries-extra must be at least version 1.12. (Although the latest version is recommended.) This application was developed in response to the question “Is there a program for managing glossary tags?” on \TeX on StackExchange [17]. The .bib file can be managed in an application such as JabRef.

If you already have a .tex file containing entry definitions using commands like \newglossaryentry then you can use the supplementary tool convert-gls2bib to convert the entries to the .bib format required by bib2gls. See chapter 7 for further details.
The supplementary file “glossaries-extra and bib2gls: An Introductory Guide” (bib2gls-begin.pdf) is an introductory guide to the glossaries-extra package, which you may prefer to start with if you are unfamiliar with the glossaries and glossaries-extra packages.
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1 Introduction

If you have extensively used the glossaries [14] or glossaries-extra [13] package, you may have found yourself creating a large .tex file containing many definitions that you frequently use in documents. This file can then simply be loaded using \input or \loadglsentries, but a large file like this can be difficult to maintain and if the document only actually uses a small proportion of those entries, the document build is unnecessarily slow due to the time and resources taken on defining the unwanted entries.

The aim of bib2gls is to allow the entries to be stored in a .bib file, which can be maintained using a reference system such as JabRef. The document build process can now be analogous to that used with bibtex (or biber), where only those entries that have been recorded in the document (and possibly their dependent entries) will be extracted from the .bib file. Since bib2gls can also perform hierarchical sorting and can collate location lists, it doubles as an indexing application, which means that the makeglossaries step can be skipped. Note that bib2gls doesn’t warn you if an entry that’s referenced in the document doesn’t exist in any of the supplied .bib files, but instead relies on the glossaries-extra package to generate the warning. So at the end of the document build check the .log file for warnings.

You can’t use \glsaddall with bib2gls as that command works by iterating over all defined entries and calling \glsadd{⟨label⟩}. On the first \LaTeX run there are no entries defined, so \glsaddall does nothing. If you want to select all entries, just use selection={all} instead (which has the advantage over \glsaddall in that it doesn’t create a redundant location for each entry).

Note that bib2gls requires the extension package glossaries-extra and can’t be used with just the base glossaries package, since it requires some of the extension commands. See the glossaries-extra user manual [13] for information on the differences between the basic package and the extended package, as some of the default settings are different.

Since the information used by bib2gls is written to the .aux file, it’s not possible to run bib2gls through \TeX’s shell escape while the .aux file is open for write access. (The .aux file is closed after the end document hook, so it can’t be deferred with \AtEndDocument.) This means that if you really want to run bib2gls through \write18 it must be done in the preamble with \immediate. For example:

\immediate\write18{bib2gls \jobname}

As from version 1.14 of glossaries-extra, this can be done automatically with the automake option if the .aux file exists. (Remember that this will require the shell escape to be enabled.)
1.1 Example Use

The glossary entries are stored in a .bib file. For example, the file entries.bib might contain:

@entry{bird,
  name={bird},
  description = {feathered animal}
}

@abbreviation{html,
  short="html",
  long={hypertext markup language}
}

@symbol{v,
  name={$\vec{v}$},
  text=\vec{v},
  description={a vector}
}

@index{goose,plural="geese"}

Here’s an example document that uses this data:
\documentclass{article}
\usepackage[record]{glossaries-extra}
\GlsXtrLoadResources[
  src={entries},% data in entries.bib
  sort={en-GB}% sort according to 'en-GB' locale
]
\begin{document}
\Gls{bird} and \gls{goose}. Symbol: $\gls{v}$. Abbreviation: \gls{html}.
\printunsrtglossaries
\end{document}

If this document is called myDoc.tex, the build process is:
\texttt{pdflatex myDoc}
\texttt{bib2gls myDoc}
\texttt{pdflatex myDoc}
1.1 Example Use

(This manual assumes \texttt{pdflatex} for simplicity. Replace with \texttt{latex}, \texttt{xelatex} or \texttt{lualatex} as appropriate.) If you want letter groups (either headed, with styles like \texttt{indexgroup}, or just a blank line separator with \texttt{nogroupskip=\{false\}}) then you need to use the \texttt{--group} switch:

\begin{verbatim}
pdflatex myDoc
bib2gls --group myDoc
pdflatex myDoc
\end{verbatim}

You can have multiple instances of \texttt{\textbackslash GlsXtrLoadResources}. For example:

\begin{verbatim}
\documentclass{article}
\usepackage[record,index,abbreviations,symbols]{glossaries-extra}

\GlsXtrLoadResources[
  src={entries},% data in entries.bib
  sort={en-GB},% sort according to 'en-GB' locale
  match={entrytype={entry}},% only select \texttt{@entry}
  type={main}%,% put these entries in the 'main' glossary
]

\GlsXtrLoadResources[
  src={entries},% data in entries.bib
  sort={en-GB},% sort according to 'en-GB' locale
  match={entrytype={abbreviation}},% only select \texttt{@abbreviation}
  type={abbreviations},% put these in the 'abbreviations' glossary
]

\GlsXtrLoadResources[
  src={entries},% data in entries.bib
  sort={letter-case},% case-sensitive letter sort
  match={entrytype={symbol}},% only select \texttt{@symbol}
  type={symbols},% put these entries in the 'symbols' glossary
]

\GlsXtrLoadResources[
  src={entries},% data in entries.bib
  sort={en-GB},% sort according to 'en-GB' locale
  match={entrytype={index}},% only select \texttt{@index}
  type={index},% put these entries in the 'index' glossary
]
\end{verbatim}

\begin{document}
\Gls{bird} and \gls{goose}.
Symbol: $\gls{v}$. Abbreviation: \gls{html}.
\end{document}
1.2 Logical Divisions: **type vs group vs parent**

\printunsrtglossaries
\end{document}

There are more examples provided in chapter 8.

Note that there’s no need to called \xindy or \makeindex since \bib2gls automatically sorts the entries and collates the locations after selecting the required entries from the \bib file and before writing the temporary file that’s input with \glsxtrresourcenamefile (or the more convenient shortcut \GlsXtrLoadResources). This means the entries are already defined in the correct order, and only those entries that are required in the document are defined, so \printunsrtglossary (or \printunsrtglossaries) may be used. (The “unsrt” part of the command name indicates that all defined entries should be listed in the order of definition from glossaries-extra’s point of view, see the supplementary document “glossaries-extra and bib2gls: An Introductory Guide” (bib2gls-begin.pdf) for further details.)

If you don’t provide a value with the \record option, then \record={only} is assumed. This saves the same indexing information that’s used with the \makeglossaries and \makeindex methods (described in the main glossaries user manual [14]). As from glossaries-extra version 1.37, you can instead use \record={nameref}, which saves some extra information for each location that’s not available for the other indexing methods. See \--merge-nameref-on for further details.

If you additionally want to use an indexing application, such as \xindy, you need the package option \record={alsoindex} and use \makeglossaries and \printglossary (or the iterative \printglossaries) as usual. This requires a more complicated build process:

\begin{verbatim}
pdflatex myDoc
bib2gls myDoc
pdflatex myDoc
makeglossaries myDoc
pdflatex myDoc
\end{verbatim}

(The entries aren’t defined until the second \LaTeX run, so the indexing files required by \xindy or \makeindex can’t be created until then.) In this case, \bib2gls is simply being used to fetch the entry definitions from one or more \bib files, with the sorting and collating performed by the other indexing application (so the resource option list would need sort={none} and save-locations={false}). In general, it’s best to avoid this hybrid method unless you have a particular set of \xindy rules that can’t be replicated with \bib2gls.

1.2 **Logical Divisions:** **type vs group vs parent**

If you have a document with many terms that need listing, it’s likely that you may want to divide the terms into separate blocks or units for easier reading. There are three fields that are used for this.

\footnote{This document will mostly use the more convenient \GlsXtrLoadResources.}
1.2 Logical Divisions: type vs group vs parent

**type** The highest division is the glossary to which the entry belongs. The glossary must first be defined (see section 1.3) with an associated label used to identify it. The title is assigned to the glossary when it is defined or it can be overridden with the `title` key. The glossary is displayed using `\printunsrtglossary` and the title is placed in a sectioning command by default.

```
bib2gls does not provide any means of sorting glossary types. If you use \printunsrtglossaries the order will be according to the order in which the glossaries were defined. You may use \printunsrtglossary to list individual glossaries in your own preferred order.
```

**group** The entries within a glossary can form groups as a by-product of the sorting method. This must be enabled with the --group switch and isn’t available for the sort methods listed in table 5.1. The group label is stored in the `group` field. This is an internal field that typically shouldn’t be set in the `.bib` file.

You can specify your own custom groups but if you do so you must ensure that the terms are ordered in such a way that they are gathered according to group. This is typically done by splitting the glossary into blocks using a separate `\GlsXtrLoadResources` with the group option set. You control the order of the groups by your ordering of `\GlsXtrLoadResources`. The group title can be assigned using `\glsxtrsetgrouptitle` within the document.

```
bib2gls does not sort by group title. At most it can sort by the group label (by changing the sort-field) but this is usually an indication that you actually have a hierarchical glossary and you ought to be using the parent field instead. (Compare sample-textsymbols.tex and sample-textsymbols2.tex.)
```

**parent** An entry may have one or more sub-entries. Most of the sort methods will produce a hierarchical ordering that ensures that the sub-entries are listed immediately after their parent entry. The parent entry is identified by the `parent` field which should contain the parent’s label.

```
bib2gls sorts the parent and child entries using the same comparator. The sort methods listed in table 5.1 disregard the hierarchical level, which can result in child entries becoming detached from their parent entry. The other methods sort hierarchically using the same comparator but take the hierarchical level into account.
```

Suppose you have a mixture of terms, abbreviations and symbols, then you might want to have three glossaries that are listed in the table of contents. In this case, you use the `type` field or the `type` resource option. The ordering of the glossaries is determined by the ordering of the `\printunsrtglossary` commands within the document. For example:
1.2 Logical Divisions: type vs group vs parent

Suppose that your list of terms spans many pages and you feel it would be helpful to the reader to split it up into letter groups then you would need to run bib2gls with the --group switch and use a glossary style that supports letter groups for that glossary. For example:

\printunsrtglossary
\printunsrtglossary[type={abbreviations}]
\printunsrtglossary[type={symbols}]

Suppose that your list of symbols consists of pictographs, Latin characters and Greek characters and you want them grouped together in that order. Then you would use a separate \GlsXtrLoadResources for each block and assign your own custom group. This means ensuring that each resource set only selects the terms for that group. The simplest way of doing this is to have a separate .bib file for each set. For example:

\glsxtrsetgrouptitle{pictographs}{Pictographs}
\glsxtrsetgrouptitle{latinsymbols}{Latin Characters}
\glsxtrsetgrouptitle{greeksymbols}{Greek Characters}
\GlsXtrLoadResources[
  src={generalsymbols},% data in generalsymbols.bib
  group={pictographs},
  type={symbols}
]
\GlsXtrLoadResources[
  src={latinsymbols},% data in latinsymbols.bib
  group={latin},
  type={symbols}
]
\GlsXtrLoadResources[
  src={greeksymbols},% data in greeksymbols.bib
  group={greek},
  type={symbols}
]

Suppose instead that you have many of these logical blocks and you want them ordered according to the block title. In this case you have a hierarchical glossary and you need to use the parent field. You then need to select an appropriate glossary style.

If you only want to have a single .bib file that contains all your entries and you want to share it across multiple documents then the most flexible approach is to use custom fields and entry types that can be aliased according to the needs of the resource sets.

For example, the file entries.bib:

% Encoding: UTF-8

@indexplural{latin,text={Latin character}}
1.2 Logical Divisions: type vs group vs parent

@indexplural{greek,text={Greek character}}
@indexplural{pictograph}

@symbol{fx, name={\ensuremath{f(x)}}, description={function of $x$}, identifier={latin}}

@symbol{f'x, name={\ensuremath{f'(x)}}, description={derivative of \gls{fx}}, identifier={latin}}

@symbol{pi, name={\ensuremath{\pi}}, description={ratio of circumference to diameter}, identifier={greek}}

@symbol{heart, name={\ensuremath{\heartsuit}}, description={heart}, identifier={pictograph}}

@symbol{diamond, name={\ensuremath{\diamondsuit}}, description={diamond}, identifier={pictograph}}

@abbreviation{html, short={html}, long={hypertext markup language}, identifier={markuplanguage}}

@abbreviation{xml, short={xml}, long={extensible markup language}, identifier={markuplanguage}}
1.2 Logical Divisions: type vs group vs parent

@entry{duck,
  name={duck},
  description={a waterbird with webbed feet},
  identifier={animal}
}

@entry{parrot,
  name={parrot},
  description={mainly tropical bird with bright plumage},
  identifier={animal}
}

This has a custom field identifier. This will be ignored by bib2gls unless defined or aliased in the document.

Here’s an example document that creates three glossary types (the default main glossary and the glossaries created with the abbreviations and symbols options). They are listed in the order of \printunsrtglossary and their titles are added to the table of contents.

The custom identifier fields are ignored for the main and abbreviation glossaries, but they are aliased for the symbols to the group field. Since I’ve split the symbols glossary into blocks with each block only containing entries that have the same group value, this isn’t a problem. It also won’t trigger a warning with --warn-non-bib-fields as it’s being aliased rather than set in the .bib file. The blocks appear in the same order as the corresponding \GlsXtrLoadResources commands. The title for each block is provided in the document using \glsxtrsetgrouptitle.

\documentclass{article}
\usepackage[record,abbreviations,symbols]{glossaries-extra}
\renewcommand{\GlsXtrDefaultResourceOptions}{
  selection=all,src=entries,save-locations=false}
\GlsXtrLoadResources[type=main,match={entrytype=entry}]
\GlsXtrLoadResources[type=abbreviations,match={entrytype=abbreviation}]
\glsxtrsetgrouptitle{pictograph}{Pictographs}
\GlsXtrLoadResources[type=symbols,field-aliases={identifier=group},match={group=pictograph}]
\glsxtrsetgrouptitle{latin}{Latin Characters}
\GlsXtrLoadResources[type=symbols,field-aliases={identifier=group},
1.2 Logical Divisions: \textit{type vs group vs parent}

match={group=latin}]

\glsxtrsetgrouptitle{greek}{Greek Characters}
\GlsXtrLoadResources[type={symbols},
field-aliases={identifier=group},
match={group=greek}]

\begin{document}
\tableofcontents
\printunsrtglossary[type={abbreviations}]
\printunsrtglossary
\printunsrtglossary[type={symbols},style={treegroup}]
\end{document}

In the above example document, the symbols list is divided into three groups, listed in the order: Pictographs, Latin characters and Greek characters. If you want these titles ordered alphabetically then you need a hierarchical structure instead. This can be obtained by aliasing the custom \texttt{identifier} field to \texttt{parent}:

\documentclass{article}
\usepackage[record,stylemods={topic},abbreviations,symbols]{glossaries-extra}
\renewcommand{\GlsXtrDefaultResourceOptions}{%
selection={all},src={entries},save-locations={false}}
\GlsXtrLoadResources[type={main},match={entrytype=entry}]
\GlsXtrLoadResources[type={abbreviations},
match={entrytype=abbreviation}]
\GlsXtrLoadResources[type={symbols},
field-aliases={identifier=parent},
match={entrytype=symbol,entrytype=indexplural}]
\begin{document}
\tableofcontents
\printunsrtglossary[type={abbreviations}]
\printunsrtglossary
\printunsrtglossary[type={symbols},style={topic}]
\end{document}

The style used for the symbols list is now \textit{topic} rather than \textit{treegroup}. This results in a slightly different appearance. You can select the most appropriate style according to your needs (see the gallery of predefined styles [15]). The topic ordering is now: Greek characters, Latin characters and Pictographs.
1.3 Defining a New Glossary

Some of the examples in this manual use \newglossary* to define a new glossary type and some use \newignoredglossary or \newignoredglossary*. Why the starred forms and why define an ignored glossary?

The base glossaries package was originally designed to work with makeindex. Support for xindy was later added, but both require three files per glossary type: the transcript file (created by the indexing application), the file written by \TeX{} (and input by the indexing application) and the file input by \TeX{} (and written by the indexing application). So when a new glossary is defined with \newglossary, this not only defines internal control sequences that store the list of entry labels associated with that glossary, the title and the entry format but also has to define internal control sequences that store the three file extensions. The starred form \newglossary* is just a shortcut that forms the extensions from the glossary label. For the purposes of bib2gls, this is simpler than the unstarred version since the extensions are now irrelevant as they are only applicable to makeindex and xindy. (Unless, of course, you are using a hybrid method with \texttt{record=alsoindex}.)

Since some users wanted the ability to define entries that were common enough to not be worth including in any glossary lists, the concept of an ignored glossary was introduced, defined with \newignoredglossary. This only requires an internal control sequence to store the list of entry labels associated with that glossary\footnote{All entries must be assigned to a glossary. If you don’t use the \texttt{type} field the default is used.} and the associated internal command that governs the way that commands like \gls are displayed for that glossary type. Since this type of glossary has no associated files, it can’t be used with \printglossary and therefore isn’t included in the list of glossary labels that’s iterated over by commands like \printglossaries. Since there’s no glossary list (and therefore no targets), \newignoredglossary additionally disables hyperlinks for that glossary type, but it doesn’t disable indexing. The indexing macro is still called, but because there’s no associated file to write to, it has no effect. With bib2gls, the indexing is written to the \texttt{.aux} file and so does have an effect.

Although ignored glossaries can’t be used with \printglossary, they can be used with \printunsrtglossary, which is designed to work without any indexing, but you need to explicitly set the title in the optional argument to override the default. Ignored glossaries still can’t be used in \printunsrtglossaries, since they’re not included in the list that this command iterates over.

So \newignoredglossary (or \provideignoredglossary) is useful with bib2gls if you’re happy to use \printunsrtglossary with the \texttt{type} and \texttt{title} options as it reduces the overall number of internal control sequences. Ignored glossaries are also useful for standalone definitions (\glsxtrglossentry) or with \printunsrtinnerglossary as no title is required in those cases (see \texttt{sample-nested.tex} for an example).

Since there is now the possibility of targets (created within \printunsrtglossary or \printunsrtinnerglossary or \glsxtrglossentry), it’s convenient to have an ignored glossary that doesn’t suppress the hyperlinks, which can be obtained with the starred form \newignoredglossary* provided by glossaries-extra (or \provideignoredglossary*).
Some resource options, such as **master**, **secondary** and **trigger-type**, need to ensure that a required glossary is defined. In this case, bib2gls uses `\provideignoreddglossary*` in the `.glstex` file even if `--no-provide-glossaries` is set. If you haven’t already defined that glossary in the document with `\newglossary*`, you’ll need to set the title in the optional argument of `\printunsglossary` if you don’t want the default. The glossary won’t be defined on the first run (if the definition is only provided in the `.glstex` file) but `\printunsglossary` will just give a warning if the type is undefined so it won’t interrupt the document build.

If you want bib2gls to automatically provide unknown glossaries for all entries that have the *type* field set (unrelated to the **master**, **secondary** and **trigger-type** options) then use the `--provide-glossaries` switch.

The base glossaries package provides a command that can be used to test the existence of a glossary:

```
\ifglossaryexists{⟨label⟩}{⟨true⟩}{⟨false⟩}
```

The unstarred version considers ignored glossaries as non-existent (and so will do `⟨false⟩` for an ignored glossary). As from v4.46, this command now has a starred version `\ifglossaryexists*` that considers ignored glossaries as existing (and so will do `⟨true⟩` for an ignored glossary). In the event that you have an older version of glossaries, the glossaries-extra package (v1.44+) will provide the starred form if it hasn’t been defined. (In general, it’s best to have up-to-date versions of both glossaries and glossaries-extra.)

### 1.4 Resource Sets

Each instance of `\glsxtrresourcefile` or `\GlsXtrLoadResources` in the document represents a resource set. Each resource set has one or more associated `.bib` files that provides the data for that set. Command line switches (chapter 3) are applied to all resource sets. Resource options (chapter 5) are only applied to that specific resource set. Each resource set is processed in stages:

**Stage 1 (Initialisation)** Occurs after the `.aux` file has been read, this stage parses the resource option list and ensures options are valid and don’t cause a conflict. The transcript will show the message

```
Initialising resource ⟨resource-name⟩
```

at this point.

**Stage 2 (Parsing)** All the `.bib` files associated with the resource set are parsed. Entry aliases (identified by `entry-type-aliases`) are performed. The multi-entry types, such as `@bibtexentry` and `@progenitor`, spawn their associated primary entries. Preamble information (provided by `@preamble`) is saved but is not interpreted at this stage. The transcript will show the message
1.4 Resource Sets

Parsing bib files for resource \(resource-name\)
at this point.

Stage 3 (Processing Entries) The transcript will show the message

Processing resource \(resource-name\)
at this point. For each entry that was found in the corresponding set of .bib files:

- Records are transferred to aliases if required (\texttt{alias-loc}).
- Field checks and modifications are performed:
  - field aliases are performed (\texttt{field-aliases});
  - ignored fields (identified by \texttt{ignore-fields}) are removed;
  - case-changes (for example, \texttt{short-case-change}) are performed, except for the \texttt{name} field and fields identified with \texttt{field-case-change};
  - suffixes are appended if required (for example, with \texttt{short-plural-suffix});
  - field replications are made (\texttt{replicate-fields}), and any of the above case-change or suffixes required on the replicated fields are performed;
  - the \texttt{group} field is assigned if \texttt{group={⟨label⟩}} is set;
  - any variables (identified by \texttt{@string}) are expanded (if not already done in any of the previous steps);
  - any fields that have been identified by \texttt{bibtex-contributor-fields} are converted;
  - any fields that have been identified with \texttt{encapsulate-fields} are converted;
  - any fields that have been identified with \texttt{encapsulate-fields*} are converted;
  - any fields that must be converted into a label form (\texttt{labelify} or \texttt{labelify-list}) are processed;
  - any fields identified by \texttt{dependency-fields} are parsed for dependent entries;
  - any fields whose value must be a label are interpreted if \texttt{interpret-label-fields} is set;
  - the \texttt{parent} field is adjusted according to the label prefix settings (\texttt{label-prefix} etc);
  - \texttt{\textbackslash makefirstuc} protection is applied according to \texttt{--mfirstuc-protection} and \texttt{--mfirstuc-math-protection};
1.4 Resource Sets

- fields are parsed for commands like \gls or \glshyperlink and also checked for nested links if --nested-link-check is set;
- the description field is adjusted according to strip-trailing-nopost;
- end punctuation is checked according to check-end-punctuation;
- name case-change is performed if name-case-change is set;
- if copy-alias-to-see={true} the alias is copied to the see field;
- general field case changes identified by field-case-change are performed;
- any fields that have been identified with interpret-fields are replaced with their interpreted values;
- check for nonumberlist.

- The dual version (if appropriate) is created.
- Records are added to the entry’s location list (or transferred to the dual/primary according to combine-dual-locations).
- The type, category and counter fields are set according to type, dual-type, category, dual-category, counter and dual-counter.
- Filtering is applied (according to options like match but not selection or limit).
- Required fields are checked for existence.
- Dependencies are registered (if selection={recorded and deps} or selection ={recorded and deps and see}).
- Any fields that have been identified by date-time-fields, date-fields or time-fields are converted.

If selection={recorded and deps and see} then any recorded entries that have been cross-referenced by an unrecorded entry, will register a dependency with the unrecorded entry. Finally, supplemental records are added to entries.

Stage 4 (Selection, Sorting, Writing) Entries are selected from the list according to the selection setting, sorting is performed (if required), truncation is applied (if limit is set) and the .glstex file is written. The transcript will show the message

Selecting entries for resource \textit{(resource-name)}

or (if master)

Processing master \textit{(resource-name)}

at this point.
1.4 Resource Sets

Parent entries must always be in the same resource set as their child entries. (They may be defined in different .bib files as long as all those .bib files are listed in the same src.) Other forms of dependencies may be in a different resource set under certain circumstances. These types of dependencies are instances of commands such as \gls being found (for example, in the description field), or the cross-reference fields (see, seealso or alias or fields identified with dependency-fields) in recorded entries that reference unrecorded entries.

The “cross-referenced by” dependencies enabled with selection={recorded and deps and see} (where an unrecorded entry references a recorded entry through the cross-reference fields) aren’t supported across resource sets (even with --force-cross-resource-refs).

A cross-resource reference is a reference from a recorded entry provided in one resource set to an unrecorded entry in another resource set. Since the contents of each resource set’s preamble must be processed before fields can be interpreted and one resource set’s preamble may contain definitions that override another, cross-resource references can’t be supported if fields containing cross-referencing information need to be interpreted.

The cross-resource reference mode determines whether or not bib2gls can support cross-resource references. If enabled, the message

Cross-resource references allowed.

will be written to the transcript otherwise the message is

Cross-resource references disabled.

The mode can only be enabled if the following condition is satisfied:

• the interpreter is off (--no-interpret), or
• every resource set either doesn’t have a preamble (@preamble) or has interpret -preamble={false} set.

If you know the preamble contents won’t cause a problem, you can force the cross-resource references mode on with --force-cross-resource-refs.

If you don’t use either selection={recorded and deps} or selection={recorded and deps and see} then the dependencies aren’t picked up for that resource set (and so can’t be cross-referenced from another resource set).

Trails don’t work with cross-resource references. For example, if entry A has been recorded and depends on entry B that hasn’t been recorded, then B can be picked up from a different resource set, but if A and B are in the same resource set and B is dependent on C which is in a different resource set then C won’t be picked up if it hasn’t been recorded because B hasn’t been recorded and is in a different resource set.

If the cross-resource reference mode is enabled then stage 3 and stage 4 are processed in separate loops, otherwise they are processed in the same loop.
1.5 Indexing

The dual index entries such as `@dualindexentry` (described in section 4.6) are designed to provide a way of including an entry in a glossary (with a description) and also include the term (without the description) in an index. Additional terms that should only appear in the index can be defined with `@index`. (See, for example, the `sample-multi1.tex` and `sample-multi2.tex` sample files.)

Although bib2gls is designed to create indexes as well as glossary lists using the same interface (\gls etc), it is possible to have a mixture of bib2gls and \index. For example:

\documentclass{report}
\usepackage{makeidx}
\usepackage[record]{glossaries-extra}
\makeindex
\GlsXtrLoadResources[src={entries}]
\glssetcategoryattribute{general}{dualindex}{true}
\glssetcategoryattribute{symbol}{dualindex}{true}
\glssetcategoryattribute{abbreviation}{dualindex}{true}
\glssetcategoryattribute{general}{indexname}{hyperbf}
\glssetcategoryattribute{symbol}{indexname}{hyperbf}
\glssetcategoryattribute{abbreviation}{indexname}{hyperbf}
\begin{document}
\chapter{Example}
\gls{bird}, \gls{html}, $\gls{v}$ and \glspl{goose}.
\printunsrtglossaries
\printindex
\end{document}

If the document is called `myDoc.tex` then the document build is:

```latex
pdflatex myDoc
bib2gls myDoc
pdflatex myDoc
makeindex myDoc.idx
pdflatex myDoc
```

This requires an additional \TeX call between bib2gls and makeindex since the entries must be defined before they can be indexed (and they can't be defined until bib2gls creates the associated .glstex files).
1.6 Security

Note that this method will use the sort value obtained by \texttt{bib2gls} as the \langle\texttt{sort}\rangle part within \texttt{\index{\langle\texttt{sort}\rangle@\langle\texttt{actual}\rangle}}. Be careful if you use \texttt{makeindex} as this can result in Unicode characters appearing in the sort value, which \texttt{makeindex} doesn’t support. The \langle\texttt{actual}\rangle part is given by \texttt{\glsentryname{\langle\texttt{label}\rangle}}. (You can change the \langle\texttt{sort}\rangle and \langle\texttt{actual}\rangle parts by redefining \texttt{\glsxtrautoindexassigns\texttt{sort} and \glsxtrautoindexentry}. See the glossaries-extra manual for further details.)

1.6 Security

\TeX\ Live come with security settings openin\texttt{\_\_any} and openout\texttt{\_\_any} that, respectively, govern read and write file access (in addition to the operating system’s file permissions). \texttt{bib2gls} uses \texttt{kpsewhich} to determine these values and honours them. MikTeX doesn’t use these settings, so if these values are unset, \texttt{bib2gls} will default to a (any) for openin\texttt{\_\_any} and p (paranoid) for openout\texttt{\_\_any}.

The only external processes that are run by \texttt{bib2gls} are calls to \texttt{kpsewhich} to check the security settings and locate files on \TeX\’s path. These are started with Java’s \texttt{ProcessBuilder} class so there should be no issues with spaces or shell special characters in the argument. The \texttt{--debug} switch will write the process call in the transcript file and will delimit the argument in the log with single quote characters for convenience, but the process isn’t actually called in that way.

\texttt{bib2gls} creates files with the extension \texttt{.glistex}, which are input by \texttt{\glsxtrresourcefile} (and therefore by the shortcut \texttt{\GlsXtrLoadResources}). This extension is fixed and is imposed by both \texttt{bib2gls} and \texttt{\glsxtrresourcefile}. \texttt{bib2gls} also creates a transcript file with the default extension \texttt{.glg}. This may be overridden by the \texttt{--log\_file} switch, but \texttt{bib2gls} always forbids write access to any file with the following extensions: \texttt{.tex}, \texttt{.ltx}, \texttt{.sty}, \texttt{.cls}, \texttt{.bib}, \texttt{.dtx}, \texttt{.ins}, \texttt{.def} and \texttt{.ldf}.

1.7 Localisation

The messages produced by \texttt{bib2gls} are fetched from a resource file called \texttt{bib2gls-\langle\texttt{lang}\rangle.xml}, where \langle\texttt{lang}\rangle is a valid Internet Engineering Task Force (\texttt{ietf}) language tag.

The appropriate file is searched for in the following order, where \langle\texttt{locale}\rangle is the operating system’s locale or the value supplied by the \texttt{--locale} switch:

1. \langle\texttt{lang}\rangle exactly matches \langle\texttt{locale}\rangle. For example, my locale is \texttt{en-GB}, so \texttt{bib2gls} will first search for \texttt{bib2gls-en-GB.xml}. This file doesn’t exist, so it will try again.

2. If \langle\texttt{locale}\rangle has an associated script, the next try is with \langle\texttt{lang}\rangle set to \langle\texttt{lang code}\rangle-\langle\texttt{script}\rangle where \langle\texttt{lang code}\rangle is the two letter ISO language code and \langle\texttt{script}\rangle is the script code. For example, if \langle\texttt{locale}\rangle is \texttt{sr-RS-Latn} then \texttt{bib2gls} will search for \texttt{bib2gls-sr-RS-Latn.xml} if \texttt{bib2gls-sr-RS-Latn.xml} doesn’t exist.

3. The final attempt is with \langle\texttt{lang}\rangle set to just the two letter ISO language code. For example, \texttt{bib2gls-sr.xml}.

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If there is no match, bib2gls will fallback on the English resource file bib2gls-en.xml. (Currently only bib2gls-en.xml exists as my language skills aren’t up to translating it. Any volunteers who want to provide other language resource files would be much appreciated.)

Note that if you use the \texttt{loc-prefix={true}} option, the textual labels (“Page” and “Pages” in English) will be taken from the resource file. In the event that the loaded resource file doesn’t match the document language, you will have to manually set the correct translation (in English, this would be \texttt{loc-prefix={Page,Pages}}). The default definition of \texttt{\bibgls-passim} is also obtained from the resource file.

1.8 Conditional Document Build

If you are using a document build method that tries to determine whether or not bib2gls should be run, you can find the information by searching the .aux file for instances of \texttt{\glsxtr@resource{⟨options⟩}{⟨filename⟩}}

Each instance corresponds to an instance of \texttt{\glsxtrresource} where \texttt{⟨filename⟩} is the base name of the .glstex file that bib2gls needs to create for this resource set. If the \texttt{⟨options⟩} part is missing the \texttt{src} option, then \texttt{⟨filename⟩} also indicates the base name for the .bib file.

So the simplest check to determine if bib2gls needs to be run is to test if the .aux file contains \texttt{\glsxtrresource}. For example, with arara version 4.0:

\verb|% arara: bib2gls if found("aux", "glsxtrresource")|

A sophisticated method could check if \texttt{⟨filename⟩}.glstex is missing or is older than the document .tex file for each instance of \texttt{\glsxtrresource} found in the .aux file.

It might also be possible, although far more complex, to parse the \texttt{⟨options⟩} part in each instance of \texttt{\glsxtrresource} for \texttt{src} and determine if the corresponding .bib file or files are newer than the .tex file.

It’s not possible to determine if the location lists require updating, just as it’s not possible to do this for the table of contents (toc), list of figures, list of tables etc. (Or, if it could be implemented, the required code would make the document build far more complicated.)

In general, the basic algorithm is:

1. Run \texttt{\LaTeX} (or PDF\texttt{\LaTeX} etc).

2. If \texttt{\glsxtrresource} is found in the .aux file then:
   a) run bib2gls;
   b) run \texttt{\LaTeX} (or PDF\texttt{\LaTeX} etc).

3. If \texttt{@istfilename} is found in the .aux file then:
   a) run makeglossaries (or makeglossaries-lite);
   b) run \texttt{\LaTeX} (or PDF\texttt{\LaTeX} etc).

This allows for the \texttt{record={alsoindex}} package option. See also “Incorporating makeglossaries or makeglossaries-lite or bib2gls into the document build” [12].
1.9 Manual Installation

If you are unable to install bib2gls through your \TeX\ package manager, you can install manually using the instructions below. Replace \((TEXMF)\) with the path to your local or home TEXMF tree (for example, \texttt{~/texmf}).

Copy the files provided to the following locations:

- \((TEXMF)/scripts/bib2gls/bib2gls.jar\) (Java application.)
- \((TEXMF)/scripts/bib2gls/convertgls2bib.jar\) (Java application.)
- \((TEXMF)/scripts/bib2gls/texparserslib.jar\) (Java library.)
- \((TEXMF)/scripts/bib2gls/resources/bib2gls-en.xml\) (English resource file.)
- \((TEXMF)/doc/support/bib2gls/bib2gls.pdf\) (This document.)
- \((TEXMF)/doc/support/bib2gls/bib2gls-begin.pdf\) (Introductory guide.)

If you use the Unix \texttt{man} command, copy the \texttt{bib2gls.1} and \texttt{convertgls2bib.1} files to the appropriate location.

If you are using a Unix-like system, there are also bash scripts provided called \texttt{bib2gls.sh} and \texttt{convertgls2bib.sh}. Either copy then directly to somewhere on your path without the .sh extension, for example:

\begin{verbatim}
cp bib2gls.sh ~/bin/bib2gls
cp convertgls2bib.sh ~/bin/convertgls2bib
\end{verbatim}

or copy the files to \((TEXMF)/scripts/bib2gls/\) and create a symbolic link to them called just \texttt{bib2gls} and \texttt{convertgls2bib} from somewhere on your path, for example:

\begin{verbatim}
cp bib2gls.sh ~/texmf/scripts/bib2gls/
cp convertgls2bib.sh ~/texmf/scripts/bib2gls/
\cd ~/bin
\ln -s ~/texmf/scripts/bib2gls/bib2gls.sh bib2gls
\ln -s ~/texmf/scripts/bib2gls/convertgls2bib.sh convertgls2bib
\end{verbatim}

The \texttt{texparserslib.jar} file isn’t an application but is a library used by both \texttt{bib2gls.jar} and \texttt{convertgls2bib.jar}, and so needs to be in the same class path. (The library is in a separate GitHub repository [10] as it’s also used by some of my other applications.)

Windows users can create a .bat file that works in a similar way to the bash scripts. To do this, create a file called \texttt{bib2gls.bat} that contains the following:

\begin{verbatim}
@ECHO OFF
FOR /F "tokens=**" %%I IN ('kpsewhich --profilename=bib2gls --format=texmfscripts bib2gls.jar') DO SET JARPATH=%%I
java -Djava.locale.providers=CLDR,JRE -jar "%JARPATH%" %*
\end{verbatim}
1.9 Manual Installation

Save this file to somewhere on your system’s path. (Similarly for convertgls2bib.) Note that \TeX\ distributions for Windows usually convert .jar files to executables.

You may need to refresh \TeX’s database to ensure that kpsewhich can find the .jar files. To test that the application has been successfully installed, open a command prompt or terminal and run the following command:

\begin{verbatim}
bib2gls --version
convertgls2bib --version
\end{verbatim}

This should display the version information for both applications.
The bib2gls application requires the \TeX\ Parser Library \texttt{texparserlib.jar}\(^1\) which is used to parse the .aux and .bib files.

With the --interpret switch on (default), this library is also used to interpret the sort value when it contains a backslash \ or a tilde ~ or a dollar symbol $ or braces \{ \} (and when the sort option is not unsrt or none or use).\(^2\)

The other cases that the interpreter is used for are:

- when set-widest is used to determine the width of the name field;
- if labelify or labelify-list are set the identified field values are first interpreted (if they contain \{ \} - or $) before being converted to labels;
- if interpret-label-fields={true} is set and the parent, category, type, group, seealso or alias fields contain \ or \{ \} the interpreter is used since these fields must be just a label (other special characters aren’t checked as they won’t expand to characters allowed in a label).

Information in the .aux file is parsed for specific commands but the arguments of those commands are not interpreted so, for example, UTF-8 characters that occur in any resource options will need to be detokenized when using \texttt{inputenc} to prevent expansion when they are written to the .aux file. (In some options, such as sort-rule, you can use \texttt{\glshex\{hex\}} syntax to specify a UTF-8 character.)

The --no-interpret switch will turn off the interpreter, but the library will still be used to parse the .aux and .bib files. Note that the see field doesn’t use the interpreter with interpret-label-fields={true} as it may legitimately contain \LaTeX\ code in the optional tag part (such as \texttt{\seealso\texttt{name}} or \texttt{\seealso\texttt{name}}).

The parser has a different concept of expansion to \LaTeX\ and will expand some things that aren’t expanded by \LaTeX\ (such as \texttt{\MakeUppercase} and \texttt{\char}) and won’t expand other commands that would be expanded by \LaTeX\ (such as commands defined in terms of complicated internals).

If you get a StackOverflowError while a field is being interpreted (with a long stack trace that contains repeated file names and line numbers) then it’s likely you have an infinite loop. For example, this can be triggered if a field contains \texttt{\foo} that has been defined as:

\(^1\)\url{https://github.com/nlct/texparser}
\(^2\)The other special characters are omitted from the check: the comment symbol \% is best avoided in field values, the subscript and superscript characters \_ and ^ should either be encapsulated by \$ or by \texttt{\ensuremath}, which will be picked up by the check for \$ or \, and the other special characters would indicate something too complex for the interpreter to handle.
\def \foo{\foo}

This will obviously also cause an error in the \LaTeX document as well (unless the document has a different definition that doesn’t have this unbounded recursion).

The \texttt{texparserlib.jar} library is not a \TeX engine and there are plenty of situations where it doesn’t work. In particular, in this case it’s being used in a fragmented context without knowing most of the packages used by the document or any custom commands or environments provided within the document.

\texttt{bib2gls} can detect from the log file a small number of packages that the parser recognises. Note that in some cases there’s only very limited support. For example, \texttt{siunitx’s \textbackslash si} command is recognised but other commands from that package aren’t. See \texttt{--list-known-packages} (page 34) for further details.

Since the parser doesn’t have a full set of commands available within the \LaTeX document, when it encounters \texttt{\renewcommand} it won’t check if the command is undefined. If the command isn’t defined, it will simply behave like \texttt{\newcommand}. Whereas with \texttt{\providecommand} the parser will only define the command if it’s unrecognised.

The interpreter has its own internal implementation of the glossary-related commands listed in table 2.1. These may be overridden by custom packages provided with the \texttt{--custom-packages} switch. Note that commands that reference an entry, such as \texttt{\glsentryname}, aren’t guaranteed to work across resource sets and will only be able to look up field values that are known to \texttt{bib2gls}. (For example, the \texttt{name} field for abbreviations is typically set by the associated abbreviation style, which isn’t available to \texttt{bib2gls}.)

If a command isn’t recognised, you can provide it in the \texttt{@preamble} and use \texttt{\char} to map a symbol to the most appropriate Unicode character. For example, suppose your document loads a package that provides symbols for use on maps, such as \texttt{\Harbour}, \texttt{\Battlefield} and \texttt{\Stadium}, then you can provide versions of these commands just for \texttt{bib2gls}’s use:

\begin{verbatim}
@preamble{"\providecommand{\Harbour}{\char"2693}
\providecommand{\Battlefield}{\char"2694}
\providecommand{\Stadium}{\char"26BD}"
}
\end{verbatim}

Since these use \texttt{\providecommand}, they won’t overwrite the document’s version (provided these commands have been defined before \texttt{\GlsXtrLoadResources}). Alternatively, you can instruct \texttt{bib2gls} to not write the \texttt{@preamble} contents to the resource file using \texttt{write-preamble={false}}. Now you can either sort these symbols by their Unicode values (\texttt{sort={letter-case}}) or provide a custom rule that recognises these Unicode characters (for example, \texttt{sort={custom},sort-rule={\glshex2694 < \glshex2693 < \glshex26BD}}).

\LaTeX syntax can be quite complicated and, in some cases, far too complicated for simple regular expressions. The \LaTeX parser library performs better than a simple pattern match, and that’s the purpose of \texttt{texparserlib.jar} and why it’s used by \texttt{bib2gls} (and by \texttt{convert-gls2bib}). When the \texttt{--debug} mode is on, any warnings or errors triggered by the interpreter will be written to the transcript prefixed with \texttt{texparserlib}: (the results of the conversions will be included in the transcript as informational messages prefixed with \texttt{texparserlib}: even with \texttt{--no-debug}).

\footnote{These commands won’t work with PDF\LaTeX, as the \texttt{\char} values are too large, but they’re fine for \texttt{bib2gls}.}
Table 2.1: Glossary-Related Commands Implemented by the \texttt{bib2gls} Interpreter

<table>
<thead>
<tr>
<th>Command</th>
<th>Command</th>
<th>Command</th>
</tr>
</thead>
<tbody>
<tr>
<td>\bibglsampersandchar</td>
<td>\bibglscircumchar</td>
<td>\bibglscontributor</td>
</tr>
<tr>
<td>\bibglscontributorlist</td>
<td>\bibglslowercase</td>
<td>\bibglstime</td>
</tr>
<tr>
<td>\bibglsdate</td>
<td>\bibglsfirstuc</td>
<td>\bibglstitlecase</td>
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<tr>
<td>\bibglsdatetime</td>
<td>\bibglstitlecase</td>
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<td>\bibglsdollarchar</td>
<td>\bibglstitlecase</td>
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<tr>
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<td>\bibglsdatetime</td>
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<tr>
<td>\bibglscontributorlist</td>
<td>\bibglscontributorlist</td>
<td>\bibglscontributorlist</td>
</tr>
</tbody>
</table>
For example, suppose the `.bib` file includes:

```latex
@preamble{
"\providecommand{\mtx}[1]{\boldsymbol{#1}}
\providecommand{\set}[1]{\mathcal{#1}}
\providecommand{\card}[1]{|\set{#1}|}
\providecommand{\imaginary}{i}"
}

@entry{M,  
  name={{}$\mtx{M}$},  
  text={\mtx{M}},  
  description={a matrix}
}

@entry{v,  
  name={{}$\vec{v}$},  
  text={\vec{v}},  
  description={a vector}
}

@entry{S,  
  name={{}$\set{S}$},  
  text={\set{S}},  
  description={a set}
}

@entry{card,  
  name={{}$\card{S}$},  
  text={\card{S}},  
  description={the cardinality of the set $\set{S}$}
}

@entry{i,  
  name={{}$\imaginary$},  
  text={\imaginary},  
  description={square root of minus one ($\sqrt{-1}$)}
}
```

(The empty group at the start of the `name` fields protects against the possibility that the gloss-name category attribute might be set to `firstuc`, which automatically converts the first letter of the name to upper case when displaying the glossary. See also `--mfirstuc-protection` and `--mfirstuc-math-protection`.)

None of these entries have a `sort` field so the `name` is used. If the entry type had been `@symbol` instead, the fallback would be the entry’s label. This means that with `@symbol` instead of `@entry`, and the default `sort-field={sort}`, and with `sort={letter-case}`,
these entries will be defined in the order: M, S, card, i, v (since this is the case-sensitive letter order of the labels) whereas with sort-field={letter-nocase}, the order will be: card, i, M, S, v (since this is the case-insensitive letter order of the labels).

However, with @entry, the fallback field will be taken from the name which in the above example contains \TeX code, so bib2gls will use texparserlib.jar to interpret this code. The library has several different ways of writing the processed code. For simplicity, bib2gls uses the library’s HTML output and then strips the HTML markup and trims any leading or trailing spaces. The library method that writes non-ASCII characters using “ &x⟨hex⟩;” markup is overridden by bib2gls to just write the actual Unicode character, which means that the letter-based sorting options will sort according to the integer value ⟨hex⟩ rather than the string “ &x⟨hex⟩;”.

The interpreter is first passed the code provided with @preamble:

\providecommand{\mtx}\[1\]{\boldsymbol{#1}}
\providecommand{\set}\[1\]{\mathcal{#1}}
\providecommand{\card}\[1\]{\mid\set{#1}\mid}
\providecommand{\imaginary}\{i\}

(unless interpret-preamble={false}). This means that the provided commands are now recognised by the interpreter when it has to parse the fields later.

In the case of the \texttt{M} entry in the example above, the code that’s passed to the interpreter is:

\{\mtx{M}\}$

The transcript (.glg) file will show the results of the conversion:

texparselib: \{\mtx{M}\} -> \texttt{M}

So the sort value for this entry is set to “M”. The font change (caused by math-mode and \texttt{\boldsymbol}) has been ignored. The sort value therefore consists of a single Unicode character \texttt{0x4D} (Latin upper case letter “M”, decimal value 77).

For the \texttt{v} entry, the code is:

\{\vec{v}\}$

The transcript shows:

texparselib: \{\vec{v}\} -> \vec{v}

So the sort value for this entry is set to “\vec{v}”, which consists of two Unicode characters \texttt{0x76} (Latin lower case letter “v”, decimal value 118) and \texttt{0x20D7} (combining right arrow above, decimal value 8407).

For the \texttt{set} entry, the code is:

\{\set{S}\}$

The transcript shows:
texparserlib: {}$\set{S}$ $\rightarrow$ S

So the sort value for this entry is set to “S” (again ignoring the font change). This consists of a single Unicode character 0x53 (Latin upper case letter “S”, decimal value 83).

For the card entry, the code is:

{}$\card{S}$

The transcript shows:

texparserlib: {}$\card{S}$ $\rightarrow$ |S|

So the sort value for this entry is set to “|S|” (the | characters from the definition of \card provided in @preamble have been included, but the font change has been discarded). In this case the sort value consists of three Unicode characters 0x7C (vertical line, decimal value 124), 0x53 (Latin upper case letter “S”, decimal value 83) and 0x7C again. If interpret-preamble={false} had been used, \card wouldn’t be recognised and would be discarded leaving just “S” as the sort value.

(Note that if \vert is used instead of | then it would be converted into the mathematical operator 0x2223 and result in a different order.)

For the i entry, the code is:

{}$\imaginary$

The transcript shows:

texparserlib: {}$\imaginary$ $\rightarrow$ i

So the sort value for this entry is set to “i”. If interpret-preamble={false} had been used, \imaginary wouldn’t be recognised and would be discarded, leaving an empty sort value.

This means that in the case of the default sort-field={sort} with sort={letter-case}, these entries will be defined in the order: M (M), S (S), i (i), v (v) and card (|S|). In this case, the entries have been sorted according to the character codes. If you run bib2gls with --verbose the decimal character codes will be included in the transcript. For this example:

i $\rightarrow$ 'i' [105]
card $\rightarrow$ '|S|' [124 83 124]
M $\rightarrow$ 'M' [77]
S $\rightarrow$ 'S' [83]
v $\rightarrow$ 'v' [118 8407]

The --group option (in addition to --verbose) will place the letter group in parentheses before the character code list:
i -> 'i' (i) [105]
card -> '|S|' [124 83 124]
M -> 'M' (M) [77]
S -> 'S' (S) [83]
v -> 'v' (v) [118 8407]

(Note that the card entry doesn’t have a letter group since the vertical bar character isn’t considered a letter.)

If sort={letter-nocase} is used instead then, after conversion by the interpreter, the sort values will all be changed to lower case. The order is now: i (i), M (M), S (S), v (v) and card (|S|). The transcript (with --verbose) now shows

i -> 'i' [105]
card -> '|S|' [124 115 124]
M -> 'm' [109]
S -> 's' [115]
v -> 'ν' [118 8407]

With --group (in addition to --verbose) the letter groups are again included:

i -> 'i' (I) [105]
card -> '|S|' [124 115 124]
M -> 'm' (M) [109]
S -> 's' (S) [115]
v -> 'ν' (V) [118 8407]

Note that the letter groups are upper case not lower case. Again the card entry doesn’t have an associated letter group.

If a locale-based sort is used, the ordering will follow the locale’s alphabet rules. For example, with sort={en} (English, no region or variant), the order becomes: card (|S|), i (i), M (M), S (S) and v (v). The transcript (with --verbose) shows the collation keys instead:

i -> 'i' [0 92 0 0 0 0]
card -> '|S|' [0 66 0 102 0 66 0 0 0 0]
M -> 'M' [0 96 0 0 0 0]
S -> 'S' [0 102 0 0 0 0]
v -> 'ν' [0 105 0 0 0 0]

Again the addition of the --group switch will show the letter groups.4

Suppose I add a new symbol to my .bib file:

@symbol{angstrom,
    name={\AA},
    description={\AA ngstr"om}
}

4For more information on collation keys see the CollationKey class in Java’s API [2].
and I also use this entry in the document. Then with `sort={en}`, the order is: \( |S| \), angstrom (Å), \( i (i) \), \( M (M) \), \( S (S) \), and \( v (\vec{v}) \). The --group switch shows that the angstrom entry (Å) has been placed in the “Å” letter group.

However, if I change the locale to `sort={sv}`, the angstrom entry is moved to the end of the list and the --group switch shows that it’s been placed in the “Å” letter group.

If you are using Java 8, you can set the `java.locale.providers` property [8] to use the Unicode Common Locale Data Repository (CLDR) locale provider, which has more extensive support for locales than the native Java Runtime Environment (JRE). For example:

```sh
java.locale.providers=CLDR,JRE
```

This should be enabled by default for Java 9. The property can either be set in a script that runs bib2gls, for example,

```sh
java -Djava.locale.providers=CLDR,JRE,SPI -jar "$jarpath" "$@
```

(where `$jarpath` is the path to the `bib2gls.jar` file and "$@" is the argument list) or you can set the property as the default for all Java applications by adding the definition to the `JAVA_TOOL_OPTIONS` environment variable [9]. For example, in a bash shell:

```sh
export JAVA_TOOL_OPTIONS=''-Djava.locale.providers=CLDR,JRE,SPI'
```

or in Windows:

```sh
set JAVA_TOOL_OPTIONS=-Djava.locale.providers=CLDR,JRE,SPI
```

\(^5\text{A better method is to use siunitx instead.}\)
3 Command Line Options

The syntax of bib2gls is:

\texttt{bib2gls \{\langle options\rangle\} \langle filename\rangle}

where \langle filename\rangle is the name of the .aux file. (The extension may be omitted.) Only one \langle filename\rangle is permitted. Available options are listed below.

\texttt{--help (or \texttt{-h})}

Display the help message and quit.

\texttt{--version (or \texttt{-v})}

Display the version information and quit.

\texttt{--debug [\langle n\rangle]}

Switch on debugging mode. If \langle n\rangle is present, it must be a non-negative integer indicating the debugging level. If omitted 1 is assumed. This option also switches on the verbose mode. A value of 0 is equivalent to \texttt{--no-debug}.

\texttt{--no-debug (or \texttt{--nodebug})}

Switches off the debugging mode.

\texttt{--verbose}

Switches on the verbose mode. This writes extra information to the terminal and transcript file.

\texttt{--no-verbose (or \texttt{--noverbose})}

Switches off the verbose mode. This is the default behaviour. Some messages are written to the terminal. To completely suppress all messages (except errors), switch on the silent mode. For additional information messages, switch on the verbose mode.
--silent

Suppresses all messages except for errors that would normally be written to the terminal. Warnings and informational messages are written to the transcript file, which can be inspected afterwards.

--locale \langle lang \rangle (or -l \langle lang \rangle)

Specify the preferred language resource file, where \langle lang \rangle is a valid IETF language tag. This option requires an appropriate bib2gls-\langle lang \rangle .xml resource file otherwise bib2gls will fallback on English. This also sets the default document locale when sort={doc} is used and the document doesn’t have any language support. Note that sort={locale} uses the Java Virtual Machine’s (jvm) default locale and is not governed by this switch.

If a document doesn’t have any locale support or has support for more than one language then it’s best to explicitly set the required locale in the appropriate resource set.

--log-file \langle filename \rangle (or -t \langle filename \rangle)

Sets the name of the transcript file. By default, the name is the same as the .aux file but with a .glg extension. Note that if you use bib2gls in combination with xindy or makeindex, you will need to change the transcript file name to prevent conflict.

--dir \langle dirname \rangle (or -d \langle dirname \rangle)

By default bib2gls assumes that the output files should be written in the current working directory. The input .bib files are assumed to be either in the current working directory or on \TeX’s path (in which case kpsewhich will be used to find them).

If your .aux file isn’t in the current working directory (for example, you have run \TeX with -output-directory) then you need to take care how you invoke bib2gls.

Suppose I have a file called test-entries.bib that contains my entry definitions and a document called mydoc.tex that selects the .bib file using:

\GlsXtrLoadResources[src={test-entries}]

(test-entries.bib is in the same directory as mydoc.tex). If I compile this document using

pdflatex -output-directory tmp mydoc

then the auxiliary file mydoc.aux will be written to the tmp sub-directory. The resource information is listed in the .aux file as

\glsxtr@resource{src={test-entries}}{mydoc}
If I run `bib2gls` from the `tmp` directory, then it won’t be able to find the `test-entries.bib` file (since it’s in the parent directory).

If I run `bib2gls` from the same directory as `mydoc.tex` using

```
bib2gls tmp/mydoc
```

then the `.aux` file is found and the transcript file is `tmp/mydoc.glg` (since the default path name is the same as the `.aux` file but with the extension changed to `.glg`) but the output file `mydoc.glstex` will be written to the current directory.

This works fine from TeX’s point of view as it can find the `.glstex` file, but it may be that you’d rather the `.glstex` file was tidied away into the `tmp` directory along with all the other files. In this case you need to invoke `bib2gls` with the `--dir` or `-d` option:

```
bib2gls -d tmp mydoc
```

`--interpret`

Switch on the interpreter mode (default). See chapter 2 for more details.

`--no-interpret`

Switch off the interpreter mode. See chapter 2 for more details about the interpreter.

`--no-break-space`

The interpreter treats a tilde character `~` as a non-breakable space (default). Similarly `\nobreakspace` produces a non-breakable space character (0x00A0).

`--break-space`

The interpreter treats a tilde character `~` as a normal space. Similarly `\nobreakspace` just produces a space.

`--cite-as-record`

Treat instances of `\citation{⟨label⟩}` found in the `.aux` file as though it was actually an ignored record:

```
\glsxtr@record{⟨label⟩}{⟨page⟩}{glsignore}{⟨label⟩}
```

Note that `\citation{*}` will always be skipped. Use `selection={all}` to select all entries. This switch is most useful in conjunction with `@bibtexentry` (page 92).
3 Command Line Options

--no-cite-as-record
Don’t check for instances of `\citation` in the `.aux` file (default).

--warn-non-bib-fields
If any internal fields are found in the `.bib` file, this setting will issue a warning as their use can cause unexpected results. The fields checked for are those listed in Tables 4.5 and 4.6 with a few exceptions, notably `type` and `sort`. Ideally you shouldn’t need to use `sort` as there should be an appropriate fallback set up to use if `sort` isn’t set, such as the label for symbols or the name for terms or the short form for abbreviations.

This is the default setting and was added as some users were confused over which fields could be used in the `.bib` file. The use of these fields can break `bib2gls`’s normal behaviour and cause unexpected results.

The check is performed before field aliasing, so it’s possible to alias a field to an internal field, such as `group`, without triggering this warning. If you do this you need to make sure you have taken appropriate precautions to avoid unexpected results.

--no-warn-non-bib-fields
Switches off the check for non-bib fields. If you use this option you need to make sure you have taken appropriate precautions to avoid unexpected results.

--warn-unknown-entry-types
If any unknown entry types are found in the `.bib` file, `bib2gls` will issue a warning with this option set (default).

--no-warn-unknown-entry-types
This option will suppress the warning if an unknown entry types are found in the `.bib` file.

--merge-wrglossary-records
For use with the `indexcounter` package option (glossaries-extra v1.29+), this switch merges an entry’s wrglossary records for the same page location. This is the default setting. (See also `save-index-counter`.)
--no-merge-wrglossary-records

Don’t merge an entry’s wrglossary records. This means that you may end up with duplicate page numbers in the entry’s location list, but they will link to different parts of the page.

--merge-nameref-on ⟨rule⟩

The record={nameref} package option (introduced to glossaries-extra version 1.37) provides extra information in the record when indexing, obtained from \@currentlabelname, \@currentHref and \the\Hentrycounter. Instead of writing the record as:

\glsxtr@record{⟨label⟩}{⟨prefix⟩}{⟨counter⟩}{⟨format⟩}{⟨location⟩}

the record is written as:

\glsxtr@record@nameref{⟨label⟩}{⟨prefix⟩}{⟨counter⟩}{⟨format⟩}{⟨location⟩}{⟨title⟩}{⟨href⟩}{⟨hcounter⟩}

If hyperref hasn’t been loaded ⟨title⟩ and ⟨href⟩ will always be empty. The most reliable target is given by ⟨counter⟩ . ⟨hcounter⟩, where ⟨counter⟩ is the associated counter name and ⟨hcounter⟩ is obtained from \the\Hentrycounter, which is set to the hyper target command \the\H⟨counter⟩ during indexing. Since this information can’t be included in the location when indexing with makeindex or xindy, the base glossaries package tries to obtain a prefix from which the target name can be formed. This doesn’t work if \the\H⟨counter⟩ can’t be formed from ⟨prefix\the⟨counter⟩, which results in broken links. Since bib2gls doesn’t have the same restrictions, the actual target can be included in the record. You can then customize the document to choose whether to use ⟨href⟩ (to link to the nearest anchor) or ⟨hcounter⟩ to link to the place where the indexing counter was incremented.

The nameref record will be written to the location list using:

\glsxtrdisplaylocnameref{⟨prefix⟩}{⟨counter⟩}{⟨format⟩}{⟨location⟩}{⟨title⟩}{⟨href⟩}{⟨hcounter⟩}{⟨file⟩}

The ⟨file⟩ part will be empty for normal internal locations, and will be set to the corresponding file name for supplemental locations.

With hyperref, ⟨title⟩ is initially empty. The ⟨href⟩ will be Doc-Start at the start of the document and is updated globally on every instance of \refstepcounter. The ⟨title⟩ is updated locally by certain commands, such as \section or \caption. This means that the ⟨href⟩ may not always correspond to the ⟨title⟩, so using the record={nameref} package option can have unpredictable results if the ⟨title⟩ is used as link text with ⟨href⟩ as the target.

For compactness, bib2gls tries to merge duplicate or near duplicate records. There are four possible rules that it will use for nameref records, identified by ⟨rule⟩ in the --merge-nameref-on switch:

- location: merge records that match on the ⟨prefix⟩, ⟨counter⟩ and ⟨location⟩ parts (as regular records);
Command Line Options

- **title**: merge records that match on the \( \langle \text{counter} \rangle \) and \( \langle \text{title} \rangle \) parts;
- **href**: merge records that match on the \( \langle \text{counter} \rangle \) and \( \langle \text{href} \rangle \) parts;
- **hcounter**: merge records that match on the \( \langle \text{counter} \rangle \) and \( \langle \text{hcounter} \rangle \) parts.

The default \( \langle \text{rule} \rangle \) is hcounter. Note that for all rules the \( \langle \text{counter} \rangle \) must match. See the “Nameref Record” section of the glossaries-extra user manual for further details.

**--force-cross-resource-refs (or -x)**

Force cross-resource reference mode on (see section 1.4).

**--no-force-cross-resource-refs**

Don’t force cross-resource reference mode on (default). The mode will be enabled if applicable (see section 1.4).

**--support-unicode-script**

Text superscript (\textsuperscript) and subscript (\textsubscript) will use Unicode super/subscript characters if available (default). For example,

\textsuperscript{(2)}

will be converted to \(^{(2)}\), which consists of: 0x207D (superscript left parenthesis) 0x00B2 (superscript two) 0x207E (superscript right parenthesis). If the entire contents of the argument can’t be represented by Unicode characters, the interpreter uses \(<sup>\) and \(<sub>\) markup, which is then stripped by bib2gls. For example,

\textsuperscript{(2,3)}

will be converted to

\(<sup>(2,3)</sup>\)

(since there’s no superscript comma). The markup is stripped leaving just \((2,3)\).

Superscripts and subscripts in maths mode always use markup regardless of this setting. Some supported packages that use ^ or _ as shortcuts within an encapsulating command may internally use the same code as \textsuperscript and \textsubscript, in which case they will be sensitive to this setting.
--no-support-unicode-script

Text superscript (\textsuperscript) and subscript (\textsubscript) won’t use Unicode super/subscript characters. Note that if other commands are provided that expand to Unicode superscript or subscript characters, then they won’t be affected by this setting. For example, if \superior\texttwo is defined as

\providecommand{\superior\texttwo}{\char"B2}

then it will be interpreted as 0x00B2 (superscript two) even if this setting is on.

--list-known-packages

This option will list all the packages supported by the \TeX{} parser library and will then exit bib2gls. The results are divided into two sections: those packages that are searched for in the .log file and those packages that aren’t searched for in the .log file but have some support available. Some of the support is very limited. Package options aren’t detected. The transcript file is always searched for glossaries-extra to ensure that the version is new enough to support bib2gls.

Packages that fall into the first category are: amsmath, amssymb, bpchem, fontenc, fontspec, fourier, hyperref, lipsum, MnSymbol, mhchem, natbib, pifont, siunitx (limited), stix, textcase, textcomp, tipa, upgreek and wasysym. (You can omit checking for specific packages with --ignore-packages.) These are packages that provide commands that might be needed within entry fields. The check for fontspec is to simply determine whether or not UTF-8 characters are allowed in labels (for labelify and labelify-list).

Packages that fall into the second category are: booktabs, color, datatool-base (very limited), datatool (very limited), etoolbox (very limited), graphics, graphicx, ifthen, jmlrutils, mfirstuc-english, probsoln, shortvrb, and xspace. These are less likely to be needed within fields and so aren’t checked for by default. If they are needed then you can instruct bib2gls to support them with --packages.

Note that mfirstuc is always automatically loaded, but mfirstuc-english is not implemented unless explicitly requested with --packages mfirstuc-english.

If you’re wondering about the selection, the texparserlib.jar library was originally written for another application that required support for some of them.

--packages ⟨list⟩ (or -p ⟨list⟩)

Instruct the interpreter to assume the packages listed in ⟨list⟩ have been used by the document. This option has a cumulative action so --packages "wasysym,pifont" is the same as --packages wasysym --packages pifont.

Note that there’s only a limited number of packages supported by the \TeX{} parser library. This option is provided for cases where you’re using a command from a package that the interpreter doesn’t support but it happens to have the same name and meaning as a command.
from a package that the interpreter does support. You can also use it to provide support for known packages that aren’t checked for when the .log file is parsed. If you want bib2gls to parse an unsupported package use --custom-packages.

--custom-packages ⟨list⟩

Instruct the interpreter to parse the package files identified in ⟨list⟩. The package files need to be quite simple. When this switch is used, the interpreter can recognise \ProvidesPackage, \DeclareOptions (and \DeclareOptions*), \ProcessOptions, \PackageError and \RequirePackage, but it can’t deal with complicated code. In the case of \RequirePackage, support will also be governed by --custom-packages. This option has a cumulative action.

--ignore-packages ⟨list⟩ (or -k ⟨list⟩)

This option is cumulative. When the document .log file is parsed for known packages, bib2gls will skip the check for any listed in ⟨list⟩. Note that this option simply instructs bib2gls to ignore the package information in the log file. Any packages that are identified with --packages will be passed to the interpreter if support is available, even if the package is also listed in --ignore-packages. Note that unknown packages can’t be included in the ignored ⟨list⟩.

--mfirstuc-protection ⟨list⟩|all (or -u ⟨list⟩|all)

Commands like \Gls use \makefirstuc provided by the mfirstuc package. This command has limitations and one of the things that can break it is the use of a referencing command at the start of its argument. The glossaries-extra package has more detail about the problem in the ”Nested Links” section of the user manual [13]. If a glossary field starts with one of these problematic commands, the recommended method (if the command can’t be replaced) is to insert an empty group in front of it.

For example, the following definition

\newabbreviation{shtml}{shtml}{\glsps{ssi} enabled \glsps{short}{html}}

will cause a problem for \Gls{shtml} on first use. The above example would be written in a .bib file as:

@abbreviation{shtml, 
  short=\{shtml\}, 
  long=\{\glsps{ssi} enabled \glsps{short}{html}\}}


The default mfistuc protection will automatically insert an empty group before \glsps{sst} when writing the definition in the .glstex file.

The argument for this switch should either be a comma-separated list of fields or the keyword all (which indicates all fields). bib2gls will automatically insert an empty group at the start of the listed fields that start with a problematic command, and a warning will be written to the transcript. Unknown fields are skipped even if they're included in the list. An empty argument is equivalent to --no-mfistuc-protection. The default value is all.

--no-mfistuc-protection

Switches off the mfistuc protection mechanism described above.

--mfistuc-math-protection

This works in the same way as --mfistuc-protection but guards against fields starting with inline maths ($...$). For example, if the name field starts with $x$ and the glossary style automatically tries to convert the first letter of the name to upper case, then this will cause a problem.

With --mfistuc-math-protection set, bib2gls will automatically insert an empty group at the start of the field and write a warning in the transcript. This setting is on by default.

--no-mfistuc-math-protection

Switches off the above.

--nested-link-check ⟨list⟩|none

By default, bib2gls will parse certain fields for potential nested links. (See the section “Nested Links” in the glossaries-extra user manual [13].)

The default set of fields to check are: name, text, plural, first, firstplural, long, longplural, short, shortplural and symbol.

You can change this set of fields using --nested-link-check ⟨value⟩ where ⟨value⟩ may be none (don’t parse any of the fields) or a comma-separated list of fields to be checked.

--no-nested-link-check

Equivalent to --nested-link-check none.
3 Command Line Options

--shortcuts \(⟨value⟩\)

Some entries may reference another entry within a field, using commands like \gls, so bib2gls parses the fields for these commands to determine dependent entries to allow them to be selected even if they haven’t been used within the document. The shortcuts package option provided by glossaries-extra defines various synonyms, such as \ac which is equivalent to \gls. By default the value of the shortcuts option will be picked up by bib2gls when parsing the .aux file. This then allows bib2gls to additionally search for those shortcut commands while parsing the fields.

You can override the shortcuts setting using --shortcuts \(⟨value⟩\) (where \(⟨value⟩\) may take any of the allowed values for the shortcuts package option), but in general there is little need to use this switch.

--map-format \(⟨map:value list⟩\) (or -m \(⟨map:value list⟩\))

This sets up the rule of precedence for partial location matches (see section 5.7). The argument may be a comma-separated list of \(⟨map⟩:⟨value⟩\) pairs. Alternatively, you can have multiple instances of --map-format \(⟨map⟩:⟨value⟩\) which have a cumulative effect.

For example,

\[\texttt{bib2gls --map-format "emph:hyperbf" mydoc}\]

This essentially means that if there’s a record conflict involving emph, try replacing emph with hyperbf and see if that resolves the conflict.

Note that if the conflict includes a range formation, the range takes precedence. The mapping tests are applied as the records are read. For example, suppose the records are listed in the .aux file as:

\[
\begin{align*}
\texttt{\glsxtr@record{gls.sample}{}{page}{emph}{3}} \\
\texttt{\glsxtr@record{gls.sample}{}{page}{hypersf}{3}} \\
\texttt{\glsxtr@record{gls.sample}{}{page}{hyperbf}{3}}
\end{align*}
\]

and bib2gls is invoked with

\[\texttt{bib2gls --map-format "emph:hyperbf,hypersf:hyperit" mydoc}\]

or

\[\texttt{bib2gls --map-format emph:hyperbf --map-format hypersf:hyperit mydoc}\]

then bib2gls will process these records as follows:

1. Accept the first record (emph) since there’s currently no conflict. (This is the first record for page 3 for the entry given by gls.sample.)

2. The second record (hypersf) conflicts with the existing record (emph). Neither has the format glsnumberformat or glsignore so bib2gls consults the mappings provided by --map-format.
3. The third record (hyperbf) conflicts with the existing record (emph). Neither has the format glsnumberformat or glsignore so bib2gls again consults the mappings provided by --map-format.

- The new record’s hyperbf format has no mapping provided, so bib2gls moves on to the next test:
- The existing record’s emph format has a mapping provided (hyperbf). This matches the new record’s format, so the new record takes precedence.

This means that the location list ends up with the hyperbf location for page 3.

If, on the other hand, the mappings are given as

```
--map-format "emph:hyperit,hypersf:hyperit,hyperbf:hyperit"
```

then all the three conflicting records (emph, hypersf and hyperbf) will end up being replaced by a single record with hyperit as the format.

Multiple conflicts will typically be rare as there’s usually little reason for more than two or three different location formats within the same list. (For example, glsnumberformat as the default and hyperbf or hyperit for a primary reference.)

--group (or -g)

The glossaries-extra record package option automatically creates a new internal field called group. If the --group switch is used with the default group={auto} option then, when sorting, bib2gls will try to determine the letter group for each entry and assign it to the group field. (Some sort options ignore this setting.) This value will be picked up by \print-unsglossary if group headings are required (for example with the indexgroup style) or if group separators are required (for example, the index style with the default nogroupskip ={false}). If you don’t require grouping within the glossary, there’s no need to use this switch. Note that this switch doesn’t automatically select an appropriate glossary style.
The group field should typically not be set in the .bib file and will trigger a warning if found. The explicit use of the group key will override bib2gls’s normal group formation behaviour, which can cause unexpected results. The custom use of the group field requires some care. As a general rule, if you find yourself wanting to use the group field in the .bib file, then the chances are that what you actually have is a hierarchical glossary (list of topics) and what you really need is the parent field. Compare the example files sample-textsymbols.tex and sample-textsymbols2.tex. See also section 1.2.

There are eight types of groups:

- **letter group** The first non-ignored character of the sort value is alphabetic. This type of group occurs when using the alphabetic sort methods listed in table 5.2 or with the letter sort methods listed in table 5.3 or with the letter-number sort methods listed in table 5.4. The group label is obtained from \bibgllettergroup.

- **non-letter group (or symbol group)** The first non-ignored character of all the sort values within this group are non-alphabetical. This type of group occurs when using the alphabetic sort methods listed in table 5.2 or with the letter sort methods listed in table 5.3 or with the letter-number sort methods listed in table 5.4. The alphabetic sort methods ignore many punctuation characters, so an entry that has a non-alphabetic initial character in the sort value may actually be placed in a letter group. The group label is obtained from \bibglsothergroup.

- **empty group** The sort value is empty when sorting with an alphabetical, letter or letter-number method, typically a result of the original value consisting solely of commands that bib2gls can’t interpret. The group label is obtained from \bibgsemptygroup.

- **number group** The entries were sorted by one of the numeric comparisons listed in table 5.5. The group label is obtained from \bibglnumbergroup.

- **date-time group** The entries were sorted by one of the date-time comparisons listed in table 5.6 (where both date and time are present). The group label is obtained from \bibglsdatetimgroup.

- **date group** The entries were sorted by one of the date comparisons (where the time is omitted). The group label is obtained from \bibglsdategroup.

- **time group** The entries were sorted by one of the time comparisons (where the date is omitted). The group label is obtained from \bibglstimegroup.

- **custom group** The group label is explicitly set either by aliasing a field (with field-aliases) or by using the group={⟨label⟩} resource option. You will need to use \glsxtrsetgrouptitle in the document to provide an associated title if the ⟨label⟩ isn’t the same as the title. Remember that the label can’t contain any active characters, so you can’t use non-ASCII characters in ⟨label⟩ with inputenc (but you can use non-ASCII alphanumerics with fontspec).
The letter group titles will typically have the first character converted to upper case for the alphabet sort methods (table 5.2). A “letter” may not necessarily be a single character (depending on the sort rule), but may be composed of multiple characters, such as a digraph (two characters) or trigraph (three characters).

For example, if the sort rule recognises the digraph “dz” as a letter, then it will be converted to “Dz” for the group title. There are some exceptions to this. For example, the Dutch digraph “ij” should be “IJ” rather than “Ij”. This is indicated by the following line in the language resource file:

\<entry key="grouptitle.case.ij">IJ</entry>\>

If there isn’t a grouptitle.case.\langle lc \rangle key (where \langle lc \rangle is the lower case version), then only the first character will be converted to upper case otherwise the value supplied by the resource file is used. This resource key is only checked for the alphabetical comparisons listed in table 5.2. If the initial part of the sort value isn’t recognised as a letter according to the sort rule, then the entry will be in a non-letter group (even if the character is alphabetical).

The letter (table 5.3) and letter-number (table 5.4) methods only select the first character of the sort value for the group. If the character is alphabetical\(^1\) then it will be a letter group otherwise it’s a non-letter group. The case-insensitive ordering (such as sort={letter-nocase}) will convert the letter group character to upper case. The case-sensitive ordering (such as sort={letter-case}) won’t change the case.

Glossary styles with navigational links to groups (such as indexhypergroup) require an extra run for the ordinary \makeglossaries and \makenoidxglossaries methods. For example, for the document myDoc.tex:

\begin{verbatim}
pdflatex myDoc makeglossaries myDoc pdflatex myDoc pdflatex myDoc
\end{verbatim}

On the first pdflatex call, there’s no glossary. On the second pdflatex, there’s a glossary but the glossary must be processed to find the group information, which is written to the .aux file as

\begin{verbatim}
@gls@hypergroup{\langle type\rangle}{\langle group id\rangle}
\end{verbatim}

The third pdflatex reads this information and is then able to create the navigation links.

With bib2gls, if the type is provided (through the type field or via options such as type and dual-type) then this information can be determined when bib2gls is ready to write the .glstex file, which means that the extra \LaTeX run isn’t necessary. If bib2gls doesn’t know the glossary type then it will fallback on the original method which requires an extra \LaTeX run.

For example:

\begin{verbatim}1\end{verbatim}according to Java’s Character.isAlphabetic(int) method
Here the \texttt{type} is set and \texttt{bib2gls} can detect that \texttt{hyperref} has been loaded, so if the \texttt{--group} switch is used, then the group hyperlinks can be set (using \texttt{\bibglshypergroup}). This means that the build process is just:

\begin{verbatim}
pdflatex myDoc
bibtex --group myDoc
pdflatex myDoc
\end{verbatim}

Note that this requires glossaries v4.32+. If your version of glossaries is too old then \texttt{bib2gls} can’t override the default behaviour of glossary-hypernav’s \texttt{\glsnavhypertarget}. If \texttt{hyperref} isn’t loaded or the \texttt{--group} switch isn’t used or the \texttt{type} isn’t set or your version of glossaries is too old, then the information can’t be saved in the \texttt{.glstex} file.

For example:

\begin{verbatim}
\documentclass{article}
\usepackage[colorlinks]{hyperref}
\usepackage[record,abbreviations,style={indexhypergroup}]{glossaries-extra}
\end{verbatim}

\begin{verbatim}
\GlsXtrLoadResources[src={entries}]% data in entries.bib
\GlsXtrLoadResources[src={abbrvs}]% data in abbrvs.bib
\end{verbatim}

This requires the build process:

\begin{verbatim}
pdflatex myDoc
bibtex --group myDoc
pdflatex myDoc
pdflatex myDoc
\end{verbatim}

because the group hyperlink information can’t be determined by \texttt{bib2gls}, so it’s best to always set the \texttt{type} if you want hyper-group styles, and make sure you have an up-to-date version of glossaries (and glossaries-extra).
3 Command Line Options

--no-group

Don’t automatically set the group field with group={auto} (default). The glossary won’t have groups even if a group style, such as indexgroup, is used (unless the group field is set to a custom value).

--tex-encoding ⟨name⟩

bib2gls tries to determine the character encoding to use for the output files. If the document has loaded the inputenc package then bib2gls can obtain the value of the encoding from the .aux file. This is then converted to a name recognised by Java. For example, utf8 will be mapped to UTF-8. If the fontspec package has been loaded, glossaries-extra will assume the encoding is utf8 and write that value to the .aux file.

If neither package has been loaded, bib2gls will assume the JVM’s default encoding (identified by the file.encoding property). If this is incorrect or if bib2gls can’t work out the appropriate mapping then you can specify the correct encoding using --tex-encoding ⟨name⟩ where ⟨name⟩ is the encoding name (such as UTF-8).

If you have a problem with non-ASCII characters not displaying correctly in your document:

- Check that the file encoding of your document .tex file (or files) has been correctly set by your text editor.
- Check that your document supports that encoding (for example, through the inputenc package).
- Check bib2gls’s transcript file (.g1g) for the line that starts

TeX character encoding:

This should be followed by the encoding used by bib2gls when creating the .glstex files. If this is incorrect use --tex-encoding.

- Check that the encoding of the .bib files (set by your text editor or bibliographic management system) matches the encoding line in the .bib file or the charset resource option.

--no-expand-fields

By default, \newglossaryentry and similar commands expand field values (except for name, symbol and description). This is useful if constructing field values programmatically (for example in a loop) but can cause a problem if certain fragile commands are included in the field.
3 Command Line Options

The switch --no-expand-fields makes bib2gls write \glsnoexpandfields to the .glstex file, which switches off the expansion. Since bib2gls is simply fetching the data from .bib files, it’s unlikely that this automatic expansion is required and since it can also be problematic this option is on by default. You can switch it off with --expand-fields.

--expand-fields

Don’t write \glsnoexpandfields to the .glstex file, allowing fields to expand when the entries are defined. Remember that this doesn’t include the name, symbol or description fields, which need to have their expansion switched on with \glssetexpandfield before the entries are defined (that is, before using \GlsXtrLoadResources).

--trim-fields

Trim leading and trailing spaces from all field values. For example, if the .bib file contains:

```latex
@entry{sample,
    name = {sample},
    description = {an example}
}
```

This will cause spurious spaces in the description field. Using --trim-fields will automatically trim the values before writing the .glstex file.

Note that even without this trimming option on, fields that are set as keys within \longnewglossaryentry or the optional argument of \newabbreviation will automatically have the leading and trailing spaces internally trimmed by the xkeyval package, so this trimming action only affects fields that aren’t set in this way, such as the description, long and short fields. If you specifically require a space at the start or end of a field then use a spacing command, such as \␣ or \space or ~.

--trim-only-fields ⟨list⟩

Only trim leading and trailing spaces from the fields identified in the comma-separated ⟨list⟩. This option has a cumulative effect but is cancelled by --no-trim-fields (which switches off all trimming) and by --trim-fields (which switches on trimming for all fields). This option may not be used with --trim-except-fields.

For example, to only trim the description field:

```bash
bib2gls --trim-only-fields description myDoc
```
Command Line Options

--trim-except-fields ⟨list⟩

Trim all leading and trailing spaces from fields except those identified in the comma-separated ⟨list⟩. This option has a cumulative effect but is cancelled by --no-trim-fields (which switches off all trimming) and by --trim-fields (which switches on trimming for all fields). This option may not be used with --trim-only-fields. See the above note about xkeyval.

For example, to trim all fields except short and long:

bib2gls --trim-except-fields short,long myDoc

Or

bib2gls --trim-except-fields short --trim-except-fields long myDoc

--no-trim-fields

Don’t trim any leading or trailing spaces from field values (but see the above note about xkeyval). This is the default setting.

--provide-glossaries

This setting will make bib2gls add the line

\provideignoredglossary*{⟨type⟩}

to the .glistex file before an entry is defined where that entry has the type field set to an unknown glossary type (bib2gls can detect from the .aux file all glossaries that have been defined with \newglossary but not those defined with \newignoredglossary).

This ensures that the glossary exists, but the use of \provideignoredglossary (rather than \newignoredglossary) will prevent an error if the glossary has already been defined.

--no-provide-glossaries

This setting prevents bib2gls from providing unknown glossaries, except in a few documented situations (the master, trigger-type and secondary options). This is the default since it’s a useful way of detecting misspelt glossary labels. It’s harder to detect the problem if a misspelt label has caused an entry to be added to a hidden glossary.

--record-count (or -c)

Switch on record counting. This will ensure that when each entry is written to the .glistex file, bib2gls will additionally set the following fields

- recordcount: set to the total number of records found for the entry;
3 Command Line Options

- **recordcount.⟨counter⟩**: set to the total number of records found for the entry for the given counter.

These fields can then be used with the \rgls-like commands. The default behaviour of \rgls[⟨options⟩]{⟨label⟩}[⟨insert⟩]

is to check the recordcount field against the recordcount attribute value. This attribute can be set with

\GlstrSetRecordCountAttribute{⟨category list⟩}{⟨value⟩}

where ⟨category list⟩ is a comma-separated list of category labels and ⟨value⟩ is a positive integer. If the value of the recordcount field is greater than ⟨value⟩ then \rgls behaves like \gls, otherwise it does

\rglsformat{⟨label⟩}[⟨insert⟩]

instead. If the use of \rglsformat is triggered in this way, then \rgls writes a record to the .aux file with the format set to glstriggerrecordformat. This ensures that the record count is correct on the next run, but the record isn’t added to the location list as bib2gls recognises it as a special ignored record. Note that the entry will still appear in the usual glossary unless you assign it to a different one with trigger-type.

If the recordcount attribute hasn’t been set \rgls behaves like \gls. (That is, \rgls uses the same internal command used by \gls.) You can use \glxtrenablerecordcount to redefine \gls to \rgls, so that you can continue to use \gls without having to switch command name.

For example:

\GlsXtrLoadResources[
  src={abbrevs},% entries defined in abbrevs.bib
  trigger-type={ignored},
  category={abbreviation}
]
\glxtrenablerecordcount
\GlstrSetRecordCountAttribute{abbreviation}{1}

See the glossaries-extra user manual [13] for further details.

--no-record-count

Switch off record counting. (Default.)

--record-count-unit (or -n)

Automatically implements --record-count and additionally sets the recordcount.⟨counter⟩.⟨location⟩ fields. These fields can then be used with the \rgls-like commands.
--no-record-count-unit

Switches off unit record counting. (Default.) Note that you need --no-record-count to completely switch off record counting.
4 .bib Format

bib2gls recognises certain entry types. Any unrecognised types will be ignored and a warning will be written to the transcript file. Entries are defined in the usual .bib format:

```
@⟨entry-type⟩{(id),
 ⟨field-name-1⟩ = {⟨text⟩},
 ...  
 ⟨field-name-n⟩ = {⟨text⟩}
}
```

where ⟨entry-type⟩ is the entry type (listed below), ⟨field-name-1⟩, ..., ⟨field-name-n⟩ are the field names and ⟨id⟩ is a unique label. The label can’t contain any spaces or commas, and most special characters are forbidden. The hyphen character and some other punctuation characters are allowed by bib2gls, but you need to make sure that your document hasn’t made them active. In general it’s best to stick with alpha-numeric labels. The field values may be delimited by braces {⟨text⟩} or double-quotes "⟨text⟩".

The label-prefix option can be used to instruct bib2gls to insert prefixes to the labels ⟨⟨id⟩⟩ when the data is read. Remember to use these prefixes when you reference the entries in the document, but don’t include them when you reference them in the .bib file. There are some special prefixes that have a particular meaning to bib2gls: “dual.” and “ext⟨n⟩.” where ⟨n⟩ is a positive integer. In the first case, dual. references the dual element of a dual entry (see @dualentry). This prefix will be replaced by the value of the dual-prefix option. The ext⟨n⟩. prefix is used to reference an entry from a different set of resources (loaded by another \GlsXtrLoadResources command). This prefix is replaced by the corresponding element of the list supplied by ext-prefixes, but this is only supported if the cross-resource reference mode is enabled (see section 1.4).

In the event that the sort value falls back on the label, the original label supplied in the .bib file is used, not the prefixed label.

4.1 Encoding

Avoid non-ASCII characters in the ⟨id⟩ if your document uses the inputenc package. (This isn’t a problem for XƎLATEX or LuaLaTeX, but you still need to avoid special characters.) You can set the character encoding in the .bib file using:

```
% Encoding: ⟨encoding-name⟩
```

where ⟨encoding-name⟩ is the name of the character encoding. For example:
% Encoding: UTF-8

You can also set the encoding using the `charset` option, but it’s simpler to include the above comment on the first line of the `.bib` file. (This comment is also searched for by JabRef to determine the encoding, so it works for both applications.) If you don’t use either method `bib2gls` will have to search the entire `.bib` file, which is inefficient and you may end up with a mismatched encoding.

### 4.2 Comments

The original `.bib` file format as defined by `B̅IB̅TEX` doesn’t have a designated comment character, but instead treats anything outside of `@⟨entry⟩{⟨data⟩}` as unwanted material that’s ignored. This can catch out users who try to do something like:

```bibtex
%@misc{sample, title={Sample} }
```

In this case, the percent character is simply discarded and the line is treated as:

```bibtex
@misc{sample, title={Sample} }
```

Some applications that parse `.bib` files are less tolerant of unwanted material. In the case of `bib2gls`, the percent character is treated as a comment character and other unwanted material should be omitted. Avoid using comments within field values. Comments are best placed outside of entry definitions.

The most common type of comment is the encoding comment, described above. `B̅IB̅TEX`’s `@comment` is also supported by `bib2gls` for general comments, but not for the encoding. For example, JabRef uses `@Comment` for metadata.

```bibtex
@Comment{jabref-meta: databaseType:bib2gls;}
```

### 4.3 Fields

Each entry type may have required fields, optional fields and ignored fields. These are set using a key=value list within `@⟨entry-type⟩{⟨id⟩,⟨fields⟩}` in the `.bib` file. Most keys recognised by \newglossaryentry may be used as a field unless `bib2gls` considers them an internal field (see below). In general, you shouldn’t need to use the `sort` field.

If an optional field is missing and `bib2gls` needs to access it for some reason, `bib2gls` will try to fallback on another value. The actual fallback value depends on the entry type. The most common fallback is that used if the `sort` field is missing, which is typically the case. This approach allows different entry types to have different fields used for sorting.

Predefined fields for use in `.bib` files are listed in Tables 4.1, 4.2, 4.3 and 4.4. If you add any custom keys in your document using \glsaddkey or \glsaddstoragekey, those commands must be placed before the first use of \GlsXtrLoadResources to ensure that `bib2gls` recognises them as a valid field name.
4.3 Fields

Internal fields that may be assigned within the document (the \LaTeX assignment code having been written by \texttt{bib2gls} in the \texttt{.glistex} file) are listed in Table 4.5. These typically shouldn’t be used in the \texttt{.bib} file. Some of these fields can be set for a particular document using a resource option, such as \texttt{type} or \texttt{group}. With \texttt{--warn-non-bib-fields} set, \texttt{bib2gls} will check for internal fields that can cause interference with its normal operations and will warn if any are found in the \texttt{.bib} file.

There are also some fields that are set and used by glossaries or glossaries-extra listed in Table 4.6 that aren’t recognised by \texttt{bib2gls}. In most cases these fields don’t have a designated key and are only intended for internal use by \texttt{bib2gls} or by the glossaries or glossaries-extra package. Note that the value of the \texttt{sort} field written to the \texttt{.bib} file doesn’t always exactly match the sort value used by \texttt{bib2gls} (which is stored in \texttt{bib2gls@sort}). Any special characters found in the sort value are always substituted before writing the \texttt{.bib} file to avoid syntax errors.

Any unrecognised fields will be ignored by \texttt{bib2gls}. This is more convenient than using \texttt{\input} or \texttt{\loadglsentries}, which requires all the keys used in the file to be defined, regardless of whether or not you actually need them in the document.

Other entries can be cross-referenced using the \texttt{see}, \texttt{seealso} or \texttt{alias} fields or by using commands like \texttt{\gls} or \texttt{\glsxtrp} in any of the recognised fields. These will automatically be selected if the \texttt{selection} setting includes dependencies, but you may need to rebuild the document to ensure the location lists are correct. Use of the \texttt{\glssee} command will create an ignored record and the \texttt{see} field will be set to the relevant information. If an entry has the \texttt{see} field already set, any instance of \texttt{\glssee} in the document for that entry will be appended to the \texttt{see} field (provided you have at least v1.14 of glossaries-extra). In general, it’s best just to use the \texttt{see} field and not use \texttt{\glssee}.

The \texttt{seealso} key was only added to glossaries-extra v1.16, but this field may be used with \texttt{bib2gls} even if you only have version 1.14 or 1.15. If the key isn’t available, \texttt{seealso=\{xr-list\}} will be treated as \texttt{see=\{[seealso\name]\xr-list\}} (the resource option \texttt{seealso} won’t have an effect). You can’t use both \texttt{see} and \texttt{seealso} for the same entry with \texttt{bib2gls}. Note that the \texttt{seealso} field doesn’t allow for the optional \texttt{[\{tag\}]} part. If you need a different tag, either use \texttt{see} or change the definition of \texttt{\seealso\name} or \texttt{\glsxtruseseealsoformat}. Note that, unless you are using \texttt{xindy}, \texttt{\glsxtrindexseealso} just does \texttt{\glssee[\seealso\name]}, and so will be treated as \texttt{see} rather than \texttt{seealso} by \texttt{bib2gls}. Again, it’s better to just use the \texttt{seealso} field directly.

You can identify an arbitrary field as containing a list of dependent entry labels with \texttt{dependency-fields}. This instructs \texttt{bib2gls} to parse the listed fields for dependencies in a similar manner to the \texttt{see} field, but it doesn’t add any information to the cross-referencing part of the location list. The option may be used in combination with the \texttt{see} or \texttt{seealso} fields.
Table 4.1: Fields Provided by glossaries-extra

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>alias</td>
<td>The entry with this field set is a synonym of the entry whose label is given by this field.</td>
</tr>
<tr>
<td>category</td>
<td>The entry’s category label.</td>
</tr>
<tr>
<td>description</td>
<td>The description displayed in the glossary.</td>
</tr>
<tr>
<td>descriptionplural</td>
<td>The plural form of the description.</td>
</tr>
<tr>
<td>first</td>
<td>The text to display on first use with \gls{⟨label⟩}.</td>
</tr>
<tr>
<td>firstplural</td>
<td>The text to display on first use with \glspl{⟨label⟩}.</td>
</tr>
<tr>
<td>long</td>
<td>The long form of an abbreviation. (Set internally by commands like \newabbreviation.)</td>
</tr>
<tr>
<td>longplural</td>
<td>The plural long form of an abbreviation.</td>
</tr>
<tr>
<td>name</td>
<td>The name displayed in the glossary.</td>
</tr>
<tr>
<td>nonumberlist</td>
<td>Used to suppress the location list for a specific entry. Its value may only be true or false.</td>
</tr>
<tr>
<td>parent</td>
<td>The parent entry’s label. See section 1.2.</td>
</tr>
<tr>
<td>plural</td>
<td>The text to display on subsequent use of \glspl{⟨label⟩}.</td>
</tr>
<tr>
<td>see</td>
<td>General purpose cross-reference (syntax: see={⟨tag⟩⟨xr-list⟩}).</td>
</tr>
<tr>
<td>seealso</td>
<td>Cross-reference related entries (syntax: seealso={⟨xr-list⟩}).</td>
</tr>
<tr>
<td>short</td>
<td>The short form of an abbreviation. (Set internally by commands like \newabbreviation.)</td>
</tr>
<tr>
<td>shortplural</td>
<td>The plural short form of an abbreviation.</td>
</tr>
<tr>
<td>symbol</td>
<td>The associated symbol.</td>
</tr>
<tr>
<td>symbolplural</td>
<td>The plural form of the associated symbol.</td>
</tr>
<tr>
<td>text</td>
<td>The text to display on subsequent use of \gls{⟨label⟩}.</td>
</tr>
<tr>
<td>user1</td>
<td>A general purpose user field.</td>
</tr>
<tr>
<td>user2</td>
<td>A general purpose user field.</td>
</tr>
<tr>
<td>user3</td>
<td>A general purpose user field.</td>
</tr>
<tr>
<td>user4</td>
<td>A general purpose user field.</td>
</tr>
<tr>
<td>user5</td>
<td>A general purpose user field.</td>
</tr>
<tr>
<td>user6</td>
<td>A general purpose user field.</td>
</tr>
</tbody>
</table>
4.3 Fields

Table 4.2: Fields Provided by bib2gls

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>adoptparents</td>
<td>The list of adopted parents for entries spawned by @progenitor. (Field only available for use in .bib file within @progenitor-like entries.)</td>
</tr>
<tr>
<td>duallong</td>
<td>The long form of a dual abbreviation mapped by @dualabbreviation.</td>
</tr>
<tr>
<td>duallongplural</td>
<td>The plural long form of a dual abbreviation mapped by @dualabbreviation.</td>
</tr>
<tr>
<td>dualprefix</td>
<td>The dual of the prefix field. This field isn’t provided with a key or associated command, but can be accessed as an internal field.</td>
</tr>
<tr>
<td>dualprefixfirst</td>
<td>The dual of the prefixfirst field. This field isn’t provided with a key or associated command, but can be accessed as an internal field.</td>
</tr>
<tr>
<td>dualprefixfirstplural</td>
<td>The dual of the prefixfirstplural field. This field isn’t provided with a key or associated command, but can be accessed as an internal field.</td>
</tr>
<tr>
<td>dualprefixplural</td>
<td>The dual of the prefixplural field. This field isn’t provided with a key or associated command, but can be accessed as an internal field.</td>
</tr>
<tr>
<td>dualshort</td>
<td>The short form of a dual abbreviation mapped by @dualabbreviation.</td>
</tr>
<tr>
<td>dualshortplural</td>
<td>The plural short form of a dual abbreviation mapped by @dualabbreviation.</td>
</tr>
</tbody>
</table>

Table 4.3: Fields Provided by glossaries-prefix

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>prefix</td>
<td>The prefix associated with the text field.</td>
</tr>
<tr>
<td>prefixfirst</td>
<td>The prefix associated with the first field.</td>
</tr>
<tr>
<td>prefixfirstplural</td>
<td>The prefix associated with the firstplural field.</td>
</tr>
<tr>
<td>prefixplural</td>
<td>The prefix associated with the plural field.</td>
</tr>
</tbody>
</table>

Table 4.4: Fields Provided by glossaries-accsupp

Don’t load glossaries-accsupp directly (with \usepackage) when using glossaries-extra. Load using the accsupp package option instead.

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>access</td>
<td>The replacement text for the name field.</td>
</tr>
<tr>
<td>descriptionaccess</td>
<td>The replacement text for the description field.</td>
</tr>
<tr>
<td>descriptionpluralaccess</td>
<td>The replacement text for the descriptionplural field.</td>
</tr>
</tbody>
</table>
### 4.3 Fields

Fields Provided by glossaries-acssupp (Continued)

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>firstaccess</td>
<td>The replacement text for the first field.</td>
</tr>
<tr>
<td>firstpluralaccess</td>
<td>The replacement text for the firstplural field.</td>
</tr>
<tr>
<td>longaccess</td>
<td>The replacement text for the long field.</td>
</tr>
<tr>
<td>longpluralaccess</td>
<td>The replacement text for the longplural field.</td>
</tr>
<tr>
<td>pluralaccess</td>
<td>The replacement text for the plural field.</td>
</tr>
<tr>
<td>shortaccess</td>
<td>The replacement text for the short field.</td>
</tr>
<tr>
<td>shortpluralaccess</td>
<td>The replacement text for the shortplural field.</td>
</tr>
<tr>
<td>symbolaccess</td>
<td>The replacement text for the symbol field.</td>
</tr>
<tr>
<td>symbolpluralaccess</td>
<td>The replacement text for the symbolplural field.</td>
</tr>
<tr>
<td>textaccess</td>
<td>The replacement text for the text field.</td>
</tr>
</tbody>
</table>

Table 4.5: Fields Sometimes Set by bib2gls in the .glstex File

You may define and assign bibtextype as a key (although it’s more likely to be aliased). Don’t define any of the others listed in this table, and don’t use any of them in the .bib file. A possible exception is the type field, but it’s more flexible to set that through a resource option. The explicit use of group within a .bib file can cause unpredictable results and is best set through a resource option or by bib2gls. In general, you shouldn’t need to set the sort field as appropriate fallbacks should produce useful sort values.

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>bibtexcontributor</td>
<td>An internal list field provided when a @contributor entry is automatically created by @bibtexentry.</td>
</tr>
<tr>
<td>bibtexentry</td>
<td>An internal list field created by @bibtexentry.</td>
</tr>
<tr>
<td>bibtexentry⟨entry-type⟩</td>
<td>An internal list field created by @bibtexentry.</td>
</tr>
<tr>
<td>bibtextype</td>
<td>Used by bib2gls as a substitution for \LaTeX’s type field when parsing @bibtexentry. Needs to be defined or aliased to make it available in the document.</td>
</tr>
<tr>
<td>childcount</td>
<td>Stores the number of children this entry has had selected.</td>
</tr>
<tr>
<td>childlist</td>
<td>A list of labels (in etoolbox’s internal list format) of the children this entry has had selected.</td>
</tr>
<tr>
<td>counter</td>
<td>The default counter used for indexing (assigned by the counter option).</td>
</tr>
<tr>
<td>dual</td>
<td>Created by dual-field if set with no value, this field is used to store the dual label.</td>
</tr>
<tr>
<td>⟨field⟩endpunc</td>
<td>Used with the check-end-punctuation option.</td>
</tr>
<tr>
<td>group</td>
<td>The letter group determined by the comparator (or assigned by the group option). See section 1.2.</td>
</tr>
</tbody>
</table>
4.3 Fields

Fields Sometimes Set by \texttt{bib2gls} in the \texttt{.glistex} File (Continued)

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>\texttt{indexcounter}</td>
<td>Stores the location corresponding to the matching \texttt{wrglossary} reference.</td>
</tr>
<tr>
<td>\texttt{location}</td>
<td>The typeset location list.</td>
</tr>
<tr>
<td>\texttt{loclist}</td>
<td>The internal list of locations.</td>
</tr>
<tr>
<td>\texttt{originalentrytype}</td>
<td>The original entry type before any aliasing was applied or the actual entry type if no aliasing.</td>
</tr>
<tr>
<td>\texttt{primarylocations}</td>
<td>Stores the locations that use one of the designated primary formats, if enabled.</td>
</tr>
<tr>
<td>\texttt{progenitor}</td>
<td>The label identifying the \texttt{@progenitor} that spawned this entry.</td>
</tr>
<tr>
<td>\texttt{progeny}</td>
<td>A comma-separated list of labels identifying the entries spawned by \texttt{@progenitor}.</td>
</tr>
<tr>
<td>\texttt{recordcount}</td>
<td>Used with record counting to store the total record count.</td>
</tr>
<tr>
<td>\texttt{recordcount.⟨counter⟩}</td>
<td>Used with record counting to store the total number of records for a given counter.</td>
</tr>
<tr>
<td>\texttt{recordcount.⟨counter⟩.⟨location⟩}</td>
<td>Used with record counting to store the total number of records for a given location.</td>
</tr>
<tr>
<td>\texttt{secondarygroup}</td>
<td>The letter group determined by the comparator used with the secondary sort.</td>
</tr>
<tr>
<td>\texttt{secondarysort}</td>
<td>The sort value determined by the comparator used with the secondary sort.</td>
</tr>
<tr>
<td>\texttt{siblingcount}</td>
<td>Stores the number of siblings this entry has had selected.</td>
</tr>
<tr>
<td>\texttt{siblinglist}</td>
<td>A list of labels (in \texttt{etoolbox}’s internal list format) of the siblings this entry has had selected.</td>
</tr>
<tr>
<td>\texttt{sort}</td>
<td>The sort value obtained by the comparator.</td>
</tr>
<tr>
<td>\texttt{type}</td>
<td>The glossary this entry belongs to (assigned by the \texttt{type} option). See section 1.2.</td>
</tr>
</tbody>
</table>

Table 4.6: Internal Fields Set by \texttt{glossaries} or \texttt{glossaries-extra} or \texttt{bib2gls}

Don’t define any of these as keys and don’t use any of them in the \texttt{.bib} file.

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>\texttt{bib2gls@sort}</td>
<td>Used by \texttt{bib2gls} to store the actual sort value.</td>
</tr>
<tr>
<td>\texttt{bib2gls@sortfallback}</td>
<td>Used by \texttt{bib2gls} to store the sort fallback value.</td>
</tr>
<tr>
<td>\texttt{currcount}</td>
<td>Used with entry counting to store the current total.</td>
</tr>
<tr>
<td>\texttt{currcount@⟨value⟩}</td>
<td>Used with unit entry counting (glossaries-extra).</td>
</tr>
<tr>
<td>\texttt{desc}</td>
<td>Corresponds to \texttt{description} key.</td>
</tr>
<tr>
<td>\texttt{descplural}</td>
<td>Corresponds to \texttt{descriptionplural} key.</td>
</tr>
</tbody>
</table>

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### 4.3 Fields

Internal Fields Set by `glossaries` or `glossaries-extra` or `bib2gls` (Continued)

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>firstpl</code></td>
<td>Corresponds to <code>firstplural</code> key.</td>
</tr>
<tr>
<td><code>flag</code></td>
<td>Boolean that determines if an entry has been used.</td>
</tr>
<tr>
<td><code>index</code></td>
<td>The main part of the indexing code (<code>makeindex</code> or <code>xindy</code>).</td>
</tr>
<tr>
<td><code>level</code></td>
<td>Hierarchical level.</td>
</tr>
<tr>
<td><code>longpl</code></td>
<td>Corresponds to <code>longplural</code> key.</td>
</tr>
<tr>
<td><code>prevcount</code></td>
<td>Used with entry counting to store the total from the previous run.</td>
</tr>
<tr>
<td><code>prevcount@⟨value⟩</code></td>
<td>Used with unit entry counting (<code>glossaries-extra</code>).</td>
</tr>
<tr>
<td><code>prevunitmax</code></td>
<td>Used with unit entry counting (<code>glossaries-extra</code>).</td>
</tr>
<tr>
<td><code>prevunittotal</code></td>
<td>Used with unit entry counting (<code>glossaries-extra</code>).</td>
</tr>
<tr>
<td><code>shortpl</code></td>
<td>Corresponds to <code>shortplural</code> key.</td>
</tr>
<tr>
<td><code>sortvalue</code></td>
<td>Original <code>sort</code> value (before sanitizing and escaping special characters).</td>
</tr>
<tr>
<td><code>unitlist</code></td>
<td>Used with unit entry counting (<code>glossaries-extra</code>).</td>
</tr>
<tr>
<td><code>useri</code></td>
<td>Corresponds to <code>user1</code> key.</td>
</tr>
<tr>
<td><code>userii</code></td>
<td>Corresponds to <code>user2</code> key.</td>
</tr>
<tr>
<td><code>useriii</code></td>
<td>Corresponds to <code>user3</code> key.</td>
</tr>
<tr>
<td><code>useriv</code></td>
<td>Corresponds to <code>user4</code> key.</td>
</tr>
<tr>
<td><code>userv</code></td>
<td>Corresponds to <code>user5</code> key.</td>
</tr>
<tr>
<td><code>uservi</code></td>
<td>Corresponds to <code>user6</code> key.</td>
</tr>
</tbody>
</table>
4.4 Standard Entry Types

@string

The standard @string is available and can be used to define variables that may be used in field values. Don’t include braces or double-quote delimiters when referencing a variable. You can use # to concatenate strings. For example:

@string{ssi={server-side includes}}
@string{html={hypertext markup language}}

@abbreviation{shtml,
    short="shtml",
    long=ssi # " enabled " # html,
    see={ssi,html}
}

@abbreviation{html,
    short="html",
    long=html
}

@abbreviation{ssi,
    short="ssi",
    long=ssi
}

Note the difference between ="ssi" (a field value delimited by double-quotes), the undelimited =ssi (a reference to the variable), the grouped ={ssi,html} (a field value delimited by braces) and ssi the entry label.

@preamble

The standard @preamble is available and can be used to provide command definitions used within field values. For example:

@preamble{"\providecommand{\mtx}{[1]}{\boldsymbol{#1}}"}

@entry{matrix,
    name={matrix},
    plural={matrices},
    description={rectangular array of values, denoted $\mtx{M}$}
}

Alternatively you can use \glsxtrprovidecommand which behaves the same as \providecommand within the document but behaves like \renewcommand within bib2gls, which al-
4.4 Standard Entry Types

allows you to change bib2gls’s internal definition of a command without affecting the definition within the document (if it’s already been defined before the resource file is input). In general, it’s best to just use `providecommand`.

The \TeX parser library used by bib2gls will parse the contents of `@preamble` before trying to interpret the field value used as a fallback when `sort` is omitted (unless `interpret-preamble={false}` is set in the resource options). For example:

```latex
@preamble{"\providecommand{\set}[1]{\mathcal{#1}}
\providecommand{\card}[1]{|\set{#1}|}"

@entry{S,
    name={{}$\set{S}$},
    text={\set{S}},
    description={a set}
}
@entry{card,
    name={{}$\card{S}$},
    text={\card{S}},
    description={the cardinality of \gls{S}}
}

Neither entry has the `sort` field, so bib2gls has to fall back on the `name` field and, since this contains the special characters \ (backslash), $ (maths shift), { (begin group) and } (end group), the \TeX parser library is used to interpret it. The definitions provided by `@preamble` allow bib2gls to deduce that the `sort` value of the `S` entry is just $S$ and the `sort` value of the `card` entry is $|S|$ (see chapter 2).

What happens if you also need to use these commands in the document? The definitions provided in `@preamble` won’t be available until the `.glstex` file has been created, which means the commands won’t be defined on the first \TeX run.

There are several approaches:

1. Just define the commands in the document. This means the commands are available, but bib2gls won’t be able to correctly interpret the `name` fields.

2. Define the commands in both the document and in `@preamble`. For example:

```latex
\newcommand{\set}[1]{\mathcal{#1}}
\newcommand{\card}[1]{|\set{#1}|}
\GlsXtrLoadResources[src=my-data]

Alternatively:

\GlsXtrLoadResources[src=my-data]
\providecommand{\set}[1]{\mathcal{#1}}
\providecommand{\card}[1]{|\set{#1}|}
```
4.4 Standard Entry Types

If the provided definitions match those given in the .bib file, there’s no difference. If they don’t match then in the first example the document definitions will take precedence (but the interpreter will use the \preamble definitions) and in the second example the \preamble definitions will take precedence. For example, the document may define \card as:

\newcommand{\card}[1]{\vert\set{#1}\vert}

3. Make use of \glsxtrfmt provided by glossaries-extra which allows you to store the name of the formatting command in a field. The default is the user1 field, but this can be changed to another field by redefining \GlsXtrFmtField.

The .bib file can now look like this:

@preamble{"\providecommand{\set}[1]{\mathcal{#1}}\providecommand{\card}[1]{\vert\set{#1}\vert}"
@symboll\set, name={{}$\set{S}$}, text={\set{S}}, user1={set}, description={a set}
@symbols\card\set, name={{}$\card{S}$}, text={\card{S}}, user1={card}, description={the cardinality of $\gls{S}$}
}

Within the document, you can format ⟨text⟩ using the formatting command provided in the user1 field with:

\glsxtrfmt{⟨options⟩}{⟨label⟩}{⟨text⟩}

(which internally uses \glslink) or

\glsxtreentryfmt{⟨label⟩}{⟨text⟩}

which just applies the appropriate formatting command to ⟨text⟩. Version 1.23+ of glossaries-extra also provides a starred form of the linking command:

\glsxtrfmt*[⟨options⟩]{⟨label⟩}{⟨text⟩}{⟨insert⟩}

which inserts additional material inside the link text but outside the formatting command.
4.4 Standard Entry Types

If the entry given by \(\text{⟨label⟩}\) hasn’t been defined, then \texttt{\glsxtrfmt} just does \(\text{⟨text⟩}\) (followed by \(\text{⟨insert⟩}\) for the starred version) and a warning is issued. (There’s no warning if the entry is defined but the field hasn’t been set.) The \(\langle\text{options}\rangle\) are as for \texttt{\glslink} but \texttt{\glslink} will actually be using:

\texttt{\glslink[\langle\text{def-options}\rangle,\langle\text{options}\rangle]{\langle\text{label}\rangle}\{\langle\text{csname}\rangle{\langle\text{text}\rangle}\}{\langle\text{insert}\rangle}}

where the default options \(\langle\text{def-options}\rangle\) are given by \texttt{\GlsXtrFmtDefaultOptions}. The default definition of this is just `noindex` which suppresses the automatic indexing or recording action. (See the glossaries-extra manual [13] for further details.) The \(\langle\text{insert}\rangle\) part is omitted for the unstarred form.

This means that the document doesn’t need to actually provide \texttt{\set} or \texttt{\card} but can instead use, for example,

\begin{verbatim}
\glsxtrfmt{S}{A}
\glsxtrentryfmt{cardS}{B}
\end{verbatim}

instead of:

\begin{verbatim}
\set{A}
\card{B}
\end{verbatim}

The first \LaTeX{} run will simply ignore the formatting and produce a warning.

Since this is a bit cumbersome to write, you can provide shortcut commands. For example:

\begin{verbatim}
\GlsXtrLoadResources[src={my-data}]
\newcommand{\gset}{2}[]{\glsxtrfmt[#1]{S}{#2}}
\newcommand{\gcard}{2}[]{\glsxtrfmt[#1]{cardS}{#2}}
\end{verbatim}

Whilst this doesn’t seem a great deal different from simply providing the definitions of \texttt{\set} and \texttt{\card} in the document, this means you don’t have to worry about remembering the names of the actual commands provided in the .bib file (just the entry labels) and the use of \texttt{\glsxtrfmt} will automatically produce a hyperlink to the glossary entry if the \texttt{hyperref} package has been loaded.

Here’s an alternative .bib that defines entries with a term, a description and a symbol:

\begin{verbatim}
@preamble{"\providecommand{\setfmt}[1]{\mathcal{#1}}
\providecommand{\cardfmt}[1]{|\setfmt{#1}|}"}

@entry{set,
  name={set},
  symbol={\setfmt{S}},
  user1={\setfmt},
}
4.4 Standard Entry Types

description={collection of values}
}
@entry{cardinality,
    name={cardinality},
    symbol={\cardfmt{S}},
    user1={cardfmt},
    description={the number of elements in the \gls{set} $\gli{set}$}
}

I've changed the entry labels and the names of the formatting commands. The definitions in the document need to reflect the change in label but not the change in the formatting commands:

\newcommand{\gset}[2][]{\glsxtrfmt[#1]{set}{#2}}
\newcommand{\gcard}[2][]{\glsxtrfmt[#1]{cardinality}{#2}}

Here's another approach that allows for a more complicated argument for the cardinality. (For example, if the argument is an expression involving set unions or intersections.) The .bib file is now:

@preamble{"\providecommand{\setfmt}[1]{\mathcal{#1}}\providecommand{\cardfmt}[1]{|#1|}"

@entry{set,
    name={set},
    symbol={\setfmt{S}},
    user1={setfmt},
    description={collection of values}
}
@entry{cardinality,
    name={cardinality},
    symbol={\cardfmt{\setfmt{S}}},
    user1={cardfmt},
    description={the number of elements in the \gls{set} $\gli{set}$}
}

This has removed the \setfmt command from the definition of \cardfmt. Now the definitions in the document are:

\newcommand{\gset}[1][]{\glsxtrentryfmt{set}{#1}}
\newcommand{\gcard}[2][]{\glsxtrfmt[#1]{cardinality}{#2}}

This allows for code such as:

\[ \gcard{\gset{A} \cap \gset{B}} \]
which will link back to the cardinality entry in the glossary and avoids any hyperlinking with \gset. Alternatively to avoid links with \gcard as well:

```
\newcommand{\gset}{\glsxtrencard{set}{#1}}
\newcommand{\gcard}{\glsxtrencard{cardinality}{#1}}
```

Now \gset and \gcard are simply formatting commands, but their actual definitions are determined in the .bib file.

4.5 Single Entry Types

The entry types described in this section create a single glossary definition per entry (from glossaries-extra’s point of view). For example:

```
@entry{matrix,
   name={matrix},
   plural={matrices},
   description={rectangular array of values}
}
```

is analogous to:

```
\newglossaryentry{matrix}\% label
{\% fields
   name={matrix},
   plural={matrices},
   description={rectangular array of values}
}
```

The secondary option allows the creation of a fake glossary with the entry labels in its internal list in a different order. This means that the same data can be displayed in two separate lists without duplicating the resources required by each glossary entry.

Section 4.6 describes bib2gls entry types that create two separate (but related) glossaries-extra definitions per .bib entry.

@entry

Regular terms are defined by the @entry field. This requires the description field and either name or parent. For example:

```
@preamble{"\providecommand{\mtx}[1]{\boldsymbol{#1}}"}
@entry{matrix,
   name={matrix},
   plural={matrices},
   description={rectangular array of values, denoted \gls{M},
```
4.5 Single Entry Types

```latex
seealso={vector}

@end{M,
   name={\emph{M}},
   description={a \gls{matrix}}
}

@end{vector,
   name = "vector",
   description = {column or row of values, denoted \gls{v}},
  seealso={matrix}
}

@end{v,
   name={\ensuremath{\vec{v}}},
   description={a \gls{vector}}
}

If the \texttt{sort} field is missing the default is obtained from the \texttt{name} field (unless overridden by options like \texttt{entry-sort-fallback}). For hierarchical entries, if the \texttt{name} field is omitted it will be obtained from the parent’s \texttt{name}.

Terms defined using \texttt{@entry} will be written to the output (.glstex) file using the command \bibglsnewentry.

\texttt{@symbol}

The \texttt{@symbol} entry type is much like \texttt{@entry}, but it’s designed specifically for symbols, so in the previous example, the \texttt{M} and \texttt{v} terms would be better defined using the \texttt{@symbol} entry type instead. For example:

```latex
@symbolor{M,
   name={\ensuremath{M}},
   description={a \gls{matrix}}
}
```

The required fields are \texttt{name} or \texttt{parent}. The \texttt{description} field is required if the \texttt{name} field is missing. If the \texttt{sort} field is omitted, the default sort is given by the entry label (unless overridden by options like \texttt{symbol-sort-fallback}). Note that this is different from \texttt{@entry} where the sort defaults to \texttt{name} if omitted.

Terms that are defined using \texttt{@symbol} will be written to the output file using the command \bibglsnewsymbol.
4.5 Single Entry Types

@number

The @number entry type is like @symbol, but it’s for numbers. The numbers don’t have to be explicit digits and may have a symbolic representation. There’s no real difference between the behaviour of @number and @symbol except that terms defined using @number will be written to the output file using the command \bibglsnewnumber.

For example, the file constants.bib might define mathematical constants like this:

@number{pi,
    name={\ensuremath{\pi}},
    description={the ratio of the length of the circumference of a circle to its diameter},
    user1={3.14159}
}

@number{e,
    name={\ensuremath{e}},
    description={base of natural logarithms},
    user1={2.71828}
}

This stores the approximate value in the user1 field. This can be used to sort the entries in numerical order according to the values rather than the symbols:

\GlsXtrLoadResources[
    src={constants},% constants.bib
    category={number},% set the category for all selected entries
    sort={double},% numerical double-precision sort
    sort-field={user1}% sort according to 'user1' field
]

The category={number} option makes it easy to adjust the glossary format to include the user1 field:

\glsdefpostdesc{number}{%
    \ifglsishasfield{useri}{\glscurrententrylabel}% (approximate value: \glscurrentfieldvalue)%
    {}%
}

@index

The @index entry type is designed for entries that don’t have a description. Only the label is required. If name is omitted, it’s assumed to be the same as the label, even if parent is present. (Note this is different to the fallback behaviour of @entry, which fetches the name from the parent entry.) If the name contains any characters that can’t be used in the label,
you must use the name field. If the sort field is missing the default is obtained from the name. Note that the @index entry type is not governed by entry-sort-fallback (but it is governed by custom-sort-fallbacks). This allows @index and @entry to have different fallbacks if the sort field is missing.

Example:

@index{duck}
@index{goose,plural={geese}}
@index{sealion,name={sea lion}}
@index{facade,name={fa\c{c}ade}}

Terms that are defined using @index will be written to the output file using the command \bibglsnewindex.

@indexplural

The @indexplural entry type is similar to the @index entry type except that the name field, if missing, is obtained from the plural field. If the plural field is missing it’s obtained from the text field with the plural suffix appended. If the text field is missing, it’s obtained from the original entry label. If the sort field is missing the default is obtained from the name field. (As with @index, @indexplural is not governed by entry-sort-fallback, but it is governed by custom-sort-fallbacks.) All fields are optional. For example:

@indexplural{goose,
    plural = {geese}
}

@indexplural{duck}

@indexplural{chateau,
    text = {ch\`ateau},
    plural = {ch\`ateaux}
}

This is equivalent to:

@indexplural{goose,
    name = {geese},
    text = {goose},
    plural = {geese}
}

@indexplural{duck,
    name = {ducks},
    text = {duck},
    plural = {ducks}
}
4.5 Single Entry Types

Terms that are defined using `@indexplural` will be written to the output file using the command `\bibglsnewindexplural`.

**@abbreviation**

The `@abbreviation` entry type is designed for abbreviations. The required fields are `short` and `long`. If the `sort` key is missing, `bib2gls` will use the field given by `abbreviation-sort-fallback`, which defaults to the `short` field. (If you want an equivalent of `\newdualentry`, use `@dualabbreviationentry` instead.)

If you use `sort-field={name}` (rather than the default `sort-field={sort}`), then the fallback for the `name` field is always the `short` field, regardless of the `abbreviation-sort-fallback` setting, unless you use `abbreviation-name-fallback` to change the fallback for the `name` field.

Note that you must set the abbreviation style before loading the resource file to ensure that the abbreviations are defined correctly, however `bib2gls` has no knowledge of the abbreviation style so it doesn’t know if the `description` field must be included or if the default `sort` value isn’t simply the value of the `short` field.

You can instruct `bib2gls` to sort by the `long` field instead using `abbreviation-sort-fallback={long}`. You can also tell `bib2gls` to ignore certain fields using `ignore-fields`, so you can include a `description` field in the `.bib` file if you sometimes need it, and then instruct `bib2gls` to ignore it when you don’t want it.

For example:

```latex
@abbreviation{html,
   short  = {html},
   long   = {hypertext markup language},
   description = {a markup language for creating web pages}
}
```

If you want the long-noshort-desc style, then you can put the following in your document (where the `.bib` file is called `entries-abbrv.bib`):

```latex
\setabbreviationstyle{long-noshort-desc}
\GlsXtrLoadResources[src={entries-abbrv},
   abbreviation-sort-fallback={long}]
```

Whereas, if you want the long-short-sc style, then you can instead do:
4.5 Single Entry Types

\setabbreviationstyle{long-short-sc}
\GlsXtrLoadResources[src={entries-abbrv},ignore-fields={description}]

or to convert the short value to upper case and use the long-short-sm style instead:

\setabbreviationstyle{long-short-sm}
\GlsXtrLoadResources[src={entries-abbrv},
  short-case-change={uc},% convert short value to upper case
  ignore-fields={description}]

Case-changing can be applied with short-case-change to convert the case of the short field, as illustrated above. If you use a style that obtains the description from the long form, but you want to apply a case-change to the description field with description-case-change, then you can copy the long field to the description with replicate-fields={long=description}.

For example, if entries-abbrv.bib contains:

@abbreviation{html,
  short = {html},
  long = {hypertext markup language}
}

then the document may include:

\setabbreviationstyle{long-short-sc}
\GlsXtrLoadResources[src={entries-abbrv},
  description-case-change={firstuc},
  replicate-fields={long=description}]

Note that this can cause a problem for styles that set the description field to the long form encapsulated by a style command (such as with the long-em-short-em style) as this will override the style setting.

Similarly, if you want to change the case of the name field:

\setabbreviationstyle{long-short-sc}
\GlsXtrLoadResources[src={entries-abbrv},
  description-case-change={firstuc},
  name-case-change={uc},
  replicate-fields={long=description,short=name}]

Again, this will lose any custom formatting command that would usually be applied by the abbreviation style to the name field (and description, if applicable).

Terms defined using @abbreviation will be written to the output file using the command \bibglsnewabbreviation.

@acronym

The @acronym entry type is like @abbreviation except that the term is written to the output file using the command \bibglsnewacronym.
4.6 Dual Entry Types

@contributor

The @contributor entry type is primarily provided for use by the @bibtexentry type. You may use it explicitly if you want, but you need to take care that it doesn’t clash with @bibtextentry. It behaves much like @index except that the term is written to the .glistex file using the command \bibglsnewcontributor. There are no required fields. As with @index, if the name field is missing, the fallback value is the entry’s label. When this entry type is automatically created by @bibtexentry, the name is set to \bibglscontributor{⟨forenames⟩}{ ⟨von⟩}{ ⟨surname⟩}{ ⟨suffix⟩}.

If you do explicitly use @contributor you need to make sure it’s defined before the first instance of @bibtexentry that tries to access it, but within the same resource set. If you ensure that the label of @contributor matches the contributor label generated by @bibtexentry then they can have their dependency lists updated, and the \bibtextentry and \bibtextentry@⟨entry-type⟩ internal fields can be set for the @contributor entry. For example:

@contributor{KnuthDonaldE,
   name={\bibglscontributor{Donald E.}{ Knuth}{ }}
   description={Famous mathematician and computer scientist who created \TeX}
}

@book{texbook,
   title = {The \TeX book},
   author = {Donald E. Knuth},
   publisher = {Addison-Wesley},
   year = 1986
}

The resource options then need to include:

entry-type-aliases={\GlsXtrBibTeXEntryAliases},
labelify-replace={
   {[ \string\-\string]}{}}

If the @contributor entry is deferred until after the corresponding @bibtexentry then you will end up with a label clash.

4.6 Dual Entry Types

The entry types described in this section create two separate (but related) glossaries-extra entry definitions per .bib entry. The first of these entries is considered the primary entry, and the second is the dual entry (also referred to as the secondary entry, but is not related to the secondary option). The naming scheme is @dual⟨entry-type⟩ where both the primary
and dual are considered to have the same type of entry (such as @dualsymbol where both the primary and dual are functionally like @symbol) or @dual primary dual where the primary is functionally like @primary and the dual is functionally like @dual.

If the fields provided by the glossaries-prefix are defined, there will be additional mappings for the special internal fields dualprefix, dualprefixfirst, dualprefixplural, and dualprefixfirstplural.

For example:

```
@dualabbreviationentry{svm,
  short = {SVM},
  long = {support vector machine},
  description = {statistical pattern recognition technique}
}
```

is like:

```
@abbreviation{svm,
  short = {SVM},
  long = {support vector machine},
}
@entry{dual.svm,
  text = {SVM},
  name = {support vector machine},
  description = {statistical pattern recognition technique}
}
```

and is analogous to:

```
\newabbreviation{svm}{SVM}{support vector machine}
\newglossaryentry{dual.svm}{name={support vector machine},text={SVM},
  description={statistical pattern recognition technique}}
```

but both entries are considered dependent on each other. This means that if you only reference the primary entry (using \gls etc) then the dual entry will still be selected if the selection setting includes dependencies.

The creation of the dual entry involves mapping or copying fields from the primary entry. Each dual entry type has a set of mappings. If a field in the set of mappings is missing, its fallback value is used. Any fields that aren’t listed in the mappings are simply copied, except for the alias field, which will never be copied to the dual entry, nor can it be mapped. The alias will only apply to the primary entry. The dual entry is given the label ⟨prefix⟩⟨id⟩ where ⟨prefix⟩ is set by the dual-prefix option and ⟨id⟩ is the label supplied in the .bib file.

If dual-sort={combine} then the dual entries will be sorted along with the primary entries, otherwise the dual-sort indicates how to sort the dual entries and the dual entries will be appended to the end of the .glistex file. The dual-sort-field determines what field to use for the sort value if the dual entries should be sorted separately.
4.6 Dual Entry Types

Take care if you have a mixture of entry types (such as @dualindexentry, @dualindexsymbol and @index) and you’re not using the default dual-sort={combine}. Remember that the primary entries are all sorted together along with the single entries types described in section 4.6 (but they may be assigned to different glossary types), and then the dual entries are sorted together (but may be assigned to different glossary types). This may result in an odd ordering if some of the primaries and some of the duals are assigned to the same glossary. For example, don’t mix @dualindexabbreviation (duals are abbreviations) with @dualabbreviationentry (primaries are abbreviations) when you aren’t using dual-sort = {combine} (unless you have two different glossaries for the primary vs dual abbreviations).

Remember that bib2gls is designed to take advantage of \printunsrtglossary, which simply iterates over all defined entries in the order in which they were defined (or, more precisely, the order of the internal list of entry labels associated with that glossary). The aim of bib2gls is to write the entry definitions to the .glstex file so that the internal list of labels is in the appropriate order.

For example, suppose the file entries.bib contains:

```latex
@index{aardvark}
@index{mouse}
@index{zebra}
@dualindexabbreviation{xml,
    short={XML},
    long={extensible markup language}
}
@dualabbreviationentry{ssi,
    short={SSI},
    long={server-side includes},
    description={directives placed in \gls{html} pages evaluated by the server}
}
@dualindexabbreviation{html,
    short={HTML},
    long={hypertext markup language}
}
@dualabbreviationentry{css,
    short={CSS},
    long={cascading stylesheets},
    description={a language that describes the style of an \gls{html} document}
}
```

This contains a mixture of entry types, including @dualindexabbreviation (where the dual is the abbreviation) and @dualabbreviationentry (where the primary is the abbreviation).

Now consider the following document:

```latex
\documentclass{article}
```

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4.6 Dual Entry Types

\usepackage[record,abbreviations]{glossaries-extra}
\GlsXtrLoadResources[selection={all},src={entries}]
\begin{document}
\printunsrtglossaries
\end{document}

This uses the default sort={combine}, so all the entries are sorted together, resulting in the order: aardvark, dual.css, css, html, dual.html, mouse, dual.ssi, ssi, xml, dual.xml, zebra.

The \LaTeX code written to the .glstex file is essentially (but not exactly):

\begin{verbatim}
% from @index{aardvark}:
\newglossaryentry{aardvark}{name={aardvark},description={}}

% dual of @dualabbreviationentry{css,…}:
\newglossaryentry{dual.css}{name={cascading stylesheets},{text}={CSS},
description={a language that describes the style of an \glsxtrshort{html} document}}

% primary of @dualabbreviationentry{css,…}:
\newabbreviation{css}{CSS}{cascading stylesheets}

% primary of @dualindexabbreviation{html,…}:
\newglossaryentry{html}{name={HTML},description={}}

% dual of @dualindexabbreviation{html,…}:
\newabbreviation{dual.html}{HTML}{hypertext markup language}

% from @index{mouse}:
\newglossaryentry{mouse}{name}={mouse},description={}

% dual of @dualabbreviationentry{ssi,…}:
\newglossaryentry{dual.ssi}{name={server-side includes},text={SSI},
description={directives placed in \glsxtrshort{html} pages evaluated by the server}}

% primary of @dualabbreviationentry{ssi,…}:
\newabbreviation{ssi}{SSI}{server-side includes}

% primary of @dualindexabbreviation{xml,…}:
\newglossaryentry{xml}{name={XML},description={}}
\end{verbatim}
4.6 Dual Entry Types

\newabbreviation{dual.xml}{XML}{extensible markup language}

\newglossaryentry{zebra}{name={zebra},description={}}

Since the document uses the abbreviations package option, \newabbreviation automatically assigns the abbreviation to the abbreviations glossary (created through that package option). This means that the main (default) glossary contains the entries (in order):

- aardvark (name: aardvark),
- dual.css (name: cascading stylesheets),
- html (name: HTML),
- mouse (name: mouse),
- dual.ssi (name: server-side includes),
- xml (name: XML),
- zebra (name: zebra).

The abbreviations glossary contains:

- css (short: CSS),
- dual.html (short: HTML),
- ssi (short: SSI),

Since all the entries were combined and sorted together, the resulting glossaries are both ordered alphabetically (using short for the abbreviations and name for the rest), but note that you need to take care when referencing the abbreviations if you want to make use of the abbreviation style. You need \gls{css} and \gls{ssi} for the primary abbreviations created with \dualabbreviationentry and \gls{dual.html} and \gls{dual.xml} for the dual abbreviations created with \dualindexabbreviation. Also the name of the primary/dual alternative of the abbreviations is also inconsistent (short form for html and xml and long form for dual.css and dual.ssi), as different field mappings are used.

If the document is changed so that the dual entries are now sorted and written after all the primary entries have been dealt with:

\GlsXtrLoadResources[
  src={entries},
  dual-sort={letter-nocase},
  selection={all}
]
4.6 Dual Entry Types

then bib2gls first orders the primaries:

- aardvark (name: aardvark),
- css (short: CSS),
- html (name: HTML),
- mouse (name: mouse),
- ssi (short: SSI),
- xml (name: XML),
- zebra (name: zebra)

and writes them to the .glstex file (functionally like):

% from \@index{aardvark}:
\newglossaryentry{aardvark}{name={aardvark},description={}}

% primary of \@dualabbreviationentry{css,...}:
\newabbreviation{css}{CSS}{cascading stylesheets}

% primary of \@dualindexabbreviation{html,...}:
\newglossaryentry{html}{name={HTML},description={}}

% from \@index{mouse}:
\newglossaryentry{mouse}{name={mouse},description={}}

% primary of \@dualabbreviationentry{ssi,...}:
\newabbreviation{ssi}{SSI}{server-side includes}

% primary of \@dualindexabbreviation{xml,...}:
\newglossaryentry{xml}{name={XML},description={}}

% from \@index{zebra}:
\newglossaryentry{zebra}{name={zebra},description={}}

Then bib2gls orders the duals:

- dual.css (name: cascading stylesheets),
- dual.html (short: HTML),
- dual.ssi (name: server-side includes),
- dual.xml (short: XML)
and writes them to the .glistex file (functionally like):

% dual of @dualabbreviationentry{css,...}:
\newglossaryentry{dual.css}{name={cascading stylesheets},text={CSS},
description={a language that describes the style of an \glsxtrshort{html} document}}

% dual of @dualindexabbreviation{html,...}:
\newabbreviation{dual.html}{HTML}{hypertext markup language}

% dual of @dualabbreviationentry{ssi,...}:
\newglossaryentry{dual.ssi}{name={server-side includes},text={SSI},
description={directives placed in \glsxtrshort{html} pages
evaluated by the server}}

% dual of @dualindexabbreviation{xml,...}:
\newabbreviation{dual.xml}{XML}{extensible markup language}

When the .glistex file is input (during the next \LaTeX run) the entries are defined in the order:

1. aardvark (type: main),
2. css (type: abbreviations),
3. html (type: main),
4. mouse (type: main),
5. ssi (type: abbreviations),
6. xml (type: main),
7. zebra (type: main),
8. dual.css (type: main),
9. dual.html (type: abbreviations),
10. dual.ssi (type: main),
11. dual.xml (type: abbreviations).

This means that the main glossary’s internal list is in the order:

• aardvark (aardvark),
• html (HTML),
• mouse (mouse),
4.6 Dual Entry Types

- xml (XML),
- zebra (zebra),
- dual.css (cascading stylesheets),
- dual.ssi (server-side includes)

and the abbreviations glossary’s internal list is in the order:

- css (CSS),
- ssi (SSI),
- dual.html (HTML),
- dual.xml (XML).

The lists are no longer in alphabetical order as they have a mixture of primary and dual entries that were separated before sorting.

The above is a fairly contrived example as it wouldn’t make sense in a real document to have glossary terms (that include a description) mixed with index terms (that don’t include a description). A better solution would be to use @tertiaryindexabbreviationentry instead of @dualabbreviationentry.

@dualentry

The @dualentry entry type is similar to @entry but actually defines two entries. The dual entry contains the same information as the primary entry but some of the fields are swapped around. The default mappings are:

- name $\mapsto$ description
- plural $\mapsto$ descriptionplural
- description $\mapsto$ name
- descriptionplural $\mapsto$ plural

If the prefix fields are defined, then the default mappings additionally include:

- prefix $\mapsto$ dualprefix
- prefixplural $\mapsto$ dualprefixplural
- prefixfirst $\mapsto$ dualprefixfirst
- prefixfirstplural $\mapsto$ dualprefixfirstplural
- dualprefix $\mapsto$ prefix
4.6 Dual Entry Types

- dualprefixplural → prefixplural
- dualprefixfirst → prefixfirst
- dualprefixfirstplural → prefixfirstplural

The required fields are as for @entry.
For example:

@dualentry{child,
name={child},
plural={children},
description={enfant}
}

is like:

@entry{child,
name={child},
plural={children},
description={enfant}
descriptionplural={enfants}
}

@entry{dual.child,
description={child},
descriptionplural={children},
name={enfant}
plural={enfants}
}

where dual. is replaced by the value of the dual-prefix option. However, instead of defining the entries with \bibglsnewentry both the primary and dual entries are defined using \bibglsnewdualentry. The category and type fields can be set for the dual entry using the dual-category and dual-type options.
For example:

\newglossary*{english}{English}
\newglossary*{french}{French}

\GlsXtrLoadResources[
src={entries-dual},% data in entries-dual.bib
type={english},% put primary entries in glossary 'english'
dual-type={french},% put dual entries in glossary 'french'
category={dictionary},% set the primary category to 'dictionary'
dual-category={dictionary},% set the dual category to 'dictionary'
sort={en},% sort primary entries according to language 'en'
dual-sort={fr}% sort dual entries according to language 'fr'
]
4.6 Dual Entry Types

@dualindexentry

There are no required fields. The primary entry behaves like @index and the dual entry behaves like @entry. The default field mapping is:

- name $\mapsto$ name

If the prefix fields are defined, then the default mappings additionally include:

- prefix $\mapsto$ dualprefix
- prefixplural $\mapsto$ dualprefixplural
- prefixfirst $\mapsto$ dualprefixfirst
- prefixfirstplural $\mapsto$ dualprefixfirstplural
- dualprefix $\mapsto$ prefix
- dualprefixplural $\mapsto$ prefixplural
- dualprefixfirst $\mapsto$ prefixfirst
- dualprefixfirstplural $\mapsto$ prefixfirstplural

This doesn’t actually perform any swapping of fields, but it provides the field used for back-links (if dual-indexentry-backlink is set). The reason that the primary (rather than the dual) is like @index is to allow the primaries to merge with any @index entries found in the resource set, since glossary entries with descriptions are likely to be a subset of all indexed entries.

If no name is given, the dual entry is assigned the (unprefixed) entry label. For example:

@dualindexentry{array,
    description={ordered list of values}
}

This is effectively like:

@index{array}

@entry{dual.array,
    name={array},
    description={ordered list of values}
}

The primary entries are defined using \bibglsnewdualindexentry, which by default sets the category to index (although this may be overridden, for example, by the category option). The dual entries are defined with \bibglsnewdualindexentrysecondary. This is the most convenient way of having an entry that’s also automatically indexed. For example, suppose the file terms.bib contains:
and suppose the file entries.bib contains:

```latex
@dualindexentry{array,  
    description={ordered list of values}
}
@dualindexentry{vector,  
    name={vector},  
    description={column or row of values}
}
@dualindexentry{set,  
    description={collection of values}
}
@dualindexentry{matrix,  
    plural={matrices},  
    description={rectangular array of values}
}
```

These entries can be used in an example document that has an index and a glossary:

```latex
\documentclass{article}
\usepackage[colorlinks]{hyperref}
\usepackage[record,index,stylemods=mcols]{glossaries-extra}
\GlsXtrLoadResources[  
    src={terms,entries},  
    type={index},  
    label-prefix={idx.},  
    dual-prefix={gls.},  
    combine-dual-locations={primary},  
    dual-type={main}
]
\begin{document}
\gls{gls.array}, \gls{gls.vector}, \gls{gls.set}, \gls{gls.matrix}.
\gls{idx.duck}, \gls{idx.aardvark}, \gls{idx.zebra}.
\end{document}
```
This uses `combine-dual-locations` to combine the locations for the primary and dual entries so that they only appear in the index.

To avoid the inconvenience of remembering which prefix to use, you can set up the prefixes with \glsxtraddlabelprefix and reference entries with \dgls, \dGls etc instead of \gls, \Gls etc.

**@dualindexabbreviation**

The **@dualindexabbreviation** entry type is similar to **@dualindexentry** and again, by default, the field mapping is:

- **name** → **name**

If the prefix fields are defined, then the default mappings additionally include:

- **prefix** → **dualprefix**
- **prefixplural** → **dualprefixplural**
- **prefixfirst** → **dualprefixfirst**
- **prefixfirstplural** → **dualprefixfirstplural**
- **dualprefix** → **prefix**
- **dualprefixplural** → **prefixplural**
- **dualprefixfirst** → **prefixfirst**
- **dualprefixfirstplural** → **prefixfirstplural**

However in this case the required fields are **short** and **long**. The **name** for the primary entry defaults to **short** if omitted. (This may be changed with the **abbreviation-name-fallback** option.) The fallback for the **sort** field is given by **abbreviation-sort-fallback**, which defaults to the **short** field.

For example:

```latex
@dualindexabbreviation{html,
  short = {HTML},
  long = {hypertext markup language}
}
```
is like:

@index{html,name={HTML}}

@abbreviation{dual.html,
    short = {HTML},
    long = {hypertext markup language}
}

The primary term is defined using `\bibglsnewdualindexabbreviation`, which encapsulates the name to match the font used by the dual abbreviation. The encapsulation command depends on the `abbreviation-name-fallback` value. If it’s the `short` field then `\bibglsuseabbrvfont` is used, otherwise `\bibglsuselongfont` is used.

The primary definition also by default sets the `category` to index (although this again may be overridden). The dual term is defined using `\bibglsnewdualindexabbreviation-secondary`.

@dualindexsymbol

The @dualindexsymbol entry type is similar to @dualindexentry, but by default the field mappings are:

- `symbol` → `name`
- `name` → `symbol`
- `symbolplural` → `plural`
- `plural` → `symbolplural`

If the prefix fields are defined, then the default mappings additionally include:

- `prefix` → `dualprefix`
- `prefixplural` → `dualprefixplural`
- `prefixfirst` → `dualprefixfirst`
- `prefixfirstplural` → `dualprefixfirstplural`
- `dualprefix` → `prefix`
- `dualprefixplural` → `prefixplural`
- `dualprefixfirst` → `prefixfirst`
- `dualprefixfirstplural` → `prefixfirstplural`
The required field is: symbol. If the name field is omitted, the dual entry is assigned a symbol from the original (unprefixed) label. The primary entries are defined using \bibglsnewdualindexsymbol, which by default sets the category to index, and the dual entries are defined using \bibglsnewdualindexsymbolsecondary, which by default sets the category to symbol. For example:

\begin{verbatim}
@dualindexsymbol{pi,
    symbol={\ensuremath{\pi}},
    description={ratio of a circle's circumference to its diameter}}
\end{verbatim}

is like:

\begin{verbatim}
@index{pi,symbol={\ensuremath{\pi}}}
@symbol{dual.pi,
    name={\ensuremath{\pi}},
    symbol={pi},
    description={ratio of a circle's circumference to its diameter}}
\end{verbatim}

For example, suppose I have a file called symbols.bib that contains:

\begin{verbatim}
@dualindexsymbol{pi,
    symbol={\ensuremath{\pi}},
    description={ratio of a circle's circumference to its diameter}}
@dualindexsymbol{e,
    name={Euler's number},
    symbol={\ensuremath{e}},
    description={base of the natural logarithm}}
\end{verbatim}

Then the previous example document can be modified to have an index, a glossary and a list of symbols:

\begin{verbatim}
\documentclass{report}
\usepackage[colorlinks]{hyperref}
\usepackage[record,symbols,index,stylemods={mcols}]{glossaries-extra}
\newcommand{\bibglsnewdualindexsymbolsecondary}[5]{%
    \longnewglossaryentry*{#1}{name={#3},category=symbol,%
        symbol={#4},#2,type={symbols}}{#5}%
}\
\end{verbatim}
Here I’ve provided some convenient commands for referencing the primary (index) terms (`\idx`, `\idxpl`, `\Idx` and `\Idxpl`). This means I don’t need to worry about the label prefix
and it also switches off the hyperlinks (with \texttt{hyper={false}}). These custom commands are defined using:

\begin{verbatim}
\glsxtrnewglslike[⟨options⟩]{⟨prefix⟩}{⟨gls-like cs⟩}{⟨glspl-like cs⟩}{⟨Gls-like cs⟩}{⟨Glspl-like cs⟩}
\end{verbatim}

which, in this case, essentially does:

\begin{verbatim}
\newcommand{\idx}[2][]{\gls[hyper={false},#1]{idx.#2}}
\newcommand{\Idx}[2][]{\Gls[hyper={false},#1]{idx.#2}}
\newcommand{\idxpl}[2][]{\glspl[hyper={false},#1]{idx.#2}}
\newcommand{\Idxpl}[2][]{\Glspl[hyper={false},#1]{idx.#2}}
\end{verbatim}

but the new commands will also recognise the \texttt{gls} modifiers, so \texttt{idx}+ will behave like \texttt{gls}+ which wouldn’t be possible if \texttt{idx} was defined using \texttt{newcommand} in the above manner. There’s a similar command:

\begin{verbatim}
\glsxtrnewgls[⟨options⟩]{⟨prefix⟩}{⟨cs⟩}
\end{verbatim}

if no case-changing versions are required.

I’ve also redefined \texttt{\bibglsnewdualindexsymbolsecondary} to put the dual entries created with \texttt{@dualindexsymbol} into the \texttt{symbols} glossary (which is created with the \texttt{symbols} package option), so it overrides the \texttt{dual-type={main}} setting.

This command also sets the \texttt{category} to \texttt{symbol}, so I can redefine the post-description hook for symbols (\texttt{\glsxtrpostdescsymbol}) to automatically index the symbol definition. Similarly for the general post-description hook \texttt{\glsxtrpostdescgeneral}.

Since the post-description hook isn’t done until the glossary has been created, this requires a slightly longer build process. If the document file is called \texttt{myDoc.tex}, then the complete document build is:

\begin{verbatim}
pdflatex myDoc
bib2gls -g myDoc
pdflatex myDoc
bib2gls -g myDoc
pdflatex myDoc
\end{verbatim}

As from \texttt{glossaries-extra-bib2gls} version 1.37, an alternative method is to identify possible label prefixes with \texttt{\glsxtraddlabelprefix} or \texttt{\glsxtrprependlabelprefix} and use \texttt{\dgls}, \texttt{\dglspl}, \texttt{\dGls} or \texttt{\dGlspl}. See the \texttt{glossaries-extra} user manual \cite{glossaries-extra-user-manual} for further details.

\textbf{@dualindexnumber}

The \texttt{@dualindexnumber} entry type is almost identical to \texttt{@dualindexsymbol}, but the primary entries are defined using \texttt{\bibglsnewdualindexnumber}, which by default sets the \texttt{category} to \texttt{index}, and the dual entries are defined using \texttt{\bibglsnewdualindexnumber-secondary}, which by default sets the \texttt{category} to \texttt{number}.

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4.6 Dual Entry Types

@dualabbreviationentry

The @dualabbreviationentry entry type is similar to @dualentry, but by default the field mappings are:

- long $\mapsto$ name
- longplural $\mapsto$ plural
- short $\mapsto$ text

If the prefix fields are defined, then the default mappings additionally include:

- prefix $\mapsto$ dualprefix
- prefixplural $\mapsto$ dualprefixplural
- prefixfirst $\mapsto$ dualprefixfirst
- prefixfirstplural $\mapsto$ dualprefixfirstplural
- dualprefix $\mapsto$ prefix
- dualprefixplural $\mapsto$ prefixplural
- dualprefixfirst $\mapsto$ prefixfirst
- dualprefixfirstplural $\mapsto$ prefixfirstplural

You may need to add a mapping from shortplural to plural if the default is inappropriate. (In bib2gls version 1.0 this entry type was originally called @dualentryabbreviation. In version 1.1, it was renamed @dualabbreviationentry which makes for a more consistent naming scheme @dual⟨primary⟩⟨dual⟩.)

The required fields are: short, long and description. This entry type is designed to emulate the example \newdualentry command given in the glossaries user manual [14]. The primary entry is an abbreviation with the given short and long fields (but not the description) and the secondary entry is a regular entry with the name copied from the long field. The fallback for the sort is given by abbreviation-sort-fallback, which defaults to the short field.

For example:

@dualabbreviationentry{svm,
  long = {support vector machine},
  short = {SVM},
  description = {statistical pattern recognition technique}
}

is rather like doing:
4.6 Dual Entry Types

@abbreviation{svm,
    long = {support vector machine},
    short = {SVM}
}

@entry{dual.svm,
    name = {support vector machine},
    description = {statistical pattern recognition technique}
}

but dual.svm will automatically be selected if svm is indexed in the document. If dual.svm isn’t explicitly indexed, it won’t have a location list.

If the sort field is missing bib2gls by default falls back on the name field. If this is missing, this sort value will fallback on the short field. This means that if name isn’t explicitly given in @dualabbreviationentry, then the primary entry will be sorted according to short but the dual will be sorted according its name (which has been copied from the primary long).

Entries provided using @dualabbreviationentry will be defined with:

\bibglsnewdualabbreviationentry

(which uses \newabbreviation) for the primary entries and with:

\bibglsnewdualabbreviationentrysecondary

(which uses \longnewglossaryentry) for the secondary entries. This means that if the abbreviations package option is used, the primary entry will be put in the abbreviations glossary and the secondary entry in the main glossary. Use the type and dual-type options to override this.

@dualentryabbreviation

This entry type is deprecated as from bib2gls version 1.1. It’s functionally equivalent to @dualabbreviationentry but its name doesn’t fit the general dual entry naming scheme.

@dualsymbol

This is like @dualentry but the default mappings are:

- name \mapsto symbol
- plural \mapsto symbolplural
- symbol \mapsto name
- symbolplural \mapsto plural

If the prefix fields are defined, then the default mappings additionally include:
4.6 Dual Entry Types

- prefix $\mapsto$ dualprefix
- prefixplural $\mapsto$ dualprefixplural
- prefixfirst $\mapsto$ dualprefixfirst
- prefixfirstplural $\mapsto$ dualprefixfirstplural
- dualprefix $\mapsto$ prefix
- dualprefixplural $\mapsto$ prefixplural
- dualprefixfirst $\mapsto$ prefixfirst
- dualprefixfirstplural $\mapsto$ prefixfirstplural

The **name** and **symbol** fields are required. For example:

@dualsymbol{pi,
  name={pi},
  symbol={\ensuremath{\pi}},
  description={the ratio of the length of the circumference of a circle to its diameter}
}

Entries are defined using \bibglsnewdualsymbol, which by default sets the **category** to **symbol**.

**@dualnumber**

This is almost identical to **@dualsymbol** but entries are defined using \bibglsnewdualnumber, which by default sets the **category** to **number**.

The above example could be defined as a number since $\pi$ is a constant:

@dualnumber{pi,
  name={pi},
  symbol={\ensuremath{\pi}},
  description={the ratio of the length of the circumference of a circle to its diameter},
  user1={3.14159}
}

This has stored the approximate value in the **user1** field. The post-description hook could then be adapted to show this.

\glsdefpostdesc{number}{%
  \ifglsishasfield{useri}{\glscurrententrylabel}{ (approximate value: \glscurrentfieldvalue)}%
  {}}%
This use of the \texttt{user1} field means that the dual entries could be sorted numerically according to the approximate value:

\begin{verbatim}
\usepackage[record,postdot,numbers,style={index}]{glossaries-extra}
\GlsXtrLoadResources[
  src={entries},% entries.bib
dual-type={numbers},
dual-sort={double},% decimal sort
dual-sort-field={user1}
]
\end{verbatim}

\texttt{@dualabbreviation}

The \texttt{@dualabbreviation} entry type is similar to \texttt{@dualentry}, but by default the field mappings are:

\begin{itemize}
  \item \texttt{short} $\mapsto$ \texttt{dualshort}
  \item \texttt{shortplural} $\mapsto$ \texttt{dualshortplural}
  \item \texttt{long} $\mapsto$ \texttt{duallong}
  \item \texttt{longplural} $\mapsto$ \texttt{duallongplural}
  \item \texttt{dualshort} $\mapsto$ \texttt{short}
  \item \texttt{dualshortplural} $\mapsto$ \texttt{shortplural}
  \item \texttt{duallong} $\mapsto$ \texttt{long}
  \item \texttt{duallongplural} $\mapsto$ \texttt{longplural}
\end{itemize}

If the prefix fields are defined, then the default mappings additionally include:

\begin{itemize}
  \item \texttt{prefix} $\mapsto$ \texttt{dualprefix}
  \item \texttt{prefixplural} $\mapsto$ \texttt{dualprefixplural}
  \item \texttt{prefixfirst} $\mapsto$ \texttt{dualprefixfirst}
  \item \texttt{prefixfirstplural} $\mapsto$ \texttt{dualprefixfirstplural}
  \item \texttt{dualprefix} $\mapsto$ \texttt{prefix}
  \item \texttt{dualprefixplural} $\mapsto$ \texttt{prefixplural}
  \item \texttt{dualprefixfirst} $\mapsto$ \texttt{prefixfirst}
  \item \texttt{dualprefixfirstplural} $\mapsto$ \texttt{prefixfirstplural}
\end{itemize}
The required fields are: short, long, dualshort and duallong. This includes some new fields: dualshort, dualshortplural, duallong and duallongplural. If these aren’t already defined, they will be provided in the .glstex file with

\glsxtrprovidestoragekey{{key}}{}{} 

Note that this use with an empty third argument prevents the creation of a field access command (analogous to \glsentrytext). The value can be accessed with \glsxtrusefield instead. Remember that the field won’t be available until the .glstex file has been created.

Note that bib2gls doesn’t know what abbreviation styles are in used, so if the sort field is missing it will fallback on the short field. If the abbreviations need to be sorted according to the long field instead, use abbreviation-sort-fallback={long}.

Terms that are defined using @dualabbreviation will be written to the output file using \bibglsnewdualabbreviation.

If the dual-abbrv-backlink option is on, the default field used for the backlinks is the dualshort field, so you’ll need to make sure you adapt the glossary style to show that field. The simplest way to do this is through the category post-description hook.

For example, if the entries all have the category set to abbreviation, then this requires redefining \glsxtrpostdescabbreviation (either with \renewcommand or via \glsdefpostdesc).

Here’s an example dual abbreviation for a document where English is the primary language and German is the secondary language:

@dualabbreviation{rna,
  short={RNA},
  dualshort={RNS},
  long={ribonucleic acid},
  duallong={Ribonukleinsäure}
}

If the abbreviation is in the file called entries-dual-abbrv.bib, then here’s an example document:

\documentclass{article}
\usepackage[T1]{fontenc}
\usepackage[utf8]{inputenc}
\usepackage[ngerman,main=english]{babel}
\usepackage[colorlinks]{hyperref}
\usepackage[record,nomain]{glossaries-extra}
\newglossary*{english}{English}
\newglossary*{german}{German}
\setabbreviationstyle{long-short}
4.6 Dual Entry Types

\glsdefpostdesc{abbreviation}{%
  \ifglshasfield{dualshort}{\glscurrententrylabel}
  {%
    \space(\glscurrentfieldvalue)%
  }%
  {}%
}

\GlsXtrLoadResources[
  src={entries-dual-abbrv},% entries-dual-abbrv.bib
  type={english},% put primary entries in glossary 'english'
  dual-type={german},% put primary entries in glossary 'german'
  label-prefix={en.},% primary label prefix
  dual-prefix={de.},% dual label prefix
  sort={en},% sort primary entries according to language 'en'
  dual-sort={de-1996},% sort dual entries according to 'de-1996'
    % (German new orthography)
  dual-abbrv-backlink% add links in the glossary to the opposite entry
]

\begin{document}

English: \gls{en.rna}; \gls{en.rna}.

German: \gls{de.rna}; \gls{de.rna}.

\printunsrtglossaries
\end{document}

If the label-prefix is omitted, then only the dual entries will have a prefix:

English: \gls{rna}; \gls{rna}.

German: \gls{de.rna}; \gls{de.rna}.

Another variation is to use the long-short-user abbreviation style and modify the associated \glsxtruserfield so that the duallong field is selected for the parenthetical material:

\renewcommand*{\glsxtruserfield}{duallong}

This means that the first use of the primary entry is displayed as

ribonucleic acid (RNA, Ribonukleinsäure)

and the first use of the dual entry is displayed as:
4.6 Dual Entry Types

Ribonukleinsäure (RNS, ribonucleic acid)

Here’s an example to be used with the long-short-desc style:

```latex
@dualabbreviation{rna,
  short={RNA},
  dualshort={RNS},
  long={ribonucleic acid},
  duallong={Ribonukleinsäure}
  description={a polymeric molecule},
  user1={Ein polymeres Molekül}
}
```

This stores the dual description in the user1 field, so this needs a mapping. The new example document is much the same as the previous one, except that the dual-abbrv-map option is needed to include the mapping between the description and user1 fields:

```latex
\documentclass{article}
\usepackage[T1]{fontenc}
\usepackage[utf8]{inputenc}
\usepackage[ngerman,main=english]{babel}
\usepackage[colorlinks]{hyperref}
\usepackage[record,nomain]{glossaries-extra}
\newglossary*{english}{English}
\newglossary*{german}{German}
\setabbreviationstyle{long-short-desc}
\glsdefpostdesc{abbreviation}{% 
  \ifglshasfield{dualshort}{\glscurrententrylabel} 
  {%
    \space(\glscurrentfieldvalue)%
    }%
  }%
}
\GlsXtrLoadResources[ 
src={entries-dual-abbrv-desc},% entries-dual-abbrv-desc.bib 
type={english},% put primary entries in glossary 'english' 
dual-type={german},% put primary entries in glossary 'german' 
label-prefix={en.},% primary label prefix 
dual-prefix={de.},% dual label prefix 
]
4.6 Dual Entry Types

sort={en}, % sort primary entries according to language 'en'
abbreviation-sort-fallback={long}, % fallback on 'long' field
dual-sort={de-1996}, % sort dual entries according to 'de-1996'
  % (German new orthography)
dual-abbrv-backlink,% add links in the glossary to the opposite entry
% dual key mappings:
dual-abbrv-map={%
  {short,shortplural,long,longplural,dualshort,dualshortplural,
   duallong,duallongplural,description,user1},
  {dualshort,dualshortplural,duallong,duallongplural,short,shortplural,
   long,longplural,user1,description}
%
}
\begin{document}

English: \gls{en.rna}; \gls{en.rna}.

German: \gls{de.rna}; \gls{de.rna}.

\printunsrtglossaries
\end{document}

Note that since this document uses the long–short–desc abbreviation style, the abbreviation
-sort-fallback needs to be changed to long.

If I change the order of the mapping to:

dual-abbrv-map={%
  {long,longplural,short,shortplural,dualshort,dualshortplural,
   duallong,duallongplural,description,user1},
  {duallong,duallongplural,dualshort,dualshortplural,short,shortplural,
   long,longplural,user1,description}
%
}

Then the back-link field will switch to duallong. The post-description hook can be modified
to allow for this:

\glsdefpostdesc{abbreviation}{%\iffglshasfield{duallong}{\glscurrententrylabel}
  \ifglsfield{duallong}{\space(\glscurrentfieldvalue)\}
\}%

An alternative is to use the long–short–user–desc style without the post-description hook:
4.7 Tertiary Entry Types

A tertiary entry type is essentially a dual entry that creates three separate (but related) glossaries-extra entry definitions per .bib entry. As with dual entries, the first and second of these are the primary and secondary. The third of these is the tertiary which is effectively an appendage of the secondary, and is defined by the same associated \bibglsnew...secondary command that defines the secondary entry. Therefore the secondary and tertiary are both considered the dual and are treated as a single entry for the purposes of sorting and collating.

The tertiary entry will never have any locations. Any records found will be assigned to the secondary (and may then be moved to the primary with combine-dual-locations= {primary}). The tertiary will always have the same order as the secondary and will have the same group value. You can set the type for the tertiary with tertiary-type and the category with tertiary-category. The label prefix defaults to tertiary. and can be changed with tertiary-prefix.

@tertiaryindexabbreviationentry

This entry type is very similar to @dualindexabbreviation but creates a tertiary entry as well. The required fields are: short and long (as for @dualindexabbreviation) and also description. The mappings are shared by both entry types. For example:

@tertiaryindexabbreviationentry{html,
   short = {HTML},
   long = {hypertext markup language},
   description = {a markup language for creating web pages}
}

is analogous to:
4.8 Multi-Entry Types

The last two are actually defined using one command:

\bibglsnewtertiaryindexabbreviationentrysecondary
{dual.html}% secondary label
{tertiary.html}% tertiary label
{...}% secondary fields
{...}% tertiary fields
{HTML}% primary name
{HTML}% short
{hypertext markup language}% long
{a markup language for creating web pages}% description

The \bibglsnewtertiaryindexabbreviationentrysecondary command is provided in the .glstex file as:

\providecommand{\bibglsnewtertiaryindexabbreviationentrysecondary}[8]{%
 \newabbreviation[#3]{#1}{#6}{#7}%
 \longnewglossaryentry*{#2}{{name=\protect\bibglsuselongfont{#7}{\glscategory{#1}}},#4}%
 {#8}%
}

which defines the secondary as an abbreviation using \newabbreviation and the tertiary as a regular entry using \longnewglossaryentry. This means that the tertiary entry is always defined immediately after the corresponding secondary entry. The primary may be defined earlier or later in the file depending on the way the entries are sorted and on the dual-sort setting.

4.8 Multi-Entry Types

A multi-entry type is an entry that may spawn multiple primary entries. This means that both the main entry and the spawned entries are sorted together along with all the other primary entries. In the case of @spawndualindexentry, the main and spawned entries are primary. The main entry’s dual is created as per @dualindexentry.
4.8 Multi-Entry Types

@bibtexentry

The @bibtexentry type will typically need to be aliased as it’s designed for converting \texttt{\LaTeX} entries into \texttt{bib2gls} entries. For example, to make \texttt{bib2gls} treat @article and @book as though they were both @bibtexentry:

```latex
entry-type-aliases=
  article=bibtexentry,
  book=bibtexentry
```

For convenience, \texttt{glossaries-extra-bib2gls} v1.29+ provides \texttt{\GlsXtrBibTeXEntryAliases} which covers all the standard \texttt{\LaTeX} entry types. Alternatively, you can use \texttt{unknown-entry-alias=} to alias all entries that aren’t recognised by \texttt{bib2gls}. If you use \texttt{category=} the \texttt{category} field will be set to the original entry type (for example, article or book). Similarly you can use \texttt{type=} to set the \texttt{type} field (but remember that the glossary types will need to be defined in the document).

There are no required fields. The fallback for the \texttt{sort} field is given by \texttt{bibtexentry-sort-fallback}. If you want to access any of the \texttt{\LaTeX} fields, you will need to alias or define them. For example:

```latex
field-aliases=
  title=name
```

Since \texttt{\LaTeX}’s \texttt{type} field conflicts with \texttt{bib2gls}’s \texttt{type} field, when \texttt{bib2gls} parses @bibtexentry if it will convert \texttt{type} to \texttt{bibtextype}, so you must use \texttt{bibtextype} as the identifier when aliasing.

Alternatively, you can use \texttt{\GlsXtrProvideBibTeXFields} which uses \texttt{\glsaddstorage-key} to provide all the standard \texttt{\LaTeX} fields. (Remember that new fields must be defined before the first resource set.)

The @bibtexentry essentially creates an @index form of entry, but it additionally defines a @contributor entry for each listed author or editor and updates the dependency lists: each @contributor is added to the main @bibtexentry’s list of dependencies (so if the @bibtexentry has a record then all its satellite @contributors are selected with the default \texttt{selection=} values), and each @contributor is treated as having a cross-reference to the main @bibtexentry (so if a @contributor has a record then all the linked @bibtexentry terms will be selected if \texttt{selection=} values). You can instruct \texttt{bib2gls} to treat \texttt{\citation} as an ignored record using \texttt{--cite-as-record}.

Each contributor is effectively defined as:

```latex
@contributor{⟨label⟩,
  name=\{\bibglscontributor{⟨forenames⟩}{⟨von⟩}{⟨surname⟩}{⟨suffix⟩}\}}
```
4.8 Multi-Entry Types

The label is obtained by converting the name to a label, using the same function as labelify (which means it’s governed by labelify-replace).

The author and editor fields are always checked, even if those fields aren’t recognised by bib2gls, (which they aren’t by default). These checks are performed before field aliases are applied. If neither field is present, no additional entries are spawned. If the dependent @contributor entry has already been defined, it won’t be redefined, but will have the new @bibtexentry added to its internal bibtexentry field.

The main @bibtexentry is defined using \bibglsnewbibtexentry and is followed by:

\glsxtrfieldlistadd{⟨id⟩}{bibtexcontributor}{⟨contributor-id⟩}

where ⟨id⟩ is the label identifying the main @bibtexentry and ⟨contributor-id⟩ is the label identifying the contributor, for each contributor that has been selected.

Each contributor is defined using \bibglsnewcontributor. The definition is followed by:

\glsxtrfieldlistadd{⟨contributor-id⟩}{bibtexentry}{⟨id⟩}
\glsxtrfieldlistadd{⟨contributor-id⟩}{bibtexentry@⟨entry-type⟩}{⟨id⟩}

for each selected @bibtexentry associated with that contributor. The second line provides the internal list field bibtexentry@⟨entry-type⟩, where ⟨entry-type⟩ is the original entry type (before it was aliased to @bibtexentry and converted to lower case). For example article or book.

You can iterate over these internal list fields using \glsxtrfielddolistloop or \glsxtrfieldforlistloop. For example:

\newcommand{\contributorhandler}[1]{\par\glsentryname{#1}}
\newcommand{\glsxtrpostdesccontributor}{\glsxtrifhasfield{bibtexentry}{\glscurrententrylabel}{\par}{% \glsxtrfieldforlistloop{\glscurrententrylabel}{bibtexentry}{\contributorhandler}{% {\par No titles.}% }}%}

(where the resource option field-aliases={title=name} has been used).

Here’s an example that uses the test xampl.bib file that’s provided with \TeX distributions:

\documentclass{article}
\usepackage[record,nomain]{glossaries-extra}
\newglossary*{contributors}{Authors/Editors}
\newglossary*{titles}{Titles}
4.8 Multi-Entry Types

\newcommand{\bibglsnewbibtexentry}[4]{% 
  \longnewglossaryentry*{#1}{name=#3,#2,type={titles}}{#4}% }

\GlsXtrLoadResources[
  src={xampl},
  write-preamble={false},
  entry-type-aliases={
    \GlsXtrBibTeXEntryAliases
  },
  field-aliases={
    title=name
  },
  replicate-fields={
    note=name
  },
  labelify-replace={
    {{ [ \string\-\string\.]}}{}
  },
  type={contributors},
  category={same as original entry},
  sort-field={category},
  sort-suffix={name}
]

\glsxtrsetgrouptitle{article}{Articles}
\glsxtrsetgrouptitle{booklet}{Booklets}
\glsxtrsetgrouptitle{book}{Books}
\glsxtrsetgrouptitle{inbook}{Book Chapters}
\glsxtrsetgrouptitle{misc}{Miscellaneous}

\newcommand{\contributorhandler}[1]{\par\glsentryname{#1} (#1)}

\newcommand{\glsxtrpostdesccontributor}{% 
  \glsxtrifhasfield{bibtexentry}{\glscurrententrylabel}{% 
    {% 
      \glsxtrfieldforlistloop
      {\glscurrententrylabel}{bibtexentry}{% 
        {\contributorhandler}% 
      }% 
    }% 
  }% 
  \par No titles.}%

\begin{document}

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4.8 Multi-Entry Types

Sample \cite{book-minimal,article-full,inbook-full,misc-minimal}.
Another sample \cite{booklet-minimal,misc-full,article-minimal}.

\bibliographystyle{plain}
\bibliography{xampl}

\printunsrtglossary[type={contributors},style={altlist}]
\printunsrtglossary*[type={titles},style={indexgroup}]
{%
\renewcommand{\glsxtrgroupfield}{category}\%
\renewcommand{\glstrenamefmt}[1]{\emph{#1}}\%
\renewcommand{\glstreegroupheaderfmt}[1]{\textbf{#1}}\%
}\%

@end{document} 

If the file is called myDoc.tex then the document build is:

pdflatex myDoc
bib2gls --cite-as-record myDoc
bibtex myDoc
pdflatex myDoc
pdflatex myDoc

@progenitor

The @progenitor type of entries are the only place where the adoptparents field is permitted. The value should be a comma-separated list of labels. The adoptparents field must be set and must contain at least one label. If the value contains any of the characters \ (backslash), \{ (open brace) or \} (close brace) then the field will be interpreted (if the default --interpret settings is on).

Since entries are spawned before fields are processed, the adoptparents field is parsed before any field aliases (field-aliases) or replication (replicate-fields) takes place. However, if the adoptparents field isn’t found, bib2gls will check for a simple mapping in both the field-aliases and replicate-fields settings.

This entry type creates a main progenitor term (with all the given fields except adoptparents) and n spawned progeny terms, where n is the number of elements in the adoptparents field, that are dependent on the main term.

Each of the spawned progeny entries have the field identified by adopted-parent-field (parent by default) set to the corresponding element in the adoptparents field.

All fields from the original definition are copied except for the adoptparents, alias and parent fields. The parent field is never copied, regardless of the value of adopted-parent-field. If the adopted parent field is changed to one that’s contained in the original entry, it’s value will be from adoptparents not the value from the original entry.
4.8 Multi-Entry Types

The copied fields follow the same conditions as normal entries. (For example, unknown fields are ignored, case-changes are applied, if appropriate, and the type field must reference a valid glossary, if set.) If progenitor-type is set, then this assignment is made after the progeny are created and only applies to the main progenitor entry. The type for the progeny can be set with progeny-type. For example, progeny-type={same as parent} will ensure that the progeny are in the same glossary type as their parent entry.

For example, an entry defined as:

```latex
@progenitor{⟨id⟩,
  adoptparents = {⟨parent-1 id⟩,...,⟨parent-N id⟩},
  ⟨field-name-1⟩ = {⟨text⟩},
  ...
  ⟨field-name-n⟩ = {⟨text⟩}
}
```

is essentially like:

```latex
@index{⟨id⟩,
  progeny = {⟨parent-1 id⟩.⟨id⟩,...,⟨parent-N id⟩.⟨id⟩},
  ⟨field-name-1⟩ = {⟨text⟩},
  ...
  ⟨field-name-n⟩ = {⟨text⟩}
}
```

```latex
@index{⟨parent-1 id⟩.⟨id⟩,
  progenitor = {⟨id⟩},
  parent = {⟨parent-1 id⟩},
  ⟨field-name-1⟩ = {⟨text⟩},
  ...
  ⟨field-name-n⟩ = {⟨text⟩}
}
```

```latex
...
```

```latex
@index{⟨parent-N id⟩.⟨id⟩,
  progenitor = {⟨id⟩},
  parent = {⟨parent-N id⟩},
  ⟨field-name-1⟩ = {⟨text⟩},
  ...
  ⟨field-name-n⟩ = {⟨text⟩}
}
```

This creates the main (progenitor) ⟨id⟩ entry, which contains all the fields (except for adoptparents) that were in the original @progenitor definition and has the new field progeny set to the comma-separated list of spawned entry labels. The main entries are defined in the .glistex file with \bibglsnewprogenitor.
4.8 Multi-Entry Types

In addition to the main \langle id \rangle entry, the above also creates the spawned progeny entries \langle parent-1 id \rangle, ..., \langle parent-N id \rangle that are dependent on the main \langle id \rangle entry.

The spawned entries have the parent field set to the corresponding label obtained from the adoptparents list. This parent entry must also be defined, as usual for the parent field. (This restriction obviously doesn’t apply if adopted-parent-field is changed from the default parent.) The spawned entries are defined in the .glstex file with \bibglsnewspawnedindex.

If the main progenitor entry is referenced in the document then (assuming the default selection criteria) the spawned entries will also be automatically selected. You can check for the existence of the progenitor field using \glsxtrifhasfield and fetch the location field from the main entry, if required.

Although the spawned entries are considered dependents of the main entry, the reverse doesn’t apply. If a spawned entry is referenced in the document (with \langle parent-id \rangle, \langle id \rangle) then the main entry and its other spawned entries aren’t automatically selected.

For example, suppose the file entries.bib contains:

\begin{verbatim}
@indexplural{stylesheet, text={stylesheet language}}
@index{webdesign, name={web design}}
@indexplural{markup, text={markup language}}

@progenitor{xml,
  name={XML},
  adoptparents={markup}
}

@progenitor{css,
  name={CSS},
  adoptparents={stylesheet,webdesign}
}

@progenitor{html,
  name={HTML},
  adoptparents={markup,webdesign}
}

@progenitor{xsl,
  name={XSL},
  adoptparents={stylesheet}
}
\end{verbatim}

and if the document contains:

\begin{verbatim}
\documentclass{article}
\end{verbatim}
4.8 Multi-Entry Types

\usepackage[record,stylemods={tree},style={index}]{glossaries-extra}
\GlsXtrLoadResources[src={entries},selection={all}]
\newcommand*{\glstreenamefmt}[1]{#1}
\begin{document}
\printunsrtglossaries
\end{document}

Then the resulting list will be:

CSS
HTML
markup language
  HTML
  XML
stylesheet language
  CSS
  XSL
web design
  CSS
  HTML
XML
XSL

This allows the HTML and CSS entries to be listed under multiple parents.

The following \texttt{@spawn\{single-type\}} commands are all forms of \texttt{@progenitor} that create the given \texttt{@\{single-type\}} of entry. The spawned entries are actually created with the private entry type \texttt{@spawned\{type\}}. In the case of \texttt{@progenitor}, the spawned entries are defined as a \texttt{@spawnedindex} entry. These special \texttt{@spawned\{type\}} entry types aren’t intended for use in the \texttt{.bib} file, but if you reference the entry type (for example, with \texttt{category={same as entry}}) you will get \texttt{@spawned\{type\}} as the entry type. The original entry type for the spawned entries is the same as the original entry for the main \texttt{@progenitor} entry.

There is currently only one form of dual \texttt{@progenitor} entry and that’s \texttt{@spawndualindex-entry}. Only the main progenitor entry is a dual entry. The spawned progeny are all \texttt{@index} primary entries.

\texttt{@spawnindex}

As \texttt{@progenitor}, but the main entries are defined in the \texttt{.glstex} file with \texttt{\bibglsnewspawnindex} and the spawned entries are defined with \texttt{\bibglsnewspawnedindex}. 

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4.8 Multi-Entry Types

@spawnindexplural

As @progenitor, except that it creates @indexplural terms instead of @index. As with @indexplural, if the name field isn’t set, it’s assigned to the same value as the plural field (or the fallback for the plural, if not defined).

The main entries are defined in the .glistex file with \bibglsnewspawnindexplural and the spawned entries are defined with \bibglsnewspawnedindexplural.

@spawnentry

As @progenitor, except that it creates @entry terms instead of @index. As with @entry, the description field is required and either name or parent.

The main entries are defined in the .glistex file with \bibglsnewspawnentry and the spawned entries are defined with \bibglsnewspawnedentry.

@spawnabbreviation

As @progenitor, except that it creates @abbreviation terms instead of @index. As with @abbreviation, the short and long fields are required.

The main entries are defined in the .glistex file with \bibglsnewspawnabbreviation and the spawned entries are defined with \bibglsnewspawnedabbreviation.

@spawnacronym

As @progenitor, except that it creates @acronym terms instead of @index. As with @acronym, the short and long fields are required.

The main entries are defined in the .glistex file with \bibglsnewspawnacronym and the spawned entries are defined with \bibglsnewspawnedacronym.

@spawnsymbol

As @progenitor, except that it creates @symbol terms instead of @index. As with @symbol, the required fields are name or parent, and the description field is required if the name field is missing.

The main entries are defined in the .glistex file with \bibglsnewspawnsymbol and the spawned entries are defined with \bibglsnewspawnedsymbol.

@spawnnumber

As @progenitor, except that it creates @number terms instead of @index. As with @number, the required fields are name or parent, and the description field is required if the name field is missing.

The main entries are defined in the .glistex file with \bibglsnewspawnnumber and the spawned entries are defined with \bibglsnewspawnednumber.
4.8 Multi-Entry Types

@spawndualindexentry

As @progenitor, except that the main (progenitor) entry behaves like @dualindexentry. The spawned progeny behave like @index are so are all considered primary entries. The adoptparents field should therefore reference primary entries with the default adopted -parent-field={parent}.

The main primary and secondary (dual) entries are defined in the .glistex file with \bibglsnewspawndualindexentry and \bibglsnewspawndualindexentrysecondary. The spawned progeny are defined with \bibglsnewspawnedindex.
5 Resource File Options

Make sure that you use glossaries-extra with the record package option. This ensures that bib2gls can pick up the required information from the .aux file, and both record={only} and record={nameref} additionally load the supplementary glossaries-extra-bib2gls package. These two record option values also switch on the sort={none} package option (if you have a new enough version of the base glossaries package), which means that there’s no attempt to assign or process the sort key if it’s omitted from \newglossaryentry (or similar commands). The sort key will be provided by bib2gls for informational purposes, but there’s no need for \gls{LaTeX} to write it to any external files (unless you use the hybrid record ={alsoindex}, in which case you need to prevent bib2gls from sorting using the sort= {none} resource option).

The .glstex resource files created by bib2gls are loaded in the document using

\glsxtrresourcefile[⟨options⟩]{⟨filename⟩}

where ⟨filename⟩ is the name of the resource file without the .glstex extension. You can have multiple \glsxtrresourcefile commands within your document, but each ⟨filename⟩ must be unique, otherwise \gls{LaTeX} would attempt to input the same .glstex file multiple times (bib2gls checks for non-unique file names). The associated data for each resource file is called the resource set (see section 1.4).

There’s a shortcut command that uses \jobname in the ⟨filename⟩:

\GlsXtrLoadResources[⟨options⟩]

The first instance of this command is equivalent to:

\glsxtrresourcefile[⟨options⟩]{\jobname}

Any additional use of \GlsXtrLoadResources is equivalent to:

\glsxtrresourcefile[⟨options⟩]{\jobname-⟨n⟩}

where ⟨n⟩ is number. For example:

\GlsXtrLoadResources[src={entries-en},sort={en}]
\GlsXtrLoadResources[src={entries-fr},sort={fr}]
\GlsXtrLoadResources[src={entries-de},sort={de-1996}]

This is equivalent to:

\glsxtrresourcefile[src={entries-en},sort={en}]{\jobname}
\glsxtrresourcefile[src={entries-fr},sort={fr}]{\jobname-1}
\glsxtrresourcefile[src={entries-de},sort={de-1996}]{\jobname-2}
In general, it’s simplest just to use \GlsXtrLoadResources.

The optional argument \texttt{\langle options\rangle} is a comma-separated key=value list. Allowed options are listed below. The option list applies only to that specific \texttt{(filename).glstex} and are not carried over to the next instance of \texttt{\glsxtrresourcefile}. Only the definitions provided in \texttt{@preamble} (if the interpreter is on and \texttt{interpret-preamble={true}}) are carried over to the next resource set and, possibly, cross-resource references if permitted (see section 1.4). The glossaries-extra package doesn’t parse the options, but just writes the information to the \texttt{.aux} file. This means that any invalid options will be reported by \texttt{bib2gls} not by \texttt{glossaries-extra}.

As from glossaries-extra v1.40 you can provide a default set of options by redefining:

\GlsXtrDefaultResourceOptions

This command will be inserted at the start of the options list for all resource commands (and will expand as it’s written to the \texttt{.aux} file). For example:

\renewcommand{\GlsXtrDefaultResourceOptions}{% selection={all},src={entries}}
\GlsXtrLoadResources[ type={symbols}, match={entrytype=symbol}]  
\GlsXtrLoadResources[ type={abbreviations}, match={entrytype=abbreviation}]

This acts like:

\GlsXtrLoadResources[ selection={all},src={entries}, type={symbols}, match={entrytype=symbol}]  
\GlsXtrLoadResources[ selection={all},src={entries}, type={abbreviations}, match={entrytype=abbreviation}]  

If you have multiple .bib files you can either select them all using \texttt{src=\langle bib list\rangle} in a single \texttt{\glsxtrresourcefile} call, if they all require the same settings, or you can load them separately with different settings applied.

For example, if the files entries-terms.bib and entries-symbols.bib have the same settings:

\GlsXtrLoadResources[src={entries-terms,entries-symbols}]

Alternatively, if they have different settings:

\GlsXtrLoadResources[src={entries-terms},type={main}]  
\GlsXtrLoadResources[src={entries-symbols},sort={use},type={symbols}]
Note that the sorting is applied to each resource set independently of other resource sets. This means that if you have multiple instances of \texttt{glsxtrresourcefile} but only one glossary type, the glossary will effectively contain blocks of sorted entries. For example, if file1.bib contains:

\begin{verbatim}
@index{duck}
@index{zebra}
@index{aardvark}
\end{verbatim}

and file2.bib contains:

\begin{verbatim}
@index{caterpillar}
@index{bee}
@index{wombat}
\end{verbatim}

then

\begin{verbatim}
\GlsXtrLoadResources[src={file1,file2}]
\end{verbatim}

will result in the list: aardvark, bee, caterpillar, duck, wombat, zebra. These six entries are all defined when \texttt{jobname.glstex} is read. Whereas

\begin{verbatim}
\GlsXtrLoadResources[src={file1}]
\GlsXtrLoadResources[src={file2}]
\end{verbatim}

will result in the list: aardvark, duck, zebra, bee, caterpillar, wombat. The first three (aardvark, duck, zebra) are defined when \texttt{jobname.glstex} is read. The second three (bee, caterpillar, wombat) are defined when \texttt{jobname-1.glstex} is read. Since \texttt{printunsrtglossary} simply iterates over all defined entries, this is the ordering used.

Abbreviation styles must be set (using \texttt{\setabbreviationstyle}) before the resource command that selects the abbreviations from the appropriate \texttt{.bib} file, since the entries are defined (through \texttt{\newabbreviation} or \texttt{\newacronym}) when \texttt{glsxtrresourcefile} inputs the \texttt{.glstex} file. (Similarly for any associated abbreviation style commands that must be set before abbreviations are defined, such as \texttt{\glsxtrlongshortdescname}.)

Note \texttt{bib2gls} allows \texttt{.bib} files that don’t provide any entries. This can be used to provide commands in \texttt{@preamble}. For example, suppose I have \texttt{defs.bib} that just contains:

\begin{verbatim}
@preamble{"\providecommand{\strong}[1]{\textbf{\color{red}#1}}
\providecommand{\parenswap}[2]{#2 (#1)}"}
\end{verbatim}

This provides two commands:

\begin{verbatim}
\strong{(text)}
\end{verbatim}

(which sets the font weight and colour) and

\begin{verbatim}
\parenswap{(text1)}{(text2)}
\end{verbatim}
5 Resource File Options

(which just displays its second argument followed by the first in parentheses).

Suppose I also have entries.bib that contains:

@example, name={\textbf{\color{red}stuff}{example}}
@index{sample}
@index{test}
@index{foo}
@index{bar}

This contains an entry that requires the commands provided in defs.bib, so to ensure those commands are defined, I can do:

\GlsXtrLoadResources[src={defs,entries}]

Unfortunately this results in the sort value for example being set to redexample (stuff) because the interpreter has detected the provided commands and expanded:

\textbf{\color{red}example (stuff)}

to:

\textbf{\color{red}example (stuff)}

It discards font changes, so \textbf is ignored, but it doesn’t recognise \color and so doesn’t know that the first argument is just the colour specifier and therefore doesn’t discard it. This means that “example (stuff)” is placed between “foo” and “sample” instead of between “bar” and “foo”.

I can prevent the interpreter from parsing @preamble:

\GlsXtrLoadResources[src={defs,entries},interpret-preamble={false}]

Now when the sort value for example is obtained from:

\textbf{\color{red}example (stuff)}

no expansion occurs (since \textbf and \color are now unrecognised) so the sort value ends up as: stuffexample which places “example (stuff)” between “sample” and “test”, which is again incorrect.

The best thing to do in this situation is to split the provided commands into two .bib files: one that shouldn’t be interpreted and one that should.

For example, defs-nointerpret.bib:

@preamble{"providecommand{\textbf}[1]{\color{red}#1}"}

and defs-interpret.bib:

@preamble{"providecommand{\color}{2 (#1)}"}
5.1 General Options

Now the first one can be loaded with `interpret-preamble={false}`:

\GlsXtrLoadResources[src={defs-nointerpret},interpret-preamble={false}]

This creates a `.glstex` file that provides \textbf{strong} but doesn’t define any entries. The other file `defs-interpret.bib` can then be loaded with the default `interpret-preamble={true}`:

\GlsXtrLoadResources[src={defs-interpret,entries}]

The provided commands are remembered by the interpreter, so you can also do:

\GlsXtrLoadResources[src={defs-interpret}]
\GlsXtrLoadResources[src={entries}]

The contents of \texttt{@preamble} are only written to the associated `.glstex` file, but the definitions contained within the \texttt{@preamble} are retained by the interpreter for subsequent resource sets.

5.1 General Options

\texttt{charset=⟨encoding-name⟩}

If the character encoding hasn’t been supplied in the `.bib` file with the encoding comment

\texttt{ Encoding: ⟨encoding-name⟩}

then you can supply the correct encoding using `charset=⟨encoding-name⟩`. In general, it’s better to include the encoding in the `.bib` file where it can also be read by a `.bib` managing systems, such as JabRef.

See `--tex-encoding` for the encoding used to write the `.glstex` file.

\texttt{interpret-preamble=⟨boolean⟩}

This is a boolean option that determines whether or not the interpreter should parse the contents of \texttt{@preamble}. The default is \texttt{true}. If \texttt{false}, the preamble contents will still be written to the `.glstex` file, but any commands provided in the preamble won’t be recognised by the interpreter (see chapter 2).

Related options are: `set-widest` (which uses the interpreter to determine the widest name for the `alttree` style or the `glossary-longextra` styles), `interpret-label-fields` (which governs whether or not fields that must only contain a label should be interpreted), `labelify` (which converts a field into a string suitable for use as a label), and `labelify-list` (which converts a field into a string suitable for use as a comma-separated list of labels).

\texttt{write-preamble=⟨boolean⟩}

This is a boolean option that determines whether or not the preamble should be written to the `.glstex` file. The default is \texttt{true}. Note that the preamble will still be parsed if `interpret-preamble={true}` even if `write-preamble={false}`. This means it’s possible to provide `bib2gls` command definitions in \texttt{@preamble} that don’t get seen by \LaTeXX.
5.1 General Options

`set-widest=\langle boolean\rangle`

The alttree glossary style needs to know the widest `name` (for each level, if hierarchical). This can be set using `\glssetwidest` provided by the glossary-tree package (or similar commands like `\glsupdatewidest` provided by glossaries-extra-stylemods), but this requires knowing which name is the widest. Alternatively, one of the iterative commands such as `\glsFindWidestTopLevelName` can be used, which slows the document build as it has to iterate over all defined entries.

The glossary-longextra package, provided with glossaries-extra v1.37+, also needs to know the widest name, but in this case only the top-level is needed. If this has already been found through the commands provided with the alttree style then that value will be used as the default, but you can set another value that’s only used for the glossary-longextra styles with `\glslongextraSetWidest`.

The glossaries-extra-bib2gls package provides `\glsxtrSetWidest`, which sets the widest name for those styles that need it. As from version 1.8, bib2gls now checks for the existence of this command and will use it with `set-widest` to allow for the new styles provided by the glossary-longextra package.

The boolean option `set-widest=\{true\}` will try to calculate the widest names for each hierarchical level to help remove the need to determine the correct value within the document. Since bib2gls doesn’t know the fonts that will be used in the document or if there are any non-standard commands that aren’t provided in the `.bib` files preamble, this option may not work. For example, if one entry has the `name` defined as:

```
name=\{some \{\Huge huge\} text\}
```

and another entry has the `name` defined as:

```
name=\{some \{\small small\} text\}
```

then bib2gls will determine that the second name is the widest although the first will actually be wider when it’s rendered in the document.

When using this option, the transcript file will include the message:

Calculated width of ‘\langle text\rangle’: \langle number\rangle

where `\langle text\rangle` is bib2gls’s interpretation of the contents of the `name` field and `\langle number\rangle` is a rough guide to the width of `\langle text\rangle` assuming the operating system’s default serif font. The entry that has the largest `\langle number\rangle` is the one that will be selected. This will then be implemented as follows:

- If the `type` is unknown then:
  - if the interpreter resolves all `name` fields to the empty string (that is the `name` fields all consist of unknown commands) then
    - if there are child entries `\bibglssetwidestfallback` is used,
    - otherwise `\bibglssetwidesttoplevelfallback` is used;
### 5.1 General Options

- otherwise \texttt{\bibglssetwidest} is used.

- If the \texttt{type} is known then:
  - if the interpreter resolves all \texttt{name} fields for that type to the empty string (that is the \texttt{name} fields all consist of unknown commands) then
    - if there are child entries \texttt{\bibglssetwidestfortypefallback} is used,
    - otherwise \texttt{\bibglssetwidesttoplevelfortypefallback} is used;
  - otherwise \texttt{\bibglssetwidestfortype} is used.

This leaves \TeX{} to compute the width according to the document fonts. If \texttt{bib2gls} can’t correctly determine the widest entry then you will need to use one of the commands provided by \texttt{glossary-tree}, \texttt{glossary-longextra} or \texttt{glossaries-extra-stylemods} to set it.

In general, if you have more than one glossary it’s best to set the \texttt{type} using options like \texttt{type} and \texttt{dual-type} if you use \texttt{set-widest}.

\texttt{entry-type-aliases=\langle key=value list \rangle}

In the \texttt{.bib} file, the data is identified by \texttt{@\langle entry-type \rangle}, such as \texttt{@abbreviation}. It may be that you want to replace all instances of \texttt{@\langle entry-type \rangle} with a different type of entry. For example, suppose my \texttt{.bib} file contains abbreviations defined in the form:

\begin{verbatim}
@abbreviation{html,
    short = {html},
    long    = {hypertext markup language},
    description = {a markup language for creating web pages}
}
\end{verbatim}

but suppose in one of my documents I actually want all these abbreviations defined with \texttt{@dualabbreviationentry} instead of \texttt{@abbreviation}. Instead of editing the \texttt{.bib} file I can just supply a mapping:

\begin{verbatim}
\GlsXtrLoadResources[
    src={entries},% data in entries.bib
    entry-type-aliases={abbreviation=dualabbreviationentry}
]
\end{verbatim}

This makes all instances of \texttt{@abbreviation} behave as \texttt{@dualabbreviationentry}. You can have more than one mapping. For example:

\begin{verbatim}
\GlsXtrLoadResources[
    src={entries},% data in entries.bib
    entry-type-aliases={
        % @abbreviation -> @dualabbreviationentry:
        abbreviation=dualabbreviationentry,
        % @entry -> @index:
        entry=index
    }
]
\end{verbatim}
5.1 General Options

entry=index
}
]

This option isn’t cumulative. Multiple instances of entry-type-aliases override previous instances. If \langle key=value list \rangle is empty there will be no mappings. You can save the original entry type in the originalentrytype field with save-original-entrytype.

Here’s another example entry in a .bib file:

@foo{html,
    name = {HTML},
    short = {HTML},
    long = {hypertext markup language},
    description = {hypertext markup language}
}

Ordinarily this entry would be ignored since @foo isn’t recognised, but it can be mapped like this:

\GlsXtrLoadResources[
    src={entries},% data in entries.bib
    ignore-fields={short,long},
    entry-type-aliases={foo=entry}
]

This treats the entry as though it had been defined as:

@entry{html,
    name = {HTML},
    description = {hypertext markup language}
}

whereas:

\GlsXtrLoadResources[
    src={entries},% data in entries.bib
    ignore-fields={name,description},
    entry-type-aliases={foo=abbreviation}
]

 treats the entry as though it had been defined as:

@abbreviation{html,
    short = {HTML},
    long = {hypertext markup language}
}
5.1 General Options

**unknown-entry-alias=⟨value⟩**

If this option is set, the ⟨value⟩ is used as the alias for any unknown entry types (after any aliases provided with entry-type-aliases have been applied). If the value is missing or empty, unknown entry types will be ignored with a warning.

**action=⟨value⟩**

This governs how the entries are written in the .glistex file. The ⟨value⟩ may be one of:

- define: define the entries;
- copy: copy the entries;
- define or copy: copy existing entries and define non-existing entries.

The default setting is action={define}, which writes the entry definition to the .glistex file using one of the commands described in section 6.1. Since the record package option automatically switches on the undefaction={warn} option, any attempt at defining an entry that’s already been defined will generate a warning rather than an error. The duplicate definition will be ignored. (The warnings can be found in the .log file since they are warnings produce by glossaries-extra not by bib2gls.)

For example, if you try:

\newglossary*{copies}{Copies}
\GlsXtrLoadResources[src={entries}]
\GlsXtrLoadResources[sort={use},type={copies},src={entries}]

you’ll find that the copies glossary is empty and there will be warnings in the .log file when the second resource file is loaded.

There are various ways of having the same entries in multiple glossaries. The simplest method is to use secondary, but another method is to use action={copy} which simply writes

\glsxtrcopytoglossary{⟨label⟩}{⟨type⟩}

instead of using one of the commands listed in section 6.1. This copies the entries rather than defining them, which means the entries must already have been defined. The ⟨type⟩ is determined as follows:

- if the entry has the type field set, that’s used;
- if the entry is a tertiary and tertiary-type is set, that’s used;
- if the entry is a dual and dual-type is set, that’s used;
- otherwise the value of the type option is used.
5.1 General Options

If you’re not sure whether the entries may already be defined, you can use `action={define or copy}` which will use `\ifglsexistsexists` in the resource file to determine whether to define or copy the entry.

Options that set or modify fields, such as `category`, `group`, `save-locations`, `flatten` or `name-case-change`, will be ignored if entries are copied. However the `copy-action-group field` may be used to copy the `group` field (which may have been locally set by the `sort` method) to another field. This ensures that the original `group` value from the entry definition in an earlier resource set won’t be overwritten (unless you set `copy-action-group-field = {group}`).

Remember that `\glsxtrcopytoglossary` simply copies the entry’s label to the glossary’s internal list. The only checks that `bib2gls` performs if `action` is not `define` is to ensure that the `master` or `secondary` options have not been used, since they’re incompatible, and that the `type` option is set, since it’s required as a fallback for any entries that don’t have the `type` field set. (There are too many options that alter field values to check them all and some may be used to alter the sorting.) The purpose of the copy action is simply to provide a duplicate list in a different order.

Remember that if you are using `hyperref`, you need to use `target={false}` in the optional argument of `\printunsrtglossary` for the glossary containing the copies to prevent duplicate hypertargets. Commands like `\gls` will link to the original entries. For example, in the preamble:

\newignoredglossary{copies}

\GlsXtrLoadResources[src={entries}]

\GlsXtrLoadResources[
  sort={use},
  action={copy},
  type={copies},
  src={entries}
]

and later in the document:

\printunsrtglossary[title={Glossary (Alphabetical)},style={indexgroup}]
\printunsrtglossary[type={copies},title={Glossary (Order of Use)},
  style={index},nogroupskip,% no grouping
  target={false}]

Note also the need to use `nogroupskip` and a non-group style for the duplicates since the `group` field will have been assigned in the first resource set if `bib2gls` was invoked with `--group`. The grouping is appropriate for alphabetical ordering but not for order of use.

If you want different grouping for the duplicates, you can specify the field name to use in which to store the group information using `copy-action-group-field`. Unlike `secondary`, you will need to redefine `\glsxtrgroupphield` to the relevant field before you display the
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glossary. The simplest way to do this is with the starred form of \printunsrtglossary. For example, if copy-action-group-field={dupgroup} is added to the options for the second resource set:

\printunsrtglossary*[type={copies},title={Duplicates},style={indexgroup}]
{\renewcommand{\glsxtrgroupfield}{dupgroup}}

This just does:

\begingroup
\renewcommand{\glsxtrgroupfield}{dupgroup}\
\printunsrtglossary[type={copies},title={Duplicates},style={indexgroup}]\
\endgroup

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src=\langle list \rangle

This identifies the .bib files containing the entry definitions. The value should be a comma-separated list of the required .bib files. These may either be in the current working directory or in the directory given by the --dir switch or on \TeX’s path (in which case kpsewhich will be used to find them). The .bib extension may be omitted. Remember that if \langle list \rangle contains multiple files it must be grouped to protect the comma from the \langle options \rangle list.

For example:

\GlsXtrLoadResources[\src={entries-terms,entries-symbols}]

indicates that bib2gls must read the files entries-terms.bib and entries-symbols.bib and create the file given by \jobname.glstex on the first instance or \jobname-{n}.glstex on subsequent use.

With \glsxtrresourcefile[\langle options \rangle]{\langle filename \rangle}, if the src option is omitted, the .bib file is assumed to be \langle filename \rangle.bib. For example:

\glsxtrresourcefile{entries-symbols}

indicates that bib2gls needs to read the file entries-symbols.bib, which contains the entry data, and create the file entries-symbols.glstex. If the .bib file is different or if you have multiple .bib files, you need to use the src option.

\GlsXtrLoadResources uses \jobname as the argument of \glsxtrresourcefile on the first instance, so:

\GlsXtrLoadResources[]

will assume src=\langle \jobname \rangle. Remember that subsequent uses of \GlsXtrLoadResources append a suffix, so in general it’s best to always supply src.
5.2 Selection Options

If you have non-ASCII characters in the .bib filename but aren’t using \TeX or \LaTeX, then you will need to use \texttt{\textbackslash{}detokenize} to prevent expansion when the information is written to the .aux file. Similarly for any special characters that need protecting (although it’s better not to use special characters in filenames). For example:

\begin{verbatim}
\documentclass{article}
\usepackage[T2A]{fontenc}
\usepackage[utf8]{inputenc}
\usepackage[russian]{babel}
\usepackage[record]{glossaries-extra}
\GlsXtrLoadResources[
    src={\detokenize{кириллица}},% data in кириллица.bib
    selection={all}
]
\begin{document}
\printunsrtglossary
\end{document}
\end{verbatim}

\texttt{selection=\langle value \rangle}

By default all entries that have records in the .aux file will be selected as well as all their dependent entries. The dependent entries that don’t have corresponding records on the first \TeX run, may need an additional build to ensure their location lists are updated.

Remember that on the first \TeX run the .glstex files don’t exist. This means that the entries aren’t defined at that point. The \texttt{record} package option additionally switches on the \texttt{undefaction=\{warn\}} option, which means that you’ll only get warnings rather than errors when you reference entries in the document. You can’t use \texttt{\glsaddall} with \texttt{bib2gls} because the glossary lists are empty on the first run, so there’s nothing for \texttt{\glsaddall} to iterate over. Instead, if you want to add all defined entries, you need to instruct \texttt{bib2gls} to do this with the \texttt{selection} option. The following values are allowed:

- \texttt{recorded and deps}: add all recorded entries and their dependencies (default).
- \texttt{recorded and deps and see}: as above but will also add unrecorded entries whose \texttt{see}, \texttt{seealso} or \texttt{alias} field refers to a recorded entry.
- \texttt{recorded and deps and see not also}: as above but will add unrecorded entries whose \texttt{see} or \texttt{alias} (but not \texttt{seealso}) field refers to a recorded entry.
- \texttt{recorded no deps}: add all recorded entries but not their dependencies. The dependencies include those referenced in the \texttt{see} or \texttt{seealso} field or fields identified by \texttt{dependency-fields}, \texttt{parent} entries and those found referenced with commands like
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\texttt{\textbackslash gls} in the field values that are parsed by \texttt{bib2gls}. With this setting, parents will be omitted unless they’ve been referenced in the document through commands like \texttt{\textbackslash gls}.

- **recorded and ancestors**: this is like the previous setting but parents are added even if they haven’t been referenced in the document. The other dependent entries are omitted if they haven’t been referenced in the document.

- **deps but not recorded**: this first selects entries as though recorded and deps had been used, but after all ancestors and dependencies have been added it then removes all entries that have records. This means that you end up with only the unrecorded dependencies. (Recorded entries will need to be selected in a different resource set.)

- **ancestors but not recorded**: this first selects entries as though recorded and ancestors had been used, but after all ancestors have been added it then removes all entries that have records. This means that you end up with only the unrecorded ancestors. (Recorded entries will need to be selected in a different resource set.) See the \texttt{sample-nested.tex} example document.

- **all**: add all entries found in the .bib files supplied in the \texttt{src} option.

The \texttt{(value)} must be supplied.

For example, suppose the file \texttt{entries.bib} contains:

\begin{verbatim}
@index{run}
@index{sprint,see={run}}
@index{dash,see={sprint}}
\end{verbatim}

If the document only references the “run” entry (for example, using \texttt{\textbackslash gls\{run\}}) then:

- If \texttt{selection=\{recorded and deps\}}, only the “run” entry is selected. The “run” entry has a record, so it’s selected, but it has no dependencies. Neither “sprint” nor “dash” have records, so they’re not selected.

- If \texttt{selection=\{recorded and deps and see\}}, the “run” and “sprint” entries are selected, but not the “dash” entry. The “run” entry is selected because it has a record. The “sprint” entry doesn’t have a record but its \texttt{see} field includes “run”, which does have a record, so “sprint” is also selected. The “dash” entry doesn’t have a record. Its \texttt{see} field references “sprint”. Although “sprint” has been selected, it doesn’t have any records, so “dash” isn’t selected.

The above is just an example. The circuitous redirection of “dash” to “sprint” to “run” is unhelpful to the reader and is best avoided (especially for an index where there are no accompanying descriptions and no location list for the intermediate “sprint”). A better method would be:

\begin{verbatim}
@index{run}
@index{sprint,see={run}}
@index{dash,see={run}}
\end{verbatim}
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The selection={recorded and deps and see} in this case will select all three entries, and the document won’t send the reader on a long-winded detour.

Now suppose that the file entries.bib contains:

```bibtex
@entry{run,
  name = {run},
  description={move fast using legs}
}

@entry{sprint,
  name = {sprint},
  description={run at full speed over short distance},
  seealso={run}
}

@entry{dash,
  name = {dash},
  description={run in a great hurry},
  seealso={sprint}
}
```

and suppose the document only references “dash” (for example, with \gls{dash}), then with the default selection={recorded and deps} “dash” will be selected because it has a record, and “sprint” will be selected because “dash” requires it (for the cross-reference), and “run” will be selected because “sprint” requires it (for the cross-reference). In this case, neither “sprint” nor “run” have a location list but they do both provide additional information for the reader in their descriptions.

A better method here would be for each entry to have a cross-reference list that includes all related terms:

```bibtex
@entry{run,
  name = {run},
  description={move fast using legs},
  seealso={sprint,dash}
}

@entry{sprint,
  name = {sprint},
  description={run at full speed over short distance},
  seealso={run,dash}
}

@entry{dash,
  name = {dash},
  description={run in a great hurry},
  seealso={sprint}
}
```
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\texttt{seealso=\{sprint,run\}}

Now, whichever one is indexed in the document, the other two will automatically be selected.

\texttt{match=\{\textit{key}=\textit{value list}\}}

It’s possible to filter the selection by matching field values. The value is required for this key but may be empty, which indicates that the setting is switched off, otherwise \texttt{\{\textit{key}=\textit{value list}\}} should be a \texttt{\{\textit{key}=\textit{regexp}\}} list, where \texttt{\{\textit{key}\}} is the name of a field or \texttt{id} for the entry’s label or \texttt{entrytype} for the \texttt{bib2gls} entry type (as in the part after @ identifying the entry not the \texttt{type} field identifying the glossary label). If you’ve used \texttt{entry-type-aliases}, this refers to the target entry type not the original entry type specified in the .bib file.

The \texttt{\{\textit{regexp}\}} part should be a regular expression conforming to Java’s Pattern class [5]. The pattern is anchored (oo.* matches oops but not loops) and \texttt{\{regexp\}} can’t be empty. Remember that \LaTeX{} will expand the option list as it writes the information to the .aux file so take care with special characters. For example, to match a literal period use \texttt{\string\}. not \texttt{.} (backslash dot).

If the field is missing its value it is assumed to be empty for the purposes of the pattern match even if it will be assigned a non-empty default value when the entry is defined. If the field is unrecognised by \texttt{bib2gls} any reference to it in \texttt{\{\textit{key}=\textit{value list}\}} will be ignored.

If a field is listed multiple times, the pattern for that field is concatenated using:

\texttt{(?:\{\textit{pattern-1}\})|(?:\{\textit{pattern-2}\})}

where \texttt{\{\textit{pattern-1}\}} is the current pattern for that field and \texttt{\{\textit{pattern-2}\}} is the new pattern. This means it performs a logical OR. For the non-duplicate fields the logical operator is given by \texttt{match-op}. For example:

\begin{verbatim}
match-op=\{and\},
match={
    category=animals,
    topic=biology,
    category=vegetables
}
\end{verbatim}

This will keep all the selected entries that satisfy:

- \texttt{category} matches (?:animals)\texttt{|}(?:vegetables)
  (the \texttt{category} is either \texttt{animals} or \texttt{vegetables})

AND

- \texttt{topic} (custom key provided by user) is \texttt{biology}.
and will discard any entries that don’t satisfy this condition. A message will be written to
the log file for each entry that’s discarded.

Patterns for unknown fields will be ignored. If the entire list consists of patterns for un-
known fields it will be treated as match={\emptyset}. That is, no filtering will be applied. In the above
example, the custom topic key must be provided before the first \GlsXtrLoadResources
with \glsaddkey or \glsaddstoragekey.

\textbf{match-op}=(\textit{value})

If the value of match contains more than one \textit{key}=\textit{pattern} element, the \textit{match-op} deter-
mines whether to apply a logical AND or a logical OR. The \textit{value} may be either and or or. The default is match-op={and}.

\textbf{not-match}=(\textit{key=value list})

If match={\textit{key=value list}} would cause an entry to be selected then not-match={\textit{key=value list}} would cause that entry to be ignored. The value is required for this key but
may be empty, which indicates that the setting is switched off. If you have both match and
not-match in the same resource set, the last one listed takes precedence.

\textbf{match-action}=(\textit{value})

The default behaviour with match or not-match is to filter the selection. This may be
changed to append to the selection instead. The \textit{value} may be one of:

- filter: (default) filter selection;
- add: append any matches (with match) or non-matches (with not-match) to the se-
  lection. This setting can’t be used with sort={use}.

For example, if I want to select all record entries and their dependencies, but I also want to
make sure that any entries with the category set to important are always selected regardless
of whether or not they have any records:

\begin{verbatim}
\GlsXtrLoadResources[
   src={entries},% data in entries.bib
   match-action={add},
   match={category=important}
]
\end{verbatim}

\textbf{limit}=(\textit{number})

If \textit{number} is greater than 0 then this will truncate the list of selected entries after sorting
to \textit{number} (if the list size is greater than that value). The transcript will show the message:

Truncating according to limit=(\textit{number})

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When used with `shuffle`, this provides a means of randomly selecting at most \langle number\rangle entries. The default setting is `limit={0}` (no truncation). A negative value of \langle number\rangle is not permitted.

If you have any dual entries, then the truncation will be applied to the combined list of primary and duals if `dual-sort={combine}` otherwise each list will be truncated separately by \langle number\rangle, which results in a maximum of $2 \times \langle number\rangle$. Remember that tertiary entries are created when dual entries are defined in the .glistex file, so this will increase the total number of entries.

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\texttt{save-child-count=\langle boolean\rangle}

This is a boolean option. The default setting is `save-child-count={false}`. If `save-child-count={true}`, each entry will be assigned a field called \texttt{childcount} with the value equal to the number of child entries that have been selected. As from version 1.5, this option also creates the \texttt{childlist} field for entries that have children selected. This field is in etoolbox’s internal list format and can be iterated over using \texttt{glsxtrfieldforlistloop}.

The assignment is done using \texttt{\GlsXtrSetField} so there’s no associated key. You can test if the field is set and non-zero using:

\begin{verbatim}
\GlsXtrIfHasNonZeroChildCount{\langle entry label\rangle}{\langle true\rangle}{\langle false\rangle}
\end{verbatim}

which is provided with glossaries-extra-bib2gls v1.31+. Within \langle true\rangle, you can access the actual value with \texttt{\glsCurrentFieldVal}e. If `save-child-count={false}`, this command will do \langle false\rangle as the \texttt{childcount} field won’t be set.

For example, suppose \texttt{entries.bib} contains:

\begin{quote}
@index{birds}  
@index{duck,parent={birds}}  
@index{goose,plural={geese},parent={birds}}  
@index{swan,parent={birds}}  

@index{minerals}  
@index{quartz,parent={minerals}}  
@index{corundum,parent={minerals}}  
@index{amethyst,parent={minerals}}  
@index{gypsum,parent={minerals}}  
@index{gold,parent={minerals}}
\end{quote}

and the document contains:

\begin{verbatim}
\documentclass{article}  
\usepackage[record,style={indexgroup}]{glossaries-extra}
\end{verbatim}

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\GlsXtrLoadResources[src={entries},save-child-count]
\begin{document}
gls{duck} and \gls{goose}.
gls{quartz}, \gls{corundum}, \gls{amethyst}.
\printunsrtglossaries
\end{document}

Then the .glstex file will contain:
\GlsXtrSetField{birds}{childcount}{2}
\GlsXtrSetField{duck}{childcount}{0}
\glsxtrfieldlistadd{birds}{childlist}{duck}
\GlsXtrSetField{goose}{childcount}{0}
\glsxtrfieldlistadd{birds}{childlist}{goose}
\GlsXtrSetField{minerals}{childcount}{3}
\GlsXtrSetField{amethyst}{childcount}{0}
\glsxtrfieldlistadd{minerals}{childlist}{amethyst}
\GlsXtrSetField{corundum}{childcount}{0}
\glsxtrfieldlistadd{minerals}{childlist}{corundum}
\GlsXtrSetField{quartz}{childcount}{0}
\glsxtrfieldlistadd{minerals}{childlist}{quartz}

Note that although birds has three children defined in the .bib file, only two have been selected, so the child count is set to 2. Similarly the minerals entry has five children defined in the .bib file, but only three have been selected, so the child count is 3.

The following uses the post-description hook to show the child count in parentheses:
\GlsXtrLoadResources[src={entries},category={general},save-child-count]
\glsdefpostdesc{general}{%
  \glsxtrifhasfield{childcount}{\glscurrententrylabel}{% 
    { (child count: \glscurrentfieldvalue.)}% 
  }% 
}%
\glsxtrifhasfield requires at least glossaries-extra v1.19. It’s slightly more efficient than \ifglsxtrifhasfield provided by the base glossaries package, and it doesn’t complain if the entry or field don’t exist, but note that \glsxtrifhasfield implicitly scopes its content. Use the starred version to omit the grouping. With glossaries-extra v1.31+ you can perform a numerical test with \GlsXtrIfFieldNonZero or \GlsXtrIfFieldEqNum.

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save-sibling-count={boolean}

This is a boolean option. The default setting is save-sibling-count={false}. This is like save-child-count but saves the sibling count in siblingcount and the sibling list in siblinglist. As with the child list, the sibling list is in etoolbox’s internal list format. The sibling information is only saved for entries that have a parent.

The advantage with siblinglist over accessing the parent’s childlist is that the entry itself is excluded from the list.

flatten={boolean}

This is a boolean option. The default value is flatten={false}. If flatten={true}, the sorting will ignore hierarchy and the parent field will be omitted when writing the definitions to the .glistex file, but the parent entries will still be considered a dependent ancestor from the selection point of view.

Note the difference between this option and using ignore-fields={parent} which will remove the dependency (unless a dependency is established through another field).

flatten-lonely={value}

This may take one of three values: false (default), presort and postsort. The value must be supplied.

Unlike the flatten option, which completely removes the hierarchy, the flatten-lonely option can be used to selectively alter the hierarchy. In this case only those entries that have a parent but have no siblings are considered. This option is affected by the flatten-lonely-rule setting. The conditions for moving a child up one hierarchical level are as follows:

- The child must have a parent, and
- the child can’t have any selected siblings, and
- if flatten-lonely-rule={only unrecorded parents} then the parent can’t have a location list, where the location list includes records and see or seealso cross-references (for the other rules the parent may have a location list as long as it only has the one child selected).

If the child is selected for hierarchical adjustment, the parent will be removed if:

- The parent has no location list, and
- flatten-lonely-rule isn’t set to no discard.

The value of flatten-lonely determines whether the adjustment should be made before sorting (presort) or after sorting (postsort). To disable this function use flatten-lonely={false}.

For example, suppose the file entries.bib contains:
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@index{birds}
@index{duck,parent={birds}}
@index{goose,plural={geese},parent={birds}}
@index{swan,parent={birds}}
@index{chicken,parent={birds}}

@index{vegetable}
@index{cabbage,parent={vegetable}}

@index{minerals}
@index{quartz,parent={minerals}}
@index{corundum,parent={minerals}}
@index{amethyst,parent={minerals}}
@index{gypsum,parent={minerals}}

@index{aardvark}
@index{bard}
@index{buzz}

@index{item}
@index{subitem,parent={item}}
@index{subsubitem,parent={subitem}}

and suppose the document contains:
\documentclass{article}
\usepackage[record,style={indexgroup}]{glossaries-extra}
\GlsXtrLoadResources[src={entries.bib}]
\begin{document}
\gls{duck}.
\gls{quartz}, \gls{corundum}, \gls{amethyst}.
\gls{aardvark}, \gls{bard}, \gls{buzz}.
\gls{vegetable}, \gls{cabbage}.
\gls{subsubitem}.
\printunsrtglossaries
\end{document}

Although the duck entry has siblings in the entries.bib file, none of them have been recorded (indexed) in the document, nor has the parent birds entry.

This document hasn’t used flatten-lonely, so the default flatten-lonely={false} is assumed. This results in the hierarchical structure:
(The “1” in the above indicates the page number.) There are some entries here that look a little odd: duck, cabbage and subsubitem. In each case they are a lone child entry. It would look better if they could be compressed, but I don’t want to use the flatten option, as I still want to keep the mineral hierarchy.

If I now add \texttt{flatten-lonely={postsort}}:

\begin{verbatim}
\GlsXtrLoadResources[src={entries.bib},flatten-lonely={postsort}]
\end{verbatim}

the hierarchy becomes:

\begin{verbatim}
A
aardvark 1

B
bard 1
birds
duck 1
buzz 1

I
item
subitem
subsubitem 1

M
minerals
amethyst 1
corundum 1
quartz 1

V
vegetable 1
cabbage 1
\end{verbatim}
The **name** field of the duck entry has been set to:
```latex
name={\bibglsflattenedchildpostsort{birds}{duck}}
```
The **text** field has been set to:
```latex
text={duck}
```
The **group** field is copied over from the parent entry (“B”), and the **parent** field has been adjusted, moving duck up one hierarchical level. Finally, the former parent birds entry has been removed (the default `flatten-lonely-rule={only unrecorded parents}` is in effect).

The default definition of `\bibglsflattenedchildpostsort` formats its arguments so that they are separated by a comma and space (“birds, duck”). If the **text** field had been set in the original `@index` definition of duck, it wouldn’t have been altered. This adjustment ensures that in the document `\gls{duck}` still produces “duck” rather than “birds, duck”. (If the child and parent **name** fields are identical, the terms are considered homographs. See below for further details.)

The **subsubitem** entry has also been adjusted. This was done in a multi-stage process, starting with sub-items and then moving down the hierarchical levels:

- The **subitem** entry was adjusted, moving it from a sub-entry to a top-level entry. The **name** field was then modified to:
name={\bibglsflattenedchildpostsort{item}{subitem}}

This now means that the subsubitem entry is now a sub-entry (rather than a sub-sub-entry). The subitem entry now has no parent, but at this stage the subsubitem entry still has subitem as its parent.

- The subsubitem entry is then adjusted moving from a sub-entry to a top-level entry. The name field was then modified to:

```
name=
{%
\bibglsflattenedchildpostsort
{%
  % name from former parent
  \bibglsflattenedchildpostsort{item}{subitem}%
}%
{subsubitem}  % original name
%
}
```

The first argument of \bibglsflattenedchildpostsort is obtained from the name field of the entry’s former parent (which is removed from the child’s set of ancestors). This field value was changed in the previous step, and the change is reflected here.

This means that the name for subitem will be displayed as “item, subitem” and the name for subsubitem will be displayed as “item, subitem, subsubitem”.

- The parent entries item and subitem are removed from the selection as they have no location lists.

Note that the cabbage sub-entry hasn’t been adjusted. It doesn’t have any siblings but its parent entry (vegetable) has a location list so it can’t be discarded. If I change the rule:

```
\GlsXtrLoadResources[src={entries.bib},
  flatten-lonely-rule={discard unrecorded},
  flatten-lonely={postsort}
]
```

then this will move the cabbage entry up a level but the original parent entry vegetable will remain:

A
  aardvark 1

B
  bard 1
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birds, duck 1
buzz 1

I
item, subitem, subsubitem 1

M
minerals
   amethyst 1
   corundum 1
   quartz 1

V
vegetable 1
vegetable, cabbage 1

Remember that `flatten-lonely={postsort}` performs the adjustment after sorting. This means that the entries are still in the same relative location that they were in with the original `flatten-lonely={false}` setting. For example, duck remains in the B letter group before “buzz”.

With `flatten-lonely={presort}` the adjustments are made before the sorting is performed. For example, using:

\GlsXtrLoadResources[src={entries.bib},
   flatten-lonely-rule={discard unrecorded},
   flatten-lonely={presort}]

the hierarchical order is now:

A
aardvark 1

B
bard 1
buzz 1

C
cabbage 1
This method uses a different format for the modified name field. For example, the duck entry now has:

\texttt{name=\bibglsflattenedchildpresort\{duck\}\{birds\}}

The default definition of \bibglsflattenedchildpresort simply does the first argument and ignores the second. The sorting is then performed, but the interpreter recognises this command and can deduce that the sort value for this entry should be duck, so “duck” now ends up in the D letter group.

If you provide a definition of \bibglsflattenedchildpresort in the \texttt{@preamble}, it will be picked up by the interpreter. For example:

\texttt{@preamble{"\providecommand{\bibglsflattenedchildpresort}[2]{#1 (#2)}"}}

Note that the text field is only changed if not already set. This option may have unpredictable results for abbreviations as the name field (and sometimes the text field) is typically set by the abbreviation style. Remember that if the parent entry doesn’t have a location list and the rule isn’t set to no discard then the parent entry will be discarded after all relevant entries and their dependencies have been selected, so any cross-references within the parent entry (such as \texttt{gls} occurring in the description) may end up being selected even if they wouldn’t be selected if the parent entry didn’t exist.

With both presort and postsort, if the parent name is the same as the child’s name then the child is considered a homograph and the child’s name is set to:

\texttt{\bibglsflattenedhomograph\{(name)\}\{(parent label)\}}

instead of the corresponding \bibglsflattenedchild\_sort. This defaults to just \texttt{(name)}.
5.3 Hierarchical Options

`flatten-lonely-rule=⟨value⟩`

This option governs the rule used by `flatten-lonely` to determine which sub-entries (that have no siblings) to adjust and which parents to remove. The value may be one of the following:

- **only unrecorded parents** Only the sub-entries that have a parent without a location list will be altered. The parent entry will be removed from the selection. This value is the default setting.

- **discard unrecorded** This setting will adjust all sub-entries that have no siblings regardless of whether or not the parent has a location list. Only the parent entries that don’t have a location list will be removed from the selection.

- **no discard** This setting will adjust all sub-entries that don’t have siblings regardless of whether or not the parent has a location list. No entries will be discarded, so parent entries that don’t have a location list will still appear in the glossary.

In the above, the location list includes records and cross-references obtained from the `see` or `seealso` fields. See `flatten-lonely` for further details.

`strip-missing-parents=⟨boolean⟩`

The glossaries package requires that all child entries must be defined after the parent entry. An error occurs otherwise, so `bib2gls` will omit the `parent` field if it can’t be found in the given resource set. However, when the default `strip-missing-parents={false}` is on, this omission only occurs while writing the definitions in the `.glistex` file (after selection and sorting).

Sorting is performed hierarchically and the `group` field is set accordingly for the top-level entries (but not for child entries), which means that an entry with a `parent` field will be treated by the sort method as a child entry. This can lead to a strange result, which `bib2gls` warns about:

Parent ‘⟨parent id⟩’ not found for entry ⟨child-id⟩

This is the default behaviour as it may simply be a result of a typing mistake in the `parent` field. If you actually want missing parents to be stripped before sorting (but after the selection process) then use `strip-missing-parents={true}`. If you want all parents stripped then use `flatten` or `ignore-fields={parent}` instead. As from version 1.4, if you want `bib2gls` to create the missing parents, then you can use `missing-parents={create}`.

`missing-parents=⟨value⟩`

As an alternative to `strip-missing-parents`, as from version 1.4 you can now use `missing-parents=⟨value⟩` where `⟨value⟩` may be one of:

- **strip**: this is equivalent to `strip-missing-parents={true};`
5.3 Hierarchical Options

- **warn**: this is equivalent to the default `strip-missing-parents={false};`

- **create**: this will create a new `@index` entry with the missing parent’s label (after it’s been processed by options such as `labelify`) with the name obtained from the original value of the `parent` field (before being processed by options like `labelify`). If the child entry has the `type` field set, then the new parent entry will be given the same value. The `category` for the new parent entry can be assigned with `missing-parent-category`.

For example, consider the `books.bib` file which contains entries like:

```latex
@entry{ubik,
  name={Ubik},
  description={novel by Philip K. Dick},
  identifier={book},
  author={\sortmediacreator{Philip K.}{Dick}},
  year={1969}
}
```

then the field alias:

```latex
field-aliases={author=parent}
```

will treat:

```latex
author={\sortmediacreator{Philip K.}{Dick}},
```

as though it had been defined as:

```latex
parent={\sortmediacreator{Philip K.}{Dick}},
```

This can be converted into a label with the options:

```latex
labelify={parent},
labelify-replace={
  {[ \string\.]}}
```

If the interpreter has been provided with the definition:

```latex
\providecommand*{\sortmediacreator}[2]{{#2 #1}}
```

then the `parent` field for the `ubik` entry will become `DickPhilipK` but the original value is stored internally when `missing-parents={create}` is set so that it can be used as the `name` if the parent needs to be created. Once all the entries have been processed, if `ubik` has been selected but no entry can be found with the label `DickPhilipK` then a new entry will be added as though it had been defined with:

```latex
@index{DickPhilipK,
  name={\sortmediacreator{Philip K.}{Dick}}
}
```

This is an alternative approach to the `sample-authors.tex` document from the examples chapter.
missing-parent-category=\langle value \rangle

If a missing parent entry is created through the use of missing-parents=\{create\} then the category field can be assigned to the new parent entry with this option. The \langle value \rangle may be one of:

- same as child: the parent entry’s category field is set to the same value as the child’s (if set);
- same as base: the parent entry’s category is set to the base name of the .bib file that provided the child entry’s definition;
- no value: don’t set the category field;
- \langle label \rangle: the parent entry’s category field is set to \langle label \rangle (which shouldn’t contain any special characters).

The default setting is missing-parent-category=\{no value\}.

5.4 Master Documents

Suppose you have two documents mybook.tex and myarticle.tex that share a common glossary that’s shown in mybook.pdf but not in myarticle.pdf. Furthermore, you’d like to use hyperref and be able to click on a term in myarticle.pdf and be taken to the relevant page in mybook.pdf where the term is listed in the glossary.

This can be achieved with the targeturl and targetname category attributes. For example, without bib2gls the file mybook.tex might look like:

\documentclass\{book\}
\usepackage\{colorlinks\}\{hyperref\}
\usepackage\{glossaries-extra\}

\makeglossaries

\newglossaryentry\{sample\}\{name=\{sample\},description=\{an example\}\}

\begin\{document\}
\chapter\{Example\}
\gls\{sample\}.

\printglossaries
\end\{document\}

The other document myarticle.tex might look like:
In this case the main glossary isn’t used, but the category attributes allow a mixture of internal and external references, so the main glossary could be used for the internal references. (In which case, \makeglossaries and \printglossaries would need to be added back to myarticle.tex.)

Note that both documents had to define the common terms. The above documents can be rewritten to work with bib2gls. First a .bib file needs to be created:

```latex
@entry{sample,
    name={sample},
    description={an example}
}
```

Assuming this file is called myentries.bib, then mybook.tex can be changed to:

```latex
\documentclass{book}
\usepackage[colorlinks]{hyperref}
\usepackage[record]{glossaries-extra}
\GlsXtrLoadResources[src={myentries}]
\begin{document}
\chapter{Example}
\gls{sample}.
\printunsrtglossaries
\end{document}
```

and myarticle.tex can be changed to:

```latex
\documentclass{article}
\usepackage[colorlinks]{hyperref}
```
5.4 Master Documents

\usepackage[record]{glossaries-extra}
\newglossary*{external}
\glssetcategoryattribute{external}{targeturl}{mybook.pdf}
\glssetcategoryattribute{external}{targetname}{\glolinkprefix\glslabel}
\GlsXtrLoadResources[  
  src={myentries},  
  sort={none},  
  type={external},  
  category={external}  
]
\begin{document}
\gls{sample}.
\end{document}

Most of the options related to sorting and the glossary format are unneeded here since the glossary isn’t being displayed. This may be sufficient for your needs, but it may be that the book has changed various settings that have been written to mybook.glstex but aren’t present in the .bib file (such as short-case-change={uc}). In this case, you could just remember to copy over the settings from mybook.tex to myarticle.tex, but another possibility is to simply make myarticle.tex input mybook.glstex instead of using \GlsXtrLoadResources. This can work but it’s not so convenient to set the label prefix, the type and the category. The master option allows this, but it has limitations (see below), so in complex cases (in particular different label prefixes combined with hierarchical entries or cross-references) you’ll have to use the method shown in the example code above.

\texttt{master=⟨name⟩}

This option will disable most of the options that relate to parsing and processing data contained in .bib files (since this option doesn’t actually read any .bib files). It also can’t be used with \texttt{action={copy}} or \texttt{action={define or copy}}.

The use of \texttt{master} isn’t always suitable. In particular if any of the terms cross-reference each other, such as through the \texttt{see} or \texttt{seealso} field or the \texttt{parent} field or using commands like \texttt{\gls} in any of the other fields when the labels have been assigned prefixes. In this case you will need to use the method described in the example above.

The \texttt{⟨name⟩} is the name of the .aux file for the master document without the extension (in this case, mybook). It needs to be relative to the document referencing it or an absolute path using forward slashes as the directory divider. Remember that if it’s a relative path, the PDF files (mybook.pdf and myarticle.pdf) will also need to be located in the same relative position.

When bib2gls detects the \texttt{master} option, it won’t search for entries in any .bib files (for that particular resource set) but will create a .glstex file that inputs the master document’s
5.4 Master Documents

\documentclass{article}
\usepackage[colorlinks]{hyperref}
\usepackage[record]{glossaries-extra}
\GlsXtrLoadResources[label-prefix={book.},master={mybook}]
\begin{document}
\gls{book.sample}.
\end{document}

There are some settings from the master document that you still need to repeat in the other document. These include the label prefixes set when the master document loaded the resource files, and any settings in the master document that relate to the master document’s entries.

For example, if the master document loaded a resource file with label-prefix={term.} then you also need this prefix when you reference the entries in the dependent document in addition to the label-prefix for the dependent document. Suppose mybook.tex loads the resources using:
\GlsXtrLoadResources[src={myentries},label-prefix={term.}]
and myarticle.tex loads the resources using:
\GlsXtrLoadResources[label-prefix={book.},master={mybook}]
Then the entries referenced in myarticle.tex need to use the prefix book.term. as in:
This is a \gls{book.term.sample} term.

Remember that the category labels will need adjusting to reflect the change in category label in the dependent document.

For example, if mybook.tex included:
\setabbreviationstyle{long-short-sc}
then myarticle.tex will need:
\setabbreviationstyle[master]{long-short-sc}
(change master to \langle value\rangle if you have used category={\langle value\rangle}). You can, of course, choose a different abbreviation style for the dependent document, but the category in the optional argument needs to be correct.
5.5 Field and Label Options

**master-resources=⟨list⟩**

If the master document has multiple resource files then by default all the master document’s .glstex files will be input. If you don’t want them all you can use master-resources to specify only those files that should be included. The value ⟨list⟩ is a comma-separated list of names, where each name corresponds to the final argument of \glsxtrresource-file. Remember that \GlsXtrLoadResources is just a shortcut for \glsxtrresourcefile that bases the name on \jobname. (Note that, as with the argument of \glsxtrresourcefile, the .glstex extension should not be included in ⟨list⟩.) The file \jobname.glstex is considered the primary resource file and the files \jobname-⟨n⟩.glstex (starting with ⟨n⟩ equal to 1) are considered the supplementary resource files.

For example, to just select the first and third of the supplementary resource files (omitting the primary mybook.glstex):

\GlsXtrLoadResources[
  master={mybook},
  master-resources={mybook-1,mybook-3}
]

### 5.5 Field and Label Options

The options in this section may be used to set or adjust field values or labels. Some field values are expected to be labels (such as group). These labels must not contain special characters or commands, but it’s possible to convert a field value into a valid label using options such as labelify.

#### Label Options

**interpret-label-fields=⟨boolean⟩**

This is a boolean option that determines whether or not the fields that may only contain labels should have their values interpreted (parent, category, type, group, seealso and alias). Although this option interprets commands within those fields, it doesn’t strip any characters that can’t be used within a label. The see field isn’t included as it may optionally start with [⟨tag⟩] where ⟨tag⟩ may legitimately contain \LaTeX code that shouldn’t be interpreted.

The default setting is interpret-label-fields={false}. Note that if this setting is on, cross-resource references aren’t permitted. This setting has no effect if the interpreter has been disabled.

Related settings are labelify and labelify-list which can be used to strip content that can’t be used in labels and may be used more generally for other fields. The labelify and labelify-list options are performed before interpret-label-fields.
5.5 Field and Label Options

\texttt{labelify=\langle list \rangle}

This option should take a comma-separated list of recognised field names as the value. (If a field is present in both \texttt{labelify} and \texttt{labelify-list}, then \texttt{labelify-list} takes precedence.) Note that if this setting is on, cross-resource references aren’t permitted. The value is required for this key but may be empty, which indicates an empty set of fields (that is, the setting is switched off).

Each listed field will be converted into a string suitable for use as a label. (Not necessarily a glossary entry label, but any label that may be used in the construction of a control sequence name.)

The conversion is performed in the following order:

1. If the interpreter is on and the field value contains any of the characters \ (backslash), \{ (begin group), \} (end group), ~ (non-breakable space) or $ (maths shift), then the value is interpreted.

2. Any substitutions that have been specified with \texttt{labelify-replace} are performed.

3. All characters that aren’t alphanumeric or the space character or any of the following punctuation characters . (full stop), - (hyphen), + (plus), : (colon), ; (semi-colon), | (pipe), / (forward slash), ! (exclamation mark), ? (question mark), * (asterisk), < (less than), > (greater than), ` (backtick), ' (apostrophe) or @ (at-sign) are stripped. If you want to retain commas, use \texttt{labelify-list} instead. If you want to strip any of the allowed punctuation, use \texttt{labelify-replace} to remove the unwanted characters. (Remember that babel can make some of these punctuation characters active, in which case they need to be stripped.)

4. If \texttt{bib2gls} hasn’t detected \texttt{fontspec} in the document’s transcript file, the value is then decomposed and all non-ASCII characters are removed.

For example, suppose the \texttt{.bib} file contains:

\begin{verbatim}
@index{sample,  
    name={\AA ngstr"om, \O stergaard, d'Arcy, and Fotheringay-Smythe} 
}
\end{verbatim}

Then:

\begin{verbatim}
\GlsXtrLoadResources[
    src={entries},% data in entries.bib
    labelify={name}
]
\end{verbatim}

will convert the \texttt{name} field into:

\texttt{Angstrom stergaard d'Arcy and Fotheringay-Smythe}

if the document hasn’t used \texttt{fontspec} otherwise it will be:
Ångström Østergaard d'Arcy and Fotheringay-Smythe

Note that Ø is considered an unmodified letter and so can’t be decomposed into a basic Latin letter with a combining diacritic. It’s therefore removed completely from the non-fontspec version. Whereas Å can be decomposed into “A” followed by the “combining ring above” character and ö can be decomposed into “o” followed by the “combining diaeresis” character. You can use `labelify-replace` to replace non-ASCII characters into the closest match. Alternatively, switch to using `XƎLATEX` or `LuaLATEX`.

You can use this option with `replicate-fields` if you need to retain the original:

```latex
\GlsXtrLoadResources[
  src={entries},% data in entries.bib
  replicate-fields={name={user1}},
  labelify={user1}
]
```

`labelify-list=`\langle list\rangle

This option is like `labelify` but it retains commas, as it’s designed for fields that should be converted into a comma-separated list of labels. Any empty elements are removed. For example, with the `.bib` entry from above:

```latex
\GlsXtrLoadResources[
  src={entries},% data in entries.bib
  replicate-fields={name={user1}},
  labelify-list={user1}
]
```

will convert the `user1` field into:

Ångstrom, stergaard, d'Arcy, and Fotheringay-Smythe

or:

Ångström, Østergaard, d'Arcy, and Fotheringay-Smythe

depending on whether or not fontspec was detected.

`labelify-replace=`\langle list\rangle

This option takes a comma-separated list as a value with each element in the list in the form `{⟨regex⟩}{⟨replacement⟩}` where ⟨regex⟩ is a regular expression (that conforms to Java’s Pattern class [5]) and ⟨replacement⟩ is the replacement text. The value is required for this key but may be empty, which indicates that the setting is switched off.

Remember that the argument of `\GlsXtrLoadResources` is expanded when written to the `.aux` file so take care to protect any special characters. For example, to match a literal full stop use `\string\.` rather than just `\.` (backslash dot).

In the ⟨replacement⟩ part, you can use `\glscapturedgroup(n)` to reference a captured sub-sequence. For example:
5.5 Field and Label Options

```
lableify-replace={{([A-Z])\string\.}{\glscapturedgroup1}}
```

This removes any full stop that follows any of the characters A,...,Z. Alternatively, you can just use \string\$ instead of \glscapturedgroup. If you want a literal dollar character, you need to use \glshex24 (or \string\u24). This isn't recommended for labels (since special characters are automatically stripped), but sort-replace follows the same rules as labelify-replace, and it may be needed for that.

Both labelify and labelify-list use the labelify-replace setting to perform substitutions. For example, to replace the sub-string " and " (including spaces) with a comma:

```
\GlsXtrLoadResources[
  src={entries},% data in entries.bib
  replicate-fields={name={user1}},
  labelify-replace={{ and }{,}},
  labelify-list={user1}
]
```

The earlier example will now end up as:

Ångström, Østergaard, d’Arcy,Fotheringay-Smythe

or:

Ångström, Østergaard, d’Arcy,Fotheringay-Smythe

depending on whether or not fontspec was detected.

Note that this produces the same result regardless of whether or not the Oxford comma is present as , and , would first be converted to , , and then the empty element is removed resulting in a single comma.

You can have more than one replacement:

```
\GlsXtrLoadResources[
  src={entries},% data in entries.bib
  replicate-fields={name={user1}},
  labelify-replace={
    { and }{,},% first substitution
    {{ \string\-}}{,},% second substitution
    {{glshex00D8}{O}}% third substitution
  },
  labelify-list={user1}
]
```

This additionally removes the space, apostrophe and hyphen characters (second substitution) and replaces “Ø” (0x00D8) with “O” (third substitution) so the string now ends up as:

Ångström, Ostergaard, d’Arcy,FotheringaySmythe

or:

Ångström, Ostergaard, d’Arcy,FotheringaySmythe

depending on whether or not fontspec was detected.
5.5 Field and Label Options

label-prefix={tag}

The label-prefix option prepends {tag} to each entry’s label. This {tag} will also be inserted in front of any cross-references, unless they start with dual. or tertiary. or ext(n). (where {n} is an integer). Use dual-prefix to change the dual label prefixes and ext-prefixes to change the external label prefixes.

As from version 1.8, the primary label prefix is identified in the .glstex file with:
\bibglsprefixlabel{\langle prefix\rangle}

For example, if the .bib file contains:

@entry{bird,
name={bird},
description = {feathered animal, such as a \gls{duck} or \gls{goose}}}
}

@entry{waterfowl,
name={waterfowl},
description= {Any \gls{bird} that lives in or about water},
see={\gls{duck,goose}}}
}

@index{duck}
@index{goose,plural="geese"}

Then if this .bib file is loaded with label-prefix={gls.} it’s as though the entries had been defined as:

@entry{gls.bird,
name={bird},
description = {feathered animal, such as a \gls{gls.duck} or \gls{gls.goose}}}
}

@entry{gls.waterfowl,
name={waterfowl},
description= {Any \gls{gls.bird} that lives in or about water},
see={\gls{duck,goose}}}
}

@index{gls.duck,name={duck}}
@index{gls.goose,name={goose},plural="geese"}

Remember to use this prefix when you reference the terms in the document with commands like \gls.
5.5 Field and Label Options

duplicate-label-suffix=⟨value⟩

The glossaries package doesn’t permit entries with duplicate labels (even if they’re in different glossaries). If you have multiple resource sets and an entry that’s selected in one resource set is also selected in another, by default, bib2gls will issue a warning, but it will still write the entry definition to the .glstex file, which means you’ll also get a warning from glossaries-extra and the duplicate definition will be ignored, but associated internal fields set with commands like \GlsXtrSetField may still be set.

If you actually want the duplicate, you need to specify a suffix with duplicate-label-suffix. This suffix is set just before writing the entry definition to the .glstex file, so it doesn’t affect selection criteria nor can label substitutions be performed in any cross-references. Options such as set-widest that reference entry labels are incompatible as they will use the unsuffixed label.

The actual suffix is formed from ⟨value⟩⟨n⟩ where ⟨n⟩ is an integer that’s incremented in the event of multiple duplicates. For example, duplicate-label-suffix={.copy} will change the label to ⟨id⟩.copy1 for the first duplicate of the entry whose label is ⟨id⟩, and ⟨id⟩.copy2 for the second duplicate, etc.

record-label-prefix=⟨tag⟩

If set, this option will cause bib2gls to pretend that each record label starts with ⟨tag⟩, if it doesn’t already. For example, suppose the records in the .aux file are:

\glsxtr@record{bird}{}{page}{glsnumberformat}{1}
\glsxtr@record{waterfowl}{}{page}{glsnumberformat}{1}
\glsxtr@record{idx.duck}{}{page}{glsnumberformat}{1}
\glsxtr@record{idx.goose}{}{page}{glsnumberformat}{1}

The use of record-label-prefix={idx.} makes bib2gls act as though the records were given as:

\glsxtr@record{idx.bird}{}{page}{glsnumberformat}{1}
\glsxtr@record{idx.waterfowl}{}{page}{glsnumberformat}{1}
\glsxtr@record{idx.duck}{}{page}{glsnumberformat}{1}
\glsxtr@record{idx.goose}{}{page}{glsnumberformat}{1}

cs-label-prefix=⟨tag⟩

If you have commands such as \glstext{⟨label⟩} or \glstext{⟨label⟩} in field values (in situations where nested link text won’t cause a problem) the ⟨label⟩ will be converted as follows:

• if ⟨label⟩ starts with dual. then dual. will be replaced by the dual-prefix value;
• if ⟨label⟩ starts with tertiary. then tertiary. will be replaced by the tertiary-prefix value;
• if ⟨label⟩ starts with ext⟨n⟩. then ext⟨n⟩. will be replaced by the corresponding ext-prefixes setting (if cross-resource reference mode is enabled, see section 1.4);
5.5 Field and Label Options

- if \textit{label} doesn’t start with one of the above recognised prefixes then, if \texttt{cs-label-prefix} has been used the supplied value will be inserted otherwise the \texttt{label-prefix} setting will be inserted.

For example, given:

\begin{verbatim}
@entry{bird,
    name={bird},
    description = {feathered animal, such as a \gls{duck} or \gls{goose}}
}
\end{verbatim}

then if \texttt{label-prefix=\{idx.\}} is set but \texttt{cs-label-prefix} isn’t included in the resource option list this will convert the \texttt{description} field to:

\begin{verbatim}
description = {feathered animal, such as a \gls{idx.duck} or \gls{idx.goose}}
\end{verbatim}

However with \texttt{cs-label-prefix=\{gls.\}} the \texttt{description} field will be converted to:

\begin{verbatim}
description = {feathered animal, such as a \gls{gls.duck} or \gls{gls.goose}}
\end{verbatim}

regardless of the \texttt{label-prefix} setting. Whereas if the original entry definition is:

\begin{verbatim}
@entry{bird,
    name={bird},
    description = {feathered animal, such as a \gls{dual.duck} or \gls{dual.goose}}
}
\end{verbatim}

then dual. will be replaced by the value of the \texttt{dual-prefix} option regardless of the \texttt{cs-label-prefix} setting.

The \texttt{cs-label-prefix} setting doesn’t affect labels in the fields that have an entry label or label list as the value (\texttt{parent, alias, see} and \texttt{seealso}).

\texttt{ext-prefixes=\{list\}}

Any cross-references in the \texttt{.bib} file that start with \texttt{ext\{n\}}. (where \texttt{\{n\}} is a positive integer) will be substituted with the \texttt{\{n\}}th tag listed in the comma-separated \texttt{\{list\}}. If there aren’t that many items in the list, the \texttt{ext\{n\}}. will simply be removed. The default setting is an empty list, which will strip all \texttt{ext\{n\}}. prefixes. Remember that cross-resource reference mode needs to be enabled for this option to work (see section 1.4).

As from version 1.8, the external label prefixes are identified in the \texttt{.glistex} file with:

\texttt{\bibglsexternalprefixlabel{\{n\}\{prefix\}}}  

For example, suppose the file \texttt{entries-terms.bib} contains:
5.5 Field and Label Options

@entry{set,  
  name={set},  
  description={collection of values, denoted \gls{ext1.set}}}

and the file entries-symbols.bib contains:

@symbol{set,  
  name={\ensuremath{\mathcal{S}}},  
  description={a \gls{ext1.set}}}

These files both contain an entry with the label set but the description field includes \gls{ext1.set} which is referencing the entry from the other file. These two files can be loaded without conflict using:

\usepackage[record,symbols]{glossaries-extra}

\GlsXtrLoadResources[src={entries-terms},  
  label-prefix={gls.},  
  ext-prefixes={sym.}]

\GlsXtrLoadResources[src={entries-symbols},  
  type={symbols},  
  label-prefix={sym.},  
  ext-prefixes={gls.}]

Now the set entry from entries-terms.bib will be defined with the label gls.set and the description will be:

collection of values, denoted \gls{sym.set}

The set entry from entries-symbols.bib will be defined with the label sym.set and the description will be:

a \gls{gls.set}

Note that in this case the .bib files have to be loaded as two separate resources. They can’t be combined into a single src list as the labels aren’t unique.

If you want to allow the flexibility to choose between loading them together or separately, you’ll have to give them unique labels. For example, entries-terms.bib could contain:

@entry{set,  
  name={set},  
  description={collection of values, denoted \gls{ext1.S}}}

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and entries-symbols.bib could contain:

```bibtex
@symbol{S,
  name={\ensuremath{\mathcal{S}}},
  description={a \gls{ext1.set}}
}
```

Now they can be combined with:

```latex
\GlsXtrLoadResources[src={entries-terms,entries-symbols}]
```

which will simply strip the ext1. prefix from the cross-references. Alternatively:

```latex
\GlsXtrLoadResources[src={entries-terms,entries-symbols},
  label-prefix={gls.},
  ext-prefixes={gls.}]
```

which will insert the supplied label-prefix at the start of the labels in the entry definitions and will replace the ext1. prefix with gls. in the cross-references.

```
\GlsXtrSetField\space\glsentrydef{cat}{translations-pt}{gato,gatinho}
\GlsXtrSetField\space\glsentrydef{kitten}{seealso}{kitten}
```

```bibtex
save-original-id={value}
```

The \textit{value} may be either the keyword \texttt{false} or the name of an internal field in which to store the entry’s original label (as given in the \texttt{.bib} file). The default setting is \texttt{save-original-id={false}}. If \textit{value} is omitted, \texttt{save-original-id={originalid}} is assumed.

If \textit{value} is a known field, it will be set after the field aliases, otherwise it will simply be added to the .glstex file using \GlsXtrSetField after the entry definition.

```
dependency-fields={list}
```

The \textit{list} should be a comma-separated list of fields that have values in the form \texttt{[\langle tag\rangle \langle id-list\rangle]} where \texttt{\langle id-list\rangle} is a comma-separated list of entry labels. The value is required for this key but may be empty, which indicates an empty set of fields (that is, the setting is switched off).

This setting makes those fields act like the \texttt{see} field by identifying the listed entries as dependencies, but the information isn’t added to the cross-reference part of the location list. This action is performed after \texttt{labelify-list}, if that’s also set.

For example, suppose the file entries-en.bib contains:

```bibtex
@index{cat,
  translations-pt={gato,gatinho},
  seealso={kitten}}
```

```bibtex`
@index{kitten,
```
The aim here is to have a document containing an English-to-Portuguese and a Portuguese-to-English dictionary. The custom `translations-pt` and `translations-pt` fields contain
5.5 Field and Label Options

coma-separated lists of possible translations. In this case I don’t want to use the see field (and, in fact, can’t for the entries that have the seealso field set), but I can identify the values of those fields as dependent entries to ensure that they are selected even if they’re not referenced in the document.

For convenience I’ve aliased the custom fields to user1:

```latex
\documentclass{article}
\usepackage[T1]{fontenc}
\usepackage[utf8]{inputenc}
\usepackage[british,brazilian]{babel}
\usepackage[record,nomain,nostyles,stylemods={bookindex},style={bookindex}]{glossaries-extra}
\usepackage{glossaries-prefix}
\newglossary*[en]{English Terms}
\newglossary*[pt]{Portuguese Terms}
\GlsXtrLoadResources[
  type={en},
  src={entries-en},
  sort={en-GB},
  category={en},
  field-aliases={translations-pt=user1},
  dependency-fields={user1},
  sort-label-list={user1:pt-BR:glsentryname}
]
\GlsXtrLoadResources[
  type={pt},
  src={entries-pt},
  sort={pt-BR},
  category={pt},
  field-aliases={translations-en=user1},
  dependency-fields={user1},
  sort-label-list={user1:en-GB:glsentryname}
]
\apptoglossarypreamble[en]{\selectlanguage{british}}
\apptoglossarypreamble[pt]{\selectlanguage{brazilian}}
```

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\begin{document}
\selectlanguage{british}
The \textit{\textgls{cat}} sat on the \textit{\textgls{mat}}.
\selectlanguage{brazilian}
0 \textit{\textgls{gato}} sentou-se no \textit{\textgls{tapete}}.
\renewcommand*{\glsxtrbookindexname}[1]{%
  \glsxtrifhasfield{prefix}{#1}{\xmakefirstuc\glscurrentfieldvalue\␣}{%}
  \glossentryname{#1}%
  \glsxtrifhasfield{useri}{#1}
  {; translations: \glsxtrseelist\glscurrentfieldvalue}{}%}
\printunsrtglossaries
\end{document}

\section*{Assignments}

\texttt{group=\{label\}}
\begin{quote}
The group option will set the \texttt{group} field to \texttt{\{label\}} unless \texttt{\{label\}} is auto. If \texttt{\{group\}={auto}} then if the --group switch is used the value of the \texttt{group} field is set automatically during the sorting (see also \texttt{group-formation} and section 1.2). If the --no-group setting is on then \texttt{\{group\}={auto}} does nothing.

The corresponding group title can be set with \texttt{\textglsxtrsetgrouptitle} in the document if the title is different from the label. The default behaviour is \texttt{\{group\}={auto}}.

For example:
\begin{verbatim}
\GlsXtrLoadResources[sort={integer},group={Constants},
  src={entries-constants}\% data in entries-constants.bib]
\GlsXtrLoadResources[sort={letter-case},group={Variables},
  src={entries-variables}\% data in entries-variables.bib]
\end{verbatim}
\end{quote}

In this case, if the type field hasn't been set in the .bib files, these entries will be added to the same glossary, but will be grouped according to each instance of \texttt{\GlsXtrLoadResources}, with the provided group label.

\texttt{category=\{value\}}
\begin{quote}
The selected entries may all have their \texttt{category} field changed before writing their definitions to the .glstex file. The \texttt{\{value\}} may be:
\end{quote}
5.5 Field and Label Options

- **same as entry**: set the `category` to the `.bib` entry type used to define it (lower case and without the initial @) after any aliasing, if applicable;

- **same as original entry**: (new to v1.4) set the `category` to the original entry type (lower case and without the initial @) before it was aliased (behaves like `same as entry` if the entry type wasn’t aliased);

- **same as base**: (new to v1.1) set the `category` to the base name of the `.bib` file (without the extension) that provided the entry definition;

- **same as type**: set the `category` to the same value as the `type` field (if that field has been provided either in the `.bib` file or through the `type` option);

- **⟨label⟩**: the `category` is set to ⟨label⟩ (which mustn’t contain any special characters).

This will override any `category` fields supplied in the `.bib` file.

When used with `entry-type-aliases`, the option `category={same as entry}` refers to the target entry type whereas `category={same as original entry}` refers to the original entry type given in the `.bib` file. In both cases, the value is converted to lower case to ensure consistency.

For example, if the `.bib` file contains:

```plaintext
@entry{bird,
    name={bird},
    description = {feathered animal}
}
@index{duck}
@index{goose,plural="geese"}
@dualentry{dog,
    name={dog},
    description={chien}
}
```

then if the document contains:

```plaintext\GlsXtrLoadResources[category={same as entry},src={entries}]
```

this will set the `category` of the bird term to `entry` (since it was defined with `@entry`), the `category` of the duck and goose terms to `index` (since they were defined with `@index`), and the `category` of the dog term to `dualentry` (since it was defined with `@dualentry`).

Note that the dual entry dual.dog doesn’t have the category set, since that’s governed by `dual-category` instead.

If, instead, the document contains:
5.5 Field and Label Options

\GlsXtrLoadResources[category={animals},src={entries}]

then the category of all the primary selected entries will be set to animals. Again the dual entry dual.dog doesn’t have the category set.

Note that the categories may be overridden by the commands that are used to actually define the entries (such as \bibglsnewindex).

For example, if the document contains:

\newcommand{\bibglsnewdualentry}[4]{%
\longnewglossaryentry*{\#1}{name={\#3},#2,category={dual}}{\#4}%
}

then both the dog and dual.dog entries will have their category field set to dual since the new definition of \bibglsnewdualentry has overridden the category={animals} option.

type={value}

The \textit{value} may be one of:

- \textit{same as entry} set the type field to the entry type (lower case and without the initial \@);
- \textit{same as original entry} set the type to the original entry type (lower case and without the initial \@) before it was aliased (behaves like same as entry if the entry type wasn’t aliased);
- \textit{same as base} set the type field to the base name of the corresponding .bib file (without the extension);
- \textit{same as category} set the type field to the same value as the category field (type unchanged if category not set);
- \textit{same as parent}: sets the type to the same as the entry’s parent (new to v1.9). If the entry doesn’t have a parent or if the parent doesn’t have the type field set, then no change is made. Entries should always have the same type as their parent, but it’s possible for spawned entries to pick up the type field from their progenitor entry (if it was explicitly set in the .bib file), which may be inappropriate.
- \textit{\langle label\rangle} sets the type field to the glossary identified by \textit{\langle label\rangle}.

When used with entry-type-aliases, the option type={same as entry} refers to the target entry type and type={same as original entry} refers to the original entry type given in the .bib file. It’s not possible to have both category={same as type} and type={same as category}.

Note that this setting only changes the type field for primary entries. Use dual-type for dual entries.

For example:
5.5 Field and Label Options

\usepackage[record,symbols]{glossaries-extra}
\GlsXtrLoadResources[src={entries-symbols},type={symbols}]

Make sure that the glossary type has already been defined (see section 1.3). In the above, the symbols option defines the symbols glossary. If you want to use a custom glossary, you need to provide it. For example:

\usepackage[record,nomain]{glossaries-extra}
\newglossary*{dictionary}{Dictionary}
\GlsXtrLoadResources[src={entries-symbols},type={dictionary}]

(The nomain option was added to suppress the creation of the default main glossary.)

trigger-type=\langle type \rangle

The record counting commands, such as \rgls, use the special format \glstriggerrecord-format, which bib2gls also treats as an ignored record. This means the entry will still be identified as having a record for selection purposes, which is necessary for the entry to be defined for use in the document, but in order to prevent it from appearing in the glossary you need to transfer the entry with trigger-type=\langle type \rangle. This will override the type, dual-type, tertiary-type and the type specification in secondary.

The provided value \langle type \rangle must be a glossary label (not one of the keywords allowed by type). You can define the glossary before loading the resource, but it’s not required as bib2gls will write \provideignoredglossary*{\langle type \rangle} to the .glstex file even if --no-provide-glossaries is set (see section 1.3).

progenitor-type=\langle type \rangle

This sets the default type field for the main term defined by @progenitor-like entries. The \langle value \rangle is as for type. This doesn’t change the type for the spawned progeny.

progeny-type=\langle type \rangle

This sets the default type field for the progeny term spawned by @progenitor-like entries. The \langle value \rangle is as for type. This doesn’t change the type for the main progenitor. Remember that with the default adopted-parent-field=\{parent\} setting, the given type should match the type of the parent entry.

adopted-parent-field=\langle type \rangle

This identifies the target field to be set to the corresponding value of the adoptparents list by the progeny entries spawned by the @progenitor type of entry. The default is parent.
5.5 Field and Label Options

abbreviation-name-fallback=⟨field⟩

The entry types that define abbreviations (such as @abbreviation and @acronym) will, by default, fallback on the short field if the name field is missing and it’s required for some reason (for example, with sort-field={name}). If you prefer to fallback on a different field, then you can use this option to specify the field. For example, abbreviation-name-fallback={long}. The ⟨field⟩ value must be a known field (not an internal field) but can’t be the sort field.

ignore-fields=⟨list⟩

The ignore-fields key indicates that you want bib2gls to skip the fields listed in the supplied comma-separated ⟨list⟩ of field labels. Remember that unrecognised fields will always be skipped.

For example, suppose my .bib file contains:

@abbreviation{html,
  short = "html",
  long  = {hypertext markup language},
  description={a markup language for creating web pages},
  seealso={xml}
}

but I want to use the short–long style and I don’t want the cross-referenced term, then I can use ignore-fields={seealso,description}.

Note that ignore-fields={parent} removes the parent before determining the dependency lists. This means that selection={recorded and deps} and selection={recorded and ancestors} won’t pick up the label in the parent field.

If you want to maintain the dependency and ancestor relationship but omit the parent field when writing the entries to the .glistex file, you need to use flatten instead.

field-aliases=⟨key=value list⟩

You can instruct bib2gls to treat one field as though it was another using this option. The value should be a comma-separated list of ⟨field1⟩=⟨field2⟩ pairs, where ⟨field1⟩ and ⟨field2⟩ are field names. Identical mappings and trails aren’t permitted. (That is, ⟨field1⟩ and ⟨field2⟩ can’t be the same nor can you have both ⟨field1⟩=⟨field2⟩ and ⟨field2⟩=⟨field3⟩.) If you want to swap fields you need to use one of the dual entry types instead. Field aliases are performed before ignore-fields, so if ⟨field1⟩ is listed in ignore-fields it won’t be ignored (unless ⟨field2⟩ is in ignore-fields).

For example, suppose people.bib contains:

@entry{alexander,
  name={Alexander III of Macedon},
  description={Ancient Greek king of Macedon},
  born={20 July 356 BC},

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This contains three non-standard fields: \textit{born}, \textit{died} and \textit{othername}. I could define these fields using \texttt{\glsaddkey}, but another possibility is to map these onto the user keys \texttt{user1}, \texttt{user2} and \texttt{user3}, which saves the overhead of providing new keys:

\begin{verbatim}
\GlsXtrLoadResources[
  src={people},% data in people.bib
  field-aliases={born=user1,died=user2,othername=user3}
]
\end{verbatim}

\texttt{replicate-fields=\langle key=value list\rangle}

The value of one field can be copied to other fields using this option where each \texttt{\langle key\rangle=\langle value\rangle} pair is in the form \texttt{\langle field1\rangle=\langle field2\rangle,\langle field3\rangle,\ldots} where all values are field names. The value is required for this key but may be empty, which indicates that the setting is switched off.

This option copies the contents of \texttt{\langle field1\rangle} to \texttt{\langle field2\rangle}, \texttt{\langle field3\rangle},\ldots (only if the target field isn’t already set with \texttt{replicate-override={false}}). This action is performed after \texttt{ignore-fields} (see section 1.4). If the source field is missing, the \texttt{replicate-missing-field-action} setting determines the action.

For example, suppose \texttt{people.bib} contains:

\begin{verbatim}
@entry{alexander,
  name={Alexander III of Macedon (Alexander the Great)},
  text={Alexander},
  description={Ancient Greek king of Macedon}
}
\end{verbatim}

Since the \texttt{first} field hasn’t been supplied, it will default to the value of the \texttt{text} field, but perhaps for one of my documents I’d like the \texttt{first} field to be the same as the \texttt{name} field. Rather than editing the \texttt{.bib} file, I can just do:

\begin{verbatim}
\GlsXtrLoadResources[
  src={people},% data in people.bib
  replicate-fields={name=first}
]
\end{verbatim}

This copies the contents of the \texttt{name} field into the \texttt{first} field. If you have more than one field in the list take care to brace the lists to avoid confusion. For example, if for some reason I want to copy the value of the \texttt{name} field to both \texttt{first} and \texttt{firstplural} and copy the value of the \texttt{text} field to the \texttt{plural} field, then this requires braces for the inner list:

\begin{verbatim}
\GlsXtrLoadResources[
  src={people},% data in people.bib
  replicate-fields={name={first,firstplural},text=plural}
]
\end{verbatim}
If my people.bib file instead contained:

```latex
@entry{alexander,
  name={Alexander III of Macedon (Alexander the Great)},
  first={Alexander the Great},
  text={Alexander},
  description={Ancient Greek king of Macedon}
}
```

then:

```latex
\GlsXtrLoadResources[
  src={people},% data in people.bib
  replicate-fields={name=first}
]
```

won’t alter the first field since replicate-fields doesn’t override existing values by default. You can use replicate-override to change this. Alternatively, since replicate-fields is always performed after ignore-fields it’s possible to ignore the first field which means that the name value can then be copied into it:

```latex
\GlsXtrLoadResources[
  src={people},% data in people.bib
  ignore-fields={first},
  replicate-fields={name=first}
]
```

Note that the ordering within the resource options doesn’t make a difference. The same result occurs with:

```latex
\GlsXtrLoadResources[
  src={people},% data in people.bib
  replicate-fields={name=first},
  ignore-fields={first}
]
```

`replicate-override={⟨boolean⟩}`

This is a boolean option. The default setting is `replicate-override={false}`. If true, replicate-fields will override the existing value if the target field is already set.

`replicate-missing-field-action={⟨value⟩}`

This option indicates what to do if a source field identified in replicate-fields is missing. The value may be one of:

- `skip`: skip the replication of the missing field (default);
- `fallback`: use the fallback for the missing field, if one is available (otherwise skip);
- `empty`: make the target field empty.
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counter={value}

The counter option assigns the default counter to use for the selected entries. (This can be overridden with the counter key when using commands like \gls.) The value must be the name of a counter. Since bib2gls doesn’t know which counters are defined within the document, there’s no check to determine if the value is valid (except for ensuring that ⟨value⟩ is non-empty).

Note that this will require an extra \LaTeX\ and \bib2gls call since the counter can’t be used for the indexing until the entry has been defined.

copy-action-group-field={value}

This option may only be used when invoking \bib2gls with the --group (or -g) switch. If an action other than the default action={define} is set, this option can be used to identify a field in which to save the letter group information where ⟨value⟩ is the name of the field. This just uses \GlsXtrSetField. You will need to redefine \glsxtragroupfield to ⟨value⟩ before displaying the glossary. For example, if \texttt{copy-action-group-field}={dupgroup}, \texttt{action}={copy} and \texttt{type}={copies} are set in the resource options and copies identifies a custom glossary:

\begin{verbatim}
\printunsrtglossary*[type={copies},style={indexgroup}]
{\renewcommand{\glsxtragroupfield}{dupgroup}}
\end{verbatim}

This option is ignored when used with \texttt{action}={define}. This option is not used by secondary which will always save the group information in the secondary group field. When used with \texttt{action}={define or copy}, entries that are defined will have both group and the field given by \texttt{copy-action-group-field} set.

Note that you may do \texttt{copy-action-group-field}={group} which will override the group field from the original definition. This may be useful if you don’t use grouping in the primary glossary. That is, you use nogroupskip and a non-group style. For example:

\begin{verbatim}
\printunsrtglossary[nogroupskip,style={index}]
\printunsrtglossary[type={copies},style={indexgroup}]
\end{verbatim}

copy-alias-to-see={boolean}

If set, the value of the alias field is copied to the see field. The default setting is \texttt{copy-alias-to-see}={false}.

save-original-entrytype={boolean}

If this is set to \texttt{true}, the original entry type (without the leading @) is stored in the original-entrytype field. If no entry aliasing has been applied (with \texttt{entry-type-aliases}) the field will be set to the actual entry type.
5.5 Field and Label Options

Field Adjustments

\texttt{post-description-dot=\langle value \rangle}

The \texttt{postdot} package option (or \texttt{nopostdot=\{false\}}) can be used to append a full stop (.) to the end of all the descriptions. This can be awkward if some of the descriptions end with punctuation characters. This resource option can be used instead. The \texttt{\langle value \rangle} may be one of:

- \texttt{none}: don’t append a full stop (default);
- \texttt{all}: append a full stop to all description fields in this resource set;
- \texttt{check}: selectively append a full stop (see below).

Note that if you have dual entries and you use this option to append a full stop, then it will be copied over to the mapped field. This is different to the \texttt{postdot} option which doesn’t add the dot to the field but incorporates it in the post-description hook. This means that a dot inserted with \texttt{post-description-dot} will come before the post-description hook whereas with \texttt{postdot} the punctuation comes after any category-specific hook.

The \texttt{post-description-dot=\{check\}} setting determines whether to append the dot as follows:

- If the description field ends with \texttt{\nopostdesc} or \texttt{\glsxtrnopostpunc}, then a dot isn’t appended.
- If the description field doesn’t end with a regular (ungrouped letter or other) character, then a dot is appended. (For example, if the description ends with a control sequence or an end group token.)
- If the description field ends with a character that belongs to the Unicode category “Punctuation, Close” or “Punctuation, Final quote” then the token preceding that character is checked.
- If the description field doesn’t end with a character that belongs to the Unicode category “Punctuation, Other” then the dot is added.

Note that the interpreter isn’t used during the check. If the description ends with a command then a dot will be appended (unless it’s \texttt{\glsxtrnopostpunc} or \texttt{\nopostdesc}) even if that command expands in such a way that it ends with a terminating punctuation character. This option only applies to the description field.

\texttt{strip-trailing-nopost=\langle boolean \rangle}

This option is always performed before \texttt{post-description-dot}. The default setting is \texttt{strip-trailing-nopost=\{false\}}. If \texttt{true} any trailing ungrouped \texttt{\nopostdesc} or \texttt{\glsxtrnopostpunc} found in the description field will be removed. Note that the command (possibly followed by ignored space) must be at the very end of the description for it to be
removed. A description should not contain both commands. This option only applies to the description field.

For example, \nopostdesc will be stripped from:

\texttt{description}={\texttt{sample} \texttt{nopostdesc}}

since it’s at the end. It will also be stripped from:

\texttt{description}={\texttt{sample} \texttt{nopostdesc} } 

since the trailing space is ignored as it follows a control word. It won’t be stripped from:

\texttt{description}={\texttt{sample} \texttt{nopostdesc}{} }

because the final space is now significant, but even without the space it still won’t be stripped as the field ends with an empty group not with \nopostdesc. Similarly it won’t be stripped from:

\texttt{description}={\texttt{sample} \texttt{nopostdesc}\texttt{relax}}

because again it’s not at the end.

\texttt{check-end-punctuation=⟨list⟩}

This option checks the end of all the fields given in ⟨list⟩ for end of sentence punctuation. This is determined as follows, for each ⟨field⟩ in the comma-separated ⟨list⟩:

- if the last character is of type “Punctuation, Close” or “Punctuation, Final quote”, check the character that comes before it;
- if the character is of type “Punctuation, Other”, then check if it’s listed in the entry given by \texttt{sentence.terminators} in \texttt{bib2gls}'s language resource file.

If a sentence terminator is found, an internal field is created called ⟨field⟩\texttt{endpunc} that contains the punctuation character. Fields whose values must be labels (such as parent, category and type) aren’t checked, even if they’re included in ⟨list⟩.

The default \texttt{sentence.terminators} is defined in \texttt{bib2gls-en.xml} as:

<entry key="sentence.terminators">.?!</entry>

Any character that isn’t of type “Punctuation, Other” won’t match.

For example, the sample books.bib file contains:

{\texttt{whydi\_nttheya\_skevans},
 name={Why Didn’t They Ask Evans?},
 description={novel by Agatha Christie},
 identifier={book},
 author={\texttt{\sortmediacreator{Agatha}{Christie}}},
 year={1934} }
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With `check-end-punctuation={name}`, this entry will be assigned an internal field called `nameendpunc` set to `?` as that’s included in `sentence.terminators` and is found at the end of the `name` field:

```
\GlsXtrSetField{whydidn’ttheyaskevans}{nameendpunc}{?}
```

(Note that `check-end-punctuation={first,text}` won’t match as there’s no `first` or `text` field supplied.)

If you have a field that ends with an abbreviation followed by a full stop, this will be considered an end of sentence terminator, but the main purpose of this option is to provide a way to deal with cases like:

Agatha Christie wrote \gls{whydidn’ttheyaskevans}.

where the end of sentence punctuation following `\gls` needs to be discarded. This is needed regardless of whether or not the link text ends with an abbreviation or is a complete sentence.

It’s then possible to hook into the post-link hook “discard period” check. By default this just checks the category attributes that govern whether or not to discard a following period, but (with `glossaries-extra v1.23+`) it’s possible to provide an additional check by redefining:

```
\glsxtrifcustomdiscardperiod\{
\true\}\{\false\}
```

This should expand to \true if the check should be performed otherwise it should expand to \false. You can reference the label using \glslabel. For example:

```
\renewcommand*\{\glsxtrifcustomdiscardperiod\}[2]{%
\GlsXtrIfFieldUndef{nameendpunc}\{\glslabel\}{#2}{#1}%
}
```

This uses \GlsXtrIfFieldUndef rather than \glsxtrifhasfield* since there’s no need to access the field’s value. (The unstarred form \glsxtrifhasfield can’t be used as it introduces implicit scoping, which would interfere with the punctuation lookahead.) The other difference between \GlsXtrIfFieldUndef and the other \...hasfield tests is the case where the field is set to an empty value. In this case the field is defined (so \GlsXtrIfFieldUndef does the \false argument) but it’s considered unset (so commands like \ifglshasfield do the \false argument).

```
sort-label-list=\{list\}
```

This takes a list as the value with each element in the list in the form:

```
\{field-list\}:\{sort\}:\{csname\}
```
or:

```
\{field-list\}:\{sort\}
```
where:
5.5 Field and Label Options

- ⟨field-list⟩ is a comma-separated list of valid fields;
- ⟨sort⟩ is a valid sort method as per the sort option, but not including none or unsort;
- ⟨csname⟩ is the name (without a leading backslash) of a command that takes a label as its sole mandatory argument that’s recognised by bib2gls’ interpreter (such as those listed in table 2.1).

The final : ⟨csname⟩ part may be omitted if no command need be applied. (That is, sort by label.) The value is required for this key but may be empty, which indicates the setting is switched off.

The sorting options are as those for the main list. For example, for entries in the primary list the break point is obtained from the break-at setting and for entries in the dual list the break point is obtained from dual-break-at. (Remember that if dual-sort={combine} then there is only one list that contains both the primary and dual entries, which is governed by the primary options only.)

If the ⟨field-list⟩ has more than one element take care to use braces {} to avoid confusion for the list-parser. For example:

\GlsXtrLoadResources[
  sort-label-list={⟨see,seealso⟩:en:glsentryname}
]

Note that strange results may occur if this setting is used on any fields that don’t simply contain a list of entry labels or if any of the referenced entries are processed in different resource sets (see section 1.4).

After the main sorting of each set of selected entries is performed (as per sort or dual-sort), if this option is set, then for each {⟨field-list⟩}:⟨sort⟩:⟨csname⟩ the following steps are performed:

1. For each entry ⟨id⟩:
   a) For each ⟨field⟩ in ⟨field-list⟩, if the field is set for entry ⟨id⟩ then:
      i. The field value must be in the form [{⟨tag⟩}] ⟨label-list⟩ where [{⟨tag⟩}] is optional and ⟨label-list⟩ is a comma-separated list of entry labels ⟨label⟩₁, ..., ⟨label⟩ₙ;
      ii. A new list is constructed where the ith element is: \{{⟨csname⟩} ⟨⟨label⟩ᵢ⟩\} unless ⟨csname⟩ hasn’t been set, in which case the ith element is just {⟨⟨label⟩ᵢ⟩} (the optional [{⟨tag⟩}] part is omitted);
      iii. This new list is sorted according to the interpreter’s definition of the command given by ⟨csname⟩ (if provided) and the designated ⟨sort⟩ method;
      iv. The field value is reconstructed with the labels in the corresponding order (prefixed with [{⟨tag⟩}] if it was present in the original).

Note that there is no hierarchical structure in the sorting of the field list even if any of the referenced entries has a parent.

For example, suppose the file entries.bib contains:
And suppose the document contains:
\documentclass{article}
\usepackage[record,style={tree}]{glossaries-extra}
\GlsXtrLoadResources[
  src={entries},
  sort={en},
  sort-label-list={{seealso,see}:en:glsentryname}
]
\begin{document}
\Gls{parrot}, \gls{tardigrade}, \gls{swan}, \gls{duck},
Then this reorders the see and seealso fields according to the referenced entry’s name (obtained with \glsentryname).

For example, the see field for the duckling entry was originally:

\texttt{see=\{\texttt{[related terms]fluffy,velociraptor,duck,tardigrade}\}}

but in the .glstex file it’s written as:

\texttt{see=\{\texttt{[related terms]duck,fluffy,velociraptor,tardigrade}\}}

The reason for tardigrade being placed after velociraptor is because \glsentryname{tardigrade} is expanded to “water bear” (and “W” comes after “V”). If no encapsulating command was specified:

\texttt{sort-label-list=\{\texttt{seealso,see}:en\}}

then the list would have been sorted according to the labels instead (and so tardigrade would come before velociraptor). Note that the optional tag is kept at the start of the list.

The seealso fields have also been changed. For example, the duck entry originally had:

\texttt{seealso=\{swan,duckling,parrot,goose\}}

but in the .glstex file it’s written as:

\texttt{seealso=\{duckling,goose,parrot,swan\}}

Note that the hierarchical structure hasn’t been maintained. The glossary lists “duckling” (a top-level entry) after “swan” (a level 2 entry) but the seealso field has duckling first.

If you want to maintain the hierarchy you can use \glsxtrhiername instead of \glsentryname:

\texttt{\GlsXtrLoadResources[\src={entries},\sort={en},\sort-label-list=\{\texttt{seealso,see}:en:glsxtrhiername\}]}\]

The separator between the levels is given by \glsxtrhiernamesep which is defined by glossaries-extra to produce “⊿”. The \bib2gls interpreter’s definition of this command is different to assist sorting and simply expands to a full stop to prevent it from being replaced by the default word break marker.

In this case \glsxtrhiername{swan} would be displayed as “bird ⊳ waterfowl ⊳ swan” if used in the document, but the interpreter converts it to “bird.waterfowl.swan”, so with the default break-at setting the actual sort value becomes \texttt{bird.waterfowl.swan} (instead of \texttt{bird|waterfowl|swan} which would be the result if the interpreter used the same definition as glossaries-extra).

Therefore the seealso field for the duck entry ends up as:
Now swan comes before duckling because the actual sort value started with a “B” not “S”. This hierarchical information isn’t shown in the cross-reference by default, so the duck cross-reference list appears in the document as: parrot, goose, swan & duckling.

If you want the hierarchical information to appear to help assist the reader, you can redefine \glsseeitemformat in the document to use \glsxtrhiername:

\renewcommand*{\glsseeitemformat}[1]{\glsxtrhiername{#1}}

This means that the duck cross-reference now appears in the document as: bird > parrot, bird > waterfowl > goose, bird > waterfowl > swan & duckling.

This next example document has two languages, English and Portuguese. The file entries-en.bib contains the English terms, such as:

@index{cat, translations={gato,gatinho} }
@index{kitten, translations={gatinho} }
@index{staple, translations={grampo}}
@index{rivet, translations={rebite}}

The file entries-pt.bib contains the Portuguese terms, such as:

@index{gato, translations={cat, staple, rivet} }
@index{gatinho, translations={kitten} }

Both files have a custom field called translations that will need to be either defined or aliased. This field contains a comma-separated list of labels for the corresponding entries in the other language file that provide a possible translation. Where a word has multiple possible translations, I’d like the list sorted alphabetically. (In practice, it would make more sense to sort them according to how likely the translation is, but this is for illustrative purposes.)

For convenience, the custom field is simply aliased to the user1 field.

The document has two glossaries for each set of terms. The English terms are sorted according to sort={en-GB} in one resource set and the Portuguese terms are sorted according to sort={pt-BR} in another resource set. This means that there are cross-resource references, but since there are no instances of @preamble it should be possible to resolve the references.

The document code is:

\documentclass{article}
\usepackage[T1]{fontenc}
\usepackage[utf8]{inputenc}
\usepackage[british,brazilian]{babel}
\usepackage[record, nomain, nostyles, stylemods={bookindex},}
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In verbose mode, the transcript file indicates that it’s performing the label list sorting. For example, when sorting according to `sort-label-list={user1:pt-BR:glsentryname}`, the transcript file contains:

**Label list sort method 'pt-BR' on field: user1**

The cat entry has a list of two elements in this field: *gato*, *gatinho*. This is converted into a new list where the first element is:

```
{\glsentryname{gato}}
```
and the second element is:
\{\glsentryname{gatinho}\}

Regardless of the level of verbosity, the transcript file will contain the conversions obtained by the interpreter:

texparslib: \{\glsentryname{gato}\} -> gato
texparslib: \{\glsentryname{gatinho}\} -> gatinho

The kitten entry has the same list, and the same process is repeated for that entry. The --verbose mode will provide additional information. The --debug mode will indicate whether the referenced label was found in the current resource set or if it had to be fetched from another resource set. So if the resulting order isn’t what you expect, check the transcript file for messages.

\texttt{bibtex-contributor-fields=(list)}

This option indicates that the listed fields all use \LaTeX’s name syntax (as used in \LaTeX’s author and editor fields). The value is required for this key but may be empty, which indicates an empty set of fields (that is, the setting is switched off).

The values of these fields will be converted into the form:

\begin{verbatim}
\bibglscontributorlist{{\langle contributor list\rangle}}{{\langle n\rangle}}
\end{verbatim}

where \(\langle n\rangle\) is the number of names in the list and \(\langle\text{contributor-list}\rangle\) is a comma-separated list of names in the form:

\begin{verbatim}
\bibglscontributor{{\langle forenames\rangle}}{{\langle von-part\rangle}}{{\langle surname\rangle}}{{\langle suffix\rangle}}
\end{verbatim}

The \texttt{\bibglscontributorlist} command is initially defined in \texttt{bib2gls}’s interpreter to just do the first argument and ignore the second. This means that if you’re sorting on this field, the “and” part between the final names doesn’t appear in the sort value. The actual definition of \texttt{\bibglscontributorlist} provided in the \texttt{.glstex} file depends on whether or not \texttt{\DTLformatlist} is defined. (Note that \texttt{glossaries} automatically loads \texttt{datatool-base} so this command will be defined if you have at least v2.28 of \texttt{datatool-base}.)

For example, if the \texttt{name} field is specified as:
\begin{verbatim}
name={John Smith and Jane Doe and Dickie von Duck}
\end{verbatim}

then \texttt{bibtex-contributor-fields={name}} will convert the \texttt{name} field value to:

\begin{verbatim}
\bibglscontributorlist{\%
\bibglscontributor{John}{Smith}{},% \bibglscontributor{Jane}{Doe}{},% \bibglscontributor{Dickie}{von}{Duck}{}}{3}
\end{verbatim}

With \texttt{contributor-order={von}} the sort value obtained from this field will be:

Smith, John, Doe, Jane, von Duck, Dickie

With one of the locale sort methods and with the default \texttt{break-at={word}}, this will end up as:

Smith|John|Doe|Jane|von|Duck|Dickie

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contributor-order=⟨value⟩

The \bibglscontributor command is defined in bib2gls’s interpreter and its definition is dependent on this setting. The ⟨value⟩ may be one of (where the parts in square brackets are omitted if that argument is empty):

- **surname**: \bibglscontributor expands to ⟨surname ⟩ [⟨suffix⟩][⟨forenames⟩][⟨von-part⟩];
- **von**: \bibglscontributor expands to [⟨von-part⟩] ⟨surname⟩ [⟨suffix⟩][⟨forenames⟩];
- **forenames**: \bibglscontributor expands to [⟨forenames⟩ ][⟨von-part⟩] ⟨surname⟩ [⟨suffix⟩].

The default value is von. Note that if you have multiple resource sets, this option governs the way bib2gls’s version of \bibglscontributor behaves. The actual definition is written to the \.glstex using \providecommand, which means that \LaTeX \ will only pick up the first definition.

For example:

\begin{verbatim}
\newcommand*{\bibglscontributor}[4]{% 
  #1\ifstrempty{#2}{}{ #2} #3\ifstrempty{#4}{}{, #4}%
}
\GlsXtrLoadResources[
  src={entries},% data in entries.bib
  bibtex-contributor-fields={name}
]
\end{verbatim}

This will display the names in the glossary with the forenames first, but bib2gls will sort according to surname.

An alternative approach, if you need an initial resource set such as with the no-interpret-preamble.bib file:

\begin{verbatim}
\GlsXtrLoadResources[
  src={no-interpret-preamble},
  interpret-preamble={false},
  bibtex-contributor-fields={name},
  contributor-order={forenames}
]
\end{verbatim}

\begin{verbatim}
\GlsXtrLoadResources[
  src={entries},% data in entries.bib
  bibtex-contributor-fields={name}
]
\end{verbatim}
Note the need to use \texttt{bibtex-contributor-fields=\{name\}} in the first resource set even though there are no entries in the \texttt{.bib} file. This is because the definition of \texttt{\bibgls{contributor}} is only written to the \texttt{.gstex} file if \texttt{bibtex-contributor-fields} has been set to a non-empty list. The second resource set will use the default \texttt{bibtex-contributor-fields=\{von\}} setting when obtaining the sort value.

\texttt{encapsulate-fields=\{\langle key=value list \rangle\}}

This option should take a comma-separated list of \texttt{\langle field\rangle=\langle cs-name-1arg \rangle \langle cs-name-1arg \rangle} values, where \texttt{\langle cs-name-1arg \rangle} is the name of a control sequence that takes one argument. The value is required for this key but may be empty, which indicates an empty set (that is, the setting is switched off).

During the processing stage, each field identified in the list (if defined) will have its value replaced with:

\[\langle cs-name-1arg \rangle \{\langle value \rangle} \\]

where \texttt{\langle value \rangle} was its previous value. An empty list switches off encapsulation (the default).

This action overrides any previous use of \texttt{encapsulate-fields} within the same resource set and is always performed before \texttt{encapsulate-fields\ast}, regardless of the order in the resource set’s list of options.

\texttt{encapsulate-fields\ast=\{\langle key=value list \rangle\}}

This option should take a comma-separated list of \texttt{\langle field\rangle=\langle cs-name-2arg \rangle \langle cs-name-2arg \rangle \langle cs-name-2arg \rangle} values, where \texttt{\langle cs-name-2arg \rangle} is the name of a control sequence that takes two arguments. The value is required for this key but may be empty, which indicates an empty set (that is, the setting is switched off).

During the processing stage, each field identified in the list (if defined) will have its value replaced with:

\[\langle cs-name-2arg \rangle \{\langle value \rangle} \{\langle label \rangle} \\]

where \texttt{\langle value \rangle} was its previous value and \texttt{\langle label \rangle} is the entry’s label (including prefix, if appropriate). An empty list switches off encapsulation (the default).

This action overrides any previous use of \texttt{encapsulate-fields\ast} within the same resource set, and is always performed after \texttt{encapsulate-fields}, regardless of the order in the resource set’s list of options, so if the same field is listed in both settings, its value will end up as:

\[\langle cs-name-2arg \rangle \{\langle cs-name-1arg \rangle \{\langle value \rangle} \{\langle label \rangle} \\]

\texttt{interpret-fields=\{\langle list \rangle\}}

This option indicates that the listed fields should be replaced by their interpreted values. The value is required for this key but may be empty, which indicates an empty set of fields (that
5.5 Field and Label Options

is, the setting is switched off). Other fields not listed may still be interpreted depending on other settings. As with the sort field, any special characters are replaced with commands like \glsbackslash and \bibglsdollarchar. This option is applied after field-case-change (if set).

For example, suppose I have a file entries.bib that contains definitions like:

```bibtex
@symbol{pi,
   name={\ensuremath{\pi}},
   description={the ratio of a circle's circumference to its diameter},
}

@symbol{sigma,
   name = {\ensuremath{\sigma}},
   description = {standard deviation}
}
```

Instead of having a list of terms (glossary), suppose I want to have stand-alone definitions, where the term appears in a section heading. I could define a command like this:

```latex
\newcommand{\definition}{%
   \ifglsentryexists{#1}%
   {%
   \section[\glsentryname{#1}]{\glsadd{#1}\glsxtrglossentry{#1}}%
   \Glossentrydesc{#1}\glspostdescription
   %}
   \section[Missing `#1']{\glsadd{#1}}%
}\%
```

which can be used in the document:

```
\tableofcontents
\definition{pi}
\definition{sigma}
```

A problem with this definition of my custom command occurs if I add hyperref to the document, because this tries to write \pi and \sigma to the PDF bookmarks, which doesn’t work because those commands can’t be automatically converted to characters permitted in a PDF string. This leads to a warning from hyperref:

Token not allowed in a PDF string (Unicode)

Ideally I’d like to be able to convert these symbols to Unicode so that they can appear in the bookmarks. Since bib2gls’ interpreter recognises these commands, I can get it to make the conversion instead of trying to implement a method within \TeX:

```latex\glsaddstoragekey{pdfname}{\pdfname}
\GlsXtrLoadResources[
```

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This first copies the name field to the custom pdfname and then interprets the copy. This leaves the name field with the \LaTeX code to produce the symbol in the document, but the pdfname field ends up with all markup stripped by the interpreter and the \pi and \sigma are converted to the Unicode characters 0x1D70B (mathematical italic small pi) and 0x1D70E (mathematical italic small sigma). With \LaTeX or Lua\LaTeX these characters can be written to the PDF bookmarks by adjusting the definition of the custom command:

\begin{verbatim}
\newcommand{\definition}{\%  
  \ifglsentryexists{#1}\%    
    {\section{\texorpdfstring{\glsentryname{#1}}{\pdfname{#1}}}\%      \glsadd{#1}\glsxtrglossentry{#1}\%      \Glossentrydesc{#1}\glspostdescription\%    \section[Missing `#1']{\glsadd{#1}}}\%  }\%
\end{verbatim}

interpret-fields-action={⟨value⟩}

This option governs the behaviour of interpret-fields. Available values are:

- replace: replace the field content with its interpreted value (default);
- replace non empty: only replace the field content with its interpreted value if the interpreted value isn’t an empty string.

If a field value consists solely of commands that are unknown to the interpreter, then the resulting value will end up empty. In this case, it may be more appropriate to leave the field unchanged.

date-time-fields=⟨list⟩

This option indicates that the listed fields all contain date and time information. Primary entries will have these fields parsed according to date-time-field-format and date-time-field-locale and dual entries will have these fields parsed according to dual-date-time-field-format and dual-date-time-field-locale. If the field value is missing or doesn’t match the given pattern it remains unchanged, otherwise it’s converted into the form:

\bibglsdatetim{⟨year⟩}{⟨month⟩}{⟨day-of-month⟩}{⟨day-of-week⟩}{⟨day-of-year⟩}{⟨era⟩}{⟨hour⟩}{⟨minute⟩}{⟨second⟩}{⟨millisec⟩}{⟨dst⟩}{⟨zone⟩}{⟨original⟩}
where \((original)\) is the value of the field before conversion. If the interpreter is on, the value will be interpreted before being parsed if it contains \, $, \{\}, \text{or} \sim. (Remember that \sim is converted to the non-breaking space character 0xA0 unless --break-space is used.)

date-fields=(list)
As date-time-fields but for fields that only contain date (not time) information. If parsed correctly, the field is converted to:

\[
\text{\bibglsdate{\textlangle\textit{year}\rangle}{\textlangle\textit{month}\rangle}{\textlangle\textit{day-of-month}\rangle}{\textlangle\textit{day-of-week}\rangle}{\textlangle\textit{day-of-year}\rangle}{\textlangle\textit{era}\rangle}{\textlangle\textit{original}\rangle}}
\]

The fields are parsed according to date-field-format and date-field-locale for primary entries and according to dual-date-field-format and dual-date-field-locale for dual entries.

time-fields=(list)
As date-time-fields but for fields that only contain time (not date) information. If parsed correctly, the field is converted to:

\[
\text{\bibglstime{\textlangle\textit{hour}\rangle}{\textlangle\textit{minute}\rangle}{\textlangle\textit{second}\rangle}{\textlangle\textit{millisec}\rangle}{\textlangle\textit{dst}\rangle}{\textlangle\textit{zone}\rangle}{\textlangle\textit{original}\rangle}}
\]

The fields are parsed according to time-field-format and time-field-locale for primary entries and according to dual-time-field-format and date-time-field-locale for dual entries.

date-time-field-format=\(\langle\textit{value}\rangle\)
This option also sets dual-date-time-field-format=\(\langle\textit{value}\rangle\). The value is the format pattern used when parsing fields identified by date-time-fields. The \(\textit{value}\) is as for date-sort-format.

date-field-format=\(\langle\textit{value}\rangle\)
This option also sets dual-date-field-format=\(\langle\textit{value}\rangle\). The value is the format pattern used when parsing fields identified by date-fields. The \(\textit{value}\) is as for date-sort-format.

time-field-format=\(\langle\textit{value}\rangle\)
This option also sets dual-time-field-format=\(\langle\textit{value}\rangle\). The value is the format pattern used when parsing fields identified by time-fields. The \(\textit{value}\) is as for date-sort-format.
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date-time-field-locale=⟨value⟩

This option also sets dual-date-time-field-locale=⟨⟨value⟩⟩. The value is the locale used when parsing fields identified by date-time-fields. The ⟨value⟩ is as for date-sort-locale.

date-field-locale=⟨value⟩

This option also sets dual-date-field-locale={⟨value⟩}. The value is the locale used when parsing fields identified by date-fields. The ⟨value⟩ is as for date-sort-locale.

time-field-locale=⟨value⟩

This option also sets date-time-field-locale=⟨⟨value⟩⟩. The value is the locale used when parsing fields identified by time-fields. The ⟨value⟩ is as for date-sort-locale.

Prefix Fields

If you use the glossaries-prefix package, the prefix set of fields become available (prefix, prefixplural, prefixfirst and prefixfirstplural). The default behaviour of \gls is for no separator between the prefix and the text produced with \gls. This is because there are situations where there shouldn’t be a space, although a space is more commonly required.

This means that a space needs to be appended to the required prefix fields, but an actual space character can’t be used because xkeyval trims leading and trailing spaces. The \space command needs to be used instead, but there are also situations where an non-breakable space should be used (for example, where the prefix is a single character). It’s a bit tiresome having to remember to put \space or ~ at the end of the field value.

The append-prefix-field option allows the automatic insertion of a space, but it may be used without the glossaries-prefix package. The fields that contain prefixes are identified by prefix-fields.

If you have any dual entries, then bib2gls will also recognise the special internal fields dualprefix, dualprefixplural, dualprefixfirst and dualprefixfirstplural.

prefix-fields=⟨list⟩

Identifies the fields that are used to store prefixes. The default set is: prefix, prefixfirst, prefixplural, prefixfirstplural, and their dual counterparts dualprefix, dualprefixfirst, dualprefixplural and dualprefixfirstplural.

append-prefix-field=⟨value⟩

Allowed values are:

- none: don’t append a space to the prefix fields (default);
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- **space**: append the command identified by `append-prefix-field-cs` (default) to the prefix field unless the field value ends with a character identified by `append-prefix-field-exceptions` or a command identified by `append-prefix-field-cs-exceptions`. Note that if the field value ends with anything else (such as an empty group) then these exceptions won’t apply.

- **space or nbsp**: as above but uses ~ instead of \space if the field value matches the pattern given by `append-prefix-field-nbsp-match`.

```latex
append-prefix-field-cs=⟨cs⟩
```

Identifies the command ⟨cs⟩ that should be used to append to the prefix fields. The default value is \space. Remember to use \string or \protect to prevent the command from being expanded as it’s written to the .aux file.

```latex
append-prefix-field-exceptions=⟨sequence⟩
```

This setting identifies the set of characters that, if found at the end of a prefix field, prevent `append-prefix-field` from appending a space (either \space or ~).

The value should be a sequence of characters. You may use \string\u⟨hex⟩ to identify a character by its hexadecimal code. Spaces are ignored, so `append-prefix-field-exceptions={'} - {'} is equivalent to `append-prefix-field-exceptions={'}-}.

The default set is the straight apostrophe character (0x0027), the hyphen-minus character (0x002D), the tilde character (~), the hyphen character (0x2010), the non-breaking hyphen (0x2011), and the right single quotation mark (0x2019).

```latex
append-prefix-field-cs-exceptions=⟨sequence⟩
```

This setting identifies the set of commands that, if found at the end of a prefix field, prevent `append-prefix-field` from appending a space (either \space or ~). Any spaces found in ⟨sequence⟩ are ignored. The default setting is the set: \space, \nobreakspace and \,.

Remember that you will need to use \string or \protect to prevent the command from being expanded while the resource options are written to the .aux file.

```latex
append-prefix-field-nbsp-match=⟨pattern⟩
```

The value is the regular expression that identifies prefixes that should be followed by ~ instead of \space. The default is `append-prefix-field-nbsp-match={.} which indicates a single character.

**Case-Changing**

The glossaries-extra package comes with the category attributes glossdesc and glossname, which may take the values firstuc or title. These don’t change the actual name or description fields, but instead \glossentryname and \glossentrydesc (which are used
by the default glossary styles) check for the corresponding attribute and apply the appropriate case-change to the field value.

So \glossentryname will use \Glsentryname if the glossname attribute for the given entry is set to firstuc and \glossentrydesc will use \Glsentrydesc if the glossdesc attribute is set to firstuc. The title setting will instead use \capitalisewords applied to the field value.

The resource options described in this section provide an alternative to those attributes that actually modify the relevant field (rather than just adjusting the style code used to display it). There are two forms of modification: the field is adjusted so that the original value is encapsulated by a command or bib2gls will perform the actual case-change according to its own algorithm. The results can vary according to the field content.

Only a subset of known fields have a resource option that can be used to apply a case-change. For example, name-case-change can be used to change the case of the name field, but there’s no equivalent option for the text field.

Each of the case-changing resource options may take one of the following values:

- none: don’t apply any case-changing (default);
- lc-cs: make bib2gls behave as though the field assignment:

$$\langle field \rangle = \{ \langle text \rangle \}$$

had actually been specified as:

$$\langle field \rangle = \{ \text{\bibglslowercase{\langle text \rangle}} \}$$

which uses TeX to convert the field to lower case;
- uc-cs: make bib2gls behave as though the field assignment:

$$\langle field \rangle = \{ \langle text \rangle \}$$

had actually been specified as:

$$\langle field \rangle = \{ \text{\bibglsuppercase{\langle text \rangle}} \}$$

which uses TeX to convert the field to upper case;
- firstuc-cs: make bib2gls behave as though the field assignment:

$$\langle field \rangle = \{ \langle text \rangle \}$$

had actually been specified as:

$$\langle field \rangle = \{ \text{\bibglsfirstuc{\langle text \rangle}} \}$$

which uses TeX to convert the field to first-letter upper case;
• title-cs: make bib2gls behave as though the field assignment:

\( \langle \text{field} \rangle = \{ \langle \text{text} \rangle \} \)

had actually been specified as:

\( \langle \text{field} \rangle = \{ \text{\texttt{\bibglstitlecase{\langle \text{text} \rangle}}} \} \)

which uses \TeX{} to convert the field to title case;

• lc: convert to lower case by making the appropriate modifications to tokens in the field value that have a known lower case alternative (see below);

• uc: convert to upper case by making the appropriate modifications to tokens in the field value that have a known upper case alternative (see below);

• firstuc: convert to first letter upper case by making the appropriate modification, if it has a known upper case alternative (see below);

• title: convert to title case by making the appropriate modifications to the first letter of each identified word in the field value that has a known upper case alternative (see below).

A word-boundary is identified according to the \texttt{word-boundaries} setting. Words to be excluded from the case-changing (unless they occur at the start) can be identified with \texttt{\MFUnocap} in the \texttt{@preamble} or you can use --packages mfirstuc-english for the exclusion list provided by the mfirstuc-english package. Alternatively, you can use --custom-packages to load a simple package that contains the required \texttt{\MFUno-\cap} commands (in a similar style to mfirstuc-english).

The bib2gls word-boundary implementation is slightly different with this setting than with the \texttt{\capitalisewords} command (implemented in \TeX{} or by the \TeX{} parser library when interpreting field values). Only words in the exclusion list that start with an alphabetical character can be matched. Punctuation following a word-boundary is not considered part of the next word.

The \texttt{firstuc-cs} and \texttt{firstuc} options are essentially a sentence case change, but there's no check for sentence-breaks within the value, so even if the value contains multiple sentences, only the first is changed.

The \texttt{\langle option \rangle-cs} settings defer the actual case-changing to \TeX{}, which means that the case-changing has to be applied every time the field is typeset (and it introduces non-expandable content to the field value). Be aware of the limitations of using any of the case-changing commands. See the textcase and mfirstuc package documentation for further details [1, 11]. You may use \texttt{\NoCaseChange{\langle content \rangle}} (provided by textcase) to prevent any case-change to \texttt{\langle content \rangle}.

For the settings where bib2gls itself performs the case-change, then bib2gls will iterate over each token of the field value and apply the following rules:
1. If the token is a normal Unicode alphabetic character, it will be replaced with the corresponding upper or lower case character, as appropriate. For title and firstuc, the title case character is used as the replacement, for uc the upper case character is used as the replacement, and for lc the lower case character is used as the replacement. Many characters have the same upper and title case alternative (for example, “a” will be converted to “A” for the title, firstuc and uc settings), but some characters have different title and upper versions (for example, the digraph “dz” has the title version “Dz” and upper case version “DZ”).

If the option is firstuc then all the remaining tokens are skipped. If the option is title then the subsequent tokens are skipped until a word-boundary is found.

2. If the token is a normal Unicode character that isn’t alphabetical, then this token will be skipped for all options.

3. If $(maths)$ is encountered, it will be skipped. If the option is firstuc then all remaining tokens are skipped, so no case-change will be performed.

4. If a group {⟨content⟩} is found, then the case-change is applied to the entire ⟨content⟩ (which may be empty). This corresponds to the way \makefirstuc and \capitalisewords work if a word starts with a group. Note that with firstuc and title the group content will be converted according to uc, so the normal upper case character is used rather than the title case character (if they are different).

If the option is firstuc then all the remaining tokens are skipped. If the option is title then the subsequent tokens are skipped until a word-boundary is found.

5. If a control sequence \⟨csname⟩ is found, then:
   a) If the control sequence is \protect, this token is skipped for all options.
   b) If the control sequence is one of: \o, \O, \l, \L, \ae, \AE, \oe, \OE, \aa, \AA, \ss, \SS, \ng, \NG, \th, \TH, \dh, \DH, \dj or \DJ, then it’s replaced with its case-change counterpart (if not already the correct case).

   If the option is firstuc then all the remaining tokens are skipped. If the option is title then the subsequent tokens are skipped until a word-boundary is found.
   c) If the control sequence is \NoCaseChange or is in the no-case-change-cs list, then the control sequence and its argument is ignored. With firstuc and title, if \NoCaseChange{⟨text⟩} (but not any no-case-change-cs command) occurs at the start of a word, then bib2gls will act as though the word hasn’t started yet (so the next token will be considered for a case-change). This is different to the way \makefirstuc and \capitalisewords work.
   d) If the control sequence is \ensuremath, \si or if ⟨csname⟩ ends with “ref” (for example, \ref or \pageref) then the control sequence and its argument is ignored. In the case where ⟨csname⟩ ends with “ref”, a following star (*) or optional argument before the mandatory argument will also be skipped. This allows
for some common cross-referencing commands, such as hyperref’s \autoref, which may have a starred form, but does not allow for more complicated commands with multiple arguments.

If the option is firstuc then all the remaining tokens are skipped (so no case-change will be performed). If the option is title then the subsequent tokens are skipped until a word-boundary is found (so no case-change is performed for this word).

e) If the control sequence is \glsentrytitlecase then:

- lc the control sequence is converted to \glsxtrusefield;
- uc the control sequence is converted to \GLSxtrusefield;
- firstuc the control sequence is converted to \Glssxtrusefield and the remaining tokens are skipped;
- title the control sequence is left unchanged and subsequent tokens are skipped until a word-boundary is found.

The field and entry label arguments are skipped.

f) If the control sequence is \glshyperlink then the case-change is applied to its optional argument. (If there was no optional argument in the original field value, one will be inserted.) The label argument is skipped.

If the option is firstuc then all the remaining tokens are skipped. If the option is title then the subsequent tokens are skipped until a word-boundary is found.

g) If the control sequence is \glsdisp, \glslink, \dglsdisp or \dglslink then the case-change will be applied to the appropriate argument. The optional argument (if present) and the label are skipped.

If the option is firstuc then all the remaining tokens are skipped. If the option is title then the subsequent tokens are skipped until a word-boundary is found.

h) If the control sequence has a known case variant, it will be substituted. For example, \gls will be changed to \GLs or \GLS. In some cases there isn’t an appropriate variant. For example, \glsentrytext has a first-letter upper case version \Glssentrytext, but not an all-caps version.

If the option is firstuc then all the remaining tokens are skipped. If the option is title then the subsequent tokens are skipped until a word-boundary is found.

i) If the control sequence is followed by a group, then the appropriate case-change is applied to the group contents. Unlike step 4, the case-change isn’t applied to the entire group content with firstuc and title. (Again, this follows the way that \makefirstuc and \capitalisewords work.)

If there are subsequent groups, they won’t be considered arguments, but will be treated as groups, as per step 4. (This will only affect the title setting as they will be skipped by the firstuc setting.) For complex cases, consider using a
5.5 Field and Label Options

semantic command that hides non-textual context such as the \strong example described on page 103.

j) Otherwise the control sequence is skipped.

6. Anything else is skipped.

For example, if an entry is defined as:

@abbreviation{html,
  short = {HTML},
  long = {hypertext markup language},
  description={a markup language for creating web pages}
}

then:

\GlsXtrLoadResources[
  short-case-change={lc},
  long-case-change={title},
  description-case-change={firstuc}
]

will make the entry behave as if it had been defined as:

@abbreviation{html,
  short = {html},
  long = {Hypertext Markup Language},
  description={A markup language for creating web pages}
}

whereas:

\GlsXtrLoadResources[
  short-case-change={lc-cs},
  long-case-change={title-cs},
  description-case-change={firstuc-cs}
]

will make the entry behave as if it had been defined as:

@abbreviation{html,
  short = {\bibglslowercase{HTML}},
  long = {\bibglstitlcase{hypertext markup language}},
  description={\bibglsfirstuc{a markup language for creating web pages}}
}

If the given field is missing, no change is made, except under certain circumstances (see the relevant resource option for details). For example, if an abbreviation is simply defined as:
@abbreviation{html,
  short = {html},
  long = {hypertext markup language}
}

then:

\GlsXtrLoadResources[
  name-case-change={uc},
  description-case-change={title}
]

won’t have an effect. Although the default long–short abbreviation style sets the name and description fields, bib2gls doesn’t have access to this information.

Remember that you can create missing fields by copying the value from another field. So if the resource options are changed to:

\GlsXtrLoadResources[
  name-case-change={uc},
  description-case-change={title},
  replicate-fields={short=name,long=description}
]

then bib2gls will act as though the entry had been defined as:

@abbreviation{html,
  short = {html},
  long = {hypertext markup language},
  name = {HTML},
  description = {Hypertext Markup Language}
}

If the long–short-sc abbreviation style is set (before \GlsXtrLoadResources) then this will override the default style for the name and description, so \textsc{html} will display the short form using \textsc{html} but the name in the glossary will be displayed using just HTML.

Note that with @index the name and text fields will automatically be created if they are missing and name-case-change is used. For example, if an entry is defined as:

@index{duck}

then name-case-change={firstuc} will make this entry behave as though it was defined as:

@index{duck,
  name = {Duck},
  text = {duck}
}
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Suppose I have a slightly eccentric abbreviation definition:

```latex
@abbreviation{html,
  short = "ht\emph{ml}",
  long = "hypertext markup language"
}
```

then `short-case-change={uc}` would convert the value of the `short` field into:

```
HT\emph{ML}
```

Note that \emph isn’t modified as it’s recognised as a command. There’s a difference between a group that follows a control sequence and one that doesn’t. For example:

```latex
@abbreviation{html,
  short = "\{ht\}ml",
  long = "hypertext markup language"
}
```

In this case `short-case-change={firstuc}` will convert the `short` field value to:

```
{HT}ml
```

(The entire contents of the group `{ht}` has been converted.) Whereas with:

```latex
@abbreviation{html,
  short = "\emph{ht}ml",
  long = "hypertext markup language"
}
```

then `short-case-change={firstuc}` will convert the `short` field value to:

```
\emph{Ht}ml
```

(Only the first letter of the argument `{ht}` has been converted.)

There’s no attempt at interpreting the field contents at this point (but the value may later be interpreted during sorting). For example, suppose a `name` field is defined using:

```latex
name = "z\ae\oe",
```

then with `name-case-change={uc}`, the value would be converted to

```
Z\AE\OE
```

because \ae and \oe have known upper case versions.

With `name-case-change={uc-cs}`, the `name` value would be converted to:

```
\bibglsuppercase{z\ae\oe}
```

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If the interpreter is used during sorting, the sort value will be set to `ZÆŒ` because the interpreter recognises all three commands.

You can use `\NoCaseChange{⟨text⟩}` to prevent the given ⟨text⟩ from having the case changed. For example, if the `short` field is defined as:

```
short = {a\NoCaseChange{bc}d}
```

then with `short-case-change={uc}`, this would be converted to

```
A\NoCaseChange{bc}D
```

Note that with `firstuc` and `title`, if `\NoCaseChange{⟨text⟩}` occurs at the start of a word then it’s skipped, and the case change is applied to the material following its argument. For example, suppose the `short` field is defined as:

```
short={\NoCaseChange{h}tml}
```

then the result is:

```
\NoCaseChange{h}Tml
```

whereas with:

```
short={{}html}
```

then the result is just `{}html` (since the case change is applied to the empty group, which has no effect).

If you have a command that takes a label or identifier as an argument then it’s best to hide the label in a custom command. For example, if the `short` field in the `.bib` definition is defined as:

```
short = "ht\textcolor{red}{ml}\",
```

then with `short-case-change={uc}` this would end up as:

```
HT\textcolor{RED}{ML}
```

which is incorrect. Instead, provide a command that hides the label (such as the `\strong` example described on page 103).

```
no-case-change-cs=⟨list⟩
```

Instructs the non-\TeX case-changing options (where `bib2gls`, not \TeX, performs the modification) to treat the commands whose control sequence names are given in the comma-separated ⟨list⟩ in the same way as it treats `\ensuremath` etc. That is, the case-change is omitted for the argument that follows any of those commands.

For example, this manual defines some semantic commands such as `\fieldfmt` (to format field names), `\abbrstylefmt` (to format abbreviation style names) and `\glostylefmt` (to format glossary style names). If any of these occur in section and subsection headings (which are converted to title case) then the case-change would produce an inappropriate result. These formatting commands shouldn’t have their argument changed so they are identified with:

```
no-case-change-cs={fieldfmt,abbrstylefmt,glostylefmt}
```
5.5 Field and Label Options

word-boundaries={list}

Governs how the title case-change option determines word boundaries. The `{list}` must contain one or more of the following keywords:

**white space** any white space Unicode character that is not a non-breakable space indicates a word-boundary;

**cs space** the control sequences `\space` or `\u` indicate a word-boundary;

**dash** a Unicode character that belongs to the “Punctuation, Dash” block indicates a word-boundary;

**nbsp** the `-` active character or the Unicode non-breakable characters 0x00A0, 0x2007 and 0x202F indicate a word-boundary.

Any keyword that is not listed indicates that particular setting is off. This option is not cumulative. Any subsequent use of word-boundaries within the same set of resource options will override previous settings.

The default setting is `word-boundaries={white space, cs space}`, which excludes non-breakable spaces and dashes.

short-case-change={value}

Applies a case-change to the `short` field (if present). This option may take one of the values described above.

See dual-short-case-change to adjust the dualshort field.

long-case-change={value}

Applies a case-change to the `long` field (if present). This option may take one of the values described above.

See dual-long-case-change to adjust the duallong field.

name-case-change={value}

Applies a case-change to the `name` field. This option may take one of the values described above.

If the `text` field hasn’t been set, the `name` value is first copied to the `text` field. If the `name` field hasn’t been set (for example, with the @index entry type), it’s copied from the fallback value (which depends on the entry type) unless the entry type is @abbreviation or @acronym, in which case if the `name` field is missing no action is performed.

description-case-change={value}

Applies a case-change to the `description` field (if present). This option may take one of the values described above.
field-case-change=
{
key=value list
}

A general case-change instruction. The value should be a comma-separated list of \langle field \rangle = \langle setting \rangle for each field that needs a case-change applied. The value is required for this key but may be empty, which indicates this option is switched off.

The \langle setting \rangle should be the same as the permitted values for the above options. This option is applied after all fields have been parsed but before interpret-fields. If the specified field is missing, the fallback for that field (if known) is copied into the field. For example:

field-case-change={user1=uc,user2=firstuc}

This manual provides a custom storage key called nametitle:

\glsxtrprovidestoragekey{nametitle}{}

The resource options copy the name value to this custom field and convert nametitle to title case:

replicate-fields={name=nametitle},
field-case-change={nametitle=title},

This means that it’s possible to fetch the value of nametitle instead of name, which provides an expandable title case form that’s suitable for the PDF bookmarks.

This option isn’t cumulative. If used multiple times in the same resource set, the last instance will be the one used. If the key=value list is missing, no general case-changing is applied (the default).

5.6 Plurals

Some languages, such as English, have a general rule that plurals are formed from the singular with a suffix appended. This isn’t an absolute rule. There are plenty of exceptions (for example, geese, children, churches, elves, fairies, sheep, mice), so a simplistic approach of just doing \gls{\langle label \rangle}[s] will sometimes produce inappropriate results, so the glossaries package provides a plural key with the corresponding command \glspl.

In some cases a plural may not make any sense (for example, if the term is a verb or symbol), so the plural key is optional, but to make life easier for languages where the majority of plurals can simply be formed by appending a suffix to the singular, the glossaries package lets the plural field default to the value of the text field with \glspluralsuffix appended. This command is defined to be just the letter “s”. This means that the majority of terms in such languages don’t need to have the plural supplied as well, and you only need to use it for the exceptions.

For languages that don’t have this general rule, the plural field will always need to be supplied for nouns.

There are other plural fields, such as firstplural, longplural and shortplural. Again, if you are using a language that doesn’t have a simple suffix rule, you’ll have to supply the plural forms if you need them (and if a plural makes sense in the context).

If these fields are omitted, the glossaries package follows these rules:
• If firstplural is missing, then \glspluralsuffix is appended to the first field, if that field has been supplied. If the first field hasn’t been supplied but the plural field has been supplied, then the firstplural field defaults to the plural field. If the plural field hasn’t been supplied, then both the plural and firstplural fields default to the text field (or name, if no text field) with \glspluralsuffix appended.

• If the longplural field is missing, then \glspluralsuffix is appended to the long field, if the long field has been supplied.

• If the shortplural field is missing then, with the base glossaries acronym mechanism, \acrpluralsuffix is appended to the short field.

The last case is different with the glossaries-extra extension package. The shortplural field defaults to the short field with \abbrvpluralsuffix appended unless overridden by category attributes. This suffix command is set by the abbreviation styles. This means that every time an abbreviation style is implemented, \abbrvpluralsuffix is redefined. Most styles simply define this command as:

\renewcommand*{\abbrvpluralsuffix}{\glsxtrabbrvpluralsuffix}

where \glsxtrabbrvpluralsuffix expands to \glspluralsuffix. The “sc” styles (such as long-short-sc) use a different definition:

\renewcommand*{\abbrvpluralsuffix}{\protect\glsxtrscsuffix}

This allows the suffix to be reverted back to the upright font, counteracting the affect of the small-caps font.

This means that if you want to change or strip the suffix used for the plural short form, it’s usually not sufficient to redefine \abbrvpluralsuffix, as the change will be undone the next time the style is applied. Instead, for a document-wide solution, you need to redefine \glsxtrabbrvpluralsuffix. Alternatively you can use the category attributes.

There are two attributes that affect the short plural suffix formation. The first is aposplural which uses the suffix

'\abbrvpluralsuffix

That is, an apostrophe followed by \abbrvpluralsuffix is appended. The second attribute is noshortplural which suppresses the suffix and simply sets shortplural to the same as short.

With bib2gls, if you have some abbreviations where the plural should have a suffix and some where the plural shouldn’t have a suffix (for example, the document has both English and French abbreviations) then there are two approaches.

The first approach is to use the category attributes. For example:

\glssetcategoryattribute{french}{noshortplural}

Now just make sure all the French abbreviations are have their category field set to french:
5.7 Location List Options

The other approach is to use the options listed below for the given resource set. For example:

\GlsXtrLoadResources[src={fr-abbrvs},short-plural-suffix={}]

**short-plural-suffix=⟨value⟩**

Sets the plural suffix for the default shortplural to ⟨value⟩. The ⟨value⟩ may be one of:

- ⟨suffix⟩: add the shortplural field, if missing, with the given ⟨suffix⟩.
- ⟨empty⟩: add the shortplural field, if missing, with no suffix.
- use-default: leave it to glossaries-extra to determine the appropriate default.

The default setting is short-plural-suffix={use-default}. If the =⟨value⟩ part is omitted, then short-plural-suffix={} is assumed.

**dual-short-plural-suffix=⟨value⟩**

Sets the plural suffix for the default dualshortplural field to ⟨value⟩. As with short-plural-suffix, the default setting is dual-short-plural-suffix={use-default}. If the ⟨value⟩ is omitted or empty, the suffix is set to empty.

5.7 Location List Options

The record package option automatically adds two new keys: loclist and location. These two fields are set by bib2gls from the information supplied in the .aux file (unless the option save-locations={false} is used). The location field contains the code to typeset the formatted location list.

The loclist field has the syntax of an etoolbox internal list and includes every location (except for the discarded duplicates and ignored records) with no range formations. Any explicit range markup is stripped from the format information to leave just the encapsulating command (ENCAP) name, so you just get the start and end locations added as individual elements but they are still encapsulated with the associated formatting command. Each item in the list is provided in one of the following forms:

\glsseeformat[⟨tag⟩]⟨⟨label list⟩⟩{} for the cross-reference supplied by the see field,

\glsxtruseseealsoformat{(xr list)} for the cross-reference supplied by the seealso field,
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\glsoidxdisplayloc{⟨prefix⟩}{⟨counter⟩}{⟨format⟩}{⟨location⟩}

for standard the internal locations,

\glsxtrdisplaysupploc{⟨prefix⟩}{⟨counter⟩}{⟨format⟩}{⟨src⟩}{⟨location⟩}

for supplemental (external) locations and

\glsxtrdisplaylocnameref{⟨prefix⟩}{⟨counter⟩}{⟨format⟩}{⟨location⟩}{⟨title⟩}
{⟨href⟩}{⟨hcounter⟩}{⟨file⟩}

for nameref records. (See section 5.8 for more information about supplemental locations and \--merge-nameref-on for more information about nameref records.)

You can iterate through the \texttt{loclist} value using one of etoolbox’s internal list loops (either by first fetching the list using \texttt{glsfieldfetch} or through glossaries-extra’s \texttt{glsxtrfielddolistloop} or \texttt{glsxtrfieldforlistloop} shortcuts).

The \texttt{⟨format⟩} is that supplied by the \texttt{format} key when using commands like \texttt{\gls} or \texttt{\glsadd} (the encapsulator or \texttt{ENCAP} in makeindex parlance). If omitted, the default \texttt{format =\{glsnumberformat\}} is assumed (unless this default value is changed with \texttt{GlsXtrSetDefaultNumberFormat}. The value of the \texttt{format} key must be the name of a text-block command without the leading backslash that takes a single argument (the location). The location is encapsulated by that command. For example,

\texttt{\gls[format=\{textbf\}]{sample}}

will display the corresponding location in bold, but note that this will no longer have a hyperlink if you’ve used \texttt{hyperref}. If you want to retain the hyperlink you need the location encapsulated with \texttt{\hyperbf} instead of \texttt{\textbf}:

\texttt{\gls[format=\{hyperbf\}]{sample}}

The \texttt{\hyper⟨xx\rangle} set of commands all internally use \texttt{\glshypernumber} which adds the appropriate hyperlink to the location. See Table 6.1 in the glossaries [14] user manual for a list of all the \texttt{\hyper⟨xx\rangle} commands.

Ranges can be explicitly formed using the parenthetical syntax \texttt{format=\{()\}} and \texttt{format=\{(⟨csname⟩)\}} (where \texttt{⟨csname⟩} is again the name of a text-block command without the initial backslash) in the optional argument of commands like \texttt{\gls} or \texttt{\glsadd}. These will always form a range, regardless of \texttt{min-loc-range}, and will be encapsulated by \texttt{\bibglsrange}. (This command is not used with ranges that are formed by collating consecutive locations.) The initial marker is stripped from the \texttt{⟨format⟩} argument of the location formatting commands, such as \texttt{\glsoidxdisplayloc}, to allow for easy conversion to the corresponding text-block command.

Explicit ranges don’t merge with neighbouring locations, but will absorb any single locations within the range that don’t conflict. (Conflicts will be moved to the start of the explicit range.) For example, if \texttt{\gls{sample}} is used on page 1, \texttt{\gls[format=\{()\}]{sample}} is used on page 2, \texttt{\gls{sample}} is used on page 3, and \texttt{\gls[format=\{\}]{sample}} is used
on page 4, then the location list will be 1, 2–4. The entry on page 3 is absorbed into the explicit range, but the range can’t be expanded to include page 1. If the entry on page 3 had a different format to the explicit range, for example \textbf{sample} then it would cause a warning and be moved before the start of the range so that the location list would then be 1, 3, 2–4.

An ignored record identifies a term that needs to be treated as though it has a record for selection purposes, but the record should not be included in the location list. The special format \texttt{format=glsignore} is provided by the glossaries package for cases where the location should be ignored. (The command \texttt{glsignore} simply ignores its argument.) This works reasonably well if an entry only has the one location, but if the entry happens to be indexed again, it can lead to an odd empty gap in the location list with a spurious comma. If \texttt{bib2gls} encounters a record with this special format, the entry will be selected but the record will be discarded.

This means that the location list will be empty if the entry was only indexed with the special ignored format, but if the entry was also indexed with another format then the location list won’t include the ignored records. (This format is used by \texttt{glsaddallunused} but remember that iterative commands like this don’t work with \texttt{bib2gls}. Instead, just use \texttt{selection=all} to select all entries. Those that don’t have records won’t have a location list.)

For example, suppose you only want main matter locations in the number list, but you want entries that only appear in the back matter to still appear in the glossary (without a location list), then you could do:

\begin{verbatim}
\backmatter
\GlsXtrSetDefaultNumberFormat{glsignore}
\end{verbatim}

If you also want to drop front matter locations as well:

\begin{verbatim}
\frontmatter
\GlsXtrSetDefaultNumberFormat{glsignore}
...
\mainmatter
\GlsXtrSetDefaultNumberFormat{glsnumberformat}
...
\backmatter
\GlsXtrSetDefaultNumberFormat{glsignore}
\end{verbatim}

Note that explicit range formations aren’t discarded, so if \texttt{glsignore} is used in a range, such as:

\begin{verbatim}
\glsadd[format=\{glsignore\}]{sample}
...
\glsadd[format=\}glsignore\}]{sample}
\end{verbatim}

then the range will be included in the location list (encapsulated with \texttt{glsignore}), but this case would be a rather odd use of this special format and is not recommended.
5.7 Location List Options

The record counting commands, such as \rgls, use the special format glstriggerrecord-format, which bib2gls also treats as an ignored record and the same rules as for glsignore apply.

The locations are always listed in the order in which they were indexed, (except for the cross-reference which may be placed at the start or end of the list or omitted). This is different to xindy and makeindex where you can specify the ordering (such as lower case Roman first, then digits, etc), but unlike those applications, bib2gls allows any location, although it may not be able to work out an integer representation. (With xindy, you can define new location formats, but you need to remember to add the appropriate code to the custom module.)

It’s possible to define a custom glossary style where \glossentry (and the child form \subglossentry) ignore the final argument (which will be the location field) and instead parse the loclist field and re-order the locations or process them in some other way. Remember that you can also use \glsnoidxloclist provided by glossaries. For example:

\glsfieldfetch{gls.sample}{loclist}{\loclist}% fetch location list
\glsnoidxloclist{\loclist}% iterate over locations

This uses \glsnoidxloclisthandler as the list’s handler macro, which simply displays each location separated by \delimN. (See also Iteration Tips and Tricks [16].)

Each regular location is listed in the .aux file in the form:

\glsxtr@record{⟨label⟩}{⟨prefix⟩}{⟨counter⟩}{⟨format⟩}{⟨location⟩}

(See --merge-nameref-on for nameref records.) Exact duplicates are discardable. For example, if cat is indexed twice on page 1:

\glsxtr@record{cat}{page}{glsnumberformat}{1}
\glsxtr@record{cat}{page}{glsnumberformat}{1}

then the second record is discarded. Only the first record is added to the location list.

Partial duplicates, where all arguments match except for ⟨format⟩, may be discarded depending on the value of ⟨format⟩. For example, if page 1 of the document uses \gls{cat} and \gls[format={hyperbf}]{cat} then the .aux file will contain:

\glsxtr@record{cat}{page}{glsnumberformat}{1}
\glsxtr@record{cat}{page}{hyperbf}{1}

This is a partial record match. In this case, bib2gls makes the following tests:

- If one of the formats includes a range formation, the range takes precedence.

- If one of the formats is glsnumberformat (as in the above example) or an ignored record format such as glsignore, that format will be skipped. So in the above example, the second record will be added to the location list, but not the first. (A message will only be written to the transcript if the --debug switch is used.) The default glsnumberformat will take precedence over the ignored record formats (glsignore and glstriggerrecordformat).
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- If a mapping has been set with the --map-format switch that mapping will be checked.
- Otherwise the duplicate record will be discarded with a warning.

The location field is used to store the formatted location list. The code for this list is generated by bib2gls based on the information provided in the .aux file, the presence of the see or seealso field and the various settings described in this chapter. When you display the glossary using \printunsrtglossary, if the location field is present it will be displayed according to the glossary style (and other factors, such as whether the nonumberlist option has been used, either as a package option or supplied in the optional argument of \printunsrtglossary). For more information on adjusting the formatting see the glossaries [14] and glossaries-extra [13] user manuals.

**save-locations=(boolean)**

By default, the locations will be processed and stored in the location and loclist fields. However, if you don’t want the location lists (for example, you are using the nonumberlist option or you are using xindy with a custom location rule), then there’s no need for bib2gls to process the locations. To switch this function off, just use save-locations={false}.

The boolean nonumberlist key that may be used in \newglossaryentry can also be used in a .bib file, but in this case it can’t have an empty value. The value must be either true or false. If true then bib2gls won’t save the location or loclist fields.

The nonumberlist key provided by the base glossaries package doesn’t represent a real field. The value isn’t saved but, if used, it will alter the indexing information that’s written to the makeindex or xindy file. It’s a little hack to ensure that the location is hidden for a specific entry when used with makeindex and xindy.

bib2gls will look for this key to determine if the location should be omitted for the given entry, but it won’t write the key to the .glstex file.

**save-loclist=(boolean)**

If you want the location field but don’t need loclist, you can use save-loclist={false}. This can help to save resources and build time.

**save-primary-locations=(value)**

It’s sometimes useful to identify primary locations with a different format, such as bold or italic. This helps the reader select which location to try first in the event of a long location list. However, you may prefer to store the primary location in a different field to give it a more prominent position. In order to do this you need to specify the format (or formats) used to identify primary locations with primary-location-formats and use save-primary-locations to determine how to deal with these locations.

This option may take one of the following values:
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- **false**: don’t save primary locations (default);
- **retain**: save primary locations in the `primarylocations` field but don’t remove from the usual location list;
- **default format**: similar to retain but the format for the primary records in the `location` field is converted to the default `glsnumberformat ENCAP` (the records in the `primarylocations` field retain their given format);
- **start**: save primary locations in the `primarylocations` field and also move to the start of the usual location list;
- **remove**: save primary locations in the `primarylocations` field and remove from the usual location list.

The primary locations are copied to the `primarylocations` field and encapsulated with `\bibglesprimary`. If you use `save-primary-locations={remove}`, the `location` field will end up empty if the locations for the associated entry were all identified as primary. If you use `save-primary-locations={start}`, all primary locations will be moved to the start of the location list stored in the `location` field, but there will be no additional markup (other than the given format) to identify them. If you need additional markup, then use `save-primary-locations={remove}` and adjust the location list format to insert the primary locations at the start. This can be done by modifying the glossary style.

For example, the `bookindex` style inserts `\glsxtrbookindexprelocation` before the location, so you could redefine this:

```
\renewcommand*{\glsxtrbookindexprelocation}{{1}\% 
\glsxtrifhasfield{primarylocations}{#1}\%
{\%
  \glsxtrprelocation
  \glscurrentfieldvalue
  \glsxtrifhasfield{location}{#1}{;}{}
}\
{\%
\glsxtrprelocation
}
```

(Note that if `loc-prefix` is used, the prefix will be in the `location` field and so will come after the primary locations in the above example. Similarly for cross-references unless they’ve been omitted.)

You can switch from using the `location` field to the `primarylocations` field by locally changing `\GlsXtrLocationField`:

```
\printunsrtglossary*{%
  \renewcommand{\GlsXtrLocationField}{primarylocations}%
}
```
Remember that the handler used by \printunsrtglossary will fallback on the \loclist field if the field identified by \GlsXtrLocationField is missing or empty. You may want to consider using save-loclist={false} to prevent this.

\primarylocationformats={list}

This option will automatically set save-primary-locations={retain} unless it has already been changed from the default save-primary-locations={false} setting. The argument should be a comma-separated list of formats. If a record’s format is contained in this list then it will be considered a primary location and it will be included in the associated entry’s primarylocations field.

For example, suppose the file entries.bib contains:

@entry{bird,  
  name={bird},  
  description={feathered animal}}
}

@entry{waterfowl,  
  name={waterfowl},  
  description={any bird that lives in or about water}}
}

@entry{zebra,  
  name={zebra},  
  description={striped African horse}}
}

@entry{parrot,  
  name={parrot},  
  description={mainly tropical bird with bright plumage}}
}

and the document test.tex contains:

\documentclass{report}

\usepackage[colorlinks]{hyperref}
\usepackage[record,  
  postpunc={dot},  
  nostyles,  
  stylemods={tree,bookindex},  
  style={bookindex}]{glossaries-extra}

\GlsXtrLoadResources[  
  src={entries},  
  primary-location-formats={hyperbf,hyperemph},  
  save-primary-locations={remove}  
]
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The primary-location-formats={hyperbf, hyperemph} setting in the above indicates that locations encapsulated with \hyperbf and \hyperemph are primary records. In this case, the bold format is used to indicate the primary location in the main document text and the emphasized format is used to indicate the location in the main glossary.

The primary records are removed from the location field due to the save-primary-locations={remove} setting. This can lead to a ragged location list. The option save-primary-locations={default format} can allow the primary location to be absorbed.
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into a range.

The main glossary records are added through the category-independent post-name hook with \glsadd. This won’t be implemented until the entries are actually defined as the page number can’t be determined until the glossary can be displayed. This means that the document build requires an extra \bib2gls and \LaTeX run:

\pdflatex test
\bib2gls --group test
\pdflatex test
\bib2gls --group test
\pdflatex test

For consistency, I’ve used \glsxtrnewglslike to provide commands used to indicate a primary reference in the text. This means that if I decide to change the optional arguments used for primary references I only need to edit one line. For example, I might want to change the default counter:

\glsxtrnewglslike[format={hyperbf},counter={chapter}]{\primary}{\primarypl}{\Primary}{\Primarypl}

Here’s another example that only has one primary format (hyperrm) that’s indexed through the use of \GlsXtrAutoAddOnFormat, which sets up a hook that automatically inserts:

\glsadd[counter={chapter},format={hyperrm}]{⟨label⟩}

on each instance of \gls[format={primaryfmt}]{⟨label⟩} (or similar). This means that the entry is indexed twice when this particular format is used: first with the hyperrm format and chapter counter (from the \glsadd command in the hook), and then with the primaryfmt format and the default counter (as per normal behaviour):

\documentclass{report}
\usepackage[colorlinks]{hyperref}
\usepackage[
    record={nameref},
    postpunc={dot},
    nostyles,
    stylemods={tree,bookindex},
    style={bookindex}]{glossaries-extra}
\GlsXtrLoadResources[
    src={topics},
    primary-location-formats={hyperrm},
    save-primary-locations={remove},
    save-loclist={false}]

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\newcommand{\primaryfmt}[1]{\hyperbf{#1}}
\GlsXtrAutoAddOnFormat{primaryfmt}{counter={chapter},format={hyperrm}}
\glsxtrnewglslike[format={primaryfmt}]{}{\primary}{\primarypl}{\Primary}
\begin{document}
\chapter{Sample}
\Primary{waterfowl}, \gls{bird} and \gls{zebra}.
\chapter{Another Sample}
\Gls{waterfowl}, \primary{bird} and \gls{zebra}.
\chapter{Yet Another Sample}
\Gls{waterfowl}, \gls{bird} and primary{zebra}.
\chapter{Yet Another Sample Again}
\Gls{waterfowl}, \gls{bird}, \primarypl{parrot} and \gls{zebra}.
\printunsrtglossary*[style={tree},title={Summary}]{{%
\renewcommand*{\glsxtrpostnamehook}[1]{\glsadd[format={hyperemph}]{#1}}%
\renewcommand{\GlsXtrLocationField}{primarylocations}%
}}
\printunsrtglossary[title={Index},target={false}]
\end{document}

Note that in this case, from bib2glt’s point of view, the primary format is hyperrm not primaryfmt. This picks out the records created with the automated \glsadd, which have the counter set to chapter. The first glossary (with the title “Summary”) switches the location field to primarylocations so that only the primary records are listed. Since record={nameref} has been used this means that the chapter title is shown rather than the chapter number.

The second glossary (“Index”) shows the location lists that only have the page counter (because the automated \glsadd records with the chapter counter have been removed because they were identified as primary records). These just show the page number as that’s the default display with record={nameref} for records with the page counter.

An alternative to \GlsXtrAutoAddOnFormat would be to simply define the custom commands as follows:

\newcommand{\primary}[2][]{%
\glsadd[counter={chapter},format={hyperrm}]{#2}%
\gls[format=primaryfmt]{#1}{#2}%
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This is more useful if you want to simply omit the `format=`primaryfmt option (just remove it from the above four definitions), which makes it easier to merge the locations into ranges in the index.

**min-loc-range=⟨value⟩**

By default, three or more consecutive locations ⟨loc-1⟩, ⟨loc-2⟩, ..., ⟨loc-n⟩ are compressed into the range ⟨loc-1⟩\,\text{ delimR} ⟨loc-n⟩. Otherwise the locations are separated by \bibglsdelimN or \bibglslastDelimN. As mentioned above, these aren’t merged with explicit range formations.

You can change this with the `min-loc-range` setting where ⟨value⟩ is either none (don’t form ranges) or an integer greater than one indicating how many consecutive locations should be converted into a range.

\bib2gls determines if one location ⟨⟨prefix-2⟩⟩{⟨counter-2⟩}{⟨format-2⟩}{⟨location-2⟩} is one unit more than another location ⟨⟨prefix-1⟩⟩{⟨counter-1⟩}{⟨format-1⟩}{⟨location-1⟩} according to the following:

1. If ⟨⟨prefix-1⟩⟩ is not equal to ⟨⟨prefix-2⟩⟩ or ⟨⟨counter-1⟩⟩ is not equal to ⟨⟨counter-2⟩⟩ or ⟨⟨format-1⟩⟩ is not equal to ⟨⟨format-2⟩⟩, then the locations aren’t considered consecutive.

2. If either ⟨⟨location-1⟩⟩ or ⟨⟨location-2⟩⟩ are empty, then the locations aren’t considered consecutive.

3. If both ⟨⟨location-1⟩⟩ and ⟨⟨location-2⟩⟩ match the pattern (line break for clarity only)¹

   ⟨.*?(\?:\protect\s*)?([\[\{\p{javaAlphabetic}@]+)\s*{([\\{\p{javaDigit}\p{javaAlphabetic}]+)+}\}

¹The Java class \p{javaDigit} used in the regular expression will match any digits in the Unicode "Number, Decimal Digit" category not just the digits in the Basic Latin set. Similarly \p{javaAlphabetic} will also match alphabetic characters outside the Basic Latin set.
then:
- if the control sequence matched by group 2 isn’t the same for both locations, the locations aren’t considered consecutive;
- if the argument of the control sequence (group 3) is the same for both locations, then the test is retried with \( \langle \text{location-1} \rangle \) set to group 1 of the first pattern match and \( \langle \text{location-2} \rangle \) set to group 1 of the second pattern match;
- otherwise the test is retried with \( \langle \text{location-1} \rangle \) set to group 3 of the first pattern match and \( \langle \text{location-2} \rangle \) set to group 3 of the second pattern match.

4. If both \( \langle \text{location-1} \rangle \) and \( \langle \text{location-2} \rangle \) match the pattern

\[(.\*)([^\p{javaDigit}]?)\p{javaDigit}+\]

then:

a) if group 3 of both pattern matches are equal then:
   - if group 3 isn’t zero, the locations aren’t considered consecutive;
   - if the separators (group 2) are different the test is retried with \( \langle \text{location-1} \rangle \) set to the concatenation of the first two groups \( \langle \text{group-1} \rangle \langle \text{group-2} \rangle \) of the first pattern match and \( \langle \text{location-2} \rangle \) set to the concatenation of the first two groups \( \langle \text{group-1} \rangle \langle \text{group-2} \rangle \) of the second pattern match;
   - if the separators (group 2) are the same the test is retried with \( \langle \text{location-1} \rangle \) set to the first group \( \langle \text{group-1} \rangle \) of the first pattern match and \( \langle \text{location-2} \rangle \) set to the first group \( \langle \text{group-1} \rangle \) of the second pattern match.

b) If \( \langle \text{group-1} \rangle \) of the first pattern match (of \( \langle \text{location-1} \rangle \)) doesn’t equal \( \langle \text{group-1} \rangle \) of the second pattern match (of \( \langle \text{location-2} \rangle \)) or \( \langle \text{group-2} \rangle \) of the first pattern match (of \( \langle \text{location-1} \rangle \)) doesn’t equal \( \langle \text{group-2} \rangle \) of the second pattern match (of \( \langle \text{location-2} \rangle \)) then the locations aren’t considered consecutive;

c) If \( 0 < l_2 - l_1 \leq d \) where \( l_2 \) is \( \langle \text{group 3} \rangle \) of the second pattern match, \( l_1 \) is \( \langle \text{group 3} \rangle \) of the first pattern match and \( d \) is the value of \text{max-loc-diff} then the locations are consecutive otherwise they’re not consecutive.

5. The next pattern matches for \( \langle \text{prefix} \rangle \langle \text{sep} \rangle \langle n \rangle \) where \( \langle n \rangle \) is a lower case Roman numeral, which is converted to a decimal value and the test is performed in the same way as the above decimal test.

6. The next pattern matches for \( \langle \text{prefix} \rangle \langle \text{sep} \rangle \langle n \rangle \) where \( \langle n \rangle \) is an upper case Roman numeral, which is converted to a decimal value and the test is performed in the same way as the above decimal test.

7. The next pattern matches for \( \langle \text{prefix} \rangle \langle \text{sep} \rangle \langle c \rangle \) where \( \langle c \rangle \) is either a lower case letter from a to z or an upper case letter from A to Z. The character is converted to its code point and the test is performed in the same way as the decimal pattern above.
8. If none of the above, the locations aren’t considered consecutive.

Examples:

1. \texttt{\textbackslash glsxtr\@record{gls.sample}{\{\textbackslash page}\{glsnumberformat\}{1}} \texttt{\textbackslash glsxtr\@record{gls.sample}{\{\textbackslash page}\{glsnumberformat\}{2}}}
   These records are consecutive. The prefix, counter and format are identical (so the test passes step 1), the locations match the decimal pattern and the test in step 4c passes.

2. \texttt{\textbackslash glsxtr\@record{gls.sample}{\{\textbackslash page}\{glsnumberformat\}{1}} \texttt{\textbackslash glsxtr\@record{gls.sample}{\{\textbackslash page}\{textbf{2}}}}
   These records aren’t consecutive since the formats are different.

3. \texttt{\textbackslash glsxtr\@record{gls.sample}{\{\textbackslash page}\{glsnumberformat\}{A.i}} \texttt{\textbackslash glsxtr\@record{gls.sample}{\{\textbackslash page}\{glsnumberformat\}{A.ii}}}
   These records are consecutive. The prefix, counter and format are identical (so it passes step 1). The locations match the lower case Roman numeral pattern, where A is considered a prefix and the dot is consider a separator. The Roman numerals i and ii are converted to decimal and the test is retried with the locations set to 1 and 2, respectively. This now passes the decimal pattern test (step 4c).

4. \texttt{\textbackslash glsxtr\@record{gls.sample}{\{\textbackslash page}\{glsnumberformat\}{i.A}} \texttt{\textbackslash glsxtr\@record{gls.sample}{\{\textbackslash page}\{glsnumberformat\}{ii.A}}}
   These records aren’t consecutive. They match the alpha pattern. The first location is considered to consist of the prefix i, the separator . (dot) and the number given by the character code of A. The second location is considered to consist of the prefix ii, the separator . (dot) and the number given by the character code of A.
   The test fails because the numbers are equal and the prefixes are different.

5. \texttt{\textbackslash glsxtr\@record{gls.sample}{\{\textbackslash page}\{glsnumberformat\}{1.0}} \texttt{\textbackslash glsxtr\@record{gls.sample}{\{\textbackslash page}\{glsnumberformat\}{2.0}}}
   These records are consecutive. They match the decimal pattern, and then step 4a followed by step 4(a)iii. The .0 part is discarded and the test is retried with the first location set to 1 and the second location set to 2.

6. \texttt{\textbackslash glsxtr\@record{gls.sample}{\{\textbackslash page}\{glsnumberformat\}{1.1}} \texttt{\textbackslash glsxtr\@record{gls.sample}{\{\textbackslash page}\{glsnumberformat\}{2.1}}}
   These records aren’t consecutive as the test branches off into step 4(a)i.

7. \texttt{\textbackslash glsxtr\@record{gls.sample}{\{\textbackslash page}\{glsnumberformat\}{\textbackslash@alph{1}}}} \texttt{\textbackslash glsxtr\@record{gls.sample}{\{\textbackslash page}\{glsnumberformat\}{\textbackslash@alph{2}}}}
   These records are consecutive. The locations match the control sequence pattern. The control sequences are the same, so the test is retried with the first location set to 1 and the second location set to 2.
   In this example, the location has been written to the file as \textbackslash@alph\{\textbackslash{number}\} instead of fully expanding according to the normal behaviour of \textbackslash{counter}. (Note
that \glsxtrresourcefile changes the category code of \@ to allow for internal commands in locations.) This unusual case is for illustrative purposes.

\textbf{max-loc-diff=\langle value \rangle}

This setting is used to determine whether two locations are considered consecutive. The value must be an integer greater than or equal to 1. (The default is 1.)

For two locations, \langle location-1 \rangle and \langle location-2 \rangle, that have numeric values \( n_1 \) and \( n_2 \) (and identical prefix, counter and format), then the sequence \langle location-1 \rangle, \langle location-2 \rangle is considered consecutive if

\[
0 < n_2 - n_1 \leq \langle \text{max-loc-diff} \rangle
\]

The default value of 1 means that \langle location-2 \rangle immediately follows \langle location-1 \rangle if \( n_2 = n_1 + 1 \).

For example, if \langle location-1 \rangle is “B” and \langle location-2 \rangle is “C”, then \( n_1 = 66 \) and \( n_2 = 67 \). Since \( n_2 = 67 = 66 + 1 = n_1 + 1 \) then \langle location-2 \rangle immediately follows \langle location-1 \rangle.

This is used in the range formations within the location lists (as described in the above section). So, for example, the list “1, 2, 3, 5, 7, 8, 10, 11, 12, 58, 59, 61” becomes “1–3, 5, 7, 8, 10–12, 58, 59, 61”.

The automatically indexing of commands like \gls means that the location lists can become long and ragged. You could deal with this by switching off the automatic indexing and only explicitly index pertinent use or you can adjust the value of max-loc-diff so that a range can be formed even if there are one or two gaps in it. By default, any location ranges that have skipped gaps in this manner will be followed by \texttt{\bibglspassim}. The default definition of this command is obtained from the resource file. For English, this is \texttt{passim} (space followed by “passim”).

So with the above set of locations, if max-loc-diff=\{2\} then the list becomes “1–12 passim, 58–61 passim” which now highlights that there are two blocks within the document related to that term.

\textbf{suffixF=\langle value \rangle}

If set, a range consisting of two consecutive locations \langle loc-1 \rangle and \langle loc-2 \rangle will be displayed in the location list as \langle loc-1 \rangle\langle value \rangle.

Note that suffixF=\{\} sets the suffix to the empty string. To remove the suffix formation use suffixF=\{none\}.

The default is suffixF=\{none\}.

\textbf{suffixFF=\langle value \rangle}

If set, a range consisting of three or more consecutive locations \langle loc-1 \rangle and \langle loc-2 \rangle will be displayed in the location list as \langle loc-1 \rangle\langle value \rangle.

Note that suffixFF=\{\} sets the suffix to the empty string. To remove the suffix formation use suffixFF=\{none\}.

The default is suffixFF=\{none\}. 
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compact-ranges=⟨value⟩

The ⟨value⟩ may be an integer ⟨n⟩ or false (equivalent to compact-ranges={0}) or true (equivalent to compact-ranges={3}). If no ⟨value⟩ is specified, true is assumed.

This setting allows location ranges such as 184–189 to appear more compactly as 184–9. The end location is encapsulated in the command \bibglscompact, so the range would actually become:

184\delimR\bibglscompact{digit}{18}{9}

If the location is in the form ⟨cs⟩{⟨loc⟩} (where ⟨cs⟩ is a command) then \bibglscompact will be inside the argument. For example, if the range would normally be:

\custom{184}\delimR\custom{189}

then it would become:

\custom{184}\delimR\custom{\bibglscompact{digit}{18}{9}}

The numerical value given in compact-ranges={⟨n⟩} indicates that compaction should only occur if the actual location consists of at least ⟨n⟩ characters, for ⟨n⟩ ≥ 2. Any value of ⟨n⟩ less than 2 will switch off compaction.

For example, 189 consists of 3 characters, so it will be compacted with compact-ranges={3} but not with compact-ranges={4}. Whereas \custom{89} would only be compacted with compact-ranges={2} because 89 only consists of 2 characters.

The compaction isn’t limited to decimal digits but it will only occur if both the start and end location have the same number of characters. For example, xvi–xviii can’t be compacted because the start consists of three characters and the end consists of five characters, whereas xxv–xxx can be compacted to xxv–x, which may look a little strange. In this case, you may want to consider changing the definition of \bibglscompact so that it only performs the compaction for digits.

see=⟨value⟩

If an entry has a see field, this can be placed before or after the location list, or completely omitted (but the value will still be available in the see field for use with \glsxtrusesee). The required ⟨value⟩ must be one of:

- omit: omit the see reference from the location list.
- before: place the see reference before the location list.
- after: place the see reference after the location list (default).

The separator between the location list and the cross-reference is provided by \bibglsseesep. This separator is omitted if the location list is empty. The cross-reference is written to the location field using \bibglsusesee{⟨label⟩}. 

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5.7 Location List Options

seealso=⟨value⟩

This is like see but governs the location of the cross-references provided by the seealso field. You need at least v1.16 of glossaries-extra for this option. The values are the same as for see but the separator is given by \bibglsseealsosep. The cross-reference is written to the location field using \bibglsuseseealso{⟨label⟩}.

alias=⟨value⟩

This is like alias but governs the location of the cross-references provided by the alias field. The separator is given by \bibglsaliassep. The cross-reference is written to the location field using \bibglsusealias{⟨label⟩}.

alias-loc=⟨value⟩

If an entry has an alias field, the location list may be retained or omitted or transferred to the target entry. The required ⟨value⟩ must be one of:

- keep: keep the location list;
- transfer: transfer the location list;
- omit: omit the location list.

The default setting is alias-loc={transfer}. In all cases, the target entry will be added to the see field of the entry with the alias field, unless it already has a see field (in which case the see value is left unchanged).

Note that with alias-loc={transfer}, both the aliased entry and the target entry must be in the same resource set. (That is, both entries have been selected by the same instance of \glsxtrresourcefile.) If you have glossaries-extra version 1.12, you may need to redefine \glsxtrsetaliasnoindex to do nothing if the location lists aren’t showing correctly with aliased entries. (This was corrected in version 1.13.)

loc-prefix=⟨value⟩

The loc-prefix setting indicates that the location lists should begin with \bibglslocprefix{⟨n⟩}. The ⟨value⟩ may be one of the following:

- false: don’t insert \bibglslocprefix{⟨n⟩} at the start of the location lists (default).
- {⟨prefix-1⟩}, {⟨prefix-2⟩}, ..., {⟨prefix-n⟩}: insert \bibglslocprefix{⟨n⟩} (where ⟨n⟩ is the number of locations in the list) at the start of each location list and the definition of \bibglslocprefix will be appended to the glossary preamble providing an \ifcase condition:
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\providecommand{\bibglslocprefix}{\%\
   \ifcase#1
   \or \langle prefix-1\rangle\bibglspostlocprefix
   \or \langle prefix-2\rangle\bibglspostlocprefix
   ...
   \else \langle prefix-n\rangle\bibglspostlocprefix
\fi}

- **comma**: equivalent to \texttt{loc-prefix={{, \space}}}, but avoids confusion with the list syntax. That is, the prefix is a comma followed by a space for non-empty locations.

- **list**: equivalent to \texttt{loc-prefix={\pagelistname}},

- **true**: equivalent to \texttt{loc-prefix={\bibglspagename,\bibglspagesname}}, where the definitions of \texttt{\bibglspagename} and \texttt{\bibglspagesname} are obtained from the \texttt{\tag{page}} and \texttt{\tag{pages}} entries in \texttt{bib2gls}'s language resource file. This setting works best if the document’s language matches the language file. However, you can redefine these commands within the document’s language hooks or in the glossary preamble.

If \texttt{\langle value\rangle} is omitted, \texttt{true} is assumed. Take care not to mix different values of \texttt{loc-prefix} for entries for the same \texttt{type} setting. It’s okay to mix \texttt{loc-prefix={false}} with another value, but don’t mix non-\texttt{false} values. See the description of \texttt{\bibglslocprefix} for further details.

For example:

\GlsXtrLoadResources[type={main},src={entries1},loc-prefix={false}]
\GlsXtrLoadResources[type={main},src={entries2},loc-prefix={true}]
\GlsXtrLoadResources[type={symbols},src={entries3},loc-prefix={p.,pp.}]

This works since the conflicting \texttt{loc-prefix={p.,pp.}} and \texttt{loc-prefix={true}} are in different glossaries (assigned through the \texttt{type} key). The entries fetched from \texttt{entries1.bib} won’t have a location prefix. The entries fetched from \texttt{entries2.bib} will have the location prefix obtained from the language resource file. The entries fetched from \texttt{entries3.bib} will have the location prefix “p.” or “pp.” (Note that using the \texttt{type} option isn’t the same as setting the \texttt{type} field for each entry in the \texttt{.bib} file.)

If the \texttt{type} option isn’t used:

\GlsXtrLoadResources[src={entries1},loc-prefix={false}]
\GlsXtrLoadResources[src={entries2},loc-prefix={true}]
\GlsXtrLoadResources[src={entries3},loc-prefix={p.,pp.}]

then \texttt{loc-prefix={true}} takes precedence over \texttt{loc-prefix={p.,pp.}} (since it was used first). The entries fetched from \texttt{entries1.bib} still won’t have a location prefix, but the entries fetched from both \texttt{entries2.bib} and \texttt{entries3.bib} have the location prefixes obtained from the language resource file.
5.7 Location List Options

**loc-suffix=⟨value⟩**

This is similar to **loc-prefix** but there are some subtle differences. In this case ⟨value⟩ may either be the keyword false (in which case the location suffix is omitted) or a comma-separated list ⟨suffix-0⟩, ⟨suffix-1⟩, ..., ⟨suffix-n⟩ where ⟨suffix-0⟩ is the suffix to use when the location list only has a cross-reference with no locations, ⟨suffix-1⟩ is the suffix to use when the location list has one location (optionally with a cross-reference), and so on. The final ⟨suffix-n⟩ in the list is the suffix when the location list has ⟨n⟩ or more locations (optionally with a cross-reference).

This option will append \verb+\bibglslocsuffix{(n)}+ to location lists that either have a cross-reference or have at least one location. Unlike \verb+\bibglslocprefix+, this command isn’t used when the location list is completely empty. Also, unlike \verb+\bibglslocprefix+, this suffix command doesn’t have an equivalent to \verb+\bibglspostlocprefix+.

If ⟨value⟩ omitted, loc-suffix={\@.} is assumed. The default is loc-suffix={false}. As with loc-prefix, take care not to mix different values of loc-suffix for entries in the same glossary type.

**loc-counters=⟨list⟩**

Commands like \verb+\gls+ allow you to select a different counter to use for the location for that specific instance (overriding the default counter for the entry’s glossary type). This is done with the counter option. For example, consider the following document:

\begin{verbatim}
\documentclass{article}
\usepackage[colorlinks]{hyperref}
\usepackage[record,style={tree}]{glossaries-extra}
\GlsXtrLoadResources[  src={entries}% data in entries.bib  ]
\begin{document}
\gls{pi}.
\gls[pcounter={equation}]{pi}
\begin{equation}
\gls[pcounter={equation}]{pi}
\end{equation}
\newpage
\begin{equation}
\gls[pcounter={equation}]{pi}
\end{equation}
\end{document}
\end{verbatim}
This results in the location list “1, 1–3, 3–5”. This looks a little odd and it may seem as though the range formation hasn’t worked, but the locations are actually: page 1, equation 1, equation 2, equation 3, page 3, page 4 and page 5. Ranges can’t be formed across different counters.

The `loc-counters=⟨list⟩` option instructs `bib2gls` to group the locations according to the counters given in the comma-separated `⟨list⟩`. If a location has a counter that’s not listed in `⟨list⟩`, then the location is discarded.

For example:

\begin{verbatim}
\GlsXtrLoadResources[
  loc-counters={equation,page},% group locations by counter
  src={entries}% data in entries.bib
]
\end{verbatim}

This will first list the locations for the equation counter and then the locations for the page counter. Each group of locations is encapsulated within the command `\bibglsgrouplocation{⟨n⟩}{⟨counter⟩}{⟨locations⟩}`. The groups are separated by `\bibglsgrouplocationsep`.

The `⟨list⟩` value must be non-empty. Use `loc-counters={as-use}` to restore the default behaviour, where the locations are listed in the document order of use, or `save-locations={false}` to omit the location lists. Note that you can’t form counter groups from supplemental location lists.

\textbf{save-index-counter=⟨value⟩}

\textit{This option requires at least version 1.29 of glossaries-extra.} The `⟨value⟩` may be one of:

- **false**: don’t create the \texttt{indexcounter} field (default);
- **true**: create the \texttt{indexcounter} field with the value set to the first \texttt{wrglossary} location;
5.7 Location List Options

- \langle encap \rangle: create the \texttt{indexcounter} field with the value set to the first \texttt{wrglossary} location where the \texttt{format} is \langle encap \rangle.

This setting will have no effect if the \texttt{indexcounter} package option hasn’t been used. In the case where the \langle value \rangle is \langle encap \rangle, make sure that this format takes priority in the location precedence rules (--map-format). If the location with that \langle encap \rangle format value is discarded then it can’t be saved.

The \texttt{indexcounter} package option (glossaries-extra v1.29+) creates a new counter called \texttt{wrglossary} that’s incremented every time a term is indexed (recorded), except for cross-references such as \texttt{\glssee}. The increment is performed using \texttt{\refstepcounter} and is followed by \texttt{\label\{wrglossary.⟨n⟩\}} where \langle n \rangle is the value of the \texttt{wrglossary} counter. This option is intended for use with the hyperref package to allow locations to link back to the particular part of the page where the term was referenced rather than to the top of the page.

The \texttt{indexcounter} package option also automatically implements the option \texttt{counter=\{wrglossary\}}, which means that each instance of \texttt{\gls\{⟨id⟩\}} writes the label information to the .aux file:

\begin{verbatim}
\newlabel\{wrglossary.⟨n⟩\}{{⟨n⟩}}{{\langle page⟩}}{{wrglossary.⟨n⟩}}{{}}
\end{verbatim}

(where \langle page \rangle is the page number) followed by the record:

\begin{verbatim}
\glsxtr@record\{⟨id⟩\}{{wrglossary}{\texttt{\glshypernumber}}\{⟨n⟩\}}
\end{verbatim}

The location here is actually the value of the \texttt{wrglossary} counter not the page number, but \texttt{bib2gls} can pick up the corresponding \langle page \rangle from the \texttt{\newlabel} command. It then replaces the record’s location \langle n \rangle with:

\begin{verbatim}
\glsxtr@wrglossarylocation\{⟨n⟩\}{{⟨page⟩}}
\end{verbatim}

(but it only does this for records that have the \texttt{wrglossary} counter).

The glossaries-extra package (v1.29+) adjusts the definition of \texttt{\glshypernumber} (which is internally used by \texttt{\glshypernumber}, \texttt{\hyperbf} etc when hyperref has been loaded) so that if the counter is \texttt{wrglossary} then \texttt{\pageref} is used instead of \texttt{\hyperlink}. This means that the page number is displayed in the location list but it links back to the place where the corresponding \texttt{\label} occurred.

This method works partially with makeindex and xindy but from their point of view the location is the value of the \texttt{wrglossary} counter, which interferes with their ability to merge duplicate page numbers and form ranges. Since \texttt{bib2gls} is designed specifically to work with glossaries-extra, it’s aware of this special counter and will merge and collate the locations according to the corresponding page number instead.

With the default --merge-wrglossary-records switch, if a term has multiple \texttt{wrglossary} records for a given page they will be merged. The reference link will be the dominant record for that page.

The \texttt{save-index-counter} option allows you to save the first of the \texttt{wrglossary} locations for a given entry or the first instance of a specific format of the \texttt{wrglossary} locations for a given entry. This location is stored in the \texttt{indexcounter} internal field using:
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\GlsXtrSetField{\langle id\rangle}{\indexcounter}{\glsxtr@wrglossarylocation{\langle n\rangle}}{(\langle page\rangle)}

Since \glsxtr@wrglossarylocation simply expands to its first argument, the corresponding label can be obtained with:

\wrglossary.\glsxtr@wrglossarylocation{\langle n\rangle}{\langle page\rangle}

For convenience, glossaries-extra-bib2gls provides:

\GlsXtrIndexCounterLink{\langle text\rangle}{\langle label\rangle}

which will do:

\hyperref[\wrglossary.\langle value\rangle]{\langle text\rangle}

where \langle value\rangle is the value of the \texttt{indexcounter} field if it has been set. If the \texttt{indexcounter} field hasn’t been set (or if \hyperref hasn’t been loaded) then just \langle text\rangle is done.

This provides a convenient way of encapsulating the name in the glossary so that it links back to the first \wrglossary entry or the first \texttt{format=\langle encap\rangle} \wrglossary entry. This encapsulation can be done by providing a new glossary style or more simply by redefining \texttt{glsnamefont}:

\renewcommand{\glsnamefont}[1]{{%}
\GlsXtrIndexCounterLink{#1}{\glscurrententrylabel}}

Here’s a complete example:

\documentclass{article}
\usepackage{lipsum}% dummy filler text
\usepackage[colorlinks]{hyperref}
\usepackage[record,indexcounter]{glossaries-extra}
\newcommand{\primary}[1]{{\hyperbf{#1}}}
\GlsXtrLoadResources[
src={entries},% terms defined in entries.bib
save-index-counter={primary}]
\renewcommand{\glsnamefont}[1]{{%}
\GlsXtrIndexCounterLink{#1}{\glscurrententrylabel}}
\begin{document}
A \gls{sample}. \lipsum*[1] A \gls{duck}.

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An equation:
\begin{equation}
gls[counter={equation}]{pi}
\end{equation}
\lipsum[2]

Another \gls[format={primary}]{sample}. \lipsum*[3] Another \gls{duck}.
\gls{pi}. \lipsum[4]

A \gls{sample}. \lipsum[5] A \gls{duck} and \gls[format={primary}]{pi}.
\lipsum*[6] A \gls[format={primary}]{duck}.
\printunsrtglossaries
\end{document}

Note that the counter={equation} entry will have its own independent location. In this example, it’s difficult to tell the difference between 1 (the equation reference) and 1 (the page reference) in the location list for the pi entry.

The format={primary} instances indicate primary references. They’re displayed in bold (since \primary is defined to use \hyperbf) and these are the locations saved in the index-counter field because that’s the \encap identified by the save-index-counter={primary} setting.

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These options require at least version 1.14 of glossaries-extra. If you require locations from multiple external sources, then you need at least version 1.36 of glossaries-extra (or, more specifically, glossaries-extra-bib2gls, which is automatically loaded by the record={only} package option).

The glossaries-extra package (from v1.14) provides a way of manually adding locations in supplemental documents through the use of the thevalue option in the optional argument of \glsadd. Setting values manually is inconvenient and can result in errors, so bib2gls provides a way of doing this automatically. Both the main document and the supplementary document need to use the record option. The entries provided in the src set must have the same labels as those used in the supplementary document. (The simplest way to achieve this is to ensure that both documents use the same .bib files and the same prefixes.)

For example, suppose the file entries.bib contains:
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@example{sample,
    name={sample},
    description="an example entry"
}

@abbreviation{html,
    short="html",
    long={hypertext markup language}
}

@abbreviation{ssi,
    short="ssi",
    long="server-side includes"
}

@index{goose,plural="geese"}

Now suppose the supplementary document is contained in the file suppl.tex:

\documentclass{article}
\usepackage[colorlinks]{hyperref}
\usepackage[record,counter={section}]{glossaries-extra}
\GlsXtrLoadResources[src={entries}]
\renewcommand{\thesection}{S\arabic{section}}
\renewcommand{\theHsection}{\thepart.\thesection}
\begin{document}
\part{Sample Part}
\section{Sample Section}
\gls{goose}. \gls{sample}.
\section{Another Section}
\gls{html}.
\gls{ssi}.
\printunsrtglossaries
\end{document}

This uses the section counter for the locations and has a prefix (\thepart.) for the section hyperlinks.

Now let's suppose I have another document called main.tex that uses the sample entry, but also needs to include the location (S1) from the supplementary document. The manual
5.8 Supplemental Locations

approached offered by glossaries-extra is quite cumbersome and requires setting the external-location attribute and using \glsadd with the value={S1}, the \Hvalue={I.S1} and format = {glextrsupphypernumber}.

This can be simplified with bib2gls by using the supplemental-locations option, described below.

Version 1.36 of glossaries-extra-bib2gls introduces some special location formatting commands that don’t use the external-location attribute, but instead have an extra argument that indicates the external reference. The additional argument means that it can’t be used by the format key, but with bib2gls you don’t use \glsadd to record the external locations. Instead it obtains the records from the corresponding supplementary .aux file, and adjusts the location encapsulator as appropriate.

If bib2gls detects an older version of glossaries-extra, it will only allow one external supplemental source, and will set the external-location attribute and use the glsxtrsupphypernumber format. Otherwise bib2gls will allow multiple sources and use the newer method.

supplemental-locations={\textit{basename}}

The value should be the base name (without the extension) of the supplementary document (suppl in the above example). If you have at least version 1.36 of glossaries-extra, the value may be a comma-separated list of base names (without the extensions) of the supplementary documents. If an older version is detected, bib2gls will issue a warning and only accept the first element of the list.

For example:
\documentclass{article}
\usepackage[colorlinks]{hyperref}
\usepackage[record]{glossaries-extra}
\GlsXtrLoadResources[
  supplemental-locations={suppl},% fetch records from suppl.aux
  src={entries}]
\begin{document}
\Gls{sample} document.
\printunsrtglossaries
\end{document}

The location list for sample will now be “1, S1” (page 1 from the main document and S1 from the supplementary document).

With glossaries-extra v1.36+, a regular location from the supplementary document will be encapsulated with:
\glsxtrdisplaysupploc{\textit{prefix}}{\textit{counter}}{\textit{format}}{\textit{src}}{\textit{location}}
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By default, this simply creates an external hyperlink to the supplementary document with the location as the hyperlink text. The hyperlink is created using \texttt{⟨src⟩} as the target path with the fragment part (anchor) formed from the prefix and location. The 	exttt{externallocation} attribute is not set in this case. The actual formatting is done via:

\glsxtrmultisupplocation{⟨location⟩}{⟨src⟩}{⟨format⟩}

which ignores the \texttt{⟨format⟩} argument by default. Its definition is simply:

\begin{verbatim}
\newcommand*{\glsxtrmultisupplocation}[3]{% 
  \% scope required to localise changes 
  \def\glsxtrsupplocationurl{#2}%  
  \glshypernumber{#1}%  
}{}
\end{verbatim}

This locally sets the command \texttt{\glsxtrsupplocationurl}, which is checked by \texttt{\glshypernumber} to establish an external rather than internal link. You can redefine the supplemental location command to retain the original ENCAP used in the target document:

\begin{verbatim}
\renewcommand*{\glsxtrmultisupplocation}[3]{% 
  \% scope required to localise changes 
  \def\glsxtrsupplocationurl{#2}%  
  \csuse{#3}{#1}%  
}{}
\end{verbatim}

but remember that if a hyperlink is required, the identified control sequence name must correspond to a command that uses \texttt{\glshyperlink} (such as \texttt{\hyperbf}), otherwise you will lose the hyperlink.

With older versions of glossaries-extra, the original location format from the supplementary document will be replaced by \texttt{\glsxtrsupphypernumber}, which again produces an external hyperlink. The \texttt{externallocation} attribute also needs to be set (this can be done automatically with \texttt{supplemental-category}) to identify the external document. The original format can’t be accessed.

In both cases, if the document hasn’t loaded the \texttt{hyperref} package, the location will simply be displayed without a hyperlink. Even if both the main and the supplementary documents have loaded hyperref, note that not all PDF viewers can handle external hyperlinks, and some that can open the external PDF file may not recognise the destination within that file.

The special \texttt{nameref} locations (see \texttt{--merge-nameref-on}) are still identified with \texttt{\glsxtrdisplaylocnameref} but the \texttt{⟨file⟩} argument will now be set.

As from \texttt{bib2gls} v1.7, any awkward characters in the file path are replaced with \texttt{\bibglshrefchar} or (for non-ASCII characters when fontspec is loaded) \texttt{\bibglshrefunicode}. Both commands take two arguments: the hexadecimal character code and the actual character. In the case of \texttt{\bibglshrefchar}, the second argument is ignored, and the first is preceded by a literal percent character, so \texttt{file name.pdf} will be converted to:
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file\bibglshrefchar{20}{ }name.pdf

which will expand to file%20name.pdf. In the case of \bibglshrefunicode, the first argument is ignored, so skráarnafn.pdf will be converted to:

skr\bibglshrefunicode{E1}{á}arnafn.pdf

which will expand to skráarnafn.pdf.

The supplementary locations lists are encapsulated within \bibglssupplemental. With glossaries-extra v1.36+, this command will encapsulate the sub-lists with \bibglssupplementalsublist.

So the above example with an old version of glossaries-extra (pre 1.36) will set the supplemental location list (which only consists of one location) to:

\bibglssupplemental
{1}{\setentrycounter[1]{section}\glsxtrsupphypernumber{S1}}

and the external target must be supplied through the externallocation attribute, which can be set with the supplemental-category option.

Whereas with at least version 1.36, the list will be:

\bibglssupplemental{1}{\bibglssupplementalsublist{1}{suppl.pdf}\{\glsxtrdisplaysupploc{1}{section}{glsnumberformat}{suppl.pdf}{S1}\}}

If an entry has both a main location list and a supplementary location list (such as the sample entry above), the lists will be separated by \bibglssupplementalsep. The sub-lists (when supported) are separated by \bibglssupplementalsubsep.

supplemental-selection=⟨value⟩

In the above example, only the sample entry is listed in the main document, even though the supplementary document also references the goose, html and ssi entries. By default, only those entries that are referenced in the main document will have supplementary locations added (if found in the supplementary document’s .aux file). You can additionally include other entries that are referenced in the supplementary document but not in the main document using supplemental-selection. The ⟨value⟩ may be one of the following:

- all: add all the entries in the supplementary document that have been defined in the .bib files listed in src for this resource set in the main document.

- selected: only add supplemental locations for entries that have already been selected by this resource set.

- ⟨label-1⟩,...,⟨label-2⟩: in addition to all those entries that have already been selected by this resource set, also add the entries identified in the comma-separated list. If a label in this list doesn’t have a record in the supplementary document’s .aux file, it will be ignored.

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Any records in the supplementary .aux file that aren’t defined by the current resource set (through the .bib files listed in src) will be ignored. Entry aliases aren’t taken into account when including supplementary locations.

For example:

\documentclass{article}
\usepackage[colorlinks]{hyperref}
\usepackage[record]{glossaries-extra}
\GlsXtrLoadResources[
  supplemental-locations={suppl},
  supplemental-selection={html,ssi},
  src={entries}]
\begin{document}
\Gls{sample} document.
\printunsrtglossaries
\end{document}

This will additionally add the html and ssi entries even though they haven’t been used in this document. The goose entry used in the supplementary document won’t be included.

**supplemental-category=⟨value⟩**

The category field for entries containing supplemental location lists may be set using this option. If unset, ⟨value⟩ defaults to the same as that given by the category option. The ⟨value⟩ may either be a known identifier (as per category) or the category label. For example:

\documentclass{article}
\usepackage[colorlinks]{hyperref}
\usepackage[record]{glossaries-extra}
\GlsXtrLoadResources[
  supplemental-locations={suppl},
  supplemental-selection={html,ssi},
  supplemental-category={supplemental},
  src={entries}]
\begin{document}
\Gls{sample} document.
5.9 Sorting

Entries are typically displayed in an ordered list, but the glossaries-extra package is versatile enough to be used in wider contexts than simple terms, symbols or abbreviations. For example, entries could contain theorems or problems where the name supplies the title and the description provides a description of the theorem or problem. Another field might then contain the proof or solution. Therefore, somewhat unusually for an indexing application, bib2gls also provides the option to shuffle the entries instead of sorting them.

This section covers the resource options for sorting primary entries. See section 5.11 for sorting dual entries and also \texttt{sort-label-list} for sorting field values that contain a comma-separated list of entry labels (such as the \texttt{see} or \texttt{seealso} fields).

The sort methods that use a comparison function (that is, all the sort methods except those listed in table 5.1) require a sort value for each entry. The function compares these values to determine the order. By default, this sort value is obtained from the sort field but for greater flexibility it’s best to not actually set this field. bib2gls has a set of fallbacks that it uses if a field it needs to access is missing. These fallbacks depend on the entry type and resource settings.

For example, if a term defined with \texttt{@index} doesn’t have the sort field set then bib2gls will use the value given by the name field because name is the fallback field for sort for \texttt{@index} entries. If the name field isn’t set either then bib2gls will use the fallback for that field. In the case of \texttt{@index} that’s the entry’s label. If the sort field is explicitly set then there’s no need to use the fallback.

If, on the other hand, a term defined with \texttt{@symbol} doesn’t have the sort field set then bib2gls will use the value from the field identified by symbol-sort-fallback, which is the entry’s label by default (not the name field).

This means that if I don’t explicitly set the sort field for any entries then I can, for example, sort terms defined with \texttt{@index} by name and those defined with \texttt{@symbol} by description with the setting:

\begin{verbatim}
symbol-sort-fallback={description}
\end{verbatim}

If the field used to obtain the sort value is changed (with sort-field) then the sort field won’t be queried. This reduces the flexibility of selecting the most appropriate field for given entry types. For example, \begin{verbatim}sort-field={name}\end{verbatim} will force all entries to be sorted by the name field, which may not be appropriate for symbols.

If you choose a field whose value must be a label (such as parent or group) then the sort value will be that label.

You can have \texttt{@preamble} definitions that can be hidden from bib2gls’s interpreter. For example, no-interpret-preamble.bib might contain:
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@preamble{"\providecommand{\sortop}[2]{#1 #2}"

which is loaded using:

\GlsXtrLoadResources[src={no-interpret-preamble},
interpret-preamble={false}]

This provides a custom command:

\sortop{(text1)}{(text2)}

for internal use in the document. (Remember it won’t be defined on the first \LaTeX run before
the .glistex file has been created and so is only used within entry fields.)

Another file, say, interpret-preamble.bib may provide a definition for \bib2gls:

@preamble{"\providecommand{\sortop}[2]{#2, #1}"

which can be processed with:

\GlsXtrLoadResources[src={interpret-preamble}]

to provide \bib2gls with this definition. The entries.bib file could contain:

@entry{caesar,
  name=\sortop{Gaius Julius}{Caesar},
  first={Julius Caesar},
  text={Caesar},
  description={Roman politician and general}
}

and then be processed with:

\GlsXtrLoadResources[src={entries}]

The definition provided in interpret-preamble.bib, which swaps the two arguments
around, is now picked up by \bib2gls, so the sort value becomes Caesar, Gaius Julius,
but this new definition doesn’t affect the document since \LaTeX has already defined \sortop
from the first resource set, so the name will appear as ”Gaius Julius Caesar” in the glossary. (If
you have \renewcommand rather than \providecommand, you can prevent the redefinition
occurring in the document with write-preamble={false}.)

Alternatively both of these .bib files can be loaded in one resource set:

\GlsXtrLoadResources[src={interpret-preamble,entries}]

Another possibility is to provide a custom package that contains the command definitions
for the \bib2gls interpreter and load it with --custom-packages instead of having the
interpret-preamble.bib file.
5.9 Sorting

\texttt{sort=⟨value⟩}

The \texttt{sort} key indicates how primary entries should be sorted. If the \texttt{⟨value⟩} is omitted, \texttt{sort=⟨doc⟩} is assumed. If the \texttt{sort} option isn’t used then \texttt{sort=⟨doc⟩} is assumed if the document has a language that’s been detected by \texttt{tracklang}, otherwise \texttt{sort=⟨locale⟩} is assumed.

The \texttt{⟨method⟩-reverse} options reverse the result returned by the corresponding \texttt{⟨method⟩} comparator. However \texttt{⟨method⟩-reverse} may not produce a list that’s the exact reverse of the underlying non-reversed \texttt{⟨method⟩} as the hierarchical structure or associated settings can affect the order.

\textbf{No Sort Field}

Most of the sort methods listed in table 5.1 don’t actually perform any sorting. This may cause a problem for hierarchical entries. In some cases this can lead to detached child entries or an attempt to define a child entry before its parent. The methods listed in this section all ignore the \texttt{sort-field} setting and all the various sort fallback settings, except where noted below.

- \texttt{none} (or \texttt{unsrt}): don’t sort the entries. (The entries will be in the order they were processed when parsing the data.)

- \texttt{random}: shuffles rather than sorts the entries. This won’t work if there are hierarchical entries, so it’s best to use this option with \texttt{flatten}. The seed for the random generator can be set using \texttt{shuffle} (which also automatically sets \texttt{sort=⟨random⟩} and \texttt{flatten}).

- \texttt{use}: order of use. This order is determined by the records written to the \texttt{.aux} file by the \texttt{record} package option. Dependencies and cross-references (including those identified with \texttt{\glssee}) come after entries with records.

  Note that this is different from using the analogous option with \texttt{makeindex} or \texttt{xindy}, which does actually sort numerically, where each entry has an associated number set on the first use of that term that’s used as the sort value.

- \texttt{use-reverse}: reverses the order that would be obtained with \texttt{sort=⟨use⟩} without reference to hierarchy.

- \texttt{recordcount}: order of record count (starting from 0). This order is determined by the total number of records written to the \texttt{.aux} file for each entry. Unlike the above methods, this performs a hierarchical sort. If letter groups are enabled with \texttt{--group}, this method will assign the entries to the number group.

  This option requires the \texttt{--record-count} switch. Although that switch makes \texttt{bib2gls} write the total record count to the \texttt{.glstex} file in the \texttt{recordcount} internal field (so that it can be accessed in the document), \texttt{bib2gls} doesn’t actually have a field itself that contains the information. So although this option behaves much like \texttt{sort=⟨integer⟩} it’s not possible to select a field containing the required value. In the event
5.9 Sorting

Table 5.1: Summary of Available Sort Options: No Sort Field

<table>
<thead>
<tr>
<th>Sort Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>none or unsrt</td>
<td>don’t sort</td>
</tr>
<tr>
<td>random</td>
<td>shuffle entries</td>
</tr>
<tr>
<td>use</td>
<td>order of use</td>
</tr>
<tr>
<td>use-reverse</td>
<td>reverse order of use</td>
</tr>
<tr>
<td>recordcount†</td>
<td>order of record count</td>
</tr>
<tr>
<td>recordcount-reverse†</td>
<td>reverse order of record count</td>
</tr>
</tbody>
</table>

†Requires --record-count switch.

Table 5.2: Summary of Available Sort Options: Alphabet

<table>
<thead>
<tr>
<th>Sort Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>⟨lang tag⟩</td>
<td>sort according to this language tag</td>
</tr>
<tr>
<td>⟨lang tag⟩-reverse</td>
<td>reverse sort according to this language tag</td>
</tr>
<tr>
<td>doc</td>
<td>sort according to the document language</td>
</tr>
<tr>
<td>doc-reverse</td>
<td>reverse sort according to the document language</td>
</tr>
<tr>
<td>locale</td>
<td>sort according to the default locale</td>
</tr>
<tr>
<td>locale-reverse</td>
<td>reverse sort according to the default locale</td>
</tr>
<tr>
<td>custom</td>
<td>sort according to sort-rule={⟨custom rule⟩}</td>
</tr>
<tr>
<td>custom-reverse</td>
<td>reverse sort according to sort-rule={⟨custom rule⟩}</td>
</tr>
</tbody>
</table>

Table 5.3: Summary of Available Sort Options: Letter (Non-Locale)

<table>
<thead>
<tr>
<th>Sort Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>letter-case</td>
<td>case-sensitive letter sort</td>
</tr>
<tr>
<td>letter-case-reverse</td>
<td>reverse case-sensitive letter sort</td>
</tr>
<tr>
<td>letter-nocase</td>
<td>case-insensitive letter sort</td>
</tr>
<tr>
<td>letter-nocase-reverse</td>
<td>reverse case-insensitive letter sort</td>
</tr>
<tr>
<td>letter-upperlower</td>
<td>upper-lower letter sort</td>
</tr>
<tr>
<td>letter-upperlower-reverse</td>
<td>reverse upper-lower letter sort</td>
</tr>
<tr>
<td>letter-lowerupper</td>
<td>lower-upper letter sort</td>
</tr>
<tr>
<td>letter-lowerupper-reverse</td>
<td>reverse lower-upper letter sort</td>
</tr>
</tbody>
</table>

Table 5.4: Summary of Available Sort Options: Letter-Number

<table>
<thead>
<tr>
<th>Sort Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>letternumber-case</td>
<td>case-sensitive letter-number sort</td>
</tr>
<tr>
<td>letternumber-case-reverse</td>
<td>reverse case-sensitive letter-number sort</td>
</tr>
<tr>
<td>letternumber-nocase</td>
<td>case-insensitive letter-number sort</td>
</tr>
<tr>
<td>letternumber-nocase-reverse</td>
<td>reverse case-insensitive letter-number sort</td>
</tr>
<tr>
<td>letternumber-upperlower</td>
<td>upper-lower letter-number sort</td>
</tr>
<tr>
<td>letternumber-upperlower-reverse</td>
<td>reverse upper-lower letter-number sort</td>
</tr>
<tr>
<td>letternumber-lowerupper</td>
<td>lower-upper letter-number sort</td>
</tr>
<tr>
<td>letternumber-lowerupper-reverse</td>
<td>reverse lower-upper letter-number sort</td>
</tr>
</tbody>
</table>
### 5.9 Sorting

#### Table 5.5: Summary of Available Sort Options: Numerical

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>integer</td>
<td>integer sort</td>
</tr>
<tr>
<td>integer-reverse</td>
<td>reverse integer sort</td>
</tr>
<tr>
<td>hex</td>
<td>hexadecimal sort</td>
</tr>
<tr>
<td>hex-reverse</td>
<td>reverse hexadecimal sort</td>
</tr>
<tr>
<td>octal</td>
<td>octal sort</td>
</tr>
<tr>
<td>octal-reverse</td>
<td>reverse octal sort</td>
</tr>
<tr>
<td>binary</td>
<td>binary sort</td>
</tr>
<tr>
<td>binary-reverse</td>
<td>reverse binary sort</td>
</tr>
<tr>
<td>float</td>
<td>float sort</td>
</tr>
<tr>
<td>float-reverse</td>
<td>reverse float sort</td>
</tr>
<tr>
<td>double</td>
<td>double sort</td>
</tr>
<tr>
<td>double-reverse</td>
<td>reverse double sort</td>
</tr>
<tr>
<td>numeric</td>
<td>locale-sensitive numeric sort</td>
</tr>
<tr>
<td>numeric-reverse</td>
<td>reverse locale-sensitive numeric sort</td>
</tr>
<tr>
<td>currency</td>
<td>locale-sensitive currency sort</td>
</tr>
<tr>
<td>currency-reverse</td>
<td>reverse locale-sensitive currency sort</td>
</tr>
<tr>
<td>percent</td>
<td>locale-sensitive percent sort</td>
</tr>
<tr>
<td>percent-reverse</td>
<td>reverse locale-sensitive percent sort</td>
</tr>
<tr>
<td>numberformat</td>
<td>locale-sensitive custom numeric sort</td>
</tr>
<tr>
<td>numberformat-reverse</td>
<td>reverse locale-sensitive custom numeric sort</td>
</tr>
</tbody>
</table>

#### Table 5.6: Summary of Available Sort Options: Date-Time

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>date</td>
<td>locale-sensitive date sort</td>
</tr>
<tr>
<td>date-reverse</td>
<td>reverse locale-sensitive date sort</td>
</tr>
<tr>
<td>datetime</td>
<td>locale-sensitive date-time sort</td>
</tr>
<tr>
<td>datetime-reverse</td>
<td>reverse locale-sensitive date-time sort</td>
</tr>
<tr>
<td>time</td>
<td>locale-sensitive time sort</td>
</tr>
<tr>
<td>time-reverse</td>
<td>reverse locale-sensitive time sort</td>
</tr>
</tbody>
</table>
5.9 Sorting

of two or more entries having the same record count, the identical-sort-action option is used to determine the relative ordering between them.

- recordcount-reverse: reverse order of record count (ending with 0). All the above notes applying to recordcount also apply here.

Suppose the file entries.bib contains definitions of a set of symbols that don’t have any intuitive ordering (for example, they are all pictographs) then there may be no point in trying to order them, in which case you can do:

\GlsXtrLoadResources[src={entries},sort={none}]

Alternatively, you could list them in order of use:

\GlsXtrLoadResources[src={entries},sort={use}]

or by frequency of use. For example, starting with entries that don’t have any records followed by the least used entries (a rarely-used symbol may be harder to remember and most likely to be looked up in the glossary):

\GlsXtrLoadResources[src={entries},sort={recordcount}]

Or starting with the most used entries:

\GlsXtrLoadResources[src={entries},sort={recordcount-reverse}]

It all depends on what’s likely to be most useful to the reader.

Consider the following:

\newglossary*{frequent}{Most Frequently Used Terms}
\GlsXtrLoadResources[src={entries},sort={use},
  secondary={recordcount-reverse:frequent}]
\newcommand{\filterhook}[1]{%
  \GlsXtrIfFieldCmpNum*{recordcount}{#1}{>}{10}%
  {}%
  {\printunsrtglossaryskipentry}%
}\begin{document}
\printunsrtglossary*[target={false},type={frequent}]{%
  \let\printunsrtglossaryentryprocesshook=filterhook
}\end{document}
5.9 Sorting

This has a summary at the start of the document that only contains entries that have at least 10 records and is ordered according to the total number of records (starting with the most frequently used entry). The main glossary at the end of the document is ordered according to use and contains all selected entries.

Compare this with the following:

```latex
\GlsXtrLoadResources[src={entries},sort={use}]
\newcommand{\filterhook}[1]{%
  \GlsXtrIfFieldCmpNum*{recordcount}{#1}{>}{10}{%
    {}%
  }{\printunsrtglossaryskipentry}%
}%
\begin{document}
\printunsrtglossary*[target={false},
title={Most Frequently Used Terms}]{%
  \let\printunsrtglossaryentryprocesshook=\filterhook
}%
\end{document}
```

This again has a summary at the start of the document that only contains entries that have at least 10 records but is now ordered according to use.

Both examples assume there are no child entries as the filtering can cause parent entries to be omitted. Both examples require `--record-count` but only the first example sorts according to the record count.

**Alphabet**

The sort methods listed in table 5.2 are for alphabets that are defined by a rule. These usually ignore most punctuation and may ignore modifiers (such as accents). Use with `break-at` to determine whether or not to split at word boundaries. The collation rules (except for the custom options) are obtained from the locale provider (see page 27).

- `{lang tag}`: sort according to the rules of the locale given by the IETF language tag `{lang tag}`.
- `{lang tag}-reverse`: reverse sort according to the rules of the locale given by the IETF language tag `{lang tag}`.
- `locale`: equivalent to `sort={lang tag}` where `{lang tag}` is obtained from the JRE’s default locale (which usually matches the operating system’s locale).
- `locale-reverse`: equivalent to `sort={lang tag}-reverse` where `{lang tag}` is obtained from the JRE.
5.9 Sorting

• doc: sort the entries according to the document language. This is equivalent to \texttt{sort=\{\texttt{lang tag}\}} where \texttt{\langle lang tag \rangle} is the locale associated with the document language. In the case of a multi-lingual document, \texttt{\langle lang tag \rangle} is the locale of the last language resource file to be loaded through \texttt{tracklang}'s interface. It’s best to explicitly set the locale for multi-lingual documents to avoid confusion. If no languages have been tracked, this option is equivalent to \texttt{sort=\{locale\}}.

• doc-reverse: as doc but in reverse order.

• custom: sort the entries according to the rule provided by \texttt{sort-rule}.

• custom-reverse: reverse sort the entries according to the rule provided by \texttt{sort-rule}.

Note that \texttt{sort=\{\texttt{locale}\}} can provide more detail about the given locale than \texttt{sort=\{doc\}}, depending on how the document language has been specified. For example, with:

\begin{verbatim}
\documentclass{article}
\usepackage[ngerman]{babel}
\usepackage[record]{glossaries}
\GlsXtrLoadResources[src={german-terms}]
\end{verbatim}

the language tag will be \texttt{de-1996}, which doesn’t have an associated region, so this is equivalent to using \texttt{sort=\{de-1996\}}. Whereas with:

\begin{verbatim}
\documentclass[de-DE-1996]{article}
\usepackage[ngerman]{babel}
\usepackage[record]{glossaries}
\GlsXtrLoadResources[src={german-terms}]
\end{verbatim}

the language tag will be \texttt{de-DE-1996} because \texttt{tracklang} has picked up the locale from the document class options, so this is equivalent to using \texttt{sort=\{de-DE-1996\}}. This is only likely to cause a difference if a language has different sorting rules according to the region or if the language may be written in multiple scripts.

If no language package is loaded then the default is \texttt{sort=\{locale\}} rather than \texttt{sort=\{doc\}}. For example, with:

\begin{verbatim}
\documentclass{article}
\usepackage[record]{glossaries}
\GlsXtrLoadResources[src={german-terms}]
\end{verbatim}

the language tag will be whatever is the default locale for the JVM. For a user in Germany, this could be \texttt{de-DE-1996} and for a user in Austria this could be \texttt{de-AT-1996}.

A multilingual document will need to have the \texttt{sort} specified when loading the resource set to ensure the correct language is chosen. For example:

\begin{verbatim}
\GlsXtrLoadResources[src={english-terms},sort={en-GB}]
\GlsXtrLoadResources[src={german-terms},sort={de-DE-1996}]
\end{verbatim}

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5.9 Sorting

Letter (Non Locale)

The sort methods listed in table 5.3 use letter comparators. These simply compare the character codes. The -nocase options first convert the sort field to lower case before performing the sort to provide a case-insensitive comparison.

Punctuation isn't ignored. Use sort={⟨lang tag⟩} with break-at={none} to emulate xindy’s locale letter ordering. The examples below show the ordering of the list antelope, bee, Africa, aardvark and Brazil.

- letter-case: case-sensitive letter sort. Upper case and lower case are in separate letter groups. Example:

  Africa (letter group upper case “A”), Brazil (letter group upper case “B”), aardvark (letter group lower case “a”), antelope (letter group lower case “a”), bee (letter group lower case “b”).

- letter-case-reverse: reverse case-sensitive letter sort. Example:

  bee (letter group lower case “b”), antelope (letter group lower case “a”), aardvark (letter group lower case “a”) Brazil (letter group upper case “B”), Africa (letter group upper case “A”).

- letter-nocase: case-insensitive letter sort. (All upper case characters will have first been converted to lower case in the sort value.) Example:


- letter-nocase-reverse: reverse case-insensitive letter sort. Example:


- letter-upperlower: each character pair is first compared according to their lower case values. If these are equal, then they are compared according to case. This puts upper and lower case in the same letter group but the upper case comes first. Example:


- letter-upperlower-reverse: reverse upper-lower letter sort. This now puts the lower case letters first within the letter group. Example:


- letter-lowerupper: each character pair is first compared according to their lower case values. If these are equal, then they are compared according to case. This puts upper and lower case in the same letter group but the lower case comes first. Example:

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- **letter-lowerupper-reverse**: reverse lower-upper letter sort. This now puts the upper case letters first within the letter group. Example:
  

**Letter-Number**

The sort methods listed in table 5.4 use a letter-integer hybrid. They behave in a similar way to the above letter sort methods, but if an integer number pattern is detected in the string then the sub-string containing the number will be compared. This only detects base 10 integers (unlike the numeric methods such as `sort={hexadecimal}` or `sort={float}`) but in addition to recognising all the digits in the Unicode “Number, Decimal Digit” category it also recognises the sub-script and superscript digits, such as \(1\) (0x00B9) and \(2\) (0x00B2).

As with the letter sort methods, letters are compared using a character code comparison not by a locale alphabet. The closest locale-sensitive equivalent is to use `sort-number-pad` with a locale sort method.

\[
\begin{align*}
a_{61} &= a_{61} \\
b_{62} &= b_{62} \\
c_{63} &= c_{63} \\
1_{31} \,<\, 6_{36} \, , \\
2_{32} \, , \\
f_{66} \, , \\
o_{6f} \, , \\
o_{6f} \\
\end{align*}
\]

\[
\begin{align*}
a_{61} &= a_{61} \\
b_{62} &= b_{62} \\
c_{63} &= c_{63} \\
1 \, , \\
2 \, , \\
f_{66} \, , \\
o_{6f} \, , \\
o_{6f} \\
\end{align*}
\]

\(a\) \hspace{2cm} \(b\)

Figure 5.1: Regular letter comparison vs letter-number comparison. Comparing the strings `abc12foo` and `abc6bar`: (a) letter-case; (b) letter-number-case.

For example, suppose the first string is `abc12foo` and the second string is `abc6bar`. Figure 5.1(a) shows the regular letter comparison using `sort={letter-case}`, where the subscript indicates the hexadecimal character code. The first three characters from each string are identical (abc). At this point there’s no difference detected, so the comparator moves on to the next character, \(1_{31}\) for the first string and \(6_{36}\) for the second string. Since 0x31 is less than 0x36, the first string (`abc12foo`) is considered less than the second (`abc6bar`).

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With the letter-number comparison using \texttt{sort=letternumber-case}, the comparator starts in much the same way. The first three characters from each string are still identical, so the comparator moves on to the next character, 1 for the first string and 6 for the second. These are now both recognised as digits, so the comparator looks ahead and reads in any following digits (if present). For the first case, this is the sub-string 12 and, for the second case, 6 (figure 5.1(b)). These are both compared according to their integer representation $12 > 6$, so \texttt{abc12bar} is considered greater than \texttt{abc6foo} (that is, \texttt{abc12bar} comes after \texttt{abc6foo}).

The same result occurs for other numbering systems, for example if the Basic Latin digits 1, 2 and 6 are replaced with the corresponding Devanagari digits १, र and ६. (But note that the letter comparisons will still be based on their Unicode values not according to a particular locale. This type of sort method is intended primarily for symbolic values, such as chemical formulae, rather than for words or phrases.)

Signed integers are also recognised, so \texttt{abc-12foo} is less than \texttt{abc+6bar}, which is again different from the result obtained with a straight letter comparator where the character + (0x2B) comes before the character − (0x2D). The sign must be followed by at least one digit for it to be recognised as a number otherwise it’s treated as a punctuation character.

If only one sub-string is numeric then the letter-number-rule is used to determine the result. Where both sub-strings are non-numeric, then the letter-number-punc-rule setting is used to determine the result according to the category of the characters, which may be one of the following:

- white space: belongs to the Unicode “Separator, Space” category. If both characters are white space, then they are compared according to their Unicode values otherwise they are ordered according to the letter-number-punc-rule setting.

- letter: belongs to one of the Unicode categories “Letter, Uppercase”, “Letter, Lowercase”, “Letter, Titlecase”, “Letter, Modifier” or “Letter, Other”. If both characters are letters then, for sort method letternumber-⟨modifier⟩, the characters are compared in the same way as the corresponding letter-⟨modifier⟩ sort method otherwise they are ordered according to the letter-number-punc-rule setting.

- punctuation: everything else. If both characters are punctuation, then they are compared according to their Unicode value otherwise they are ordered according to the letter-number-punc-rule setting.

For simplicity, the actual sort value used during sorting isn’t a simple string but is converted into a list of objects that represent one of: letter, integer, space or other (punctuation). This reduces the amount of parsing of substrings that needs to be performed.

The examples below show the ordering of the list: \texttt{CH$_2$O}, \texttt{C$_{10}$H$_{10}$O$_4$}, \texttt{C$_5$H$_4$NCOOH}, \texttt{CO}, \texttt{Cl}, \texttt{Co}, \texttt{Co$_2$O$_3$}, \texttt{Co$_2$}, \texttt{CO$_2$}, \texttt{CoMoO$_4$} and \texttt{CoCl$_2$}, for the setting letter-number-rule=\texttt{between}, where the subscripts are the Unicode subscript characters.

- letternumber-case: case-sensitive letter-number sort. Example:

  \texttt{CH$_2$O, CO, CO$_2$, C$_5$H$_4$NCOOH, C$_{10}$H$_{10}$O$_4$, Cl, Co, CoCl$_2$, CoMoO$_4$, Co$_2$, Co$_2$O$_3$.}
  (Order determined by: H < O < 5 < 10 < 1 < o.)
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- **letternumber-case-reverse**: reverse case-sensitive letter-number sort. Example: Co₂O₃, Co₂, CoMoO₄, CoCl₂, Co, Cl, C₁₀H₁₀O₄, C₅H₄NCOOH, CO₂, CO, CH₂O.

- **letternumber-nocase**: case-insensitive letter-number sort. The sort value is first converted to lower case. Note that `letter-number-rule={between}` doesn’t make sense in this context as there won’t be any upper case characters in the sort value, so numbers will always come before letters. Example: C₅H₄NCOOH, C₁₀H₁₀O₄, CH₂O, Cl, CO, CO₂, CO₂, Co₂O₃, CoCl₂, CoMoO₄.

  (Order determined by: 5 < 10 < h < 1 < o.)

- **letternumber-nocase-reverse**: reverse case-insensitive letter-number sort, so numbers will now always come after letters. Example: CoMoO₄, CoCl₂, Co₂O₃, CO₂, Co, CO, Cl, CH₂O, C₁₀H₁₀O₄, C₅H₄NCOOH.

- **letternumber-upperlower**: upper-lower letter-number sort. This behaves slightly differently to `letter-upperlower` when used with `letter-number-rule={between}` and has a more complicated rule that’s determined by the character following the number and implied numbers inserted between letters. (There was a bug in earlier versions that has been corrected in v1.8 so you may find a slightly different ordering when upgrading.) Example: CH₂O, C₅H₄NCOOH, C₁₀H₁₀O₄, Cl, CO, CO₂, Co, CO₂, Co₂Cl₂, CoMoO₄, Co₂O₃.

  (Order determined by: H < 5H < 10H < 1 < 0 < O, and for the terms starting with CO or Co: 2 comes after null and C < M < 20.)

  Compare this with `letter-number-rule={before letter}` which results in the order:

  C₅H₄NCOOH, C₁₀H₁₀O₄, CH₂O, Cl, CO, CO₂, Co, CO₂, Co₂O₃, CoCl₂, CoMoO₄.

- **letternumber-upperlower-reverse**: reverse upper-lower letter-number sort. Example (with `letter-number-rule={between}`):

  Co₂O₃, CoMoO₄, CoCl₂, Co₂, Co, CO₂, CO, Cl, C₁₀H₁₀O₄, C₅H₄NCOOH, CH₂O.

  Compare this with `letter-number-rule={before letter}` which results in the order:

  CoMoO₄, CoCl₂, Co₂O₃, Co₂, CO, CO₂, CO, Cl, CH₂O, C₁₀H₁₀O₄, C₅H₄NCOOH.

  Remember that the associated settings are reversed as well. So `letter-number-rule={before letter}` results in numbers after letters.

- **letternumber-lowerupper**: lower-upper letter-number sort. As with the upper-lower option, this behaves slightly differently to `letter-lowerupper` when used with `letter-number-rule={between}` and has a more complicated rule. Example: CH₂O, C₅H₄NCOOH, C₁₀H₁₀O₄, Cl, CO, CO₂, CoCl₂, CoMoO₄, Co₂O₃, CO, CO₂.
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Compare this with letter-number-rule={before letter} which results in the order:

\[ \text{C}_5\text{H}_4\text{NCOOH}, \text{C}_{10}\text{H}_{10}\text{O}_4, \text{CH}_2\text{O}, \text{Cl}, \text{Co}, \text{Co}_2, \text{Co}_2\text{O}_3, \text{CoCl}_2, \text{CoMoO}_4, \text{Co}, \text{CO}_2. \]

- letter-number-lowerupper-reverse: reverse lower-upper letter-number sort. Example (with letter-number-rule={between}):

\[ \text{CO}_2, \text{CO}, \text{Co}_2\text{O}_3, \text{CoMoO}_4, \text{CoCl}_2, \text{Co}_2, \text{Co}, \text{Cl}, \text{C}_{10}\text{H}_{10}\text{O}_4, \text{C}_5\text{H}_4\text{NCOOH}, \text{CH}_2\text{O}. \]

Numerical

The sort methods listed in table 5.5 use numeric comparisons. The sort value is expected to be a numeric value. If it can’t be parsed then it’s treated as 0 (and a warning will be written to the transcript). These all recognise the digits in the Unicode “Number, Decimal Digit” category but, unlike the hybrid letter-number comparators above, they don’t recognise the superscript or subscript digits. The “non-locale” in some of the descriptions below indicates that the method doesn’t recognise locale-sensitive formatting, such as group separators.

- integer: integer sort. This is for non-locale integer sort values.
- integer-reverse: as above but reverses the order.
- hex: hexadecimal integer sort. This is for non-locale hexadecimal sort values.
- hex-reverse: as above but reverses the order.
- octal: octal integer sort. This is for non-locale octal sort values.
- octal-reverse: as above but reverses the order.
- binary: binary integer sort. This is for non-locale binary sort values.
- binary-reverse: as above but reverses the order.
- float: single-precision sort. This is for non-locale decimal sort values.
- float-reverse: as above but reverses the order.
- double: double-precision sort. This is for non-locale decimal sort values.
- double-reverse: as above but reverses the order.
- numeric: locale-sensitive numeric sort. Use numeric-locale to set the locale.
- numeric-reverse: as above but reverses the order.
- currency: locale-sensitive currency sort. Use numeric-locale to set the locale.
- currency-reverse: as above but reverses the order.
5.9 Sorting

• **percent**: locale-sensitive percent sort. Use `numeric-locale` to set the locale.

• **percent-reverse**: as above but reverses the order.

• **numberformat**: locale-sensitive custom numeric sort. Use `numeric-locale` to set the locale and `numeric-sort-pattern` to set the number pattern.

• **numberformat-reverse**: as above but reverses the order.

In general, it doesn’t make much sense to have hierarchical entries that need to be sorted by a number, but it is possible as long as each level uses the same type of numbering.

**Date-Time**

The sort methods listed in table 5.6 are for dates and times. Use `date-sort-format` and `date-sort-locale` to specify the date format and locale.

• **date**: sort dates.

• **date-reverse**: as above but reverses the order.

• **datetime**: sort date and time information.

• **datetime-reverse**: as above but reverses the order.

• **time**: sort times.

• **time-reverse**: as above but reverses the order.

If the field you want to sort by contains a date then the simplest way to sort is to ensure the date is in ISO format and then just use a letter sort. However it may be that the date is in the format particular to your locale or you have a mix of AD and BC. In which case you can use one of the date/time sort options (such as `sort={date}` or `sort={date-reverse}`). The locale is assumed to be your default locale (as given by the JVM) but if you are using a different locale this can be set with `date-sort-locale`. The pattern is assumed to be the default for that locale but you can change this with `date-sort-format`. If you provide your own custom pattern you must make sure that it matches the selected sort option.

Take care if you switch from using the JRE to the CLDR locale provider as you may find the default pattern changes.

The locale and pattern information is used by bib2gls to parse the field. If the field value can’t be parsed then bib2gls will issue a warning and assume the current date (or time).

The actual sort value that’s used by the comparator is numeric. In the case of the time-based `sort={datetime}` and `sort={time}` (or their -reverse versions), this value is the number of milliseconds since 1st January, 1970. In the case of `sort={date}` (or `sort={date-reverse}`), this value is obtained from $a(y \times 10000 + m \times 100 + d)$ where $y$ is the year, $m$ is the month number, $d$ is the day of month number, and $a$ is an integer representation of the era ($-1$ for BC and $+1$ for AD).
Unlike the numeric sort methods (such as \texttt{sort=\{integer\}}) the date-time sort methods set the \texttt{sort} field to a value that can be more easily parsed within the document and that should mostly achieve the same ordering if a letter comparator were to be used with it (except for BC dates, where the order needs to be reversed). This has the by-product of providing a field that you can access within the document that can be more easily parsed by \LaTeX.

In general, it doesn’t make much sense to have hierarchical entries that need to be sorted by date, but it is possible as long as each level uses the same date format.

For example, suppose my \texttt{.bib} file contains:

\begin{verbatim}
@entry{journalentry,
    name={10 Jan 2017},
    description={an interesting journal entry}
}
\end{verbatim}

The \texttt{name} field uses an abbreviated UK date format. If all my other entries also use this format in the \texttt{name} then I can sort them chronologically:

\begin{verbatim}
\GlsXtrLoadResources[
    src={entries},% data in entries.bib
    sort={date},
    date-sort-locale={en-GB},
    date-sort-format={medium}
]
\end{verbatim}

(The medium format is actually the default for this locale, and the locale matches my system locale, so I could omit both \texttt{date-sort-locale} and \texttt{date-sort-format}.)

If \texttt{--verbose} mode is on, the transcript will show the label, sort value and numeric value for each entry. In this case, the information is:

\begin{verbatim}
journalentry -> '+1 2017-01-10' [20170110]
\end{verbatim}

The first value is the label (\texttt{journalentry}), the second value is assigned to the \texttt{sort} field (+1 2017-01-10) and the number in square brackets is the actual numeric value used by the comparator. The signed number at the start of the sort field +1 is the numeric representation of the era as used for the \texttt{a} variable in the computation of the numeric value (as described earlier).

If I change the format to \texttt{date-sort-format={short}}, then the date can’t be parsed correctly and \texttt{bib2gls} will issue the following warning:

\begin{verbatim}
Warning: Can't parse sort value '10 Jan 2017' for 'journalentry'
(pattern: 'dd/MM/yyyy')
\end{verbatim}

This shows the value that \texttt{bib2gls} is trying to parse (10 Jan 2017) for the entry identified by the given label (\texttt{journalentry}). The pattern \texttt{bib2gls} expects is also given (dd/MM/yyyy).

\texttt{shuffle=\{seed\}}

Automatically sets \texttt{sort=\{random\}} and \texttt{flatten}. The value \texttt{\{seed\}} may be omitted. If present, it should be an integer used as a seed for the random number generator.
5.9 Sorting

\texttt{sort-field=\{field\}}

The \texttt{sort-field} key indicates which field provides the sort value. The \texttt{\{field\}} must be a recognised field name or you may use \texttt{sort-field=\{id\}} to sort according to the label. The default value is the \texttt{sort} field (which is typically inferred rather than explicitly set).

Example:

\GlsXtrLoadResources[
\setkeys{Gin}{src=\{entries-terms\},% data in entries-terms.bib
sort-field=\{symbol\},% sort by 'symbol' field
sort=\{letter-case\}% case-sensitive letter sort
] \GlsXtrEndLoadResources

This sorts the entries according to the \texttt{symbol} field using a case-sensitive letter comparison.

In general it’s better to use the default \texttt{sort-field=\{sort\}} and adjust the fallbacks instead. The \texttt{sort-field} option is provided if you want to use a specific field regardless of the entry type.

If an entry is missing a value for \texttt{\{field\}}, then the value of the fallback field will be used instead. If \texttt{missing-sort-fallback} is set, then that’s used as the fallback, otherwise it depends on the entry type. If no fallback field can be found, the entry’s label will be used.

For the specific case with the default \texttt{sort-field=\{sort\}} setting, the fallback for the \texttt{sort} field is governed not only by the entry type but also by some associated settings:

- If the entry’s original type (before being aliased with \texttt{entry-type-aliases}) is identified in \texttt{custom-sort-fallbacks}, then if the \texttt{sort} field is missing the value is obtained from the supplied custom mapping.

- If the entry is defined using \texttt{@entry} (or a dual form that acts like \texttt{@entry}), then if the \texttt{sort} field is missing the value is obtained from the field identified by \texttt{entry-sort-fallback}. If that field is also missing then that field’s fallback is used.

- For the index entry types like \texttt{@index} or \texttt{@indexplural}, then if the \texttt{sort} field is missing the value is obtained from the \texttt{name} field. If that field is also missing, then the value is obtained from the particular entry type’s fallback for the \texttt{name} field. (For example, the entry’s label for \texttt{@index} or the \texttt{plural} field for \texttt{@indexplural}.)

- If the entry is defined with an abbreviation type (for example, \texttt{@abbreviation} or \texttt{@acronym}) then if the \texttt{sort} field is missing, \texttt{bib2gls} will fallback on the field given by \texttt{abbreviation-sort-fallback}.

- The symbol-like entry types fallback on the field given by \texttt{symbol-sort-fallback} if the \texttt{sort} field is missing.

- Entries defined using \texttt{@bibtexentry} fallback on the field given by \texttt{bibtexentry-sort-fallback}, which defaults to the \texttt{name} field. Note that this only applies to the main entry. The spawned \texttt{@contributor} entries behave like \texttt{@index}. 

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Use `dual-sort-field` when sorting dual entries.

**missing-sort-fallback={field}**

With `sort-field={⟨sort-field⟩}`, if the value of the field identified by `⟨sort-field⟩` is missing, then `bib2gls` behaves as follows:

1. **If missing-sort-fallback={⟨fallback-field⟩}** is set, then `bib2gls` will fallback on the value provided by the field `⟨fallback-field⟩`. If `⟨fallback-field⟩` is missing, then `bib2gls` will query the entry type’s fallback for `⟨fallback-field⟩` (not for `⟨sort-field⟩`).

   The `⟨fallback-field⟩` must be a known field but not an internal field. It can’t be the `sort` field. (Take care not to cause an infinite loop if `sort-field` has been changed.) Unlike the other sort fallback options such as `entry-sort-fallback`, the `⟨fallback-field⟩` can’t be a keyword (to identify the label) and can’t be a composite.

2. **If the entry type has a fallback rule for `⟨sort-field⟩`, then that rule is used.** When `sort-field={sort}` this means:
   - If the entry’s original entry type has been identified in `custom-sort-fallbacks`, then `bib2gls` will fallback on the designated custom setting.
   - If the entry was defined using one of the index types (such as `@index`), then `bib2gls` will fallback on the `name` field.
   - If the entry was defined using the `@entry` type (or a dual form that acts like `@entry`), then `bib2gls` will fallback on the field given by `entry-sort-fallback`.
   - If the entry was defined using one of the symbol types (such as `@symbol`), then `bib2gls` will fallback on the field given by `symbol-sort-fallback`.
   - If the entry was defined using one of the abbreviation types (such as `@abbreviation`), then `bib2gls` will fallback on the field given by `abbreviation-sort-fallback`.
   - If the entry was defined using `@bibtexentry` (but not the spawned `@contributor` entries), then `bib2gls` will fallback on the field given by `bibtexentry-sort-fallback`.

   If `⟨sort-field⟩` is not `sort`, then there may not be a fallback, in which case the next condition applies:

3. Otherwise the sort value will be set to the entry label and `bib2gls` will issue a warning.

The default setting is `missing-sort-fallback={}`, which means that step 1 above is omitted.

Use `dual-missing-sort-fallback` when sorting dual entries separately from primaries, and use `secondary-missing-sort-fallback` for secondary sorting.

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custom-sort-fallbacks={\(key=value\ \text{list}\)}

The value should be a key=\text{value list} in the form \(\text{entrytype}=\text{field}\) where \(\text{entrytype}\) is the original entry type (before being aliased with \text{entry-type-aliases}). This will override any of the sort fallback options listed below for entries whose original entry type matches \(\text{entrytype}\).

The \(\text{field}\) may be a known field but not an internal field. For obvious reasons, it can’t be the sort field (since \(\text{field}\) is the fallback a missing sort field). It may also be one of the keywords: id (for the entry’s label) or original id (for the entry’s original label). The \(\text{field}\) may also be a composite in the form \(\text{field1}+(\text{field2})+\ldots\) which indicates that the sort value should be obtained by concatenating the values of the given fields, where the separator is given by field-concat-sep.

For example, if the .bib file contains:

\begin{verbatim}
@unit{ohm,
  name={\si{\ohm}},
  description={electrical resistance}}

@constant{pi,
  name={\ensuremath{\pi}},
  description={the ratio of the length of the circumference
               of a circle to its diameter},
  user1={3.14159}}

@symbol{fx,
  name={\ensuremath{f(x)}},
  description={a function of \$x\$}}

@number{zero,
  name={0},
  description={nothing or no quantity}}
\end{verbatim}

Then the resource options:

\begin{verbatim}
entry-type-aliases={unit=symbol,constant=number},
custom-sort-fallbacks={unit=name,constant=user1}
\end{verbatim}

will treat the custom @unit and @constant entries as though they had been defined with @symbol and @number, respectively, but the fallback for the sort field is different: the ohm entry will use the name field for the sort fallback (because its original entry type was unit), the pi entry will use the user1 field for the sort fallback (because its original entry type
was constant) and the $fx$ and zero entries will use the label for the sort fallback (since neither symbol nor number were identified in custom-sort-fallbacks so the symbol-sort-fallback is used).

If an entry hasn’t had its entry type aliased then \textit{(entrytype)} is its actual entry type. For example, consider the following definitions:

\begin{verbatim}
@abbreviation{svm,
    short={SVM},
    long={support vector machine}
}
@acronym{laser,
    short={laser},
    long={light amplification by stimulated emission of radiation}
}
\end{verbatim}

Then abbreviation-sort-fallback={short} will make both entries fallback on the short field (since abbreviation-sort-fallback applies to both \texttt{@acronym} and \texttt{@abbreviation}), but the option:

\begin{verbatim}
custom-sort-fallbacks={abbreviation=long,acronym=short}
\end{verbatim}

will make the entry defined with \texttt{@abbreviation} fallback on the long field and the entry defined with \texttt{@acronym} will fallback on the short field.

Since the default setting is abbreviation-sort-fallback={short} this only needs to be:

\begin{verbatim}
custom-sort-fallbacks={abbreviation=long}
\end{verbatim}

In this case, the entry defined with \texttt{@abbreviation (“SVM“)} will use the setting given in custom-sort-fallbacks, but the entry defined with \texttt{@acronym (“laser“)} will use the setting given by abbreviation-sort-fallback since \texttt{@acronym} hasn’t been identified in custom-sort-fallbacks.

This option also covers dual entries. For example:

\begin{verbatim}
custom-sort-fallbacks={
    dualindexnumber=description,
    dualindexnumbersecondary=user1
}
\end{verbatim}

Note that the entry type for the dual is in the form \textit{(primary entry type)secondary}.

The \texttt{custom-sort-fallbacks} setting is only used when \texttt{bib2gls} tries to access the \texttt{sort} field for an entry (whose original entry type has been identified in this setting) and finds that the field hasn’t been set. This means that this setting has no effect if you explicitly set the \texttt{sort} field or if you change the field used for sorting \texttt{(sort-field)}.
5.9 Sorting

entry-sort-fallback=⟨field⟩

The regular entry types (such as @entry and @dualentry) will, by default, fallback on the name field if the sort field is missing (assuming sort-field={sort}). If you prefer to fallback on a different field, then you can use this option to specify the field. Note that missing-sort-fallback and custom-sort-fallbacks override this setting.

The ⟨field⟩ may be a known field but not an internal field. It can’t be the sort field. It may also be one of the keywords: id (for the entry’s label) or original id (for the entry’s original label). The ⟨field⟩ may also be a composite in the form ⟨field1⟩+⟨field2⟩+… which indicates that the sort value should be obtained by concatenating the values of given fields, where the separator is given by field-concat-sep.

This setting doesn’t affect the index type of entries, such as @index or @indexplural. This is useful if your glossary contains homographs (terms with the same spelling) which can’t be distinguished by the sort comparators. For example, suppose my file entries.bib contains:

@index{pagelist,
  name={page list},
  description={a list of individual pages or page ranges}
}

@index{glossary}

@entry{glossarylist,
  parent={glossary},
  description={list of technical words}
}

@entry{glosscol,
  parent={glossary},
  description={collection of glosses}
}

Now first consider a document that uses the default settings:

\documentclass{article}
\usepackage[record,subentrycounter,style={treenoname}]{glossaries-extra}
\GlsXtrLoadResources[src={entries}]
\begin{document}
A test document describing \gls{pagelist} and \gls{glosscol} (collection) vs \gls{glossarylist} (list).
5.9 Sorting

\printunsrtglossary
\end{document}

The default behaviour for \texttt{@entry} if the \texttt{sort} field is missing is to fallback on the \texttt{name} field. If the \texttt{name} field is missing (as with \texttt{glossarylist} and \texttt{glosscol}), then the value is obtained from the \texttt{name} field from the parent entry. The parent entry for these homographs is the \texttt{glossary} entry, which was defined with \texttt{@index} and doesn’t have the \texttt{name} field. For the \texttt{@index} entries, if \texttt{name} is missing the value is obtained from the label.

Therefore both \texttt{glossarylist} and \texttt{glosscol} end up with the same sort value: \texttt{glossary}. This triggers a message in verbose mode (\texttt{--verbose}) which can be found in the transcript file:

Identical sort values for 'glossarylist' and 'glosscol'
Falling back on ID

So the actual sort values used are "glossarylist" and “glosscol”. This puts the \texttt{glossarylist} entry before the \texttt{glosscol} entry.

Now suppose a minor modification is made to the document:

\GlsXtrLoadResources
[  src={entries},
   entry-sort-fallback={description}
  ]

This means that when the sort function fails to find the \texttt{sort} field for the terms defined with \texttt{@entry}, it will fallback on the \texttt{description} field. This doesn’t affect the terms defined with \texttt{@index}, which still fallback on the \texttt{name} field. This time there’s no message in the transcript file and the \texttt{glosscol} entry now comes before the \texttt{glossarylist} entry.

The \texttt{entry-sort-fallback} setting is only used when \texttt{bib2gls} tries to access the \texttt{sort} field for a term defined with \texttt{@entry} and finds that the field hasn’t been set. This means that this setting has no effect if you explicitly set the \texttt{sort} field or if you change the field used for sorting (\texttt{sort-field}).

abbreviation-sort-fallback=\langle field \rangle

The entry types that define abbreviations (such as \texttt{@abbreviation} and \texttt{@acronym}) will, by default, fallback on the \texttt{short} field if the \texttt{sort} field is missing (assuming \texttt{sort-field=} \langle \texttt{sort} \rangle). If you prefer to fallback on a different field, then you can use this option to specify the field. For example, \texttt{abbreviation-sort-fallback=\langle long \rangle}. Note that if you use \texttt{sort-field=} \langle \texttt{name} \rangle, then the fallback field will be given by \texttt{abbreviation-name-fallback} if the \texttt{name} field is omitted.

The \langle field \rangle may be a known field but not an internal field. It can’t be the \texttt{sort} field. It may also be one of the keywords: \texttt{id} (for the entry’s label) or \texttt{original id} (for the entry’s
original label). The \langle field \rangle may also be a composite in the form \langle field1 \rangle+\langle field2 \rangle+... which indicates that the sort value should be obtained by concatenating the values of given fields, where the separator is given by field-concat-sep.

Note that missing-sort-fallback and custom-sort-fallbacks override this setting.

The abbreviation-sort-fallback setting is only used when bib2gls tries to access the sort field for an abbreviation and finds that the field hasn’t been set. This means that this setting has no effect if you explicitly set the sort field or if you change the field used for sorting (\texttt{sort-field}).

\textbf{symbol-sort-fallback=\langle field \rangle}

The entry types that define symbols (such as @symbol and @number) will, by default, fallback on the entry’s original label if the sort field is missing (assuming the default \texttt{sort-field=\{sort\}}). If you prefer to fallback on a different field, then you can use this option to specify the field. For example, \texttt{symbol-sort-fallback=\{name\}}.

The \langle field \rangle may be a known field but not an internal field. It can’t be the sort field. It may also be one of the keywords: id (for the entry’s label) or original id (for the entry’s original label). The \langle field \rangle may also be a composite in the form \langle field1 \rangle+\langle field2 \rangle+... which indicates that the sort value should be obtained by concatenating the values of given fields, where the separator is given by field-concat-sep.

Note that missing-sort-fallback and custom-sort-fallbacks override this setting.

The symbol-sort-fallback setting is only used when bib2gls tries to access the sort field for a symbol and finds that the field hasn’t been set. This means that this setting has no effect if you explicitly set the sort field or if you change the field used for sorting (\texttt{sort-field}).

\textbf{bibtexentry-sort-fallback=\langle field \rangle}

The main @bibtexentry entry types will, by default, fallback on the name if the sort field is missing (assuming the default \texttt{sort-field=\{sort\}}). If you prefer to fallback on a different field, then you can use this option to specify the field.

The \langle field \rangle may be a known field but not an internal field. It can’t be the sort field. It may also be one of the keywords: id (for the entry’s label) or original id (for the entry’s original label). The \langle field \rangle may also be a composite in the form \langle field1 \rangle+\langle field2 \rangle+... which indicates that the sort value should be obtained by concatenating the values of given fields, where the separator is given by field-concat-sep.

Note that missing-sort-fallback and custom-sort-fallbacks override this setting.
5.9 Sorting

The \texttt{bibtexentry-sort-fallback} setting is only used when \texttt{bib2gls} tries to access the \texttt{sort} field for a main entry defined with \texttt{@bibtexentry} and finds that the field hasn’t been set. This means that this setting has no effect if you explicitly set the \texttt{sort} field or if you change the field used for sorting (\texttt{sort-field}).

\texttt{field-concat-sep=\langle value\rangle}

This option sets the field concatenation separator to \langle value\rangle. The default is a space. An empty value indicates no separator. You may use \texttt{\backslash u\langle hex\rangle} to indicate a character by its hexadecimal code. For example, suppose the \texttt{.bib} file contains:

\begin{verbatim}
@abbreviation{ac,
   short={AC},
   long={alternating current}
}
@index{acacia}
\end{verbatim}

Then the resource option:

\begin{verbatim}
\GlsXtrLoadResources[
   sort={letter-nocase},
   abbreviation-sort-fallback={short+long}
]
\end{verbatim}

will set the ac sort value to “AC alternating current”. That is, the \texttt{short} value concatenated with the \texttt{long} value using the default space separator. With the \texttt{letter-nocase} sort method, this will put the ac entry before the acacia entry (because the space character comes before “a”).

If the resource options are changed to:

\begin{verbatim}
\GlsXtrLoadResources[
   sort={letter-nocase},
   field-concat-sep={},
   abbreviation-sort-fallback={short+long}
]
\end{verbatim}

This will obtain the sort value for abbreviations from a concatenation of the \langle short\rangle and \langle long\rangle values without a separator. This means that the ac sort value will be “AC alternating current” and so the ac entry will come after the acacia entry (since “l” comes after “c”).

This setting is only used for the sort fallback options that allow field concatenation (such as \texttt{entry-sort-fallback} but not \texttt{missing-sort-fallback}).

Note that due to the way that the key=value list parser trims leading and trailing spaces, you can’t simply do \texttt{field-concat-sep={}} to indicate a space character as the value will end up as an empty string. You can instead do \texttt{field-concat-sep={\backslash string\u20}} but since this is the default value there shouldn’t be much need for it.

Remember that the separator may be replaced with a break point marker depending on the sort method and \texttt{break-at} setting.
5.9 Sorting

trim-sort=⟨boolean⟩

If the interpreter is used to determine the sort value, this setting governs whether or not the interpreter should trim leading and trailing spaces. The default setting is trim-sort={true}.

This option automatically sets dual-trim-sort=⟨(boolean)⟩ and secondary-trim-sort=⟨(boolean)⟩.

sort-replace=⟨list⟩

This option may be used to perform regular expression substitutions on the sort value and has the same syntax as labelify-replace. The value is required for this key but may be empty, which indicates that the setting is switched off.

This action is done after the interpreter parses the sort value (if applicable) and before sort-number-pad (if applicable). For example, suppose the sort value is:

\ensuremath{\approx 3.14}

then the interpreter will convert this to \(\approx 3.14\) but:

\text{sort-replace}=\{\text{\textbackslash g\textbackslash hex2248}\}\}

can be used to strip the \(\approx\) symbol (0x2248) so that the value can now be parsed as a number if sort={double} has been used.

Use dual-sort-replace for dual and secondary-sort-replace for secondary sort methods.

sort-rule=⟨value⟩

If the \text{sort}={custom} option is used, the sort rule must be provided with sort-rule. If \text{sort} is not set to custom, the sort-rule setting will be ignored. This setting uses Java’s RuleBasedCollator class [6], and the rule syntax needs to conform to that format.

Remember that the options will be expanded as they are written to the .aux file, so be careful of any special characters that occur in the rule. For the special characters \# % _ & { and } you can use \#%, \%, \_, \&, \{ and \}. These will be written to the .aux file with the leading backslash, but bib2gls will remove it for this resource option. Remember that the glossaries package provides \textbackslash g}{text} which can be used to produce a literal backslash (\) and tilde (-).

You can also use \textbackslash string\text{\textbackslash u}\langle hex\rangle (where \langle hex\rangle is a hexadecimal code) to represent a Unicode character. For example:

\GlsXtrLoadResources[  sort={custom},  sort-rule={\langle a,A < b,B < c,C < ch,Ch,CH < d,D < dd,Dd,DD < e,E < f,F < ff,Ff,FF < g,G < ng,Ng,NG < h,H < ij,Ij,IJ}  ]
5.9 Sorting

\[<i, I < j, J < k, K < l, L < ll, Ll, LL < m, M < n, N < o, O < p, P < ph, Ph, PH < q, Q < r, R < rh, Rh, RH < s, S < t, T < th, Th, TH < u, U < v, V < w, W < x, X < y, Y < z, Z < \text{\string\u00E6}, \text{\string\u00C6}\]

It's best to use \texttt{\string} rather than \texttt{\protect} to avoid unwanted spaces interfering with \langle\text{hex}\rangle. Note that glossaries-extra v1.21+ provides\textsuperscript{2} \texttt{\glshex} which just does \texttt{\string\u} so you can do \texttt{\glshex \u00E6} instead of \texttt{\string\u00E6}. This is only one character different, but you can redefine \texttt{\glsxtrresourceinit} to locally set \texttt{\u} to \texttt{\glshex} while the protected write is performed. For example:

\texttt{\renewcommand*{\glsxtrresourceinit}{\let\u\glshex}}

Then you can just do \texttt{\u00E6} instead of \texttt{\string\u00E6}.

The glossaries-extra-bib2gls package (which is automatically loaded by the \texttt{record} option) provides some commands for common rule blocks that may be used in the construction of custom rules. For example:

\begin{verbatim}
\renewcommand*{\glsxtrresourceinit}{\let\u\glshex}
\end{verbatim}

\texttt{\renewcommand*{\glsxtrresourceinit}{\let\u\glshex}}

Then you can just do \texttt{\u00E6} instead of \texttt{\string\u00E6}.

The command definition was moved to glossaries-extra-bib2gls from version 1.27 since it's only needed with bib2gls.
5.9 Sorting

\newcommand{\Battlefield}{...}
\newcommand{\Harbour}{...}
% etc

% Provide a rule block:
\newcommand{\MapSymbolOrder}{%
\textbackslash glshex 2694 % crossed-swords 0x2694
< \textbackslash glshex 2693 % anchor 0x2693
< \textbackslash glshex 26BD % football 0x26BD
}%

In addition to mapsymbols.sty, I also need to create mapsymbols.bib to provide the appropriate definitions for bib2gls:

@preamble{"\glsxtrprovidecommand{\Harbour}{\char"2693}
\glsxtrprovidecommand{\Battlefield}{\char"2694}
\glsxtrprovidecommand{\Stadium}{\char"26BD}"
}

The use of \glsxtrprovidecommand will override any previous definitions of these commands in bib2gls's interpreter but will act like \providecommand within the document, and so won't interfere with the commands defined in mapsymbols.sty. Now I can just do:

\usepackage{mapsymbols}% my custom package
\usepackage[record]{glossaries-extra}

\GlsXtrLoadResources[
  src={mapsymbols,% <--- my custom mapsymbols.bib
  entries% data in entries.bib
  },
  sort={custom},
  sort-rule={\glsxtrcontrolrules
;\glsxtrspacerules
;\glsxtrnonprintablerules
;\glsxtrcombiningdiacriticrules
,\glsxtrgeneralpuncrules
<\glsxtrhyphenrules
<\glsxtrdigitrules
<\glsxtrfractionrules
<\MapSymbolOrder % <--- custom map symbols
<\glsxtrMathItalicGreekIrules
<\glsxtrGeneralLatinIrules
}
]

An alternative to providing mapsymbols.bib is to provide a custom package just for bib2gls' use. For example, mapsymbols-bib2gls.sty:
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% Provided for bib2gls only.
% Use \usepackage{mapsymbols} in the document.
\NeedsTeXFormat{LaTeX2e}
\ProvidesPackage{mapsymbols-bib2gls}
\glsxtrprovidecommand{\Harbour}{\char"2693}
\glsxtrprovidecommand{\Battlefield}{\char"2694}
\glsxtrprovidecommand{\Stadium}{\char"26BD}
\endinput

and instruct bib2gls to parse it with --custom-packages mapsymbols-bib2gls (and use mapsymbols.sty in the document). Remember that bib2gls isn’t a \TeX engine so make sure to only use simple commands in this file.

\texttt{break-at=(\texttt{option})}

This option automatically implements dual-break-at={⟨\texttt{option}⟩} and secondary-break-at={⟨\texttt{option}⟩}.

The alphabet sort options (table 5.2) typically list non-letter characters before alphabetical characters and spaces are quite often in the ignored set. This means that the alphabet sort options are naturally in a letter order, similar to xindy’s ord/letorder module. (This isn’t the same as sort={letter-nocase}, which just sorts according to the Unicode value not according to a particular alphabet.)

In order to replicate makeindex and xindy’s default word order, bib2gls splits up the sort value at word boundaries and inserts a marker (identified by break-marker). For example, if the sort value is “sea lion” then it’s actually converted to sea|lion| whereas “sea” becomes sea| and “seal” becomes seal|. The default marker is | which is commonly placed in collation rules before digits but after the ignored characters, such as spaces and hyphens.

Note that this action removes non-letters, so for example, if the sort value is # (parameter) then it will be converted to parameter| (hash, space and parentheses removed). If you only want to break at spaces (optionally following a comma) use the following instead:

\texttt{break-at=\{none\},}
\texttt{sort-replace={\{,? +\}}\{|\}}

You can change the construction of the break points with \texttt{break-at=\{⟨\texttt{option}⟩\}} where ⟨\texttt{option}⟩ may be one of:

- \texttt{word}: break at word boundaries (default). Note that what constitutes a word varies according to the locale but usually anything that’s not alphanumeric will designate a word-boundary. The characters between words are discarded. For example, the sort value “Tom, Dick, and Harry” becomes Tom|Dick|and|Harry, which has discarded the comma and space characters.

- \texttt{character}: break after each character.

- \texttt{sentence}: break after each sentence.
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- **upper-notlower**: break after any upper case character that’s not followed by a lower case character. For example, “MathML” becomes MathM|L| and “W3C” becomes W|3C|.

- **upper-upper**: break after any upper case character that’s followed by an upper case character.

- **upper-notlower-word**: first applies break-points according to upper-notlower and then according to word.

- **upper-upper-word**: first applies break-points according to upper-upper and then according to word.

- **none**: don’t create break points. Use this option to emulate makeindex or xindy’s letter ordering, or combine with sort-replace to insert custom break points.

This option is ignored when used with the non-alphabetic sort options. You can find the break points in the sort field for the entry’s definition in the .glistex file (which is provided for information rather than for use in the document). Alternatively, use the --debug switch to show the break points in the transcript. (This will also show the collation rule.)

**break-marker=⟨marker⟩**

This option automatically implements the dual and secondary settings dual-break-marker={⟨marker⟩} and secondary-break-marker={⟨marker⟩}.

The break marker can be changed using break-marker={⟨marker⟩}, where ⟨marker⟩ is the character to use. For example, break-marker={-} will use a hyphen. The marker may be empty, which effectively strips the inter-word punctuation. For example, with break-marker={}, “Tom, Dick, and Harry” becomes TomDickandHarry and “sea lion” simply becomes sealion. If ⟨marker⟩ is omitted, break-marker={} is assumed.

**sort-number-pad=⟨number⟩**

This option automatically implements the dual and secondary settings dual-sort-number-pad={⟨number⟩}, secondary-sort-number-pad={⟨number⟩}.

If ⟨number⟩ is greater than 1, any integer sub-strings found in the sort value will be zero-padded up to this value. Since the – character is often ignored by rule-based sort methods, any signs found will be replaced with the markers given by sort-pad-plus and sort-pad-minus, which should be chosen to ensure that negative numbers are ordered before positive numbers (if this is desired). An unsigned number will have the sort-pad-plus marker inserted before it. The default value is sort-number-pad={0}, which doesn’t implement any padding.

If you use this with a locale sort method, it’s best to also set break-at={none}, as the default word boundary break points will likely be confused by a mix of alphanumerics.
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\texttt{sort-pad-plus}=\langle\textit{marker}\rangle

This option automatically implements the dual and secondary settings \texttt{dual-sort-pad-plus}={\langle\textit{marker}\rangle}, \texttt{secondary-sort-pad-plus}={\langle\textit{marker}\rangle}.

This option only has an effect when used with \texttt{sort-number-pad}={\langle\textit{number}\rangle} where \langle\textit{number}\rangle is greater than 1. Positive numbers will have their sign replaced with \langle\textit{marker}\rangle. The default setting is \texttt{sort-pad-plus}={\langle\rangle}.

\texttt{sort-pad-minus}=\langle\textit{marker}\rangle

This option automatically implements the dual and secondary settings \texttt{dual-sort-pad-minus}={\langle\textit{marker}\rangle}, \texttt{secondary-sort-pad-minus}={\langle\textit{marker}\rangle}.

This option only has an effect when used with \texttt{sort-number-pad}={\langle\textit{number}\rangle} where \langle\textit{number}\rangle is greater than 1. Negative numbers will have their sign replaced with \langle\textit{marker}\rangle. The default setting is \texttt{sort-pad-plus}={\langle\rangle}.

\texttt{identical-sort-action}=\langle\textit{value}\rangle

This option automatically implements the dual and secondary settings \texttt{dual-identical-sort-action}={\langle\textit{value}\rangle} and \texttt{secondary-identical-sort-action}={\langle\textit{value}\rangle}.

This option determines what the comparator should do if two entries at the same hierarchical level are considered equal. The \langle\textit{value}\rangle may be one of:

- \textit{none}: don’t take any further action if sort values are identical;
- \textit{def} if sort values are identical, order them according to definition;
- \textit{use}: if sort values are identical, order them according to use in the document (order determine by a normal record);
- \textit{id}: if sort values are identical, compare the entry labels;
- \textit{original id}: if sort values are identical, compare the original unprefixed entry labels (as given in the \texttt{.bib} file);
- \langle\textit{field}\rangle: if sort values are identical, compare the values from the given \langle\textit{field}\rangle.

For the last three cases, a simple case-sensitive string comparison is used. If \langle\textit{value}\rangle isn’t a recognised keyword or valid field an error will occur. The default setting is \texttt{identical-sort-action}={\langle\textit{id}\rangle}. If you’re using one of the sort rules listed in table 5.2 and you also want a locale-sensitive sort used on the fallback, then you need to use \texttt{sort-suffix} instead.

\texttt{bib2gls} allows duplicate sort values, but this can cause a problem for hierarchical entries where parent entries with duplicate sort fields are clumped together and their children follow. To prevent this from happening, the \texttt{identical-sort-action}={\langle\textit{id}\rangle} setting will fallback on comparing the labels. Since all labels must be unique, this means comparisons between two different entries are all either strictly higher or strictly lower.

This action occurs after any suffixes have been appended through \texttt{sort-suffix}.

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sort-suffix=⟨value⟩

This option automatically implements the dual and secondary settings dual-sort-suffix =⟨⟨value⟩⟩ and secondary-sort-suffix={⟨value⟩}. The value may be one of:

- none: don’t append a suffix to any sort value;
- non-unique: append a numeric suffix to non-unique sort values;
- ⟨field⟩: append the value of the given field (if set) to the sort field. The given field must be defined (has an associated key for use in \newglossaryentry) but may be unset. If the interpreter is on, the field contents will be interpreted. If the field is just a label (such as the category field) you may find it simpler to use identical-sort-action={⟨field⟩} instead.

The default setting is sort-suffix={none}.

This option only affects the alphabetic (table 5.2), letter (table 5.3) and letter-number (table 5.4) sort rules. For the other types of sort methods (not including the no-sort options listed in table 5.1) you’ll need to use identical-sort-action to prevent problems occurring with duplicate sort values.

In the case of sort-suffix={non-unique}, this will only append a suffix to the duplicate sort values (within the same hierarchical level). The first sort value to be encountered isn’t given a suffix.

The sort-suffix={⟨field⟩} setting will only append a suffix if that field is set, but (if set) it will apply the suffix to all sort values, even those that are unique.

If you use --verbose, then bib2gls will write information in the transcript when it appends a suffix to the sort value. The message:

Sort value '⟨sort⟩' (entry '⟨id⟩') not unique for the entry's hierarchical level.

indicates that an entry with the given ⟨sort⟩ value has already been found within the same hierarchical level as the currently processed entry (whose label is given by ⟨id⟩). The same hierarchical level in this context means that either both entries don’t have a parent or both entries have the same parent. (That is, the entries are considered siblings.)

This message will then be followed by:

Appending suffix '⟨suffix⟩' to the sort value '⟨sort⟩' for entry '⟨id⟩'.

which indicates that the entry (identified by the label ⟨id⟩) has been assigned the sort value given by ⟨sort⟩⟨suffix⟩. If any break markers are applied, this is done after the suffix has been appended.

For example, suppose in my document I want to write about \makeglossaries (the application) and \makeglossaries (the command). I might decide to define semantic commands:

\newcommand*{\application}[1]{\texttt{#1}}
\newcommand*{\command}[1]{\texttt{\glsbackslash #1}}
5.9 Sorting

In my .bib file I might have:

```latex
@entry{cs.makeglossaries,
   name={\command{makeglossaries}},
   category={command},
   description={opens glossary files}
}

@entry{ap.makeglossaries,
   name={\application{makeglossaries}},
   category={application},
   description={Perl script}
}
```

If bib2gls is provided with the definitions of \application and \command (by interpreting the @preamble or a package provided with --custom-packages) then it will determine that the sort value for cs.makeglossaries is \makeglossaries and the sort value for ap.makeglossaries is just makeglossaries. These are two distinct sort values from bib2gls’s point of view although the sort rule may consider them identical if the rule ignores the ‘\’ character (such as the locale sort methods), in which case, bib2gls will then act according to identical-sort-action.

If bib2gls isn’t provided with these custom definitions, then it will ignore those semantic commands and both entries will end up with the sort value makeglossaries. The second instance will be recognised as a duplicate and the sort value will be converted to makeglossaries1 (where the automated suffix is 1 and the suffix marker, see below, is the empty string). Whereas with, say, sort-suffix-marker=\. then the sort value would become makeglossaries.1.

For comparison, consider the following document:

```latex
\documentclass{article}
\usepackage[style={indexgroup}]{glossaries}
\makeglossaries
\newcommand*{\application}[1]{\texttt{#1}}
\newcommand*{\command}[1]{\texttt{\glsbackslash #1}}
\newglossaryentry{cs.makeglossaries}{%
   name={\command{makeglossaries}},
   description={opens glossary files}}
\newglossaryentry{ap.makeglossaries}{%
   name={\application{makeglossaries}},
   description={Perl script}}
```
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\begin{document}
\gls{cs.makeglossaries} and \gls{ap.makeglossaries}.
\printglossaries
\end{document}

This uses makeindex, which puts both entries in the “Symbols” group (since they both start with \ from the start of \command and \application, respectively). The ordering is makeglossaries, \makeglossaries because “a” (second character of \application) comes before “c” (second character of \command).

The switch to xindy just involves adding the xindy package option:

\usepackage[xindy,style={indexgroup}]{glossaries}

This results in a glossary that only contains one entry, \makeglossaries, because xindy merges entries with duplicate sort values and the sort values end up as duplicates because xindy discards the \application and \command control sequences. Although bib2gls also ignores unknown control sequences, it doesn’t perform this merger.

If I add:

@preamble{"\providecommand*\application{\texttt{#1}}\providecommand\command{\texttt{\glsbackslash #1}}"}

to the earlier .bib file (called, say, entries.bib) then the document can be altered to use bib2gls:

\documentclass{article}
\usepackage[record,style={indexgroup}]{glossaries-extra}
\GlsXtrLoadResources[src={entries.bib},
  sort-suffix={non-unique},
  identical-sort-action={none}]

\begin{document}
\gls{cs.makeglossaries} and \gls{ap.makeglossaries}.
\printunsrtglossaries
\end{document}

This uses the default sort={locale} which considers \ an ignored (punctuation) character, so both \makeglossaries and makeglossaries are listed in the ”M” letter group, even though the interpreter has determined that the sort value for cs.makeglossaries is the literal string \makeglossaries. Note that in this case bib2gls doesn’t detect duplicate sort values since it only uses a simple string comparison to detect duplicates rather than using the collator.

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If I switch to using a letter-based sort rule instead, for example `sort={letter-nocase}`, then \texttt{makeglossaries} will be listed in the “Symbols” letter group since the leading \ from the sort value \texttt{makeglossaries} isn’t ignored with this rule.

Now let’s suppose I use `interpret-preamble={false}` to prevent \texttt{bib2gls} from interpreting the preamble:

\begin{knitrout}
\small
\begin{verbatim}
\GlsXtrLoadResources[src={entries.bib},interpret-preamble={false}]
\end{verbatim}
\end{knitrout}

This means that the custom commands won’t be recognised and will therefore be ignored, so both entries will have their sort values reduced to \texttt{makeglossaries}.

The first entry to be processed is \texttt{cs.makeglossaries} because it’s the first to be selected. This is assigned the sort value \texttt{makeglossaries}. (Note that, unless you use `sort={unsrt}`, the initial selection order is based on the record order. In this example, \texttt{cs.makeglossaries} has the first record in the \texttt{.aux} file.)

The next entry to be processed is \texttt{ap.makeglossaries}. This also ends up with the sort value \texttt{makeglossaries} so \texttt{bib2gls} converts this to \texttt{makeglossaries1} and (with verbose mode on) the following messages are written to the transcript:

Sort value 'makeglossaries' (entry 'ap.makeglossaries') not unique for the entry's hierarchical level. Appending suffix '1' to the sort value 'makeglossaries' for entry 'ap.makeglossaries'.

Both entries are listed in the “M” letter group in the order \texttt{makeglossaries, makeglossaries}.

If the records are reversed:

\begin{verbatim}
\glscs{ap.makeglossaries} and \glscs{cs.makeglossaries}.
\end{verbatim}

then the sort value for \texttt{cs.makeglossaries} is now considered the duplicate and the order is reversed: \texttt{makeglossaries, makeglossaries}.

Suppose now I modify the \texttt{.bib} file so that \texttt{ap.makeglossaries} is defined as:

\begin{verbatim}
@entry{ap.makeglossaries, 
   name={\texttt{application\{makeglossaries\}}}, 
   category={application}, 
   description={Perl script (must be used with \glscs{cs.makeglossaries})}}
\end{verbatim}

and suppose the document only contains an explicit reference to \texttt{ap.makeglossaries}:

\begin{verbatim}
\begin{document}
\glscs{ap.makeglossaries}
\printunsrtglossaries
\end{document}
\end{verbatim}
Now \texttt{ap.makeglossaries} is the first entry to be selected because entries with records are always selected before any (unrecorded) dependencies. In this case \texttt{cs.makeglossaries} is only selected because it’s required by \texttt{ap.makeglossaries}. Now \texttt{ap.makeglossaries} is the first to have its sort value assigned, and it’s \texttt{cs.makeglossaries} that has the duplicate. This means that the ordering in the glossary is now: \texttt{makeglossaries}, \texttt{\makeglossaries}.

An oddity occurs if the glossary is moved to the start of the document:

\begin{verbatim}
\begin{document}
\printunsrtglossaries
\gls{ap.makeglossaries}
\end{document}
\end{verbatim}

In this case, the first document build:

\begin{verbatim}
pdflatex myDoc
bibgls --group --verbose myDoc
pdflatex myDoc
\end{verbatim}

leads to the ordering described above: \texttt{makeglossaries}, \texttt{\makeglossaries}. However, the next document build has a new record for \texttt{cs.makeglossaries} occurring in the glossary (within the description of \texttt{ap.makeglossaries}) which means it’s now the first entry to be selected so the ordering switches to: \texttt{\makeglossaries}, \texttt{makeglossaries}. In this type of situation you might be better off with the \texttt{identical-sort-action={id}} option instead.

Remember that you can temporarily switch off the indexing by locally setting:

\begin{verbatim}
\GlsXtrSetDefaultGlsOpts{noindex}
\end{verbatim}

Since the glossary preamble is scoped, you can simply do

\begin{verbatim}
\appto\glossarypreamble{\GlsXtrSetDefaultGlsOpts{noindex}}
\end{verbatim}

which creates an ignored record. Even though the record is ignored (and so won’t show in the location list) the record still influences the selection order and the record count.

\textbf{sort-suffix-marker=⟨value⟩}

This automatically implements the dual and secondary settings \texttt{dual-sort-suffix-marker =⟨value⟩} and \texttt{secondary-sort-suffix-marker =⟨value⟩}.

If a suffix is appended to the sort value (see above) then it will be separated by the suffix marker, which can be set with \texttt{sort-suffix-marker=⟨value⟩} where ⟨value⟩ is the marker. By default the marker is empty. You can use \texttt{\string\u⟨hex⟩} or \texttt{\glshex⟨hex⟩} to indicate Unicode characters outside the ASCII range. If, for some reason, you want to use a special character, such as \#, you will need to precede it with \texttt{\string} (for example \texttt{\string\#}) or use the above hexadecimal markup. If you use \texttt{\#} it will be treated as a literal string containing a backslash followed by a hash character.

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**strength=⟨value⟩**

This option automatically implements **dual-strength=⟨value⟩** and **secondary-strength =⟨value⟩**.

The collation strength used by the alphabet sort methods (table 5.2) can be set to the following values: primary (default), secondary, tertiary or identical. These indicate the difference between two characters, but the exact assignment is locale dependent. See the documentation for Java’s Collator class [3] for further details.

For example, suppose the file entries.bib contains:

```latex
@index{resume}
@index{RESUME}
@index{resumee, name={r\'esum\'e}}
@index{rat}
@index{rot}
@index{aardvark}
@index{zoo}
```

and the document contains:

```latex
\documentclass{article}
\usepackage[record]{glossaries-extra}
\GlsXtrLoadResources[sort={en},src={entries}]
\begin{document}
\gls{resumee}, \gls{resume}, \gls{RESUME}, \gls{aardvark}, \gls{rat}, \gls{rot}, \gls{zoo}.
\printunsrtglossaries
\end{document}
```

then this uses the default **strength=primary**, so the entries are listed as aardvark, rat, résumé, resume, RESUME, rot, zoo.

If the strength is changed to secondary:

```latex
\GlsXtrLoadResources[sort={en},src={entries},strength={secondary}]
```

then the entries are listed as aardvark, rat, resume, RESUME, résumé, rot, zoo.

If the strength is changed to tertiary or identical, there’s no difference from **strength =secondary** for this particular example.

This option is ignored by non-alphabet sorts (such as letter or numeric).
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declaration={value}

This option automatically implements the dual and secondary settings dual-declaration ={(value)} and secondary-declaration={(value)}.

The collation decomposition used by alphabet sort methods (table 5.2) can be set to the following values: canonical (default), full or none. This determines how Unicode composed characters are handled. The fastest mode is none but is only appropriate for languages without accents. The slowest mode is full but is the most complete for languages with non-ASCII characters. See the documentation for Java's Collator class [3] for further details. This option is ignored by non-alphabet sorts (such as letter or numeric).

letter-number-rule={value}

This automatically implements the dual and secondary settings dual-letter-number-rule ={(value)} and secondary-letter-number-rule={(value)}.

If you use one of the letter-number sort methods (table 5.4), then you can determine the comparison between a number and letter. The (value) may be one of:

- before letter: numbers are considered less than any letter.
- after letter: numbers are considered greater than any letter.
- between: (default) numbers come between letter cases. With the letter-number-case sort option, this will put numbers after upper case and before lower case. This setting doesn’t make much sense with the letter-number-nocase option but, if used, this will put numbers before letters. The letter-number-upperlower and letternumber-lowerupper options are more complicated. See section 5.9 for more detail.
- first: numbers are considered less than all characters (including punctuation and spaces).
- last: numbers are considered greater than all characters (including punctuation and spaces).

Note that the reverse sort methods will invert this setting. Remember also that the case-insensitive letter-number sort methods always first convert the sort field to lower case, which means that if you use one of them then there won’t be any upper case characters.

Use letter-number-punc-rule to determine the relative position of white space and punctuation.

letter-number-punc-rule={value}

This automatically implements the dual and secondary dual-letter-number-punc-rule ={(value)} and secondary-letter-number-punc-rule={(value)}.

If you use one of the letter-number sort methods (table 5.4), then you can determine the order of white space and punctuation. In this context, punctuation means any character
that’s not considered a letter, a number or white space. This means that characters such as combining marks are considered punctuation.

The \((\text{value})\) may be one of the following:

- \text{punc-space-first}: punctuation comes first, followed by white space (then letters and optionally numbers according to the letter-number rule);
- \text{punc-space-last}: punctuation followed by white space come last (after letters and optionally numbers according to the letter-number rule);
- \text{space-punc-first}: white space comes first, followed by punctuation (then letters and optionally numbers according to the letter-number rule);
- \text{space-punc-last}: white space followed by punctuation come last (after letters and optionally numbers according to the letter-number rule);
- \text{space-first-punc-last}: white space comes first (followed by letters and optionally numbers according to the letter-number rule) and punctuation comes last;
- \text{punc-first-space-last}: punctuation comes first (followed by letters and optionally numbers according to the letter-number rule) and white space comes last;
- \text{punc-first-space-zero}: punctuation comes first (although numbers may come before) and white space is replaced by the digit 0 (0x30);
- \text{punc-last-space-zero}: punctuation comes last (although numbers may come after) and white space is replaced by the digit 0 (0x30).
- \text{punc-first-space-zero-match-next}: punctuation comes first (although numbers may come before) and white space is replaced by the appropriate zero character (see below);
- \text{punc-last-space-zero-match-next}: punctuation comes last (although numbers may come after) and white space is replaced by the appropriate zero character (see below).

Remember that the reverse sort methods will invert order governed by this setting.

For the space-zero-match-next settings, the sort value will have all spaces replaced with a digit that represents zero. If the space isn’t followed by a digit, the basic Latin 0 (0x30) will be used, otherwise \texttt{bib2gls} will try to match the zero with the following digit group. For example, if the space is followed by \texttt{1} (0xB9) the space will be replaced by \texttt{0} (0x2070), resulting in the sub-string \texttt{01} (0xB9 0x2070).

If just the \text{space-zero} (without the \text{-match-next}) is used then the space will just be replaced with 0 resulting in the sub-string \texttt{01} (0x30 0x2070). In this case, the 0 will be distinct from \texttt{1} (rather than being considered a leading zero). However, for other numbering systems the 0 will be treated as a leading zero. For example, if the space is followed by the Devanagari digit one (0x0967) then the sub-string will be \texttt{0x30 0x0967} but here the mixture is allowed
to form a number (with a leading zero) as both characters belong to the Unicode category “Number, Decimal Digit”.

This means that the -match-next settings are only really needed if the sort string contains the superscript or subscript digits that don’t belong to the “Number, Decimal Digit” category. The plain space-zero alternatives are more efficient as they just perform a simple substitution.

The \TeX parser library used by bib2gls recognises the standard \TeX text-mode commands \textsuperscript{⟨text⟩} and \textsubscript{⟨text⟩} and will use the Unicode superscript or subscript characters if they cover every character in ⟨text⟩, otherwise HTML markup is used, but that’s then stripped by bib2gls. This means that:

\[ C \textsubscript{10}H \textsubscript{10}O \textsubscript{4} \]

will be converted to: \( C_{10}H_{10}O_{4} \) but:

\[ X \textsubscript{1, 2} \]

will be converted to:

\[
X_{1, 2}
\]

which ends up as \( X_{1, 2} \).

Note that letter-number-rule={first} and letter-number-rule={last} overrides this option when comparing a number with white space or punctuation.

\[ \text{numeric-sort-pattern=⟨value⟩} \]

If you use the custom sort={numberformat} or sort={numberformat-reverse}, you need to specify the format pattern with this option where ⟨value⟩ is a pattern recognised by Java’s \text{DecimalFormat} class [4]. You can use \texttt{\string\u{hex}} or \texttt{\glshex{hex}} to indicate Unicode characters by their hexadecimal code. You can also use \#, \%, \_, \\, \{ and \} to indicate #, %, _, &, \{ and \}.

Where the dual or secondary sort uses numberformat or numberformat-reverse, use dual-numeric-sort-pattern for dual-sort and secondary-numeric-sort-pattern for secondary.

\[ \text{numeric-locale=⟨value⟩} \]

If you use any of the locale-sensitive numeric sort methods described in section 5.9, such as sort={numeric}, use this option to set the locale. The value may be:

- locale: use Java’s default locale (which is usually the operating system’s locale);
- doc: use the document’s locale or, if not set, assume numeric-locale=locale;
- ⟨lang-tag⟩: set to the locale identified by the given a valid language tag ⟨lang-tag⟩.

Use dual-numeric-locale for dual-sort and secondary-numeric-locale for secondary.
5.9 Sorting

date-sort-locale=⟨value⟩

If you use a date/time sort method (table 5.6), then you can set the locale used by Java’s date-time parser. The default setting is date-sort-locale={locale}.

The value may be locale (use Java’s default locale), doc (use the document’s locale) or a valid language tag ⟨lang-tag⟩ identifying the locale.

Use dual-date-sort-locale and secondary-date-sort-locale for the dual and secondary.

date-sort-format=⟨value⟩

If you use a date/time sort method (table 5.6), then you can set the format used by Java’s date-time parser. If omitted, date-sort-format={default} is assumed. The ⟨value⟩ may be one of:

- default: use the locale’s default format.
- short: use the locale’s short format.
- medium: use the locale’s medium format.
- long: use the locale’s long format.
- full: use the locale’s full format.
- ⟨pattern⟩: provide a custom pattern. This should match the specifications for Java’s SimpleDateFormat class [7]. You may use \string\u⟨hex⟩ or \glshex ⟨hex⟩ to indicate Unicode characters or \#, \%, \_, \&{ and } to indicate #, %, _, & { and }.

With the custom setting, if the pattern only contains date (but not time) information, then it must be used with sort={date} or sort={date-reverse}. If the pattern only contains time (but not date) information, then it must be used with sort={time} or sort={time-reverse}. If the pattern contains date and time information, then it must be used with sort={datetime} or sort={datetime-reverse}.

For example, suppose each entry provides information about a person and the user1 field is used to store their date of birth:

@example{caesar,
  name={Gaius Julius Caesar},
  first={Julius Caesar},
  text={Caesar},
  description={Roman politician and general},
  user1={13 July 100 BC}
}

@example{wellington,
  name={Arthur Wellesley, 1st Duke of Wellington},
}
first={Arthur Wellesley (Duke of Wellington)},
text={Wellington},
description={Anglo-Irish soldier and statesman},
user1={1 May 1769 AD}
}

Then the entries can be sorted by date of birth using:

\GlsXtrLoadResources[
  src={entries},% data in entries.bib
  sort-field={user1},
  sort={date},
  date-sort-format={d MMM y G}
]

The \texttt{G (era)} date pattern specifier expects a string, such as "AD". It will match lower case forms, such as "ad", so if you have \texttt{ad} the interpreter will convert this to \texttt{ad} (stripping the text-block command). However, in general it’s best to supply a semantic command that ensures that the interpreted result matches the required format.

For example, if \texttt{era} is provided with:

\@preamble{"\providecommand{\era}[1]{\textsc{\MakeLowercase{#1}}}"}

If the definition is hidden from the interpreter (\texttt{interpret-preamble={false}}) and the field value contains \texttt{\era{AD}} then the custom command will simply be stripped leaving \texttt{AD} which can be matched by \texttt{G}.

If the definition is picked up by the interpreter then the field value will contain \texttt{ad} (from \texttt{\MakeLowercase}) but this can be matched by \texttt{G}, so it isn’t a problem. However, if the definition of \texttt{era} is changed so that the era label supplied in the argument is converted to something that doesn’t match \texttt{G} then the definition should be hidden from the interpreter.

Here’s a complete document that changes the \texttt{group} fields to use the year and era:

\documentclass{article}
\usepackage[record,style={indexgroup}]{glossaries-extra}
\newcommand\bibglsdategroup[7]{#1\#4\#7}
\newcommand\bibglsdategrouptitle[7]{\number#1\#4}
\GlsXtrLoadResources[
  src={entries},
  sort-field={user1},
  sort={date},
  date-sort-format={d MMM y G},
  selection={all}]

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group-formation=⟨value⟩

If the group field hasn’t been set in the .bib file or through options like group, then it is assigned according to this option’s setting during sorting if --group has been used. Permitted values:

- default: the group is assigned according to the sort method’s default group formation. This is the default setting.
- codepoint: the group is set to \bibglsunicodegroup{⟨label⟩}{⟨character⟩}{⟨id⟩}{⟨type⟩}, where the first argument is the first significant character (converted to lower case and decomposed, if applicable) of the sort value.
- unicode category: the group is set to \bibglsunicodegroup{⟨label⟩}{⟨character⟩}{⟨id⟩}{⟨type⟩}, where the first argument is the label identifying the Unicode category of the first significant character of the sort value. For example, the label Ll signifies a lower case letter and Lu signifies an upper case letter.
- unicode script: the group is set to \bibglsunicodegroup{⟨label⟩}{⟨character⟩}{⟨id⟩}{⟨type⟩}, where the first argument is the label identifying the Unicode script of the first significant character of the sort value. For example, the label LATIN indicates Latin, GREEK indicates Greek and COMMON indicates common characters (such as mathematical Greek characters that are often used with non-Greek scripts).
- unicode category and script: the group is set to \bibglsunicodegroup{⟨label⟩}{⟨character⟩}{⟨id⟩}{⟨type⟩}, where the first argument is the label corresponding to the Unicode category and script of the first significant character of the sort value. For example, the label Ll.LATIN indicates a lower case Latin letter.

This option has no effect with --no-group or if no sorting is applied. Use secondary-group-formation for secondary sorting and dual-group-formation for dual entries. Settings other than the default can cause the groups to become fragmented, so care is needed if you use this option. See also section 1.2.

5.10 Secondary Glossary

The secondary glossary may only be used with action={define} (within the same resource set) since it’s incompatible with the copy actions. You may use secondary in the first resource set and a copy action in a subsequent resource set.
secondary=⟨value⟩

It may be that you want to display a glossary twice but with a different order. For example, the first time alphabetically and the second time by category. One way to do this is to have two \GlsXtrLoadResources that both load the same .bib file with different label-prefix and sort settings, but this is only possible with selection=all or by ensuring you reference each entry with both label prefixes. Another method is to use action=copy but this requires a second resource command with the same selection criteria.

A simpler method is to use a single \GlsXtrLoadResources with the secondary option. The value (which must be supplied) should be in the format:


or


If the ⟨field⟩ is omitted, the value of sort-field is used. Remember that when the primary entries are sorted, the sort field will be set, which means that the fallback field (such as name) won’t be used in the secondary sort. In general it’s best to supply the field unless one type is sorted and the other isn’t. (The actual sort value obtained by the secondary sort will be saved in the secondariesort field in case you require it.)

The value of ⟨sort⟩ is as for sort, but note that in this case the sort value unsrt or none means to use the same ordering as the primary entries. For example, with sort={de-CH-1996}, secondary={none:copies} the copies list will be ordered according to de-CH-1996 and not according to the order in which they were read when the .bib file or files were parsed. If ⟨sort⟩ is custom, then the rule should be provided with secondary-sort-rule.

This option will copy all the selected entries into the glossary labelled ⟨type⟩ sorted according to ⟨sort⟩ (using ⟨field⟩ as the sort value). Note that this just copies the entry’s label to the second glossary list rather than creating a duplicate entry, which saves resources but it means that all the fields will be identical. If you want groups in your glossary, the group information for the secondary glossary will be stored in the internal secondarygroup field. The group field will contain the group for the primary glossary.

In order to switch fields in \printunsrtglossary, you need at least v1.21 of glossaries-extra which provides \glsxtrgroupfield to keep track of the appropriate field label. If this command is defined, the preamble for the secondary glossary will be adjusted to locally change the field to secondarygroup. With older versions, the group information in the secondary glossary will be the same as for the primary glossary.

(If the glossary ⟨type⟩ doesn’t exist, it will be defined with \provideignoredglossary* {⟨type⟩} even if --no-provide-glossaries is set.) Note that if the glossary already exists and contains entries, the existing entries aren’t re-ordered. The new entries are simply appended to the list.

For example, suppose the .bib file contains entries like:

@entry{quartz,

name={quartz},
5.10 Secondary Glossary

description={hard mineral consisting of silica},
category={mineral}
}

@entry{cabbage,
    name={cabbage},
    description={vegetable with thick green or purple leaves},
    category={vegetable}
}

@entry{waterfowl,
    name={waterfowl},
    description={any bird that lives in or about water},
    category={animal}
}

and the document preamble contains:

\GlsXtrLoadResources[src={entries},sort={en-GB},
    secondary={en-GB:category:topic}]

This sorts the primary entries according to the default sort-field and then sorts the entries according to the category field and copies this list to the topic glossary (which will be provided if not defined.)

The secondary list can be displayed with the hypertargets switched off to prevent duplicates. The cross-references will link to the original glossary.

For example:

\printunsrtglossary[title={Summary (alphabetical)}]
\printunsrtglossary[title={Summary (by topic)},target={false}]

The alternative (or if more than two lists are required) is to reload the same .bib file with different label prefixes. For example, if the entries are stored in entries.bib:

\newglossary*{nosort}{Symbols (Unsorted)}
\newglossary*{byname}{Symbols (Letter Order)}
\newglossary*{bydesc}{Symbols (Ordered by Description)}
\newglossary*{byid}{Symbols (Ordered by Label)}

\GlsXtrLoadResources[
    src={entries},% entries.bib
    sort={unsrt},
    type={nosort}
]
5.10 Secondary Glossary

\GlsXtrLoadResources[
  src={entries},,% entries.bib
  sort={letter-case},
  type={byname},
  label-prefix={byname.}
]

\GlsXtrLoadResources[
  src={entries},,% entries.bib
  sort={locale},
  sort-field={description},
  type={bydesc},
  label-prefix={bydesc.}
]

\GlsXtrLoadResources[
  src={entries},,% entries.bib
  sort={letter},
  sort-field={id},
  type={byid},
  label-prefix={byid.}
]

secondary-missing-sort-fallback=\{field\}
As missing-sort-fallback but for secondary sorting.

secondary-trim-sort=\{boolean\}
As trim-sort but for secondary sorting.

secondary-sort-replace=\{list\}
As sort-replace but for secondary sorting.

secondary-sort-rule=\{value\}
As sort-rule but for secondary custom sorting.

secondary-break-at=\{value\}
As break-at but for secondary entries.
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secondary-break-marker=⟨marker⟩
As break-marker but for secondary entries.

secondary-sort-number-pad=⟨number⟩
As sort-number-pad but for secondary entries.

secondary-sort-pad-plus=⟨marker⟩
As sort-pad-plus but for secondary entries.

secondary-sort-pad-minus=⟨marker⟩
As sort-pad-minus but for secondary entries.

secondary-identical-sort-action=⟨value⟩
As identical-sort-action but for secondary entries.

secondary-sort-suffix=⟨value⟩
As sort-suffix but for secondary entries.

secondary-sort-suffix-marker=⟨value⟩
As sort-suffix-marker but for secondary entries.

secondary-strength=⟨value⟩
As strength but for secondary entries.

secondary-decomposition=⟨value⟩
As decomposition but for secondary entries.

secondary-letter-number-rule=⟨value⟩
As letter-number-rule but for secondary letter-number sorting.

secondary-letter-number-punc-rule=⟨value⟩
As letter-number-punc-rule but for secondary letter-number sorting.
secondary-numeric-sort-pattern=⟨value⟩
As numeric-sort-pattern but for secondary locale-sensitive numeric sorting.

secondary-numeric-locale=⟨value⟩
As numeric-locale but for secondary locale-sensitive numeric sorting.

secondary-date-sort-locale=⟨value⟩
As date-sort-locale but for secondary date-time sorting.

secondary-date-sort-format=⟨value⟩
As date-sort-format but for secondary date-time sorting.

secondary-group-formation=⟨value⟩
As group-formation but for secondary sorting.

5.11 Dual Entries

General Dual Settings
dual-prefix=⟨value⟩
This option indicates the prefix to use for the dual entries. The default value is dual. (including the terminating period). Any references to dual entries within the .bib file should use the prefix dual. which will be replaced by ⟨value⟩ when the .bib file is parsed.

As from version 1.8, the dual label prefix is identified in the .glstex file with:
\bibglsdualprefixlabel{⟨prefix⟩}

primary-dual-dependency=⟨boolean⟩
This is a boolean setting that determines whether or not primary and dual entries should be considered mutual dependencies. The default value is primary-dual-dependency={true}, which means that if a primary has records then the dual is added as a dependency and vice versa. The setting primary-dual-dependency={false} can’t be used with dual-sort= {none} or dual-sort={use} (but may be used with dual-sort={combine} and sort= {none} or sort={use}).
combine-dual-locations=(value)

This setting allows the location lists for each primary entry to be merged with that of the corresponding dual entry. The (value) may be one of:

- false This is the default setting. The location lists aren’t combined.
- both Both the primary and dual are given the combined location list.
- dual Only the dual is given the combined location list. The primary’s location list is emptied.
- primary Only the primary is given the combined location list. The dual’s location list is emptied.

For example, suppose the file entries.bib contains:

```biblatex
@dualindexentry{array, 
   description={ordered list of values}
}
@dualindexentry{vector, 
   name={vector}, 
   description={column or row of values}
}
@dualindexentry{set, 
   description={collection of values}
}
@dualindexentry{matrix, 
   plural={matrices}, 
   description={rectangular array of values}
}
```

and the document contains:

```latex
\documentclass{article}
\usepackage[colorlinks]{hyperref}
\usepackage[record,index,style={indexgroup}]{glossaries-extra}
\GlsXtrLoadResources[
 src={entries},
 type={index},
 label-prefix={idx.},
 dual-prefix={gls.},
]
5.11 Dual Entries

dual-type={main}
]
\begin{document}
gls{gls.array}, \gls{gls.vector}, \gls{gls.set}, \gls{gls.matrix}.
\newpage
\gls{gls.array}, \gls{idx.vector}, \gls{idx.set}, \gls{gls.matrix}.
\newpage
\gls{gls.array}, \gls{gls.vector}, \gls{gls.set}, \gls{gls.matrix}.
\end{document}

In this case, the primary entries are placed in the index glossary type and are assigned the prefix idx. but only two of the primary entries have been used in the document (both on page 2).

The dual entries are assigned the prefix gls. and are placed in the main glossary. The gls.array and gls.matrix entries have been indexed on pages 1, 2 and 3. The gls.vector and gls.set entries have been indexed on pages 1 and 3.

With the default setting, some of the locations are in the main glossary (corresponding to \gls{gls.array}, \gls{gls.vector}, \gls{gls.set} and \gls{gls.matrix}) and some of the locations are in the index glossary (corresponding to \gls{idx.vector} and \gls{idx.set}).

If the option combine-dual-locations={primary} is added to the resource set, then all the locations are moved to the index glossary. The entries in the main glossary no longer have locations. This is actually preferable for this type of document and it’s best not to reference the primary (index) entries as the hyperlink created by \gls will point to the index, but these entries don’t have descriptions, so it’s less useful than referencing the dual (main) entries as then the hyperlink can point to the definition in the main glossary.

**Dual Fields**

dual-type={value}

This option sets the type field for all dual entries. (The primary entries obey the type option.) This will override any value of type provided in the .bib file (or created through a mapping). The \textit{(value)} is required and should be one of:

- \textbf{same as entry}: sets the type to the entry type (lower case and without the initial \texttt{@}). For example, if the entry was defined with \texttt{@dualentry}, the type will be set to \texttt{dualentry}. If you’ve used \texttt{entry-type-aliases}, this refers to the target entry type not the original entry type provided in the .bib file.
5.11 Dual Entries

- same as original entry: set the type field to the original entry type (lower case and without the initial @) before it was aliased (behaves like same as entry if the entry type wasn’t aliased).

- same as base: sets the type to the base name of the .bib file (without the extension) that provided the entry definition (new to v1.1);

- same as primary: sets the type to the same as the corresponding primary entry’s type (which may have been set with type). If the primary entry doesn’t have the type field set, the dual’s type will remain unchanged.

- same as parent: sets the type to the same as the entry’s parent (new to v1.9). If the entry doesn’t have a parent or if the parent doesn’t have the type field set, then no change is made.

- ⟨label⟩: sets the type field to ⟨label⟩.

Remember that the glossary with that label must have already been defined (see section 1.3). For example:

\newglossary*{english}{English}
\newglossary*{french}{French}

\GlsXtrLoadResources[src={entries},sort={en},dual-sort={fr},
type={english},
dual-type={french}]

Alternatively:

\newglossary*{dictionary}{Dictionary}

\GlsXtrLoadResources[src={entries},sort={en},dual-sort={fr},
type={dictionary},
dual-type={same as primary}]

dual-category=⟨value⟩

This option sets the category field for all dual entries. (The primary entries obey the category option.) This will override any value of category provided in the .bib file (or created through a mapping). The ⟨value⟩ may be empty or one of:

- same as entry: sets the category to the entry type (lower case and without the initial @). For example, if the entry was defined with @dualentry, the category will be set to dualentry. If you’ve used entry-type-aliases, this refers to the target entry type not the original entry type provided in the .bib file.

- same as original entry: set the category field to the original entry type (lower case and without the initial @) before it was aliased (behaves like same as entry if the entry type wasn’t aliased).
5.11 Dual Entries

- **same as base**: sets the `category` to the base name of the .bib file (without the extension) that provided the entry definition (new to v1.1);

- **same as primary**: sets the `category` to the same as the corresponding primary entry’s `category` (which may have been set with `category`). If the primary entry doesn’t have the `category` field set, the dual’s `category` will remain unchanged.

- **same as type**: sets the `category` to the same as the value of the entry’s `type` field (which may have been set with `dual-type`). If the entry doesn’t have the `type` field set, the `category` will remain unchanged.

- **⟨label⟩**: sets the `category` field to ⟨label⟩.

**dual-counter=⟨value⟩**

As `counter` but for the dual entries. In this case ⟨value⟩ may be the name of the counter or `same as primary` which uses the counter for the primary entry.

**dual-short-case-change=⟨value⟩**

As `short-case-change` but applies to the `dualshort` field instead.

**dual-long-case-change=⟨value⟩**

As `long-case-change` but applies to the `duallong` field instead.

**dual-field=⟨value⟩**

If this option is used, this will add \glsxtrprovidestoragekey to the start of the .glstex file providing the key given by ⟨value⟩. Any entries defined using a dual entry type, such as `@dualentry`, will be written to the .glstex file with an extra field called ⟨value⟩ that is set to the mirror entry. If ⟨value⟩ is omitted `dual-field={dual}` is assumed. If you use a different value, you will need to redefine \GlsXtrDualField (either locally or globally).

For example, if the .bib file contains:

```latex
@dualentry{child,
  name={child},
  plural={children},
  description={enfant}
}
```

Then with `dual-field={dual}` (or simply `dual-field` without a value) this will first add the line:

```latex
\glsxtrprovidestoragekey{dual}\{}
```

at the start of the file and will include the line:
dual={dual.child},

for the primary entry (child) and the line:

\texttt{dual}={child},

for the dual entry (dual.child). It’s then possible to reference one entry from the other. For example, the post-description hook could contain:

\begin{verbatim}
\ifgls\hasfield{dual}\{\glsCurrentEntryLabel\}
  \space
  (\glsHyperlink{\glsCurrentFieldValue})\%
\end{verbatim}

Note that this new field won’t be available for use within the .bib file (unless it was previously defined in the document before \glsxtrresourcefile).

\texttt{dual-date-time-field-format}=$\langle$\textit{value}$\rangle$

As date-time-field-format but is used for dual entries.

\texttt{dual-date-field-format}=$\langle$\textit{value}$\rangle$

As date-field-format but is used for dual entries.

\texttt{dual-time-field-format}=$\langle$\textit{value}$\rangle$

As time-field-format but is used for dual entries.

\texttt{dual-date-time-field-locale}=$\langle$\textit{value}$\rangle$

As date-time-field-locale but is used for dual entries.

\texttt{dual-date-field-locale}=$\langle$\textit{value}$\rangle$

As date-field-locale but is used for dual entries.

\texttt{date-time-field-locale}=$\langle$\textit{value}$\rangle$

As time-field-locale but is used for dual entries.
5.11 Dual Entries

dual-sort=⟨value⟩

This option indicates how to sort the dual entries. The primary entries are sorted with the normal entries according to sort, and the dual entries are sorted according to dual-sort unless dual-sort={combine} in which case the dual entries will be combined with the primary entries and all the entries will sorted together according to the sort option.

If ⟨value⟩ isn’t set to combine then the dual entries are sorted separately according to ⟨value⟩ (as per sort) and the dual entries will be appended at the end of the .glistex file. The field used by the comparator is given by dual-sort-field. If dual-sort={custom}, then the dual entries are sorted according to the rule provided by dual-sort-rule.

For example:

\GlsXtrLoadResources[
  src={entries-dual},
  sort={en},
  dual-sort={de-CH-1996}
]

This will sort the primary entries according to en (English) and the secondary entries according to de-CH-1996 (Swiss German new orthography) whereas:

\GlsXtrLoadResources[
  src={entries-dual},
  sort={en-GB},
  dual-sort={combine}
]

will combine the dual entries with the primary entries and sort them all according to the en-GB locale (British English).

If not set, dual-sort defaults to combine. If ⟨value⟩ is omitted, locale is assumed.

dual-sort-field=⟨field⟩

This option indicates the field to use when sorting dual entries (when they haven’t been combined with the primary entries). The default value is the same as the sort-field value.

dual-missing-sort-fallback=⟨field⟩

As missing-sort-fallback but for dual sorting.

dual-trim-sort=⟨boolean⟩

As trim-sort but for dual sorting.
dual-sort-replace=$\langle$list$\rangle$
As sort-replace but for dual sorting.

dual-sort-rule=$\langle$value$\rangle$
As sort-rule but for dual-sort={custom}.

dual-break-at=$\langle$value$\rangle$
As break-at but for dual entries.

dual-break-marker=$\langle$marker$\rangle$
As break-marker but for dual entries.

dual-sort-number-pad=$\langle$number$\rangle$
As sort-number-pad but for dual entries.

dual-sort-pad-plus=$\langle$marker$\rangle$
As sort-pad-plus but for dual entries.

dual-sort-pad-minus=$\langle$marker$\rangle$
As sort-pad-minus but for dual entries.

dual-identical-sort-action=$\langle$value$\rangle$
As identical-sort-action but for dual entries.

dual-sort-suffix=$\langle$value$\rangle$
As sort-suffix but for dual entries.

dual-sort-suffix-marker=$\langle$value$\rangle$
As sort-suffix-marker but for dual entries.

dual-strength=$\langle$value$\rangle$
As strength but for dual entries.

dual-decomposition=$\langle$value$\rangle$
As decomposition but for dual entries.
5.11 Dual Entries

dual-letter-number-rule=⟨value⟩
As letter-number-rule but for dual entries that use a letter-number sort.

dual-letter-number-punc-rule=⟨value⟩
As letter-number-punc-rule but for dual entries that use a letter-number sort.

dual-numeric-sort-pattern=⟨value⟩
As numeric-sort-pattern but for dual entries that use a locale-sensitive numeric sort.

dual-numeric-locale=⟨value⟩
As numeric-locale but for dual entries that use a locale-sensitive numeric sort.

dual-date-sort-locale=⟨value⟩
As date-sort-locale but for dual entries that use a date/time sort.

dual-date-sort-format=⟨value⟩
As date-sort-format but for dual entries that use a date/time sort.

dual-group-formation=⟨value⟩
As group-formation but for dual sorting.

Dual Mappings

dual-entry-map={⟨list1⟩,⟨list2⟩}
This setting governs the behaviour of @dualentry definitions. The value consists of two comma-separated lists of equal length identifying the field mapping used to create the dual entry from the primary one. Note that the alias field can’t be mapped.

The default setting is:

dual-entry-map=
    {name,plural,description,descriptionplural},
    {description,descriptionplural,name,plural}

The dual entry is created by copying the value of the field in the first list ⟨list1⟩ to the field in the corresponding place in the second list ⟨list2⟩. Any additional fields are copied over to the same field. For example:
5.11 Dual Entries

@dualentry{cat,
    name={cat},
    description={chat},
    see={dog}
}

defines two entries. The primary entry is essentially like:

@entry{cat,
    name={cat},
    plural={cat\glspluralsuffix },
    description={chat},
    descriptionplural={chat\glspluralsuffix },
    see={dog}
}

and the dual entry is essentially like:

@entry{dual.cat,
    description={cat},
    descriptionplural={cat\glspluralsuffix },
    name={chat},
    plural={chat\glspluralsuffix },
    see={dog}
}

(except they’re defined using \bibglsnewdualentry instead of \bibglsnewentry, and each is considered dependent on the other.)

The see field isn’t listed in dual-entry-map so its value is simply copied directly over to the see field in the dual entry. Note that the missing plural and descriptionplural fields have been filled in using their fallback values.

In general bib2gls doesn’t try to supply missing fields, but in the dual entry cases it needs to do this for the mapped fields. This is because the shuffled fields might have different default values from the glossaries-extra package’s point of view. For example, \longnewglossaryentry doesn’t provide a default for descriptionplural if it hasn’t been set.

dual-abbrv-map={{{list1}},{{list2}}}

This is like dual-entry-map but applies to @dualabbreviation rather than @dualentry. Note that the alias field can’t be mapped. The default setting is:

dual-abbrv-map={
    {short,shortplural,long,longplural,dualshort,dualshortplural,
     duallong,duallongplural},
    {dualshort,dualshortplural,duallong,duallongplural,short,shortplural,
     long,longplural}
}
This essentially flips the short field with the dualshort field and the long field with the duallong field. See @dualabbreviation for further details.

dual-abbrventry-map={{list1}, {list2}}

This is like dual-entry-map but applies to @dualabbreviationentry rather than @dualentry. Note that the alias field can’t be mapped. The default setting is:

dual-abbrventry-map=
    {long, short, shortplural},
    {name, text, plural}
}

See @dualabbreviationentry for further details.

dual-symbol-map={{list1}, {list2}}

This is like dual-entry-map but applies to @dualsymbol rather than @dualentry. Note that the alias field can’t be mapped. The default setting is:

dual-symbol-map=
    {name, plural, symbol, symbolplural},
    {symbol, symbolplural, name, plural}
}

This essentially flips the name field with the symbol field.

dual-indexentry-map={{list1}, {list2}}

This is like dual-entry-map but applies to @dualindexentry rather than @dualentry. The default setting is:

dual-indexentry-map=
    {name},
    {name}
}

Note that there must always be at least one pair, even if it’s the same field, since this identifies the field to use for the backlink, if set.

dual-indexsymbol-map={{list1}, {list2}}

This is like dual-entry-map but applies to both @dualindexsymbol and @dualindexnumber. The default setting is:

dual-indexsymbol-map=
    {symbol, name, symbolplural, plural},
    {name, symbol, plural, symbolplural}
}
5.11 Dual Entries

dual-indexabbrv-map=\{(\textit{list1}),\{(\textit{list2})\}\}

This is like dual-entry-map but applies to both the dual @dualindexabbreviation and tertiary @tertiaryindexabbreviationentry entry types. The default setting is:

dual-indexabbrv-map=
  
  \{name},
  \{name\}

Dual Back-Links

dual-entry-backlink=\{(\textit{boolean})\}

This is a boolean setting. If \textit{(boolean)} is missing true is assumed.

When used with @dualentry, if \textit{(boolean)} is true, this will wrap the contents of the first mapped field with \bibglshyperlink. The field is obtained from the first mapping listed in dual-entry-map.

For example, if the document contains:

\texttt{\GlsXtrLoadResources[dual-entry-backlink, dual-entry-map=\{ \{name,plural,description,descriptionplural\}, \{description,descriptionplural,name,plural\} \}, src=\{entries-dual\}]}

and if the .bib file contains:

\texttt{@dualentry\{child, name=\{child\}, plural=\{children\}, description=\{enfant\} \}}

Then the definition of the primary entry (child) in the .glstex file will set the description field to:

\texttt{\bibglshyperlink\{enfant\}\{dual.child\}}

and the dual entry (dual.child) will have the description field set to:

\texttt{\bibglshyperlink\{child\}\{child\}}

This use of the wrapper \bibglshyperlink (rather than explicitly using \glshyperlink) and inserting the actual field value (rather than using commands like \glsentryname) allows it to work with \makefirstuc if the field requires a case-change.
The reason the `description` field is chosen for the modification is because the first field listed in `⟨list1⟩` of `dual-entry-map` is the `name` field which maps to `description` (the first field in the second list `⟨list2⟩`). This means that the hyperlink for the dual entry should be put in the `description` field.

For the primary entry, the `name` field is looked up in the second list from the `dual-entry-map` setting. This is the third item in this second list, so the third item in the first list is selected, which also happens to be the `description` field, so the hyperlink for the primary entry is put in the `description` field.

dual-abbrv-backlink=⟨{boolean}⟩
This is analogous to `dual-entry-backlink` but for entries defined with `@dualabbreviation` instead of `@dualentry`.

dual-symbol-backlink=⟨{boolean}⟩
This is analogous to `dual-entry-backlink` but for entries defined with `@dualsymbol` instead of `@dualentry`.

dual-abbrventry-backlink=⟨{boolean}⟩
Analogous to `dual-entry-backlink` but for entries defined with `@dualabbreviation-entry` instead of `@dualentry`. This setting can be problematic as the backlinks rely on the relevant field being known to `bib2gls`. Since the abbreviation style typically sets the `name` field (and sometimes the `description` field as well), you may find that no backlink appears. A simple workaround is to use `dual-field` (or `dual-field={dual}`) to store the dual label in the `dual` field, and then use a style that checks for this field and adds the backlink.

With `glossaries-extra v1.30+` you can use:

\GlsXtrDualBackLink{⟨text⟩}{⟨label⟩}
which encapsulates ⟨text⟩ with a hyperlink to the dual. The ⟨label⟩ identifies the entry that requires a backlink. The dual’s label is obtained from the field given by:

\GlsXtrDualField
which defaults to `dual`. Note that if you assign a different field label with `dual-field`, then you will need to redefine `\GlsXtrDualField` as appropriate.

For example:

\renewcommand*{\glsuserdescription}{\GlsXtrDualBackLink{\glslonguserfont{#1}}{#2}}%
\setabbreviationstyle{long-short-user}
\GlsXtrLoadResources[src={entries},dual-field]

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5.12 Tertiary Entries

dual-entryabbrv-backlink={⟨boolean⟩}

As dual-abbrventry-backlink but for entries defined with @dualentryabbreviation instead of @dualabbreviationentry.

dual-indexentry-backlink={⟨boolean⟩}

This is analogous to dual-entry-backlink but for entries defined with @dualindexentry instead of @dualentry.

dual-indexsymbol-backlink={⟨boolean⟩}

This is analogous to dual-entry-backlink but for entries defined with @dualindexesymbol and @dualindexnumber.

dual-indexabbrv-backlink={⟨boolean⟩}

This is analogous to dual-entry-backlink but for entries defined with @dualindexabbreviation and @tertiaryindexabbreviationentry.

dual-backlink={⟨boolean⟩}

Shortcut for:

dual-entry-backlink={⟨boolean⟩},
dual-abbrventry-backlink={⟨boolean⟩},
dual-abbrv-backlink={⟨boolean⟩},
dual-symbol-backlink={⟨boolean⟩},
dual-indexentry-backlink={⟨boolean⟩},
dual-indexsymbol-backlink={⟨boolean⟩},
dual-indexabbrv-backlink={⟨boolean⟩}

5.12 Tertiary Entries

tertiary-prefix={⟨value⟩}

This option indicates the prefix to use for the tertiary entries. The default value is tertiary. (including the terminating period).

As from version 1.8, the tertiary label prefix is identified in the .glistex file with:

\bibglsttertiaryprefixlabel{⟨prefix⟩}

tertiary-type={⟨value⟩}

This option indicates that the tertiary entries should have their type field set to ⟨value⟩. If ⟨value⟩ is empty the type is left unchanged. Unlike the type and dual-type options, there are no recognised keywords.
### 5.12 Tertiary Entries

[tertiary-category={⟨value⟩}]

This option indicates that the tertiary entries should have their category field set to ⟨value⟩. If ⟨value⟩ is empty the category is left unchanged. Unlike the category and dual-category options, there are no recognised keywords.
6 Provided Commands

When bib2gls creates the .glstex file, it writes some definitions for custom commands in the form \bibgls... which may be changed as required. The command definitions all use \providecommand which means that you can define the command with \newcommand before the resource file is loaded.

Note that if you try to redefine any of these commands after the resource file has been loaded with \renewcommand, you will get an error on the first \LaTeX run when the .glstex file doesn’t exist. You may prefer to use \glsrenewcommand instead, which will generate a warning instead of an error.

Since many of the commands are actually used within the .glstex file, it’s best to use \newcommand before the first resource set and \renewcommand between resource sets if adjustments are necessary.

6.1 Entry Definitions

This section lists the commands (\bibglsnew...) used to define entries. Note that the entry definition commands are actually used when \LaTeX inputs the resource file, so redefining them after the resource file is loaded won’t have an effect on the entries defined in that resource file (but will affect entries defined in subsequent resource files). Each provided command is defined in the .glstex file immediately before the first entry that requires it, so only the commands that are actually needed are provided.

The sort key may be set within the .glstex entry definition, but its value is usually not required in the document unless you are using a hybrid method with record={alsoindex}.

After each entry is defined, if it has any associated locations and the default save-loclist ={true} is set, then the locations are added using:

\begin{alltt}\texttt{\glxsxtrfieldlistadd{(\texttt{label})}{(\texttt{field})}{(\texttt{item})}}\end{alltt}

Any additional fields that don’t have associated keys are then set (if required) with \GlsXtrSetField.

\bibglsnewentry

\begin{alltt}\texttt{\bibglsnewentry{(\texttt{label})}{(\texttt{options})}{(\texttt{name})}{(\texttt{description})}}\end{alltt}

This command is used to define terms identified with the \texttt{@entry} type. The definition provided in the .glstex file is:
6.1 Entry Definitions

\providecommand{\bibglsnewentry}[4]{% 
\longnewglossaryentry*{#1}{name={#3},#2}{#4}%
}

This uses the starred form \longnewglossaryentry* that doesn’t automatically append \nopostdesc (which interferes with the post-description hooks provided by category attributes).

\bibglsnewsymbol

\bibglsnewsymbol{⟨label⟩}{⟨options⟩}{⟨name⟩}{⟨description⟩}

This command is used to define terms identified with the @symbol type. The definition provided in the .glistex file is:

\providecommand{\bibglsnewsymbol}[4]{% 
\longnewglossaryentry*{#1}{name={#3},sort={#1},category={symbol},#2}{#4}%
}

Note that this sets the sort field to the label, but this may be overridden by the ⟨options⟩ if the sort field was supplied or if bib2gls has determined the value whilst sorting the entries. This also sets the category to symbol, but again this may be overridden by ⟨options⟩ if the entry had the category field set in the .bib file or if the category was overridden with category={⟨value⟩}.

\bibglsnewnumber

\bibglsnewnumber{⟨label⟩}{⟨options⟩}{⟨name⟩}{⟨description⟩}

This command is used to define terms identified with the @number type. The definition provided in the .glistex file is:

\providecommand{\bibglsnewnumber}{[4]{% 
\longnewglossaryentry*{#1}{name={#3},sort={#1},category={number},#2}{#4}%
}

This is much the same as \bibglsnewsymbol above but sets the category to number. Again the sort and category keys may be overridden by ⟨options⟩.
\bibglsnewindex

\bibglsnewindex{⟨label⟩}{⟨options⟩}

This command is used to define terms identified with the @index type. The definition provided in the .glstex file is:

\providecommand*{\bibglsnewindex}[2]{% 
\newglossaryentry{#1}{name={#1},category={index},description={},#2} \}

This makes the name default to the ⟨label⟩, assigns the category to index and sets an empty description. These settings may be overridden by ⟨options⟩.

Note that the description doesn’t include \nopostdesc to allow for the post-description hook used by category attributes.

\bibglsnewindexplural

\bibglsnewindexplural{⟨label⟩}{⟨options⟩}{⟨name⟩}

This command is used to define terms identified with the @indexplural type. The definition provided in the .glstex file is:

\providecommand{\bibglsnewindexplural}[3]{% 
\newglossaryentry{#1}{name={#3},category={indexplural},description={},#2} \}

This assigns the category to indexplural and sets an empty description. These settings may be overridden by ⟨options⟩.

\bibglsnewabbreviation

\bibglsnewabbreviation{⟨label⟩}{⟨options⟩}{⟨short⟩}{⟨long⟩}

This command is used to define terms identified with the @abbreviation type. The definition provided in the .glstex file is:

\providecommand{\bibglsnewabbreviation}[4]{% 
\newabbreviation[#2]{#1}{#3}{#4} \}

Since this uses \newabbreviation, it obeys the abbreviation style for its given category (which may have been set in ⟨options⟩, either from the category field in the .bib file or through the category option). Similarly the type will obey \glsxtrabbrvtype unless the value is supplied in the .bib file or through the type option.
\bibglsnewacronym

\bibglsnewacronym{⟨label⟩}{⟨options⟩}{⟨short⟩}{⟨long⟩}

This command is used to define terms identified with the \texttt{@acronym} type. The definition provided in the .glstex file is:
\providecommand{\bibglsnewacronym}{[4]{% hadn't written the last \% here}
   \newacronym[#2]{#1}{#3}{#4} \}%
\}

This works in much the same way as \bibglsnewabbreviation. Remember that with the glossaries-extra package \newacronym is redefined to just use \newabbreviation with the default \texttt{type} set to \texttt{acronym} and the default \texttt{category} set to \texttt{acronym}.

\bibglsnewdualentry

\bibglsnewdualentry{⟨label⟩}{⟨options⟩}{⟨name⟩}{⟨description⟩}

This command is used to define terms identified with the \texttt{@dualentry} type. The definition provided in the .glstex file is:
\providecommand{\bibglsnewdualentry}{[4]{% hadn't written the last \% here}
   \longnewglossaryentry*{#1}{name={#3},#2}{#4} \}%
\}

Note that this definition ignores the \texttt{(description)} argument.

\bibglsnewdualindexentry

\bibglsnewdualindexentry{⟨label⟩}{⟨options⟩}{⟨name⟩}{⟨description⟩}

This command is used to define primary terms identified with the \texttt{@dualindexentry} type. The definition provided in the .glstex file is:
\providecommand{\bibglsnewdualindexentry}{[4]{% hadn't written the last \% here}
   \longnewglossaryentry*{#1}{name={#3},category={index},#2}{%}
\}

\bibglsnewdualindexentrysecondary

\bibglsnewdualindexentrysecondary{⟨label⟩}{⟨options⟩}{⟨name⟩}{⟨description⟩}

This command is used to define secondary terms identified with the \texttt{@dualindexentry} type. The definition provided in the .glstex file is:
\providecommand{\bibglsnewdualindexentrysecondary}{[4]{% hadn't written the last \% here}
   \longnewglossaryentry*{#1}{name={#3},#2}{#4}%
\}
6.1 Entry Definitions

\bibglsnewdualindexsymbol

This command is used to define primary terms identified with the \texttt{@dualindexsymbol} type. The definition provided in the \texttt{.glstex} file is:

\providecommand{\bibglsnewdualindexsymbol}[5]{% 
  \longnewglossaryentry*{#1}{name={#3},category={index},symbol={#4},#2} 
}%

Note that this definition ignores the \texttt{(description)} argument.

\bibglsnewdualindexsymbolsecondary

This command is used to define secondary terms identified with the \texttt{@dualindexsymbol} type. The definition provided in the \texttt{.glstex} file is:

\providecommand{\bibglsnewdualindexsymbolsecondary}[5]{% 
  \longnewglossaryentry*{#1}{name={#3},category={symbol},symbol={#4},#2} 
}%

\bibglsnewdualindexnumber

This command is used to define primary terms identified with the \texttt{@dualindexnumber} type. The definition provided in the \texttt{.glstex} file is:

\providecommand{\bibglsnewdualindexnumber}[5]{% 
  \longnewglossaryentry*{#1}{name={#3},category={index},symbol={#4},#2} 
}%

Note that this definition ignores the \texttt{(description)} argument.

\bibglsnewdualindexnumbersecondary

This command is used to define secondary terms identified with the \texttt{@dualindexnumber} type. The definition provided in the \texttt{.glstex} file is:
6.1 Entry Definitions

\providecommand{\bibglsnewdualindexnumbersecondary}[5]{%  \longnewglossaryentry*{#1}{name=#3,category={number},symbol={#4},#2}  

}\bibglsnewdualindexabbreviation{⟨label⟩}{⟨dual-label⟩}{⟨options⟩}{⟨name⟩}
{⟨short⟩}{⟨long⟩}{⟨description⟩}

This command is used to define primary terms identified with the \texttt{@dualindexabbreviation} type. The default definition provided in the \texttt{.glstex} file is:

\providecommand{\bibglsnewdualindexabbreviation}[7]{%  \longnewglossaryentry*{#1}{%      \name={\protect\bibglssuseabbrvfont{#4}{\glscategory{#2}}},%      \category={index},#3\}%  
}

In this case \texttt{⟨dual-label⟩} is the dual entry’s label, which is used to fetch the category label in \texttt{\bibglssuseabbrvfont}. (The \texttt{category} field for the dual isn’t used since a custom definition of \texttt{\bibglsnewdualindexabbreviationsecondary} may override the value known to \texttt{bib2gls}.)

Note that (as shown above) with the default \texttt{abbreviation-name-fallback=⟨short⟩} the \texttt{name} uses:

\bibglssuseabbrvfont{⟨text⟩}{⟨category⟩}

to format the name, which ensures that it uses the same font as the short form for the dual abbreviation. This will use \texttt{\bibglssuseabbrvfont} if it’s defined otherwise it will be defined to replicate that command. If \texttt{abbreviation-name-fallback} is set to some other field then the \texttt{name} uses:

\bibglssuselongfont{⟨text⟩}{⟨category⟩}

instead, which ensures that it uses the same font as the long form for the dual abbreviation.

\bibglsnewdualindexabbreviationsecondary

\providecommand{\bibglsnewdualindexabbreviationsecondary}[5]{%  \longnewglossaryentry*{#1}{name=#3,category={number},symbol={#4},#2}  

}\bibglsnewdualindexabbreviationsecondary{⟨label⟩}{⟨options⟩}{⟨name⟩}
{⟨short⟩}{⟨long⟩}{⟨description⟩}

This command is used to define secondary terms identified with the \texttt{@dualindexabbreviation} entry type. The definition provided in the \texttt{.glstex} file is:

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6.1 Entry Definitions

This ensures that a missing or empty description doesn’t interfere with the abbreviation style.

\bibglsnewdualabbreviationentry

\bibglsnewdualabbreviationentry{{\langle label\rangle}{\langle options\rangle}{\langle short\rangle}{\langle long\rangle}}
\{{\langle description\rangle}\}

This command is used to define primary terms identified with the \texttt{@dualabbreviation-entry} type. The definition provided in the \texttt{.glstex} file is:

\providecommand{\bibglsnewdualabbreviationentry}[5]{%
  \newabbreviation[#2]{#1}{#3}{#4}%
}\%

Note that this definition ignores the \texttt{\langle description\rangle} argument.

\bibglsnewdualabbreviationentrysecondary

\bibglsnewdualabbreviationentrysecondary{{\langle label\rangle}{\langle options\rangle}{\langle short\rangle}{\langle long\rangle}}
\{{\langle description\rangle}\}

This command is used to define secondary terms identified with the \texttt{@dualabbreviation-entry} type. The definition provided in the \texttt{.glstex} file is:

\providecommand{\bibglsnewdualabbreviationentrysecondary}[5]{%
  \longnewglossaryentry*{#1}{#2}{#5}%
}\%

Note that this definition ignores the \texttt{\langle short\rangle} and \texttt{\langle long\rangle} arguments (which will typically be empty unless the default mappings are changed).

\bibglsnewdualentryabbreviation

\bibglsnewdualentryabbreviation{{\langle label\rangle}{\langle options\rangle}{\langle short\rangle}{\langle long\rangle}}
\{{\langle description\rangle}\}

This command is used to define primary terms identified with the (now deprecated) entry type \texttt{@dualentryabbreviation}. The definition provided in the \texttt{.glstex} file is:
Note that this definition ignores the \textit{description} argument.

\bibglsnewdualentryabbreviationsecondary

This command is used to define secondary terms identified with the (now deprecated) entry type @dualentryabbreviation. The definition provided in the .glistex file is:

\providecommand{\bibglsnewdualentryabbreviationsecondary}[5]{% 
  \longnewglossaryentry*{#1}{#2}{#5}%
}\bibglsnewdualsymbol

This command is used to define terms identified with the @dualsymbol type. The definition provided in the .glistex file is:

\providecommand{\bibglsnewdualsymbol}[4]{% 
  \longnewglossaryentry*{#1}{name={#3},sort={#1},category={symbol},#2}{#4}}

\bibglsnewdualnumber

This command is used to define terms identified with the @dualnumber type. The definition provided in the .glistex file is:

\providecommand{\bibglsnewdualnumber}[4]{% 
  \longnewglossaryentry*{#1}{name={#3},sort={#1},category={symbol},#2}{#4}
This command is used to define terms identified with the @dualabbreviation type where the duallong field is swapped with the long field and the dualshort field is swapped with the short field. The definition provided in the .glstex file is:

\providecommand{\bibglsnewdualabbreviation}[4]{%
  \newabbreviation[#2]{#1}{#3}{#4}%
}
6.1 Entry Definitions

\bibglsnewtertiaryindexabbreviationentrysecondary

This command is used to define both the secondary and tertiary terms identified with the \@tertiaryindexabbreviationentry type. The secondary term is an abbreviation and the tertiary term is a regular entry. The definition written to the .glstex file is:

\providecommand{\bibglsnewtertiaryindexabbreviationentrysecondary}{% \newabbreviation[#3]{#1}{#6}{#7} \longnewglossaryentry*{#2}{name={\protect\bibglsuselongfont{#7}{\glscategory{#1}}},#4} \}

The \langle label\rangle is the label for the secondary (abbreviation) entry and \langle tertiary-label\rangle is the label for the tertiary (regular) entry. The fifth argument (\langle primary name\rangle) isn’t used but is provided if required for a custom redefinition. The name field for the tertiary is obtained from the \langle long\rangle argument encapsulated by \bibglsuselongfont to format the name, which ensures that it uses the same font as the long form for the dual abbreviation. This will use \glssuselongfont if it’s defined otherwise it will be defined to replicate that command.

\bibglsnewbibtexentry

This command is used to define the main term identified with \@bibtexentry. The definition written to the .glstex file is:

\providecommand{\bibglsnewbibtexentry}{% \longnewglossaryentry*{#1}{name={#3},#2}{#4} \}

\bibglsnewcontributor

This command is used to define terms identified with \@contributor (typically implicitly created through \@bibtexentry). The definition written to the .glstex file is:

\providecommand{\bibglsnewcontributor}{% \longnewglossaryentry*{#1}{name={#3},#2}{#4} \}

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6.1 Entry Definitions

\bibglsnewprogenitor

\bibglsnewprogenitor{⟨label⟩}{⟨options⟩}{⟨name⟩}{⟨description⟩}

This command is used to define the main terms created by \texttt{@progenitor}. The definition is written to the .glstex file as:

\providecommand{\bibglsnewprogenitor}{% \longnewglossaryentry*{#1}{name={#3},#2}{#4} % }

\bibglsnewspawnindex

\bibglsnewspawnindex{⟨label⟩}{⟨options⟩}{⟨name⟩}{⟨description⟩}

This command is used to define the main terms created by \texttt{@spawnindex}. The definition is written to the .glstex file as:

\providecommand{\bibglsnewspawnindex}{% \longnewglossaryentry*{#1}{name={#3},#2}{#4} % }

\bibglsnewspawnedindex

\bibglsnewspawnedindex{⟨label⟩}{⟨options⟩}{⟨name⟩}{⟨description⟩}

This command is used to define the terms spawned by \texttt{@progenitor} or \texttt{@spawnindex}. The definition is written to the .glstex file as:

\providecommand{\bibglsnewspawnedindex}{% \newglossaryentry{#1}{name={#1},category=index,description={},#2} % }

\bibglsnewspawnindexplural

\bibglsnewspawnindexplural{⟨label⟩}{⟨options⟩}{⟨name⟩}{⟨description⟩}

This command is used to define the main terms created by \texttt{@spawnindexplural}. The definition is written to the .glstex file as:

\providecommand{\bibglsnewspawnindexplural}{% \longnewglossaryentry*{#1}{name={#3},#2}{#4} % }

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6.1 Entry Definitions

\bibglsnewspawnedindexplural

\bibglsnewspawnedindexplural{(label)}{(options)}{(name)}

This command is used to define the terms spawned by \@spawnindexplural. The definition is written to the .glstex file as:

\providecommand{\bibglsnewspawnedindexplural}[3]{\newglossaryentry{#1}{name={#3},category={indexplural},description={},#2}}

\bibglsnewspawnentry

\bibglsnewspawnentry{(label)}{(options)}{(name)}{(description)}

This command is used to define the main terms created by \@spawnentry. The definition is written to the .glstex file as:

\providecommand{\bibglsnewspawnentry}[4]{\longnewglossaryentry*{#1}{name={#3},#2}{#4}}

\bibglsnewspawnedentry

\bibglsnewspawnedentry{(label)}{(options)}

This command is used to define the terms spawned by \@spawnentry. The definition is written to the .glstex file as:

\providecommand{\bibglsnewspawnedentry}[4]{\longnewglossaryentry*{#1}{name={#3},#2}{#4}}

\bibglsnewspawnabbreviation

\bibglsnewspawnabbreviation{(label)}{(options)}{(short)}{(long)}

This command is used to define the main terms created by \@spawnabbreviation. The definition is written to the .glstex file as:

\providecommand{\bibglsnewspawnabbreviation}[4]{\newabbreviation[#2]{#1}{#3}{#4}}

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\texttt{\texttt{\textbackslash \bibglsnewspawnedabbreviation}}

\texttt{\bibglsnewspawnedabbreviation\{⟨label⟩\}\{⟨options⟩\}\{⟨short⟩\}\{⟨long⟩\}}

This command is used to define the terms spawned by \texttt{@spawnabbreviation}. The definition is written to the \texttt{.glistex} file as:

\begin{verbatim}
\providecommand{\bibglsnewspawnedabbreviation}[4]{%
  \newabbreviation[#2]{#1}{#3}{#4}%
}\end{verbatim}

\texttt{\texttt{\bibglsnewspawnacronym}}

\texttt{\bibglsnewspawnacronym\{⟨label⟩\}\{⟨options⟩\}\{⟨short⟩\}\{⟨long⟩\}}

This command is used to define the main terms created by \texttt{@spawnacronym}. The definition is written to the \texttt{.glistex} file as:

\begin{verbatim}
\providecommand{\bibglsnewspawnacronym}[4]{%
  \newacronym[#2]{#1}{#3}{#4}%
}\end{verbatim}

\texttt{\texttt{\bibglsnewspawnedacronym}}

\texttt{\bibglsnewspawnedacronym\{⟨label⟩\}\{⟨options⟩\}\{⟨short⟩\}\{⟨long⟩\}}

This command is used to define the terms spawned by \texttt{@spawnacronym}. The definition is written to the \texttt{.glistex} file as:

\begin{verbatim}
\providecommand{\bibglsnewspawnedacronym}[4]{%
  \newacronym[#2]{#1}{#3}{#4}%
}\end{verbatim}

\texttt{\texttt{\bibglsnewspawnsymbol}}

\texttt{\bibglsnewspawnsymbol\{⟨label⟩\}\{⟨options⟩\}\{⟨name⟩\}\{⟨description⟩\}}

This command is used to define the main terms created by \texttt{@spawnsymbol}. The definition is written to the \texttt{.glistex} file as:

\begin{verbatim}
\providecommand{\bibglsnewspawnsymbol}[4]{%
  \longnewglossaryentry*{#1}{name={#3},#2}{#4}%
}\end{verbatim}
6.1 Entry Definitions

\bibglsnewspawnedsymbol

This command is used to define the terms spawned by \texttt{@spawnsymbol}. The definition is written to the .glstex file as:

\providecommand{\bibglsnewspawnedsymbol}[4]{\longnewglossaryentry*{#1}{name={#3},sort={#1},category={spawnedsymbol},#2}{#4}}

\bibglsnewspawnnumber

This command is used to define the main terms created by \texttt{@spawnnumber}. The definition is written to the .glstex file as:

\providecommand{\bibglsnewspawnnumber}[4]{\longnewglossaryentry*{#1}{name={#3},#2}{#4}}

\bibglsnewspawnednumber

This command is used to define the terms spawned by \texttt{@spawnnumber}. The definition is written to the .glstex file as:

\providecommand{\bibglsnewspawnednumber}[4]{\longnewglossaryentry*{#1}{name={#3},sort={#1},category={spawnednumber},#2}{#4}}

\bibglsnewspawndualindexentry

This command is used to define the progenitor’s primary term created by \texttt{@spawndualindexentry}. The definition is written to the .glstex file as:

\providecommand{\bibglsnewspawndualindexentry}[4]{\longnewglossaryentry*{#1}{name={#3},category={index},#2}{#4}}

The \texttt{<description>} argument is ignored.
This command is used to define the progenitor’s secondary (dual) term created by \texttt{\textit{spawn-dualindexentry}}. The definition is written to the .glistex file as:

\providecommand{\bibglsnewspawndualindexentrysecondary}{\%\longnewglossaryentry*{\#1}{\textit{name}={\#3},\textit{\#2}={\#4}}\%}

### 6.2 Location Lists and Cross-References

These commands deal with the way the location lists and cross references are formatted. The commands typically aren’t used until the entry information is displayed in the glossary, so you may redefine these commands after the resource file has been loaded.

\bibglsseesep

Any entries that provide a \texttt{see} field (and that field hasn’t be omitted from the location list with \texttt{see={omit}}) will have \bibglsseesep inserted between the \texttt{see} part and the location list (unless there are no locations, in which case just the \texttt{see} part is displayed without \bibglsseesep).

This command is provided with:

\providecommand{\bibglsseesep}{,}

You can define this before you load the .bib file:

\newcommand{\bibglsseesep}{;}
\GlsXtrLoadResources[src={entries}]

Or you can redefine it afterwards:

\GlsXtrLoadResources[src={entries}]
\glsrenewcommand{\bibglsseesep}{;}

\bibglsseealsoseep

This is like \bibglsseesep but is used with cross-reference lists provided with the \texttt{seealso} field, if supported.
\bibglsaliassep

This is like \bibglsseesep but is used with cross-reference lists provided with the alias field.

\bibglsusesee

\bibglsusesee\{⟨label⟩\}

Displays the formatted cross-reference list stored in the see field for the given entry. This just defaults to \glsxtrusesee\{⟨label⟩\}.

\bibglsuseseealso

\bibglsuseseealso\{⟨label⟩\}

Displays the formatted cross-reference list stored in the seealso field for the given entry. This just defaults to \glsxtruseseealso\{⟨label⟩\}.

\bibglsusealias

\bibglsusealias\{⟨label⟩\}

Displays the formatted cross-reference stored in the alias field for the given entry. This is defined to use \glsseeformat.

\bibglsdelimN

\bibglsdelimN

Separator between individual locations, except for the last. This defaults to \delimN.

\bibglslastDelimN

\bibglslastDelimN

Separator between penultimate and final individual locations. This defaults to , ~ to discourage lonely locations.
\bibglscompact
\bibglscompact{⟨pattern⟩}{⟨part1⟩}{⟨part2⟩}

The first argument ⟨pattern⟩ indicates the location pattern: digit for digits, roman for lower case Roman numerals, ROMAN for upper case Roman numerals and alpha for alphabetical locations. The actual location is split into two parts, ⟨part1⟩ and ⟨part2⟩. The string concatenation ⟨part1⟩⟨part2⟩ forms the actual location.

This just does ⟨part2⟩ by default.

\bibglspassim
\bibglspassim

If max-loc-diff is greater than 1, then any ranges that have skipped over gaps will be followed by \bibglspassim, which is defined as:
\providecommand{\bibglspassim}{ \bibglspassimname}

You can define this before you load the .bib file:
\newcommand{\bibglspassim}{}
\GlsXtrLoadResources[src={entries}]

Or you can redefine it afterwards:
\GlsXtrLoadResources[src={entries}]
\glsrenewcommand{\bibglspassim}{}

\bibglspassimname
\bibglspassimname

The default definition is obtained from the language resource file. For example, with bib2gls-en.xml the provided definition is:
\providecommand{\bibglspassimname}{passim}

\bibglsrange
\bibglsrange{⟨start⟩}{delimR}{⟨end⟩}

Explicit ranges formed using format={()} and format={}) or format={⟨csname⟩} and format={⟨csname⟩}) (where ⟨csname⟩ matches and is a text-block command without the initial backslash) in the optional argument of commands like \gls or \glsadd are encapsulated within the argument of \bibglsrange. By default this simply does its argument. This command is not used with ranges that are formed by collating consecutive locations.
6.2 Location Lists and Cross-References

\texttt{\textbackslash bibglstinterloper}

\texttt{\textbackslash bibglstinterloper\{\textit{location}\}}

If an explicit range conflicts with a record, a warning will be issued and the conflicting record will be shifted to the front of the range inside the argument of \texttt{\textbackslash bibglstinterloper}. The default definition just does \texttt{\textit{location}\textbackslash bibglstdelim\textbackslash N} so that it fits neatly into the list.

For example, suppose on page 4 of my document I start a range with:

\texttt{\textbackslash glsadd[format=\{\}\{sample\]}

and end it on page 9 with:

\texttt{\textbackslash glsadd[format=\{}\{sample\]}

This forms an explicit range, but let’s suppose on page 6 I have:

\texttt{\textbackslash gls[format=\{\textit{hyperbf}\}\{sample\]}

This record conflicts with the explicit range (which doesn’t include \textit{hyperbf} in the format). This causes a warning and the conflicting entry will be moved before the start of the explicit range resulting in \textit{6, 4–9}.

Note that implicit ranges can’t be formed from interlopers (nor can implicit ranges be merged with explicit ones), so if \texttt{\textbackslash gls[format=\{\textit{hyperbf}\}\{sample\]} also occurs on pages 7 and 8 then the result will be \textit{6, 7, 8, 4–9}. Either remove the explicit range or remove the conflicting entries. (Alternatively, redefine \texttt{\textbackslash bibglstinterloper} to ignore its argument, which will discard the conflicting entries.)

\texttt{\textbackslash bibglstpostlocprefix}

\texttt{\textbackslash bibglstpostlocprefix}

If the \textit{loc-prefix} option is on, \texttt{\textbackslash bibglstlocprefix} will be inserted at the start of location lists, and its default definition includes \texttt{\textbackslash bibglstpostlocprefix} placed after the prefix text. This command is provided with:

\texttt{\textbackslash providecommand\{\textbackslash bibglstpostlocprefix\}\textbackslash \}}

which puts a space between the prefix text and the location list. You can define this before you load the .bib file:

\texttt{\textbackslash newcommand\{\textbackslash bibglstpostlocprefix\}\{: \}}

\texttt{\GlsXtrLoadResources[src=\{entries\},loc-prefix]}

Or you can redefine it afterwards:

\texttt{\GlsXtrLoadResources[src=\{entries\},loc-prefix]}

\texttt{\glsrenewcommand\{\textbackslash bibglstpostlocprefix\}\{: \}}

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6.2 Location Lists and Cross-References

\bibglslocprefix

\bibglslocprefix\n\nIf the \texttt{loc-prefix} option is on, this command will be provided. If the glossary type has been provided by \texttt{type} (and \texttt{dual-type} if there are any dual entries) then the definition of \texttt{\bibglslocprefix} will be appended to the glossary preamble for the given type (or types if there are dual entries). For example, if the document has:

\texttt{\GlsXtrLoadResources[type={main},loc-prefix={p.,pp.},src={entries}]}\n
and there are no dual entries, then the following will be added to the .glstex file:

\texttt{\apptoglossarypreamble[main]{% \\providecommand{\bibglslocprefix}{% \ifcase##1 \\or p.\bibglspostlocprefix \\
else pp.\bibglspostlocprefix \\
fi \\}}%}

However, if the \texttt{type} key is missing, then the following will be added instead:

\texttt{\appto\glossarypreamble{% \\providecommand{\bibglslocprefix}{% \ifcase#1 \\or p.\bibglspostlocprefix \\
else pp.\bibglspostlocprefix \\
fi \\}}%}

\bibglspagename

\bibglspagename

If \texttt{loc-prefix={true}} is used, then this command is provided using the value of \texttt{tag.page} from the language resource file. For example with \texttt{bib2gls-en.xml} the definition is:

\texttt{\providecommand{\bibglspagename}{Page}}
If \texttt{loc-prefix}={\texttt{true}} is used, then this command is provided using the value of \texttt{tag.pages} from the language resource file. For example with \texttt{bib2gls-en.xml} the definition is:

\begin{verbatim}
\providecommand{\bibglspagesname}{Pages}
\end{verbatim}

If the \texttt{loc-suffix} option is on, this command will be provided. If the glossary type has been provided by \texttt{type} (and \texttt{dual-type} if there are any dual entries) then the definition of \texttt{\bibglslocsuffix} will be appended to the glossary preamble for the given type (or types if there are dual entries).

This commands definition depends on the value provided by \texttt{loc-suffix}. For example, with \texttt{loc-suffix={\@.}} the command is defined as:

\begin{verbatim}
\providecommand{\bibglslocsuffix}[1]{\@.}
\end{verbatim}

(which ignores the argument).

Whereas with \texttt{loc-suffix={⟨A⟩,⟨B⟩,⟨C⟩}} the command is defined as:

\begin{verbatim}
\providecommand{\bibglslocsuffix}[1]{\ifcase#1 ⟨A⟩\or ⟨B⟩\else ⟨C⟩\fi}
\end{verbatim}

Note that this is slightly different from \texttt{\bibglsprefix} as it includes the 0 case, which in this instance means that there were no locations but there was a cross-reference. This command isn’t added when the location list is empty.

When the \texttt{save-primary-locations} option is used, the primary locations are stored in the \texttt{primarylocations} field encapsulated with this command. The first argument is the number of locations in the list. The second argument is the list of locations formatted in the usual way. The default definition is to ignore the first argument and simply do the second.

When the \texttt{loc-counters} option is used, the locations for each entry are grouped together according to the counter (in the order specified in the value of \texttt{loc-counters}). Each group
of locations is encapsulated within \texttt{\bibglslocationgroup}, where \( n \) is the number of locations within the group, \( \text{\textit{counter}} \) is the counter name and \( \text{\textit{list}} \) is the formatted location sub-list. By default, this simply does \( \text{\textit{list}} \), but may be defined (before the resources are loaded) or redefined (after the resources are loaded) as required.

For example:

\begin{verbatim}
\newcommand*{\bibglslocationgroup}[3]{% 
  \ifnum#1=1
    #2:
  \else
    #2s:
  \fi
  #3\%
}
\GlsXtrLoadResources[ 
  loc-counters={equation,page},% group locations by counter 
  src={entries}% data in entries.bib 
]
\end{verbatim}

This will prefix each group with the counter name, if there’s only one location, or the counter name followed by “s”, if there are multiple locations within the group.

There are various ways to adapt this to translate the counter name to a different textual label, such as:

\begin{verbatim}
\providecommand{\pagename}{Page} 
\providecommand{\pagesname}{Pages} 
\providecommand{\equationname}{Equation} 
\providecommand{\equationsname}{Equations} 
\newcommand*{\bibglslocationgroup}[3]{% 
  \ifnum#1=1
    \ifcsdef{#2name}{\csuse{#2name}}{#2}:
  \else
    \ifcsdef{#2sname}{\csuse{#2sname}}{#2s}:
  \fi
  #3\%
}
\bibglslocationgroupsep
\end{verbatim}

When the \texttt{loc-counters} option is set, this command is used to separate each location sub-group. It may be defined before the resources are loaded:
6.2 Location Lists and Cross-References

\newcommand*{\bibglslocationgroupsep}{; }

\GlsXtrLoadResources[
   loc-counters={equation,page},% group locations by counter
   src={entries}% data in entries.bib
]

or redefined after the resources are loaded:

\GlsXtrLoadResources[
   loc-counters={equation,page},% group locations by counter
   src={entries}% data in entries.bib
]
\glsrenewcommand*{\bibglslocationgroupsep}{; }

\bibglssupplemental

\bibglssupplemental\langle n\rangle\langle list\rangle

When the \texttt{supplemental-locations} option is used, the locations from a supplementary document are encapsulated within the \langle list\rangle part of \texttt{\bibglssupplemental}. The first argument \langle n\rangle (ignored by default) is the number of supplementary locations.

If multiple supplemental sources are permitted (that is, bib2gls has detected that the document is using at least version 1.36 of glossaries-extra), then the \langle list\rangle part will consist of sub-lists for each external source. In this case, \langle n\rangle will be the total number of elements across all the sub-lists.

\bibglssupplementalsublist

\bibglssupplementalsublist\langle n\rangle\langle external document\rangle\langle list\rangle

If multiple supplemental sources are permitted, this will be used to format each sub-list, where \langle n\rangle (ignored by default) is the number of elements in the sub-list, \langle external document\rangle (ignored by default) is the external source and \langle list\rangle is the list of supplementary locations in \langle external document\rangle.

\bibglssupplementalsep

\bibglssupplementalsep

The separator between the main location list and the supplementary location list. By default this is just \texttt{\bibglssdelimN}. This may be defined before the resources are loaded:
6.3 Letter Groups

\newcommand{\bibglssupplementalsep}{; }

\GlsXtrLoadResources[
  supplemental-locations={supplDoc},
  src={entries}]

or redefined after the resources are loaded:

\GlsXtrLoadResources[
  supplemental-locations={supplDoc},
  src={entries}]

\glsrenewcommand{\bibglssupplementalsep}{; }

\bibglssupplementalsubsep

\bibglssupplementalsubsep

The separator between the supplementary location sub-lists. By default this is just \bibgls-delimN.

\bibglshrefchar

\bibglshrefchar{⟨hex⟩}{⟨char⟩}

Expands to a literal percent character followed by ⟨hex⟩. The second argument is ignored.

\bibglshrefunicode

\bibglshrefunicode{⟨hex⟩}{⟨char⟩}

Expands to the second argument. The first argument is ignored.

6.3 Letter Groups

The commands listed in this section are provided for use with the --group switch and glossary styles that display the letter group title. If these need their definitions altered, they should be defined before the resource file is loaded if field expansion is on (--expand-fields) otherwise they may be redefined afterwards.

The base glossaries package determines group titles through a fairly simplistic rule. Both makeindex and xindy write the line:

\glsgroupheading{⟨label⟩}
to the associated glossary file at the start of each new letter group. For example, the “A” letter group will be written as:

\glsgroupheading{A}

This is quite straightforward and the heading title can just be “A”. The “Symbols” group is written as:

\glsgroupheading{glssymbols}

To allow for easy translation, the base glossaries package has the simple rule:

- if \langle heading\rangle groupname exists use that;
- otherwise just use \langle heading\rangle.

There’s no \Agroupname provided, but \glssymbolsgroupname is provided and is supported by the associated language modules, such as glossaries-french. (Similarly for the “Numbers” group.)

The glossary styles that provide hyperlinks to the groups (such as indexhypergroup) use \langle heading\rangle to form the target name. A problem arises when active characters occur in \langle heading\rangle, which happens with extended characters and inputenc.

The glossaries-extra package (as from version 1.14) provides:

\glsxtrsetgrouptitle{\langle group label\rangle}{\langle group title\rangle}

to set the title for a group with the given label. The internal workings of \glsgroupheading are modified to use a slightly altered rule:

- if a title has been set using \glsxtrsetgrouptitle{\langle heading\rangle}{\langle title\rangle} for the given \langle heading\rangle, use that;
- if \langle heading\rangle groupname exists, use that;
- just use \langle heading\rangle for the title.

So if \glsxtrsetgrouptitle hasn’t been used, it falls back on the original rule.

The problem is now how to make the indexing application use the desired label in the argument of \glsgroupheading instead of selecting the heading based on the first character of each sort value for each top-level entry in that group. This can’t be done with makeindex, and with xindy it requires a custom language module, which isn’t a trivial task.

With bib2gls, a different approach is used. The .glstex file created isn’t comparable to the .gls file created by makeindex or xindy. There’s nowhere for bib2gls to write the \glsgroupheading line as it isn’t creating the code that typesets the glossary list. Instead it’s creating the code that defines the entries. The actual group heading is inserted by \printunsglosstentry and it’s only able to do this by checking if the entry has a group field and comparing it to the previous entry’s group field.

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The behaviour of the group formation implemented by the sort methods may be changed with \texttt{group-formation}. With any setting other than \texttt{group-formation=\{default\}}, the group label is set to \texttt{\bibglsunicodegroup\{\texttt{\langle label\rangle}\}\{\texttt{\langle character\rangle}\}\{\texttt{\langle id\rangle}\}\{\texttt{\langle type\rangle}\}} and the title is set to \texttt{\bibglsunicodesgroupuptitle\{\texttt{\langle label\rangle}\}\{\texttt{\langle character\rangle}\}\{\texttt{\langle id\rangle}\}\{\texttt{\langle type\rangle}\}} (see below) otherwise the label and title are determined by the sort method.

The collators used by the locale and letter-based rules save the following information for each entry based on the first significant letter of the \texttt{sort} field (if the letter is recognised as alphabetical, according to the rule):

- \texttt{\langle title\rangle} The group’s title. This is typically title-cased. For example, if the rule recognises the digraph “dz”, then the title is “Dz”. Exceptions to this are included in the language resource file. If the key \texttt{\textit{group}title\_case.\{lc\}} exists, where \texttt{\langle lc\rangle} is the lower case version of \texttt{\langle title\rangle}, then the value of that key is used instead. For example, the Dutch digraph “ij” should be converted to “IJ”, so \texttt{\bib2gls-en.xml} includes:

\begin{verbatim}
<entry key="\textit{grouptitle\_case.ij">IJ</entry>
\end{verbatim}

(See the \texttt{--group} switch for more details.)

- \texttt{\langle letter\rangle} This is the actual letter at the start of the given entry’s \texttt{sort} field, which may be lower case or may contain diacritics that don’t appear in \texttt{\langle title\rangle}.

- \texttt{\langle id\rangle} A numeric identifier. This may be the collation key or the code point for the given letter, depending on the sort method.

- \texttt{\langle type\rangle} The entry’s glossary type. If not known, this will be empty. \texttt{\bib2gls} won’t know if you’ve modified the associated \texttt{\bibglsnew…} command to set the \texttt{\langle type\rangle}. It can only know the type if it’s in the original \texttt{.bib} definition or is set using resource options such as \texttt{\textit{type}.}

The \texttt{\langle group\rangle} field is then set using:

\begin{verbatim}
\texttt{\texttt{\texttt{\texttt{\bibglslettergroup\{\langle title\rangle\}\{\langle letter\rangle\}\{\langle id\rangle\}\{\langle type\rangle\}}}}}
\end{verbatim}

This field needs to expand to a simple label, which \texttt{\bibglslettergroup} is designed to do. Note that non-letter groups are dealt with separately (see below).

\texttt{\texttt{\bibglssetlastgrouptitle}}

In the last resource (\texttt{.glstex}) file, after all the relevant group titles have been set with the commands listed below, there’s a final title setting:

\begin{verbatim}
\texttt{\bibglssetlastgrouptitle\{\texttt{\langle cs\rangle}\}\{\texttt{\langle specs\rangle}\}}
\end{verbatim}

This does nothing by default, but the arguments are set to correspond to the group with the maximum id for that resource file. It’s provided as a convenient way of overriding the final group title without the inconvenience of looking up the group label in the \texttt{.glstex}
6.3 Letter Groups

If you have multiple glossaries or if you want to override a different group, then you need to inspect the .glstex file to work out the corresponding label (by finding the group assignment for one of the entries in that group).

The ⟨cs⟩ argument is the control sequence used in the group field to obtain the label from ⟨specs⟩. For example, if the highest ⟨id⟩ is 2147418112 from:

```
group={bibglslettergroup{Ø}{Ø}{2147418112}{}}
```

then the last group is identified with:

```
bibglssetlastgrouptitle{bibglslettergroup}{Ø}{Ø}{2147418112}{}
```

In this case ⟨cs⟩ is \bibglslettergroup and ⟨specs⟩ are the arguments for that command. If you want \bibglssetlastgrouptitle to change the group title then you need to define it before the resource set. For example:

```
\newcommand*{\bibglssetlastgrouptitle}[2]{% 
  \glsxtrsetgrouptitle{#1#2}{Foreign Words}}
\GlsXtrLoadResources[src={entries}]
```

If you need to change a particular group title, then it has to be done after the resource set:

```
\GlsXtrLoadResources[src={entries}]
\glsxtrsetgrouptitle
 {{bibglslettergroup{Ø}{Ø}{2147418112}{}}}% label 
 {Foreign Words}% title
```

\bibglssetlettergrouptitle

For each letter group that’s detected, bib2gls will write the line:

```
\bibglssetlettergrouptitle{⟨title⟩}{⟨letter⟩}{⟨id⟩}{⟨type⟩}
```

in the .glstex file, which sets the group’s title using:

```
\glsxtrsetgrouptitle{⟨group label⟩}{⟨group title⟩}
```

where the ⟨group label⟩ part matches the corresponding group value.

Note that \bibglssetlettergrouptitle only has a single argument, but that argument contains the four arguments needed by \bibglslettergroup and \bibglslettergrouptitle. These arguments are as described above.

If \glsxtrsetgrouptitle has been defined (glossaries-extra version 1.14 onwards), then \bibglssetlettergrouptitle will be defined as:

```
\providecommand{\bibglssetlettergrouptitle}[1]{% 
  \glsxtrsetgrouptitle{\bibglslettergroup#1}{\bibglslettergrouptitle#1}{}
```

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If an earlier version of glossaries-extra is used, then this function can't be supported and the command will be defined to simply ignore its argument. This will fall back on the original method of just using \langle title \rangle as the label.

Since \bibglsssetlettergrouptitle is used in the .glstex file to set the group titles, the associated commands need to be defined before the resource file is loaded if their definitions require modification. After the resource file has been loaded, you can adjust the title of a specific group, but you'll need to check the .glstex file for the appropriate arguments. For example, if the .glstex file contains:

\bibglsssetlettergrouptitle{{Æ}{æ}{7274496}\{}}

but you actually want the group title to appear as “Æ (AE)” instead of just “Æ”, then after the resource file has been loaded you can do:

\glsxtrsetgrouptitle
{%bibglslalettergroup{Æ}{æ}{7274496}\{}}% label
{Æ (AE)}% title

\bibglslalettergroup

\bibglslalettergroup{(title)}{(letter)}{(id)}{(type)}

This command is used to determine the letter group label. The default definition is \langle type \rangle \langle id \rangle, which ensures that no problematic characters occur in the label since \langle type \rangle can’t contains special characters and \langle id \rangle is numeric. The \langle type \rangle is included in case there are multiple glossaries, since the hyperlink name must be unique.

\bibglsslettergrouptitle

\bibglsslettergrouptitle{(title)}{(letter)}{(id)}{(type)}

This command is used to determine the letter group title. The default definition is \texttt{\unexpanded{(title)}}, which guards against any expansion issues that may arise with characters outside the basic Latin set.

For example:

@entry{angstrom,
   name={\AA ngstr"om}
   description={a unit of length equal to one hundred-millionth of a centimetre}
}

The sort value is “Ångström”. With sort={en} the \langle title \rangle part will be A but with sort={sv} the \langle title \rangle part will be å. In both cases the \langle letter \rangle argument will be å.
6.3 Letter Groups

Take care if you are using a script that needs encapsulating. For example, with the CJKutf8 package the \texttt{cjk} characters need to be placed within the CJK environment, so any letter group titles that contain \texttt{cjk} characters will need special attention.

For example, suppose the .bib file contains entries in the form:

@dualentry{
    \label,
    \name = {\texttt{cjkname}\{\texttt{cjk characters}\}},
    \description = {\texttt{English translation}}
}

and the document contains:

\usepackage{CJKutf8}
\usepackage[record,style=indexgroup,nomain]{glossaries-extra}

\newglossary*{japanese}{Japanese to English}
\newglossary*{english}{English to Japanese}
\newrobustcmd{\texttt{cjkname}}{\begin{CJK}{UTF8}{min}#1\end{CJK}}
\GlsXtrLoadResources[
    src=\texttt{testcjk},% bib file
    sort=\texttt{ja-JP},% locale used to sort primary entries
    dual-sort=\texttt{en-GB},% locale used to sort secondary entries
    type=\texttt{japanese},% put the primary entries in the 'japanese' glossary
    dual-type=\texttt{english},% put the dual entries in the 'english' glossary
    dual-prefix=\texttt{en.}}

then \texttt{cjk} characters will appear in the \texttt{title} argument of \texttt{bibglslettergrouptitle} which causes a problem because they need to be encapsulated within the CJK environment. This can be more conveniently done with the user supplied \texttt{cjkname}\{\texttt{CJK characters}\}, but the \texttt{cjk} characters need to be protected from expansion so \texttt{unexpanded} is also needed. The new definition of \texttt{bibglslettergrouptitle} needs to be defined before \texttt{GlsXtrLoadResources}. For example:

\newcommand{\texttt{bibglslettergrouptitle}}{\unexpanded{\texttt{cjkname}\{#1\}}}

There’s a slight problem here in that the English letter group titles also end up encapsulated. An alternative approach is to use the \texttt{type} part to provide different forms. For example:

\newcommand*{\texttt{englishlettergroup}}{#1}
\newcommand*{\texttt{japaneselettergroup}}{\texttt{cjkname}\{#1\}}
\newcommand{\texttt{bibglslettergrouptitle}}{\unexpanded{\texttt{csuse}\{#4lettergroup\}\{#1\}}}
6.3 Letter Groups

\bibglsetothergrouptitle

The label and title for symbol groups are dealt with in a similar way to the letter groups, but in this case the title is set using:

\bibglsetothergrouptitle{\{\textlangle character\}\{\textlangle id\}\{\textlangle type\}\}}

This is defined in an analogous manner:

\providecommand{\bibglsetothergrouptitle}[1]{\glsxtrsetgrouptitle{\bibglsothergroup#1}{\bibglsothergrouptitle#1}}

where the group label is obtained using \bibglsothergroup and the group title is obtained from \bibglsothergrouptitle. Note that since non-alphabetic characters don’t have upper or lower case versions, there are only three arguments. The other difference between this and the letter group version is that the \langle id\rangle is given in hexadecimal format (corresponding to the character code).

For example, suppose my .bib file contains:

\begin{verbatim}
@entry{sauthor,
  name={/Author},
  description = {author string}
}
\end{verbatim}

If a locale sort is used, the leading slash / will be ignored and this entry will belong to the “A” letter group using the letter commands described above. If, instead, one of the character code sort methods are used, such as \texttt{sort=\{letter-case\}}, then this entry will be identified as belonging to a symbol (or “other”) group and the title will be set using:

\bibglsetothergrouptitle{\{/\}{2F}\{\}}

\bibglsothergroup

This expands to the label for symbol groups. This just defaults to \texttt{\glssymbolsgroupname} (ignoring all arguments), which replicates the label used when makeindex or xindy generate the glossary files.

\bibglsothergrouptitle

This expands to the title for symbol groups. This just expands to \texttt{\glssymbolsgroupname} by default.
6.3 Letter Groups

\texttt{\bibglsetemptygrouptitle}

Used when the sort value degenerates to an empty string. This command sets the label and title.

\texttt{\bibglsetemptygrouptitle\{(\texttt{type})\}}

(Note the inner group, as with the other similar \texttt{\bibglset...grouptitle} commands.)

\texttt{\bibglsetemptygroup}

\texttt{\bibglsetemptygroup\{(\texttt{type})\}}

This expands to the label for empty groups. This defaults to \texttt{\texttt{\texttt{\glssymbolsgroup}}} to make it consistent with non-letter groups (since the sort value likely contained unknown symbol commands).

\texttt{\bibglsetemptygrouptitle}

\texttt{\bibglsetemptygrouptitle\{(\texttt{type})\}}

This expands to the group title for empty group. This just expands to \texttt{\glssymbolsgroup-name} by default.

\texttt{\bibglsetnumbergrouptitle}

The numeric sort methods (table 5.5) all create number groups instead of letter or symbol groups. These behave in an analogous way to the above.

\texttt{\bibglsetnumbergrouptitle\{(\texttt{value})\{(\texttt{id})\{(\texttt{type})\} \}}

In this case \texttt{(value)} is the actual numeric sort value, and \texttt{(id)} is a decimal number obtained from converting \texttt{(value)} to an integer. This command is defined as:

\texttt{\providecommand\bibglsetnumbergrouptitle\[1\]{\glsxtrsetgrouptitle{\bibglnumbergroup\{\bibglnumbergrouptitle\#1\}\bibglnumbergrouptitle\#1}}}

\texttt{\bibglnumbergroup}

The number group label is obtained from:

\texttt{\bibglnumbergroup\{(\texttt{value})\{(\texttt{id})\{(\texttt{type})\} \}}

This just defaults to \texttt{\texttt{\texttt{\glssymbolsgroup}}}.
6.3 Letter Groups

\bibglsnumbergrouptitle

The number group title is obtained from:

\bibglsnumbergrouptitle{⟨value⟩}{⟨id⟩}{⟨type⟩}

This just defaults to \glsnumbersgroupname.

\bibglssetdatetimegrouptitle

The date-time sort methods (table 5.6) create date-time groups. These behave in an analogous way to the above.

\bibglssetdatetimegrouptitle{⟨YYYY⟩}{⟨MM⟩}{⟨DD⟩}{⟨hh⟩}{⟨mm⟩}{⟨ss⟩}
{⟨zone⟩}{⟨title⟩}{⟨group-id⟩}{⟨type⟩}

This command is defined as:

\providecommand{\bibglssetdatetimegrouptitle}[1][]{%
  \glsxtrsetgrouptitle
  {\bibglsdatetimegroup#1}%
  {\bibglsdatetimegrouptitle#1}%
  }

\bibglsdatetimegroup

\bibglsdatetimegroup{⟨YYYY⟩}{⟨MM⟩}{⟨DD⟩}{⟨hh⟩}{⟨mm⟩}{⟨ss⟩}
{⟨zone⟩}{⟨title⟩}{⟨group-id⟩}{⟨type⟩}

This command is used for date-time group labels with datetime sorting (table 5.6). This has ten arguments, which means a little trickery is needed to deal with the tenth argument. The default definition is:

\providecommand{\bibglsdatetimegroup}[9]{#1#2#3}@firstofone

This forms the group label from the year ⟨YYYY⟩, month ⟨MM⟩, day ⟨DD⟩ and ⟨type⟩.

\bibglsdatetimegrouptitle

\bibglsdatetimegrouptitle{⟨YYYY⟩}{⟨MM⟩}{⟨DD⟩}{⟨hh⟩}{⟨mm⟩}{⟨ss⟩}
{⟨zone⟩}{⟨title⟩}{⟨group-id⟩}{⟨type⟩}

This command is used for date-time group titles with datetime sorting (table 5.6). The default definition is:

\providecommand{\bibglsdatetimegrouptitle}[9]{#1-#2-#3}@gobble

This sets the title to the numeric ⟨YYYY⟩-⟨MM⟩-⟨DD⟩ but may be redefined as appropriate.
6.3 Letter Groups

\bibglsetdategrouptitle
The date sort methods (table 5.6) create date groups (the time isn’t included). These behave in an analogous way to the above.

\bibglsetdategrouptitle{{\langle YYYY\rangle}{\langle MM\rangle}{\langle DD\rangle}{\langle G\rangle}{\langle title\rangle}{\langle group-id\rangle}{\langle type\rangle}}

This command is defined as:
\providecommand{\bibglsetdategrouptitle}[1]{% \
glsxtrsetgrouptitle{\bibglsetdategrouptitle#1}}

\bibglsdategroup
This command is used for date group labels with date (no time) sorting (table 5.6). The default definition is:
\providecommand{\bibglsdategroup}[7]{#1#2#4#7}
This forms the group label from the year, month, era and type. In this case, the era is a textual representation not the numeric value used in calculating the sort value.

\bibglsetdategrouptitle
This command is used for date group titles with date (no time) sorting (table 5.6). The default definition is:
\providecommand{\bibglsetdategrouptitle}[7]{#1-#2}
This just sets the title to the numeric year-month form \langle YYYY\rangle-\langle MM\rangle.

\bibglsettimegrouptitle
The time sort methods (table 5.6) create time groups (the date isn’t included). These behave in an analogous way to the above.

\bibglsettimegrouptitle{{\langle hh\rangle}{\langle mm\rangle}{\langle ss\rangle}{\langle zone\rangle}{\langle title\rangle}{\langle group-id\rangle}{\langle type\rangle}}

This command is defined as:
\providecommand{\bibglsettimegrouptitle}[1]{% \
glsxtrsetgrouptitle{\bibglsettimegrouptitle#1}}
6.3 Letter Groups

\bibglstimegroup

\bibglstimegroup{(hh){(mm){(ss){(zone){(title){(group-id){(type)}}}}}}}

This command is used for time group labels with time (no date) sorting (table 5.6). This command is defined as:

\providecommand{\bibglstimegroup}{#1#2#7}

\bibglstimegrouptitle

\bibglstimegrouptitle{(hh){(mm){(ss){(zone){(title){(group-id){(type)}}}}}}}

This command is used for time group titles with time (no date) sorting (table 5.6). This command is defined as:

\providecommand{\bibglstimegrouptitle}{#1}

\bibglssetunicodegrouptitle

\bibglssetunicodegrouptitle{({label}){({character}){({id}){({type})}}}}

This command is used to assign the group titles when the group formation is set to any value other than the default. For example, this command will be used with group-formation=\{codepoint\}. The label is obtained from \bibglsunicodegroup and the title is obtained from \bibglsunicodegrouptitle.

\bibglsunicodegroup

\bibglsunicodegroup{({label}){({character}){({id}){({type})}}}}

The \{label\} depends on the group-formation setting:

- group-formation=\{codepoint\}: the \{label\} is the Unicode value of \{character\} (converted to lower case and decomposed, if applicable);
- group-formation=\{unicode category\}: the \{label\} is the Unicode category of \{character\} (for example, Lu means an upper case letter);
- group-formation=\{unicode script\}: the \{label\} is the Unicode script associated with \{character\} (for example, LATIN);
- group-formation=\{unicode category and script\}: the \{label\} identifies both the Unicode category and script associated with \{character\} (for example, Lu.LATIN).
6.3 Letter Groups

(Similarly for secondary-group-formation and dual-group-formation.) By default this command expands to \(\text{(type)}\langle\text{label}\rangle\).

The \(\langle\text{character}\rangle\) is the first significant character of the sort value. The \(\langle\text{id}\rangle\) is the hexadecimal code of (possibly decomposed) \(\langle\text{character}\rangle\). The case of codepoint \(\langle\text{id}\rangle\) may or may not correspond to the case of \(\langle\text{character}\rangle\).

For example, with \text{group-formation}={codepoint}, an unset \text{type} and a sort value of “Ångström” with “Å” as a significant character distinct from “A” then the \text{group} field will be assigned using:

\begin{verbatim}
group={\bibglsunicodegroup{å}{Å}{C5}{}}
\end{verbatim}

whereas with \text{group-formation}={unicode category and script} it will be:

\begin{verbatim}
group={\bibglsunicodegroup{Lu.LATIN}{Å}{C5}{}}
\end{verbatim}

(upper case Latin letter).

If instead “Å” is considered equivalent to “A” according to the collator, then with \text{group-formation}={codepoint}, the value will be:

\begin{verbatim}
group={\bibglsunicodegroup{a}{Å}{61}{}}
\end{verbatim}

Note that the \(\langle\text{id}\rangle\) is now 0x61 (the decomposed “A” converted to lower case) not 0xC5.

\bibglsunicodegrouptitle\bibglsunicodegrouptitle{\langle\text{label}\rangle}{\langle\text{character}\rangle}{\langle\text{id}\rangle}{\langle\text{type}\rangle}

The title for Unicode group formations is simply defined as \texttt{\unexpanded{\langle\text{label}\rangle}} so you will need to change it to something more appropriate. For example (before the resource set):

\begin{verbatim}
\newcommand{\bibglsunicodegrouptitle}[4]{%
  \ifdefnum"#3>64
    \ifdefnum"#3 < 91
      A--Z%
    \else
      \ifdefnum"#3 > 96
        \ifdefnum"#3 < 123
          A--Z%
        \fi
      \fi
    \fi
  \fi
}
\end{verbatim}

This will make the title “A–Z” if \(\langle\text{id}\rangle\) is greater than 64 and less than 91 or greater than 96 and less than 123 (and will be empty otherwise).

Note that this setting can create an odd effect if the sorting causes the groups to be split up. For example, if some of the sort values start with extended or non-Latin characters this can break up the groups. First check how the group labels are assigned using:
6.4 Flattened Entries

\newcommand{\bibglsunicodegrouptitle}{\bibglsunicodegroup}
then adjust the definition of \bibglsunicodegroup until the grouping is correct, and then change the definition of \bibglsunicodegrouptitle so that the title is correct.

\bibglshypergroup

\bibglshypergroup{⟨type⟩}{⟨group-id⟩}
If the .log file indicates that hyperref has been loaded and the --group switch is used, then this command will be used to create the navigation information for glossary styles such as indexhypergroup.

6.4 Flattened Entries

These commands relate to the way the name field is altered when flattening lonely child entries with the flatten-lonely option.

\bibglsflattenedhomograph

\bibglsflattenedhomograph{⟨name⟩}{⟨parent label⟩}
The default definition simply does ⟨name⟩.
This command is used if the child and parent name’s are identical. For example, suppose the .bib file contains:

@index{super.glossary, name={glossary}}

@entry{glossarycol,
  parent={super.glossary},
  description={collection of glosses}
}

@entry{glossarylist,
  parent={super.glossary},
  description={list of technical words}
}
The child entries don’t have a name field, so the value is assumed to be the same as the parent’s name field. Here’s an example document where both child entries are used:

\documentclass{article}
\usepackage[record,subentrycounter,style={treenoname}]{glossaries-extra}
6.4 Flattened Entries

\GlsXtrLoadResources[src={entries}]
\begin{document}
\gls{glossarycol} (collection) vs \gls{glossarylist} (list).
\printunsrtglossary
\end{document}

This uses one of the glossary styles designed for homographs and the glossary has the structure:

\begin{verbatim}
glossary
  1) collection of glosses 1
  2) list of technical words 1
\end{verbatim}

If only one child entry is selected, then the result looks a little odd. For example:

\begin{verbatim}
glossary
  1) collection of glosses 1
\end{verbatim}

With the \texttt{flatten-lonely} option, the parent is removed and the child is moved up a hierarchical level. With \texttt{flatten-lonely={postsort}} this would normally adjust the name so that it appears as \langle parent name \rangle, \langle child name \rangle but in this case it would look a little odd for the name to appear as “glossary, glossary” so instead the name is set to:

\begin{verbatim}
\bibglsflattenedhomograph{glossary}{super.glossary}
\end{verbatim}

(where the first argument is the original name and the second argument is the label of the parent entry).

This means that the name simply appears as “glossary”, even if the \texttt{flatten-lonely={postsort}} option is used. Note that if the parent entry is removed, the parent label won’t be of much use. You can test for existence using \texttt{\ifglsentryexists} in case you want to vary the way the name is displayed according to whether or not the parent is still present.

\begin{verbatim}
\bibglsflattenedchildpresort
\end{verbatim}

\begin{verbatim}
\bibglsflattenedchildpresort{(child name)}{(parent name)}
\end{verbatim}

Used by the \texttt{flatten-lonely={presort}} option. This defaults to just \langle child name \rangle. If you want to change this, remember that you can let the interpreter know by adding the definition to \texttt{@preamble}. For example:

\begin{verbatim}
@preamble{"\providecommand{\bibglsflattenedchildpresort}[2]{#1 (#2)}"}
\end{verbatim}

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6.5 Other

\bibglsflattenedchildpostsort

\bibglsflattenedchildpostsort{⟨parent name⟩}{⟨child name⟩}

Used by the flatten-lonely={postsort} option. This defaults to ⟨parent name⟩, ⟨child name⟩.

Note that the arguments are in the reverse order to those of the previous command. This is done to assist the automated first letter upper-casing. If either command is redefined to alter the ordering, then this can confuse the case-changing mechanism, in which case you may want to consider switching on the expansion of the name field using:

\glsetexpandfield{name}

(before \GlsXtrLoadResources).

6.5 Other

\bibglshyperlink

\bibglshyperlink{⟨text⟩}{⟨label⟩}

Used by the back link options, this just defaults to:

\glshyperlink[⟨text⟩]{⟨label⟩}

\bibglssetwidest

\bibglssetwidest{⟨level⟩}{⟨name⟩}

This is used by set-widest to set the widest name for the given hierarchical level where the glossary type can’t be determined. This is defined as:

\providecommand*{\bibglssetwidest}[2]{\glsxtrSetWidest{}{#1}{#2}}

if \glsxtrSetWidest has been defined, or:

\providecommand*{\bibglssetwidest}[2]{\glsupdatewidest[#1]{#2}}

if \glsupdatewidest is defined, otherwise it will be defined to use \glsetwidest:

\providecommand*{\bibglssetwidest}[2]{\glsetwidest[#1]{#2}}

Since this isn’t scoped, this will affect other glossaries. In general, if you have more than one glossary it’s best to set the type using options like type.
6.5 Other

\bibglssetwidestfortype

\bibglssetwidestfortype{\langle type\rangle}{\langle level\rangle}{\langle name\rangle}

This is used by \texttt{set-widest} to set the widest name for the given hierarchical level where the glossary type is known. This is defined as:

\providecommand*{\bibglssetwidestfortype}[3]{\% 
  \glsxtrSetWidest{#1}{#2}{#3}\
}\}

if \texttt{\glsxtrSetWidest} has been defined, or:

\providecommand*{\bibglssetwidestfortype}[3]{\% 
  \apptoglossarypreamble[#1]{\glsupdatewidest[#2]{#3}}\
}\}

if \texttt{\glsupdatewidest} is defined, otherwise it will be defined to use \texttt{\glssetwidest}:

\providecommand*{\bibglssetwidestfortype}[3]{\% 
  \apptoglossarypreamble[#1]{\glssetwidest[#2]{#3}}\
}\}

Since the glossary preamble is scoped, this won’t affect other glossaries.

\bibglssetwidestfallback

\bibglssetwidestfallback{\langle glossary list\rangle}

This is used by \texttt{set-widest} instead of \texttt{\bibglssetwidest} when all \texttt{name} fields end up as an empty string when interpreted by \texttt{bib2gls}. This typically means that all the \texttt{name} fields contain unknown commands. This fallback command will use:

\glsxtrSetWidestFallback{2}{\langle glossary list\rangle}

if defined otherwise it will use \texttt{\glsFindWidestLevelTwo}, which sets the widest name for the top-level and first two sub-levels across all the listed glossaries.

\bibglssetwidestfortypefallback

\bibglssetwidestfortypefallback{\langle type\rangle}

This is used by \texttt{set-widest} instead of \texttt{\bibglssetwidestfortype} when all \texttt{name} fields end up as an empty string when interpreted by \texttt{bib2gls}. This typically means that all the \texttt{name} fields contain unknown commands. This fallback command will append \texttt{\bibglssetwidestfallback} to the glossary preamble for the given type.
6.5 Other

\bibglssetwidesttoplevelfallback

This is used by set-widest instead of \bibglssetwidest when all name fields end up as an empty string when interpreted by bib2gls. This typically means that all the name fields contain unknown commands. This fallback command will use:

\glsxtrSetWidestFallback{0}{⟨glossary list⟩}

if defined otherwise it will use \glsFindWidestTopLevelName, which sets the widest name for the top-level.

\bibglssetwidesttoplevelfortypefallback

This is used by set-widest instead of \bibglssetwidestfortype when all name fields end up as an empty string when interpreted by bib2gls. This typically means that all the name fields contain unknown commands. This fallback command will append \bibglssetwidesttoplevelfallback to the glossary preamble of the given type.

\bibglscontributorlist

This is used when bibtex-contributor-fields is set. The definition depends on whether or not \DTLformatlist has been defined:

\ifdef\DTLformatlist
{% datatool v2.28+
 \providecommand*{⟨bibglscontributorlist⟩}[2]{\DTLformatlist{#1}}
}
{% datatool v2.27 or earlier
 \providecommand*{⟨bibglscontributorlist⟩}[2]{%
 \def\bibgls@sep{}
 \@for\bibgls@item:=#1\do{\bibgls@sep\bibgls@item\def\bibgls@sep{, }}%
}
}%

The second argument allows you to provide definitions like:

\newcommand*{⟨bibglscontributorlist⟩}[2]{%
 \ifcase#2
 \or...

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6.5 Other

name: \else
names: \fi
\DTLformatlist{#1}%
}

\bibglscontributor

\bibglscontributor{⟨forenames⟩}{⟨von-part⟩}{⟨surname⟩}{⟨suffix⟩}

This is used when \textit{bibtex-contributor-fields} is set. The definition depends on the value of \textit{contributor-order}. Note that if you have multiple resource sets, that option governs the way \texttt{bib2gls}'s version of \texttt{\bibglscontributor} behaves. The definition is written to the .glstex using \texttt{\providecommand}, so \LaTeX{} will only pick up the first definition.

\bibglsdatetime

\bibglsdatetime{⟨year⟩}{⟨month⟩}{⟨day-of-month⟩}{⟨day-of-week⟩}{⟨day-of-year⟩}{⟨era⟩}{⟨hour⟩}{⟨minute⟩}{⟨second⟩}{⟨millisec⟩}{⟨dst⟩}{⟨zone⟩}{⟨original⟩}

Used to encapsulate date-time fields identified with \textit{date-time-fields}. Since \texttt{\bibglsdatetime} requires more than nine arguments, the remaining four arguments are picked up with:

\bibglsdatetimeremainder{⟨millisec⟩}{⟨dst⟩}{⟨zone⟩}{⟨original⟩}

The default definitions are:
\providecommand{\bibglsdatetime}[9]{\bibglsdatetimeremainder}
\providecommand{\bibglsdatetimeremainder}[4]{#4}

\bibglsdate

\bibglsdate{⟨year⟩}{⟨month⟩}{⟨day-of-month⟩}{⟨day-of-week⟩}{⟨day-of-year⟩}{⟨era⟩}{⟨original⟩}

Used to encapsulate date fields identified with \textit{date-fields}. The default definition is:
\providecommand{\bibglsdate}[7]{#7}

\bibglstime

\bibglstime{⟨hour⟩}{⟨minute⟩}{⟨second⟩}{⟨millisec⟩}{⟨dst⟩}{⟨zone⟩}{⟨original⟩}

Used to encapsulate date fields identified with \textit{time-fields}. The default definition is:
\providecommand{\bibglstime}[7]{#7}
\bibglsprimaryprefixlabel

\bibglsprimaryprefixlabel\{⟨prefix⟩\}

A hook to pick up the primary prefix label (identified with label-prefix) if required. This does nothing by default. If required, this command should be defined before the resource set is loaded.

\bibglsdualprefixlabel

\bibglsdualprefixlabel\{⟨prefix⟩\}

A hook to pick up the dual prefix label (identified with dual-prefix) if required. This does nothing by default. If required, this command should be defined before the resource set is loaded.

\bibglsterttiaryprefixlabel

\bibglsterttiaryprefixlabel\{⟨prefix⟩\}

A hook to pick up the tertiary prefix label (identified with tertiary-prefix) if required. This does nothing by default. If required, this command should be defined before the resource set is loaded.

\bibglsextternalprefixlabel

\bibglsextternalprefixlabel\{⟨n⟩\}{⟨prefix⟩}

A hook to pick up the ⟨n⟩th external prefix label (identified with ext-prefixes) if required. This does nothing by default and won’t be used if the list of external prefixes is empty. If required, this command should be defined before the resource set is loaded.

\bibglshashchar

\bibglshashchar

Expands to a literal hash character (#).

\bibglunderscorechar

\bibglunderscorechar

Expands to a literal underscore character ( _ ).
\bibglsdollarchar

Expands to a literal dollar character ($). 

\bibglsampersandchar

Expands to a literal ampersand character (&).

\bibglscircumchar

Expands to a literal circumflex character (^).

\bibglsuppercase{⟨text⟩}

Converts ⟨text⟩ to upper case. This just uses \MakeTextUppercase by default.

\bibglslowercase{⟨text⟩}

Converts ⟨text⟩ to lower case. This just uses \MakeTextLowercase by default.

\bibglstitlecase{⟨text⟩}

Converts ⟨text⟩ to title case. This just uses \capitalisewords by default.

\bibglsfirstuc{⟨text⟩}

Converts the first letter of ⟨text⟩ to upper case. This just uses \makefirstuc by default.
7 Converting Existing .tex to .bib

If you have already been using the glossaries or glossaries-extra package with a large file containing all your definitions using commands like `\newglossaryentry`, then you can use the supplementary tool `convertgls2bib` to convert the definitions to the .bib format required by `bib2gls`. The syntax is:

```
convertgls2bib [(options)] (tex file) (bib file)
```

where (tex file) is the .tex file and (bib file) is the .bib file. This application is less secure than `bib2gls` as it doesn’t use `kpswhich` to check `openin_any` and `openout_any`. Take care not to accidentally overwrite existing .bib files as there’s no check to determine if (bib file) already exists with the default --overwrite.

If the .bib extension is missing from (bib file), it will be added. The extension is required for (tex file).

7.1 Command Line Arguments

The (options) recognised by `convertgls2bib` are described below.

```
--texenc (encoding)
```

The character encoding of the .tex file. If omitted, the operating system’s default encoding is assumed (or the JVM’s).

```
--bibenc (encoding)
```

The character encoding of the .bib file. If omitted, the same encoding as the .tex file is assumed.

```
--space-sub (replacement) (or -s (replacement))
```

The .bib format doesn’t allow spaces in labels. If your original definitions in your .tex file have spaces, use this option to replace spaces in labels. Each space will be substituted with (replacement). The cross-referencing fields, see, seealso and alias, will also be adjusted, but any references using \gls etc will have to be substituted manually (or use a global search and replace in your text editor). If you want to strip the spaces, use an empty string for (replacement). You’ll need to delimit this according to your operating system. For example:

```
convertgls2bib --space-sub '' entries.tex entries.bib
```
7.1 Command Line Arguments

--ignore-sort
Omit the sort field. This is the default since bib2gls can work out a more intuitive sort value than either makeindex or xindy.

--no-ignore-sort
Don’t ignore the sort field.

--ignore-type
Omit the type field in the .bib file. You may find it more flexible not to be locked into a specific glossary type if you have a large database of entries.

--no-ignore-type
Don’t omit the type field (default unless --split-on-type).

--split-on-type (or -t)
Split the entries into separate files according to the type field. Any entries that have the type field set to \glsdefaulttype or that don’t have the type field set and there’s no default provided by the command used to define the entry (see below) then the @〈entry〉 data will be written to the main 〈bib file〉. Otherwise entries will be written to the split file (in the same directory as 〈bib file〉).

The split file name depends on whether or not the --split-on-category switch has also been used. With both and if the category and field values are different then the file name is 〈type〉-〈category〉.bib otherwise it’s 〈type〉.bib.

Commands that have a default type are as follows:

- \newabbreviation, \newacronym, \oldacronym, \newdualentry: the default type is assumed to be abbreviations (regardless of the definition of \acronymtype or \glsxtrabbrvtype);

- \glsxtrnewsymbol: the default type is assumed to be symbols;

- \glsxtrnewnumber: the default type is assumed to be numbers;

- \newterm: the default type is assumed to be index.

This option automatically implements --ignore-type and --no-overwrite.

--no-split-on-type
Don’t split the entries into separate files according to their type (default).
7.1 Command Line Arguments

--ignore-category
Omit the category field in the .bib file.

--no-ignore-category
Don’t omit the category field (default unless --split-on-category).

--split-on-category (or -c)
Split the entries into separate files according to the category. If the category field isn’t present and there’s no default provided by the command used to define the entry (see below) then the @⟨entry⟩ data will be written to the main ⟨bib file⟩. Otherwise entries will be written to the split file (in the same directory as ⟨bib file⟩).

The split file name depends on whether or not the --split-on-type switch has also been used. With both and if the category and field values are different then the file name is ⟨type⟩ ⟨category⟩.bib otherwise it’s ⟨category⟩.bib.

Commands that have a default category are as follows:

- \newabbreviation, \newacronym, \oldacronym, \newdualentry: the default category is assumed to be abbreviation;
- \glsxtrnewsymbol: the default category is assumed to be symbol;
- \glsxtrnewnumber: the default category is assumed to be number;
- \newterm: the default category is assumed to be index.

For example, if you have both --split-on-type and --split-on-category, then the default file name for \newabbreviation will be abbreviations-abbreviation.bib but the default file name for \newterm will be index.bib. Whereas if you only have --split-on-category and not --split-on-type, then then default file name for \newabbreviation will be abbreviation.bib.

This option automatically implements --ignore-category and --no-overwrite.

--no-split-on-category
Don’t split the entries into separate files according to their category (default).

--ignore-fields ⟨list⟩ (or -f ⟨list⟩)
Omit all the fields listed in ⟨list⟩ from the .bib file. If sort, type or category are included in the list, this will automatically implement the corresponding --ignore-sort, --ignore-type or --ignore-category option.

This option is not cumulative. If the list is empty it will unset any previous list but won’t unset any --ignore-sort, --ignore-type or --ignore-category option.

For example:
convertgls2bib --ignore-fields 'user1,sort' entries.bib

is equivalent to:
convertgls2bib --ignore-fields user1 --ignore-sort entries.bib

and
convertgls2bib --ignore-fields 'user1,sort' --ignore-fields '' entries.bib

is equivalent to:
convertgls2bib --ignore-sort entries.bib

--preamble-only (or -p)
Stop parsing if the start of the document environment is found.

--no-preamble-only
Parse the entire file (default). Be prepared for a lot of unknown command warnings if you
make convertgls2bib parse an entire document.

--absorb-see
Absorb any cross-referencing information identified with \glssee or \glsxtrindexseealso commands into the corresponding entry (default).

--no-absorb-see
Don’t absorb any cross-referencing information identified with \glssee or \glsxtrindexseealso commands.

--index-conversion (or -i)
Use @index instead of @entry if the description is empty or simply \nopostdesc or \glsxtrnopostpunc. (Only applies to terms that would otherwise be converted to @entry, such as those defined with \newglossaryentry.)

--no-index-conversion
Don’t convert @entry to @index (default).

--locale (language tag)
Identifies the language resource file to use for convertgls2bib’s messages.
7.2 Recognised Commands

--overwrite
Allow existing .bib files to be overwritten. (Default unless --split-on-type.)

--no-overwrite
Don’t allow existing .bib files to be overwritten. (Default if --split-on-type.)

--silent
Suppress all messages except for errors.

--verbose
Display messages and warnings (default).

--debug
Display debugging messages (stack traces and other information in addition to --verbose).

--help (or -h)
Display help message and quit.

--version (or -v)
Display version information and quit.

7.2 Recognised Commands

This application recognises the commands listed below as well as some standard commands such as \newcommand. Avoid any overly complicated code within the .tex file. The \TeX parser library isn’t a \TeX engine! The .tex file doesn’t need to be a complete document, but if you want certain commands recognised from packages that the \TeX parser library supports, you’ll need to include \usepackage in the .tex file. If you want to quit parsing the .tex file at the start of the document, use the --preamble-only switch.

In all cases below, if ⟨key=value list⟩ contains:

\begin{verbatim}
see={\[seealsoname\]⟨label(s)⟩}
\end{verbatim}

or

\begin{verbatim}
see={\[alsoname\]⟨label(s)⟩}
\end{verbatim}

this will be substituted with:
7.2 Recognised Commands

\seealso{⟨label(s)⟩}

For example:
\newterm[see={\seealso\name goose}]\{duck\}

will be written as:
@index{duck,
\seealso = \{goose\}}

Note that it won't convert see={\see also\⟨labels⟩}. If you have used explicit text instead of \seealso\name or \also\name then consider performing a global search and replace on your file using your text editor.

Additionally, if \langle key=value list \rangle contains:
type=\{\glsdefaulttype\}

then this field will be ignored. (This type value is recommended in \langle key=value list \rangle when loading files with \loadglsentries[\{type\}][\{file\}] to allow the optional argument to set the type. With bib2gls you can use the type option instead.)

\glsexpandfields

The base glossaries package provides:

\glsexpandfields

If present, this instructs convertgls2bib to expand all fields except for those explicitly identified by \glssetnoexpandfield. Remember that there are many commands that aren't recognised by convertgls2bib so it may not be possible to correctly expand field values. Conversely, there are some commands that will be expanded by convertgls2bib that aren't expandable in \LaTeX (such as \MakeUppercase and \char).

\glsnoexpandfields

The base glossaries package provides:

\glsnoexpandfields

If present, this instructs convertgls2bib to not expand fields unless explicitly identified by \glssetexpandfield.

\glssetexpandfield

The base glossaries package provides:

\glssetexpandfield{(field)}

If present, this instructs convertgls2bib to expand the given field, even if \glsnoexpandfields has been used.
7.2 Recognised Commands

\texttt{\texttt{\textbackslash glssetnoexpandfield}}

The base glossaries package provides:

\texttt{\textbackslash glssetnoexpandfield\{\langle field\rangle\}}

If present, this instructs convertgls2bib to not expand the given field, even if \texttt{\textbackslash glsexpandfields} has been used. Unlike the default behaviour with the glossaries package, there are no fields switched explicitly switched off by default with convertgls2bib.

\texttt{\texttt{\textbackslash newglossaryentry}}

The base glossaries package provides:

\texttt{\textbackslash newglossaryentry\{\langle label\rangle\}\{\langle key=\textbackslash textbackslash value \textbackslash list\rangle\}}

This is converted to:

\texttt{\textbackslash \textbackslash \textbackslash \textbackslash \textbackslash \textbackslash \textbackslash \textbackslash \textbackslash \textbackslash \textbackslash \textbackslash \textbackslash \textbackslash \textbackslash \textbackslash \textbackslash \textbackslash \textbackslash \textbackslash \textbackslash \textbackslash \textbackslash \textbackslash \textbackslash \textbackslash \textbackslash \textbackslash \textbackslash \textbackslash \textbackslash \textbackslash \textbackslash \textbackslash \textbackslash \textbackslash \textbackslash \textbackslash \textbackslash \textbackslash \textbackslash \textbackslash \textbackslash \textbackslash \textbackslash \textbackslash \textbackslash \textbackslash \textbackslash \textbackslash \textbackslash \textbackslash \textbackslash \textbackslash \textbackslash \textbackslash \textbackslash \textbackslash \textbackslash \textbackslash \textbackslash \textbackslash \textbackslash \textbackslash \textbackslash \textbackslash 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7.2 Recognised Commands

The starred version provided by the glossaries-extra package is also recognised. The un-starred version strips trailing spaces from ⟨description⟩. (This doesn’t add \nopostdesc, but glossaries-extra defaults to \nopostdot.)

\longprovideglossaryentry
The base glossaries package provides:

\longprovideglossaryentry{⟨label⟩}{⟨key=value list⟩}{⟨description⟩}

As above, but only if ⟨label⟩ hasn’t already been defined.

\newterm
The base glossaries package provides:

\newterm[⟨key=value list⟩]{⟨label⟩}

(when the index option is used). This is converted to:

@index{⟨label⟩,
 ⟨key=value list⟩}

if the optional argument is present, otherwise it’s just converted to:

@index{⟨label⟩}

If --space-sub is used and ⟨label⟩ contains one or more spaces, then name will be set if not included in ⟨key=value list⟩. For example, if entries.bib contains:

\newterm{sea lion}
\newterm[seealso={sea lion}]{seal}

then:

convertgls2bib --space-sub '-' entries.bib entries.tex

will write the terms to entries.tex as:

@index{sea-lion,
 name = {sea lion}}

@index{seal,
 seealso = {sea-lion}}

whereas just:
7.2 Recognised Commands

convertgls2bib entries.bib entries.tex

will write the terms to entries.tex as:

@index{sea lion}
@index{seal, seealso = {sea lion}}

which will cause a problem when the .bib file is parsed by bib2gls (and will probably also cause a problem for bibliographic management systems).

\newabbreviation

The glossaries-extra package provides:

\newabbreviation{⟨key=value list⟩}{⟨label⟩}{⟨short⟩}{⟨long⟩}

This is converted to:

@abbreviation{⟨label⟩, short = {⟨short⟩}, long = {⟨long⟩}, ⟨key=value list⟩}

if the optional argument is present, otherwise it’s converted to:

@abbreviation{⟨label⟩, short = {⟨short⟩}, long = {⟨long⟩}}

\newacronym

The base glossaries package provides:

\newacronym{⟨key=value list⟩}{⟨label⟩}{⟨short⟩}{⟨long⟩}

(which is redefined by glossaries-extra to use \newabbreviation).

As above but uses @acronym instead. The base package also provides \oldacronym, which emulates the way abbreviations were defined with the precursor glossary package. This has different syntax to \newacronym but is also recognised by convertgls2bib and is converted to @acronym.
\glsxtrnewsymbol

The glossaries-extra package provides:

\glsxtrnewsymbol\{⟨key=value list⟩\}{⟨label⟩}{⟨symbol⟩}

(when the symbols option is used). This is converted to:

@symbol{⟨label⟩,
  name = {⟨symbol⟩}
}

if the optional argument is missing, otherwise it’s converted to:

@symbol{⟨label⟩,
  name = {⟨symbol⟩},
  ⟨key=value list⟩
}

unless ⟨key=value list⟩ contains the name field, in which case it’s converted to:

@symbol{⟨label⟩,
  ⟨key=value list⟩
}

\newsym is recognised as a synonym for \glsxtrnewsymbol.

\glsxtrnewnumber

The glossaries-extra package provides:

\glsxtrnewnumber\{⟨key=value list⟩\}{⟨label⟩}

(when the numbers option is used). This is converted to:

@number{⟨label⟩,
  name = {⟨label⟩}
}

if the optional argument is missing, otherwise it’s converted to:

@number{⟨label⟩,
  name = {⟨label⟩},
  ⟨key=value list⟩
}

if name isn’t listed in ⟨key=value list⟩, otherwise it’s converted to:

@number{⟨label⟩,
  ⟨key=value list⟩
}

\newnum is recognised as a synonym for \glsxtrnewnumber.
7.2 Recognised Commands

\newdualentry

\newdualentry[⟨key=value list⟩]{⟨label⟩}{⟨short⟩}{⟨long⟩}{⟨description⟩}

This command isn’t provided by either glossaries or glossaries-extra but is used as an example in the glossaries user manual [14] and in the sample file sample-dual.tex that accompanies the glossaries package. Since this command seems to be used quite a bit (given the number of times it crops up on sites like \TeX{} on StackExchange), convertgls2bib also supports it unless this command is defined using \newcommand or \renewcommand in the input file. In which case the default definition will be overridden.

If the command definition isn’t overridden, then it’s converted to:

@dualabbreviationentry{⟨label⟩,
short = {⟨short⟩},
long = {⟨long⟩},
description = {⟨description⟩},
⟨key=value list⟩}

if ⟨key=value list⟩ is supplied, otherwise it’s converted to:

@dualabbreviationentry{⟨label⟩,
short = {⟨short⟩},
long = {⟨long⟩},
description = {⟨description⟩}}

For example, if the original .tex file contains:

\newcommand*{\newdualentry}[5][]{%
  \newglossaryentry{main-#2}{name={#4},%
    text={#3\glsadd{#2}},%
    description={#5},%
    #1
  }%
  \newacronym{#2}{#3\glsadd{main-#2}}{#4}%
}\newdualentry{svm}% label
{SVM}% abbreviation
{support vector machine}% long form
{Statistical pattern recognition technique}% description

then the .bib file will contain:
@entry{main-svm,
    name = {support vector machine},
    description = {Statistical pattern recognition technique},
    text = {SVM\glsadd{svm}}
}

@acronym{svm,
    short = {SVM\glsadd{main-svm}},
    long = {support vector machine}
}

since \newdualentry was defined with \newcommand. However, if the original file uses \providecommand or omits the definition of \newdualentry, then the .bib file will contain:

@dualabbreviationentry{svm,
    short = {SVM},
    description = {Statistical pattern recognition technique},
    long = {support vector machine}
}
8 Examples

The example files described here can be found in the examples sub-directory. The .bib files are listed first and then sample files that use the .bib data. Make sure you have the latest versions of glossaries, mfirstuc, glossaries-extra and bib2gls if you want to try these out. (The sample-media.tex file requires at least datatool v2.28.) If you get any undefined control sequence or undefined style errors then you need to update your \LaTeX{} distribution. Use the --group switch when invoking bib2gls for all these examples if you want the glossaries divided into groups. The set of system calls for the document build in the examples below may require an extra \LaTeX{} run to ensure the PDF bookmarks are up-to-date when hyperref is used.

These files are just examples of how to use bib2gls. There are other ways of defining similar entries and sometimes alternatives are suggested. Use the code here as a starting point if you need data like this and adapt it to a format appropriate for your requirements.

no-interp-preamble.bib

The no-interp-preamble.bib file contains command definitions used in some of the name fields. Although these commands aren’t used explicitly in the document, they need to be defined when the names are displayed in the document (typically in the glossary). These commands are much like the \texttt{\textbackslash sorttop} command described on 206 and need to be hidden from bib2gls’s interpreter. This file doesn’t contain any entry definitions and must be loaded first with \texttt{interpret-preamble=\{false\}}. The interpret-preamble.bib or interpret-preamble2.bib file can then be loaded to provide alternative definitions for bib2gls’s interpreter.

The first command is:

\begin{verbatim}
\sortname{⟨first name(s)⟩}{⟨surname⟩}
\end{verbatim}

This is used in the name fields for entries containing information about a person. The aim here is for bib2gls to sort according to \texttt{⟨surname⟩}, \texttt{⟨first name(s)⟩} but for the glossary to display \texttt{⟨first name(s)⟩} ⟨\texttt{⟨surname⟩}⟩. For names with a “von” part, there’s another command:

\begin{verbatim}
\sortvonname{⟨first name(s)⟩}{⟨von⟩}{⟨surname⟩}
\end{verbatim}

which has a similar purpose. The third command is:

\begin{verbatim}
\sortart{⟨article⟩}{⟨text⟩}
\end{verbatim}

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This is the same as \sortname but is designed for titles, phrases or sentences that start with an article (such as “a” or “the”). Although it has the same definition as \sortname in this file, in the interpreted files the article part is omitted to completely ignore them in the sorting. The fourth command is:

\sortmediacreator{⟨first name(s)⟩}{⟨surname⟩}

which again is functionally the same as \sortname.

The names could be specified using \texttt{BibTeX}'s syntax instead with \texttt{bibtex-contributor-fields} to convert it, but the aim here is to show a variety of ways to use \texttt{bib2gls}. For an example of \texttt{bibtex-contributor-fields}, see the way the \texttt{cast} field in \texttt{films.bib} is dealt with.

Although the file only contains ASCII characters, it starts with an encoding line to prevent \texttt{bib2gls} from searching the entire file for it. (That’s not so much of an issue with a short file, but may cause an unnecessary delay for much longer files.)

The contents of \texttt{no-interpret-preamble.bib} are as follows:

\begin{verbatim}
% Encoding: UTF-8
@preamble{"\providecommand{\sortname}[2]{#1 #2}
\providecommand{\sortvonname}[3]{#1 #2 #3}
\providecommand{\sortart}[2]{#1 #2}
\providecommand{\sortmediacreator}[2]{#1 #2}"}
\end{verbatim}

\section*{interpret-preamble.bib}

This provides definitions of \sortname, \sortvonname, \sortart and \sortmediacreator in \texttt{@preamble} that can be picked up by the interpreter and used during sorting. Note that in this case \sortart is defined to ignore the article to completely ignore it from sorting. If you happen to have “a ⟨something⟩” and “the ⟨something⟩” where the ⟨something⟩s are identical, you may want to append the article to disambiguate them.

The contents of interpret-preamble.bib are as follows:

\begin{verbatim}
% Encoding: UTF-8
@preamble{"\providecommand{\sortname}[2]{#2, #1}
\providecommand{\sortvonname}[3]{#2 #3, #1}
\providecommand{\sortart}[2]{#2}
\providecommand{\sortmediacreator}[2]{#2, #1}"}
\end{verbatim}

\section*{interpret-preamble2.bib}

An alternative to interpret-preamble.bib with a different definition of \sortmediacreator. This uses \texttt{renewcommand} instead of \texttt{providecommand} so \texttt{write-preamble=\{false\}} is required to prevent \texttt{BibTeX} from picking up the definitions.
The contents of interpret-preamble2.bib are as follows:

```latex
% Encoding: UTF-8
@preamble{"\providecommand{\sortname}[2]{#2, #1}
\providecommand{\sortvonname}[3]{#2 #3, #1}
\providecommand{\sortart}[2]{#2}
\renewcommand{\sortmediacreator}[2]{\MakeLowercase{#2}}"}
```

**constants.bib**

The `constants.bib` file contains mathematical constants. These all use a custom entry type `@constant`, which must be aliased otherwise the entries will all be ignored. The entries all have custom fields, which also need to be aliased. For example:

```latex
entry-type-aliases={constant=entry},
field-aliases={
  constantname=name,
  constantsymbol=symbol,
  definition=description,
  identifier=category,
  value=user1
}
```

This setting means that, for example,

```latex
@constant{root2,
  constantname={Pythagoras' constant},
  constantsymbol={\ensuremath{\surd2}},
  definition={the square root of 2},
  value={1.41421},
  identifier={constant}
}
```

is treated as though it was defined as:

```latex
@entry{root2,
  name={Pythagoras' constant},
  symbol={\ensuremath{\surd2}},
  description={the square root of 2},
  user1={1.41421},
  category={constant}
}
```

This use of custom fields and entry types allows more flexibility. For example, I may have another document that uses the same `.bib` file but requires a different definition:
@number{root2,
  description={Pythagoras' constant},
  name={\ensuremath{\sqrt{2}}}
}

which can be obtained with:

entry-type-aliases={constant=number},
field-aliases={
  constantname=description,
  constantsymbol=name
}

Since the other custom fields haven’t be aliased, they’re ignored.

The custom fields are: identifier (set to constant for all the entries), constantname (the constant’s name), definition (a definition of the constant), value (the approximate numeric value of the constant), constantsymbol (the symbolic representation of the constant) and alternative (alternative symbol). There are three entries that don’t have the custom value field: zero and one (the exact value is in the constantsymbol field in both cases) and imaginary (where there’s no real number value).

I’ve provided some commands in the @preamble for constants that are represented by Latin and Greek letters. These can be defined in the document before the resource set if different notation is required. The upright Greek commands require the upgreek package.

If it’s likely that there may be a need to sort according to definition, then it would be better to use \sortart describe above:

@constant{root2,
  constantname={Pythagoras' constant},
  constantsymbol={\ensuremath{\sqrt{2}}},
  definition={\sortart{the}{square root of 2}},
  value={1.41421},
  identifier={constant}
}

Remember that this would need no-interpret-preamble.bib to ensure the command is recognised in the document.

The contents of constants.bib are as follows:

% Encoding: UTF-8
%
% Requires upgreek.8t

@preamble{"\providecommand{\constanti}{\mathrm{i}}
\providecommand{\constantj}{\mathrm{j}}
\providecommand{\constante}{\mathrm{e}}
\providecommand{\constantpi}{\uppi}
\providecommand{\constantgamma}{\upgamma}
@constant{pi,
    constantname={pi},
    constantsymbol={\ensuremath{\constantpi}},
    definition={the ratio of the length of the circumference
    of a circle to its diameter},
    value={3.14159},
    identifier={constant}
}

@constant{eulercons,
    constantname={Euler's constant},
    constantsymbol={\ensuremath{\constantgamma}},
    definition={the limit of \[\sum_{r=1}^{n}\frac{1}{r}-\ln n\]
    as $n\to\infty$},
    value={0.57721},
    identifier={constant}
}

@constant{e,
    constantname={Euler's number},
    constantsymbol={\ensuremath{\constante}},
    definition={base of natural logarithms},
    value={2.71828},
    identifier={constant}
}

@constant{root2,
    constantname={Pythagoras' constant},
    constantsymbol={\ensuremath{\surd2}},
    definition={the square root of 2},
    value={1.41421},
    identifier={constant}
}

@constant{goldenratio,
    constantname={golden ratio},
    constantsymbol={\ensuremath{\constantphi}},
    definition={the ratio $\frac{1+\surd5}{2}$},
    value={1.61803},
    identifier={constant}
}

@constant{aperysconstant,
constantname={Ap\'ery's constant},
constantsymbol={\ensuremath{\zeta(3)}},
definition={a special value of the Riemann zeta function},
value={1.2020569},
identifier={constant}
}

@constant{conwaysconstant,
    constantname={Conway's constant},
    constantsymbol={\ensuremath{\constantlambda}},
    definition={the invariant growth rate of all derived strings},
    value={1.30357},
    identifier={constant}
}

@constant{zero,
    constantname={zero},
    constantsymbol={\ensuremath{0}},
    definition={nothing or nil},
    identifier={constant}
}

@constant{one,
    constantname={one},
    constantsymbol={\ensuremath{1}},
    definition={single entity, unity},
    identifier={constant}
}

@constant{imaginary,
    constantname={imaginary unit},
    constantsymbol={\ensuremath{\constanti}},
    definition={defined as \$\constanti^2 = -1\$},
    identifier={constant},
    alternative={\ensuremath{\constantj}}
}

**chemicalformula.bib**

The chemicalformula.bib file contains chemical formulae. Each entry has a field that uses \texttt{\ce} provided by \texttt{mhchem} so the document will need to load that package. Since all resource files must be loaded in the preamble, it's possible to ensure that the package is loaded using:

@preamble{"\usepackage{mhchem}"}

However, it's best just to load it in the document otherwise it won't be available before the
Examples: chemicalformula.bib

The .glstex file has been loaded. Also, glossaries (and therefore glossaries-extra) must be loaded after hyperref, which usually needs to be loaded last so most packages should be loaded before glossaries-extra. Instead, I’ve just put a comment in the .bib file as a reminder.

All entries are defined using a custom entry type @chemical. This must be aliased using entry-type-aliases or the entries will be ignored. For example, to make @chemical behave like @symbol:

```
entry-type-aliases={chemical=symbol}
```

Remember that with the @symbol type, if the sort field is omitted bib2gls will fallback on the label by default. It can be changed to fallback on the name field instead using symbol-sort-fallback={name}. This will require the use of the interpreter if the name contains a command but bib2gls recognises the mhchem package and has a limited ability to interpret \ce. If @chemical is changed to @entry instead then the fallback for the sort will be the entry’s name.

All entries only contain custom fields, which will all be ignored by bib2gls unless defined or aliased: identifier, which is set to chemical for all entries, formula, which is set to the chemical formula, and chemicalname, which is set to the chemical name. This allows the flexibility of determining whether the name or symbol field should contain the chemical formula on a per-resource basis. For example:

```
field-aliases={formula=name,chemicalname=description}
```

or

```
field-aliases={chemicalname=name,formula=symbol}
```

The contents of chemicalformula.bib are as follows:

% Encoding: UTF-8

% requires mhchem.sty

```
@chemical{H2O,
  formula={\ce{H2O}},
  chemicalname={water},
  identifier={chemical}
}
```

```
@chemical{Al2SO43,
  formula={\ce{Al2(SO4)3}},
  chemicalname={aluminium sulfate},
  identifier={chemical}
}
```

```
@chemical{CH3CH2OH,
  formula={\ce{CH3CH2OH}},
  chemicalname={ethanol},
```
8 Examples: chemicalformula.bib

```bibtex
@chemical{C6H12O6,
  formula={$\ce{C6H12O6}$},
  chemicalname={glucose},
  identifier={chemical}}

@chemical{CH2O,
  formula={$\ce{CH2O}$},
  chemicalname={formaldehyde},
  identifier={chemical}}

@chemical{H3O+,
  formula={$\ce{H3O+}$},
  chemicalname={hydronium},
  identifier={chemical}}

@chemical{SO42-,
  formula={$\ce{SO4^{2-}}$},
  chemicalname={sulfate},
  identifier={chemical}}

@chemical{O2,
  formula={$\ce{O2}$},
  chemicalname={dioxygen},
  identifier={chemical}}

@chemical{O,
  formula={$\ce{O}$},
  chemicalname={oxygen},
  identifier={chemical}}

@chemical{OF2,
  formula={$\ce{OF2}$},
  chemicalname={oxygen difluoride},
  identifier={chemical}}

@chemical{O2F2,
```
```
8 Examples: chemicalformula.bib

formula={\ce{O2F2}},
chemicalname={dioxygen difluoride},
identifier={chemical}
}

@chemical{OH-,
formula={\ce{OH-}},
chemicalname={hydroxide ion},
identifier={chemical}
}

@chemical{AlF3,
formula={\ce{AlF3}},
chemicalname={aluminium trifluoride},
identifier={chemical}
}

@chemical{Al2Co04,
formula={\ce{Al2Co04}},
chemicalname={cobalt blue},
identifier={chemical}
}

@chemical{As4S4,
formula={\ce{As4S4}},
chemicalname={tetraarsenic tetrasulfide},
identifier={chemical}
}

@chemical{C5H4NCOOH,
formula={\ce{C5H4NCOOH}},
chemicalname={niacin},
identifier={chemical}
}

@chemical{C10H1004,
formula={\ce{C10H1004}},
chemicalname={ferulic acid},
identifier={chemical}
}

@chemical{C8H10N4O2,
formula={\ce{C8H10N4O2}},
chemicalname={caffeine},
identifier={chemical}
}
The bacteria.bib file contains bacteria abbreviations. These all use the @abbreviation entry type with a short and long field.

The entries all have a custom field identifier set to bacteria. This will be ignored by bib2gls unless it’s defined using \glsaddkey or \glsaddstoragekey or if it’s aliased with field-aliases.

The contents of bacteria.bib are as follows:
8 Examples: bacteria.bib

% Encoding: UTF-8

@abbreviation{cbotulinum,
    short={C.~botulinum},
    long={Clostridium botulinum},
    identifier={bacteria}
}

@abbreviation{pputida,
    short={P.~putida},
    long={Pseudomonas putida},
    identifier={bacteria}
}

@abbreviation{cperfringens,
    short={C.~perfringens},
    long={Clostridium perfringens},
    identifier={bacteria}
}

@abbreviation{bsubtilis,
    short={B.~subtilis},
    long={Bacillus subtilis},
    identifier={bacteria}
}

@abbreviation{ctetani,
    short={C.~tetani},
    long={Clostridium tetani},
    identifier={bacteria}
}

@abbreviation{pcomposti,
    short={P.~composti},
    long={Planifilum composti},
    identifier={bacteria}
}

@abbreviation{pfimeticola,
    short={P.~fimeticola},
    long={Planifilum fimeticola},
    identifier={bacteria}
}

@abbreviation{cburnetii,
    short={C.~burnetii},
    long={Bartonella burnetii},
    identifier={bacteria}
}
The baseunits.bib file contains base SI units. The entries are all defined using the custom @unit entry type. This must be aliased with entry-type-aliases otherwise bib2gls will ignore all the entries. For example:

```
entry-type-aliases={unit=symbol}
```

will make bib2gls treat the entries as though they were defined using @symbol. (Remember that @symbol entry types use the label as the fallback field for sort.)

The entries all have custom fields unitname, unitsymbol and measurement, one of which must be aliased or copied to name if @unit is aliased to an entry type that requires it. The other custom fields may be aliased or copied to symbol and description as required. The unitsymbol fields all use \si provided by the siunitx package, so that package must be loaded in the document. This is one of the small number of packages recognised by bib2gls, so it’s possible to sort according to the symbol if required.

The entries also all have a custom field identifier set to baseunit. This will be ignored by bib2gls unless it’s defined using \glsaddkey or \glsaddstoragekey or if it’s aliased with field-aliases.

The contents of baseunits.bib are as follows:

```latex
% Encoding: UTF-8
%
% requires siunix.sty

@unit{ampere,
    unitname={ampere},
    unitsymbol={\si{\ampere}},
    measurement={electric current},
    identifier={baseunit}
}```
8 Examples: baseunits.bib

@unit{kilogram,
    unitname={kilogram},
    unitsymbol={\si{\kilogram}},
    measurement={mass},
    identifier={baseunit}
}

@unit{metre,
    unitname={metre},
    unitsymbol={\si{\metre}},
    measurement={length},
    identifier={baseunit}
}

@unit{second,
    unitname={second},
    unitsymbol={\si{\second}},
    measurement={time},
    identifier={baseunit}
}

@unit{kelvin,
    unitname={kelvin},
    unitsymbol={\si{\kelvin}},
    measurement={thermodynamic temperature},
    identifier={baseunit}
}

@unit{mole,
    unitname={mole},
    unitsymbol={\si{\mole}},
    measurement={amount of substance},
    identifier={baseunit}
}

@unit{candela,
    unitname={candela},
    unitsymbol={\si{\candela}},
    measurement={luminous intensity},
    identifier={baseunit}
}
derivedunits.bib

The derivedunits.bib file is much like baseunits.bib but contains derived units and in this case the custom entry type is \texttt{@measurement}, which must be aliased otherwise the entries will all be ignored. The entries all have a custom field \texttt{identifier} set to derivedunit. This will be ignored by \texttt{bib2gls} unless it’s defined using \texttt{\glsaddkey} or \texttt{\glsaddstoragekey} or if it’s aliased with \texttt{field-aliases}.

The contents of derivedunits.bib are as follows:

\begin{verbatim}
% Encoding: UTF-8
% requires siunitx.sty

@measurement{area,  
    unitname={square metre},  
    unitsymbol={\si{\metre\squared}},  
    measurement={area},  
    identifier={derivedunit}
}

@measurement{volume,  
    unitname={cubic metre},  
    unitsymbol={\si{\metre\cubed}},  
    measurement={volume},  
    identifier={derivedunit}
}

@measurement{velocity,  
    unitname={metre per second},  
    unitsymbol={\si{\metre\per\second}},  
    measurement={velocity},  
    identifier={derivedunit}
}

@measurement{acceleration,  
    unitname={metre per second squared},  
    unitsymbol={\si{\metre\per\square\second}},  
    measurement={acceleration},  
    identifier={derivedunit}
}

@measurement{density,  
    unitname={ampere per square metre},  
    unitsymbol={\si{\ampere\per\square\metre}},  
    measurement={density},  
    identifier={derivedunit}
}
\end{verbatim}
@measurement{luminance,  
    unitname={candela per square metre},  
    unitsymbol={\si{\candela\per\square\metre}},  
    measurement={luminance},  
    identifier={derivedunit}  
}  

@measurement{specificvolume,  
    unitname={cubic metre per kilogram},  
    unitsymbol={\si{\cubic\metre\per\kilogram}},  
    measurement={specific volume},  
    identifier={derivedunit}  
}  

@measurement{concentration,  
    unitname={mole per cubic metre},  
    unitsymbol={\si{\mole\per\cubic\metre}},  
    measurement={concentration},  
    identifier={derivedunit}  
}  

@measurement{wavenumber,  
    unitname={per metre},  
    unitsymbol={\si{\per\metre}},  
    measurement={wave number},  
    identifier={derivedunit}  
}  

people.bib

The people.bib file contains details about people. The name fields contain custom commands provided in no-interpret-preamble.bib and interpret-preamble.bib. Remember that if no-interpret-preamble.bib is loaded first, the definitions provided in that file will be the one in use in the document. The interpret-preamble.bib file then needs to be loaded to provide the definitions for bib2gls’s interpreter.

The information for each person is supplied in an @entry type. There are some non-standard fields: born, died and othername. These fields will be ignored unless keys are provided (using \glsaddkey or \glsaddstoragekey) or the fields are aliased (using field -aliases). The born and died fields have dates that are almost in the default en-GB locale format with the JRE locale provider, but they include a tilde ~ to prevent awkward line breaks. By default bib2gls’s interpreter converts ~ to the non-breaking space character 0xA0 which isn’t recognised by the date format. This can easily be fixed with the --break-space switch which will interpret ~ as a normal breakable space (0x20), so with that switch sort={date}
or \texttt{sort=\{date-reverse\}} can be used on either of those fields. However, the CLDR has a slightly different default format than the JRE for dates with \texttt{en-GB}, so it’s probably simplest to actually specify the required format.

An alternative approach would be to provide a command that can be modified in the document to adjust the date style. For example, the \texttt{born} field could be specified as:

\begin{verbatim}
born=\{\formatdate{13}{7}{100}{BC}\}
\end{verbatim}

The definition provided for the document could then be, for example:

\begin{verbatim}
\providecommand{\formatdate}[4]{\DTMdisplaydate{#3}{#2}{#1}{-1} #4}
\end{verbatim}

(\texttt{\DTMdisplaydate} is provided by the \texttt{datetime2} package) and a definition could be provided for \texttt{bib2gls}'s interpreter, for example:

\begin{verbatim}
\providecommand{\formatdate}[4]{#1/#2/#3 #4}
\end{verbatim}

This would need the date format set. For example, \texttt{date-sort-format=\{d/M/y G\}}.

Some of the entries, such as \texttt{caesar}, have a \texttt{first} field. In those cases the \texttt{first} field is slightly different from the \texttt{name} field (for example, "Gaius" is omitted in \texttt{caesar}'s \texttt{first} field). The other entries don’t have a \texttt{first} field. They can simply have the \texttt{name} copied to \texttt{first} with the \texttt{replicate-fields} option (so that the full name is shown on first use) or the \texttt{first} field can be ignored with \texttt{ignore-fields} (so all entries will use the \texttt{text} field on first use). The \texttt{replicate-override} option can be used to force the \texttt{name} field to be copied to the \texttt{first} field, even if the \texttt{first} field is already set. Alternatively, with \texttt{replicate-override=\{true\}} and \texttt{replicate-fields=\{first=name\}}, the \texttt{first} field be copied to the \texttt{name} field. For consistency, the \texttt{first} fields use the same custom commands as used in the \texttt{name} field.

There’s one name with a "von" part. In this case the \texttt{name} field is set to:

\begin{verbatim}
\sortvonname{Manfred}{von}{Richthofen}
\end{verbatim}

which will come under the "V" letter group since \texttt{\sortvonname} is defined as \texttt{\{von\} \{surname\}, \{first name(s)\}}

If you prefer that this name should come under "R" instead, then you need to adjust the definition of \texttt{\sortvonname}:

\begin{verbatim}
@preamble{"\providecommand{\sortname}[2]{#2, #1}  
\providecommand{\sortvonname}[3]{#3, #1 #2}"}
\end{verbatim}

An alternative approach would be to format the names using \texttt{BibTeX}'s contributor syntax and use \texttt{bibtex-contributor-fields=\{name\}} to convert them.

There are also some synonyms provided with \texttt{\index} entry types that have the \texttt{alias} field to redirect to the main entry. These don’t include a \texttt{description} or any of the other fields as that would be redundant. All the information can be found in the main entry.

Except for the aliases, the entries have a custom field \texttt{identifier} set to \texttt{person}. This will be ignored by \texttt{bib2gls} unless it’s defined using \texttt{\glssaddkey} or \texttt{\glssaddstoragekey} or if it’s aliased with \texttt{field-aliases}.

The contents of \texttt{people.bib} are as follows:
8 Examples: people.bib

% Encoding : UTF-8

@entry{caesar,
  name={\sortname{Gaius Julius}{Caesar}},
  first={\sortname{Julius}{Caesar}},
  text={Caesar},
  description={Roman politician and general},
  born={13-July 100 BC},
  died={15-March 44 BC},
  identifier={person}
}

@entry{wellesley,
  name={\sortname{Arthur}{Wellesley}},
  text={Wellington},
  description={Anglo-Irish soldier and statesman},
  born={1-May 1769 AD},
  died={14-September 1852 AD},
  othername={1st Duke of Wellington},
  identifier={person}
}

@index{wellington,
  name={Wellington},
  alias={wellesley},
  identifier={person}
}

@entry{bonaparte,
  name={\sortname{Napoleon}{Bonaparte}},
  text={Bonaparte},
  description={French military and political leader},
  born={15-July 1769 AD},
  died={5-May 1821 AD},
  identifier={person}
}

@entry{alexander,
  name={Alexander III of Macedon},
  text={Alexander},
  description={Ancient Greek king of Macedon},
  born={20-July 356 BC},
  died={10-June 323 BC},
  othername={Alexander the Great},
  identifier={person}
}
8 Examples: people.bib

@index{alexanderthegreat,
  name={Alexander the Great},
  alias={alexander},
  identifier={person}
}

@entry{vonrichthofen,
  name={\sortvonname{Manfred}{von}{Richthofen}},
  text={von Richthofen},
  description={Prussian ace fighter pilot in the German Air Force during World War I},
  born={2-May 1892 AD},
  died={21-April 1918 AD},
  othername={The Red Baron},
  identifier={person}
}

@index{redbaron,
  name={\sortart{The}{Red Baron}},
  alias={vonrichthofen},
  identifier={person}
}

@entry{dickens,
  name={\sortname{Charles}{Dickens}},
  text={Dickens},
  description={English writer and social critic},
  born={7-February 1812 AD},
  died={9-June 1870 AD},
  identifier={person}
}

@entry{chandler,
  name={\sortname{Raymond}{Chandler}},
  text={Chandler},
  description={American-British novelist and screenwriter},
  born={23-July 1888 AD},
  died={26-March 1959 AD},
  identifier={person}
}

@entry{hammett,
  name={\sortname{Samuel Dashiell}{Hammett}},
  first={\sortname{Dashiell}{Hammett}},
  text={Hammett},
}

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8 Examples: people.bib

description={American author, screenwriter and political activist},
born={27~May 1894 AD},
died={10~January 1961 AD},
identifier={person}
}

@entry{christie,
  name={\sortname{Dame Agatha Mary Clarissa}{Christie}},
  first={\sortname{Agatha}{Christie}},
  text={Christie},
  othername={Lady Mallowan},
  description={English crime novelist and playwright},
born={15~September 1890 AD},
died={12~January 1976 AD},
identifier={person}
}

@entry{landon,
  name={\sortname{Christopher Guy}{Landon}},
  first={\sortname{Christopher}{Landon}},
  text={Landon},
  description={British novelist and screenwriter},
born={29~March 1911 AD},
died={26~April 1961 AD},
identifier={person}
}

@entry{tolkien,
  name={\sortname{John Ronald Reuel}{Tolkien}},
  first={\sortname{J.R.R.}{Tolkien}},
  text={Tolkien},
  description={English writer, poet, philologist, and university professor},
born={3~January 1892 AD},
died={2~September 1973 AD},
identifier={person}
}

@entry{baum,
  name={\sortname{Lyman Frank}{Baum}},
  first={\sortname{L.-Frank}{Baum}},
  text={Baum},
  description={American author},
born={15~May 1856 AD},
died={6~May 1919 AD},
  
}
@entry{mackenzie,
  name={\sortname{Compton}{Mackenzie}},
  text={Mackenzie},
  description={English-born Scottish writer, cultural commentator, raconteur and Scottish nationalist},
  born={17-January 1883 AD},
  died={30-November 1972 AD},
  identifier={person}
}

@entry{maclean,
  name={\sortname{Alistair}{MacLean}},
  text={MacLean},
  description={Scottish novelist},
  born={21-April 1922 AD},
  died={2-February 1987 AD},
  identifier={person}
}

@entry{dick,
  name={\sortname{Philip K.}{Dick}},
  text={Dick},
  description={American science fiction writer},
  born={16-December 1928 AD},
  died={2-March 1982 AD},
  identifier={person}
}

@entry{story,
  name={\sortname{Jack Trevor}{Story}},
  text={Story},
  description={British novelist},
  born={30-March 1917 AD},
  died={5-December 1991 AD},
  identifier={person}
}

@entry{greene,
  name={\sortname{Henry Graham}{Green}},
  first={\sortname{Graham}{Greene}},
  text={Green},
  description={English novelist},
  born={2-October 1904 AD},
books.bib

The books.bib file contains details about books. As above, the entries use custom commands provided in no-interpret-preamble.bib and interpret-preamble.bib or interpret-preamble2.bib. The entries all have a custom field identifier set to book and other custom fields author and year. These will be ignored by bib2gls unless they’re defined using \glsaddkey or \glsaddstoragekey or if they’re aliased with field-aliases.

There are other ways in which this data could be specified. For example, the description field could contain a brief summary (or “log line”). The author field could use \LaTeX’s syntax instead with bibtex-contributor-fields to convert it. Alternatively, the entries could be defined using standard \LaTeX entry types that are all aliased to @bibtexentry.

The contents of books.bib are as follows:

```bibtex
@entry{ataleoftwocities,
  name={\sortart{A}{Tale of Two Cities}},
  description={novel by Charles Dickens},
  identifier={book},
  author={\sortmediacreator{Charles}{Dickens}},
  year={1859}
}

@entry{bleakhouse,
  name={Bleak House},
  description={novel by Charles Dickens},
  identifier={book},
  author={\sortmediacreator{Charles}{Dickens}},
  year={1852}
}

@entry{thebigsleep,
  name={\sortart{The}{Big Sleep}},
  description={novel by Raymond Chandler},
  identifier={book},
  author={\sortmediacreator{Raymond}{Chandler}},
  year={1939}
}

@entry{thelonggoodbye,
  name={\sortart{The}{Long Goodbye}},
```
8 Examples: books.bib

description={novel by Raymond Chandler},
identifier={book},
author={\sortmediacreator{Raymond}{Chandler}},
year={1953}
}

@entry{redharvest,
name={Red Harvest},
description={novel by Dashiell Hammett},
identifier={book},
author={\sortmediacreator{Dashiell}{Hammett}},
year={1929}
}

@entry{murderontheorientexpress,
name={Murder on the Orient Express},
description={novel by Agatha Christie},
identifier={book},
author={\sortmediacreator{Agatha}{Christie}},
year={1934}
}

@entry{whydidnttheyaskevans,
name={Why Didn't They Ask Evans?},
description={novel by Agatha Christie},
identifier={book},
author={\sortmediacreator{Agatha}{Christie}},
year={1934}
}

@entry{icecoldinalex,
name={Ice Cold in Alex},
description={novel by Christopher Landon},
identifier={book},
author={\sortmediacreator{Christopher}{Landon}},
year={1957}
}

@entry{thehobbit,
name={\sortart{The}{Hobbit}},
description={novel by J.R.R. Tolkien},
identifier={book},
author={\sortmediacreator{J.R.R.}{Tolkien}},
year={1937}
}
@entry{thelordoftherings,  
name={\sortart{The}{Lord of the Rings}},  
description={novel by J.R.R. Tolkien},  
identifier={book},  
author={\sortmediacreator{J.R.R.}{Tolkien}},  
year={1954} }

@entry{thewonderfulwizardofoz,  
name={\sortart{The}{Wonderful Wizard of Oz}},  
description={novel by L. Frank Baum},  
identifier={book},  
author={\sortmediacreator{L. Frank}{Baum}},  
year={1900} }

@entry{whiskygalore,  
name={Whisky Galore},  
description={novel by Compton Mackenzie},  
identifier={book},  
author={\sortmediacreator{Compton}{Mackenzie}},  
year={1947} }

@entry{whereeaglesdare,  
name={Where Eagles Dare},  
description={novel by Alistair MacLean},  
identifier={book},  
author={\sortmediacreator{Alistair}{MacLean}},  
year={1967} }

@entry{icestationzebra,  
name={Ice Station Zebra},  
description={novel by Alistair MacLean},  
identifier={book},  
author={\sortmediacreator{Alistair}{MacLean}},  
year={1963} }

@entry{ubik,  
name={Ubik},  
description={novel by Philip K. Dick},  
identifier={book},  
author={\sortmediacreator{Philip K.}{Dick}},  
year={1969} }
8 Examples: films.bib

The films.bib file contains details about films. As above, the entries use custom commands provided in no-interpret-preamble.bib and interpret-preamble.bib. The entries all have a custom field identifier set to film and other custom fields cast, director and year. These will be ignored by bib2gls unless they’re defined using \glsaddkey or \gls-addstoragekey or if they’re aliased with field-aliases.

This example file references entries defined in books.bib through the use of the special ext1. prefix. To avoid a label conflict films.bib prefixes all labels with film. rather than relying on label-prefix. This ensures that both books.bib and films.bib can be loaded in the same resource set (otherwise they’d have to be loaded in separate resource sets with different prefixes). Remember that you can use \glsxtrnewgls. For example:

\glsxtrnewgls{film.}{film}

This means you can do, for example, just \film{bladerunner} if you want to reference a film without worrying about the prefix.

As with all the example files, there are other ways in which to specify the data, depending on your requirements. For example, the director field could use \TeX’s contributor syntax
(as the \texttt{cast} field does). Some of the films actually had more than one director but only one is listed per film in this sample file for simplicity. Similarly, the \texttt{cast} field only contains the principle actors rather than the complete list. The book on which the film is based could be contained in a cross-reference field or a custom \texttt{basedon} field.

The book “Do Androids Dream of Electric Sheep?” referenced at the end of the “Blade Runner” film’s \texttt{description} ends with a question mark. (Similarly for “Why Didn’t They Ask Evans?”) If the \texttt{description} field is simply set as:

\begin{verbatim}
description={a film starring Harrison Ford, Rutger Hauer and Sean Young loosely based on the novel \gls{ext1.doandroidsdreamofelectricsheep}},
\end{verbatim}

then the \texttt{postdot} package option will produce an odd result as the inserted full stop immediately follows the question mark. This is an awkward situation. One possibility is to explicitly put the full stop at the end of the \texttt{description} field for all the other entries and omit it for the problematic entries, but this interferes with the possibility of a category-dependent post-description hook.

Another option is to put \texttt{\nopostdesc} in the problematic entries. For example:

\begin{verbatim}
description={a film starring Harrison Ford, Rutger Hauer and Sean Young loosely based on the novel \gls{ext1.doandroidsdreamofelectricsheep}\nopostdesc},
\end{verbatim}

Be careful with this as it will completely suppress the post-description hook. A third possibility is to use \texttt{\glsxtrnopostpunc} instead:

\begin{verbatim}
description={a film starring Harrison Ford, Rutger Hauer and Sean Young loosely based on the novel \gls{ext1.doandroidsdreamofelectricsheep}\glsxtrnopostpunc},
\end{verbatim}

This doesn’t interfere with the post-description hook but if a hook is provided the post-punctuation may then be required. In both of the above two cases, \texttt{strip-trailing-nopost} could be used to remove the suppression commands from the \texttt{description} fields if a hook is defined. However this doesn’t deal with hooks that only conditionally append text.

The best solution is with \texttt{glossaries-extra v1.23+} which provides \texttt{\glsxtrrestorpostpunc} for use in the category post-description hooks that counteracts \texttt{\glsxtrnopostpunc}. This can be placed inside a conditional, as used in \texttt{sample-media.tex}, and does nothing if \texttt{\glsxtrnopostpunc} doesn’t occur in the \texttt{description} field. (Note that \texttt{\glsxtrrestorpostpunc} can’t be used to counteract \texttt{\nopostdesc}, since that completely suppresses the hook.)

The contents of \texttt{films.bib} are as follows:

\begin{verbatim}
% Encoding: UTF-8

@entry{film.thebigsleep,
    name={\sortart{The}{Big Sleep}},
    description={a film based on the novel
    \gls{ext1.doandroidsdreamofelectricsheep}},
\end{verbatim}

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8 Examples: films.bib

\gls{ext1.thebigsleep},
cast={Humphrey Bogart and Lauren Bacall},
identifier={film},
year={1946},
director={\sortmediacreator{Howard}{Hawks}}
}

@entry{film.thelonggoodbye,
name={\sortart{The}{Long Goodbye}},
description={a film based on the novel \gls{ext1.thelonggoodbye}},
cast={Elliott Gould and Nina van Pallandt},
identifier={film},
year={1973},
director={\sortmediacreator{Robert}{Altman}}
}

@entry{film.murderontheorientexpress,
name={Murder on the Orient Express},
description={a film based on the novel \gls{ext1.murderontheorientexpress}},
cast={Albert Finney and Lauren Bacall and Ingrid Bergman},
identifier={film},
director={\sortmediacreator{Sidney}{Lumet}},
year={1974}
}

@entry{film.whydidnttheyaskevans,
name={Why Didn't They Ask Evans?},
description={a film based on the novel \gls{ext1.whydidnttheyaskevans}\glsxtrnopostpunc},
cast={Francesca Annis and John Gielgud and Bernard Miles},
identifier={film},
director={\sortmediacreator{John}{Davies}},
year={1980}
}

@entry{film.icecoldinalex,
name={Ice Cold in Alex},
description={a film based on the novel \gls{ext1.icecoldinalex}},
cast={John Mills and Anthony Quayle and Sylvia Sims},
identifier={film},
year={1958},
director={\sortmediacreator{J. Lee}{Thompson}}
}
8 Examples: films.bib

@entry{film.anunexpectedjourney,
  name={\sortart{The}{Hobbit}:
  \sortart{An}{Unexpected Journey}},
  description={a film based on the novel \gls{ext1.thehobbit}},
  cast={Martin Freeman and Ian McKellen and Richard Armitage},
  identifier={film},
  year={2012},
  director={\sortmediacreator{Peter}{Jackson}}}
}

@entry{film.desolationofsmaug,
  name={\sortart{The}{Hobbit}:
  \sortart{The}{Desolation of Smaug}},
  description={a film based on the novel \gls{ext1.thehobbit}},
  cast={Ian McKellen and Martin Freeman and Richard Armitage},
  identifier={film},
  year={2013},
  director={\sortmediacreator{Peter}{Jackson}}}
}

@entry{film.thebattleoffivearmies,
  name={\sortart{The}{Hobbit}:
  \sortart{The}{Battle of Five Armies}},
  description={a film based on the novel \gls{ext1.thehobbit}},
  cast={Ian McKellen and Martin Freeman and Richard Armitage},
  identifier={film},
  year={2014},
  director={\sortmediacreator{Peter}{Jackson}}}
}

@entry{film.thefellowshipofthering,
  name={\sortart{The}{Lord of the Rings}:
  \sortart{The}{Fellowship of the Ring}},
  description={a film based on the novel \gls{ext1.thelordoftherings}},
  cast={Elijah Wood and Ian McKellen and Orlando Bloom},
  identifier={film},
  year={2001},
  director={\sortmediacreator{Peter}{Jackson}}}
}

@entry{film.thetwotowers,
  name={\sortart{The}{Lord of the Rings}:
  \sortart{The}{Two Towers}},
8 Examples: films.bib

\sortart{The}{Two Towers},
description={a film based on the novel \gls{ext1.thelordoftherings}},
cast={Elijah Wood and Ian McKellen and Viggo Mortensen},
identifier={film},
year={2002},
director={\sortmediacreator{Peter}{Jackson}}
}

@entry{film.thereturnoftheking,
name={\sortart{The}{Lord of the Rings}:
\sortart{The}{Return of the King}},
description={a film based on the novel \gls{ext1.thelordoftherings}},
cast={Elijah Wood and Viggo Mortensen and Ian McKellen},
identifier={film},
year={2003},
director={\sortmediacreator{Peter}{Jackson}}
}

@entry{film.thewizardofoz,
name={\sortart{The}{Wizard of Oz}},
description={a film based on the novel \gls{ext1.thewonderfulwizardofoz}},
cast={Judy Garland},
identifier={film},
year={1939},
director={\sortmediacreator{Victor}{Fleming}}
}

@entry{film.whiskygalore,
name={Whisky Galore!},
description={a film based on the novel \gls{ext1.whiskygalore}},
cast={Basil Radford and Joan Greenwood},
identifier={film},
year={1949},
director={\sortmediacreator{Alexander}{Mackendrick}}
}

@entry{film.whereeaglesdare,
name={Where Eagles Dare},
description={a film based on the novel \gls{ext1.whereeaglesdare}},
cast={Richard Burton and Clint Eastwood and Mary Ure},
identifier={film},
year={1968},
director={\sortmediacreator{Brian G.}{Hutton}}
}

@entry{film.icestationzebra,
name={Ice Station Zebra},
description={a film based on the novel \gls{ext1.icestationzebra}},
cast={Rock Hudson and Ernest Borgnine},
identifier={film},
year={1968},
director={\sortmediacreator{John}{Sturges}}
}

@entry{film.bladerunner,
name={Blade Runner},
description={a film loosely based on the novel \gls{ext1.doandroidsdreamofelectricsheep}\glsxtrnopostpunc},
cast={Harrison Ford and Rutger Hauer and Sean Young},
identifier={film},
year={1982},
director={\sortmediacreator{Ridley}{Scott}}
}

@entry{film.thetroublewithharry,
name={The Trouble with Harry},
description={a film based on the novel \gls{ext1.thetroublewithharry}},
cast={John Forsythe and Shirley MacLaine},
identifier={film},
year={1955},
director={\sortmediacreator{Alfred}{Hitchcock}}
}

@entry{film.brightonrock,
name={Brighton Rock},
description={a film based on the novel \gls{ext1.brightonrock}},
cast={Richard Attenborough and Hermione Baddeley and William Hartnell},
identifier={film},
year={1947},
director={\sortmediacreator{John}{Boutling}}
}
citations.bib

The citations.bib file is actually a BibTeX file, but it can be parsed by bib2gls if the BibTeX entry types are converted to \texttt{@bibtexentry}, which can easily be done with:

\texttt{entry-type-aliases=\{\GlsXtrBibTeXEntryAliases\}}

The field names will also need to be defined or aliased. For example:

\texttt{field-aliases=\{\texttt{title}=\texttt{name}\}}

If bib2gls is then run with --cite-as-record any \texttt{\citation} commands found in the .aux file will be treated as ignored records. The \texttt{@preamble} provides a formatting command that’s used by both BibTeX and bib2gls, so \texttt{\providecommand} is required rather than \texttt{\newcommand} as it will appear in both the .bbl and the .glstex files. (In general it’s best to use \texttt{\providecommand} rather than \texttt{\newcommand} in the \texttt{@preamble} but in this case it’s essential.) The contents of citations.bib are as follows:

\begin{verbatim}
% Encoding: UTF-8
%\preamble
\providecommand\titlefmt\[1\]{`#1\'}

\article{duck2018,  
  author = {Dickie Duck and Jos\'{e} Arara and Polly Parrot},  
  title = {Avian friendship},  
  journal = {Fowl Times},  
  year = 2018,  
  volume = 7,  
  number = 5,  
  pages = "1032--5"
}

\article{duck2016,  
  author = {Dickie Duck},  
  title = {Feathered stunt doubles: \titlefmt\{The Birds\} and other films},  
  publisher = {Duck Duck Goose},  
  year = 2016
}

\article{macaw,  
  author = {Prof Macaw},  
  title = {Annotated notes on the \titlefmt\{Duck and Goose\} chronicles},  
  publisher = {Duck Duck Goose},  
  year = 2012
}
\end{verbatim}
The `mathgreek.bib` file contains Greek letters for use in maths mode. These are all defined with `@symbol`, which means that by default the `sort` field will be obtained from the label not from the `name` field. However, if you want to sort by the `name` field (for example, with `sort-field={name}`) the \TeX{} parser library recognises all the mathematical Greek letter commands provided in the \TeX{} kernel. Additionally it recognises \texttt{\textbackslash omicron} which isn’t provided by \TeX{} (the symbol can be reproduced with a lower case Latin “o”). Note that `glossaries-extra-bib2gls` (glossaries-extra v1.27+) provides all the missing Greek letters (such as \texttt{omicron}).

The `.bib` file could just use \texttt{\textbackslash o}:

```bibtex
@symbol{omicron,
```

```bibtex
```
but this means that if bib2gls sorts according to the name field using a letter sort, this entry will come before all the other Greek letters since the character “o” has Unicode value 0x6F whereas, for example, mathematical italic small alpha (α) has Unicode value 0x1D6FC. This means that for sorting purposes it’s better to use \omicron:

\begin{verbatim}
@symbol{omicron,
    name={\ensuremath{\omicron}},
    description={omicron},
    identifier={mathgreek}
}
\end{verbatim}

but \LaTeX{} needs a definition for this, so it’s provided in the \texttt{@preamble:}

\begin{verbatim}
@preamble{"\providecommand{\omicron}{o}"}
\end{verbatim}

(With glossaries-extra v1.27+, this is no longer needed.) The \LaTeX{} parser library and glossaries-extra–bib2gls similarly provide the missing upper case Greek letters, and these can be dealt with in the same way.

The contents of \texttt{mathgreek.bib} are as follows:

\begin{verbatim}
% Encoding : UTF-8
@preamble{"\providecommand{\omicron}{o}"}

@symbol{alpha,
    name={\ensuremath{\alpha}},
    description={alpha},
    identifier={mathgreek}
}

@symbol{beta,
    name={\ensuremath{\beta}},
    description={beta},
    identifier={mathgreek}
}

@symbol{gamma,
    name={\ensuremath{\gamma}},
    description={gamma},
    identifier={mathgreek}
}

@symbol{delta,
\end{verbatim}
name={\ensuremath{\delta}},
    description={\delta},
    identifier={\texttt{mathgreek}}
}

@symbol{\varepsilon,
    name={\ensuremath{\varepsilon}},
    description={\epsilon (variant)},
    identifier={\texttt{mathgreek}}
}

@symbol{\zeta,
    name={\ensuremath{\zeta}},
    description={\zeta},
    identifier={\texttt{mathgreek}}
}

@symbol{\eta,
    name={\ensuremath{\eta}},
    description={\eta},
    identifier={\texttt{mathgreek}}
}

@symbol{\theta,
    name={\ensuremath{\theta}},
    description={\theta},
    identifier={\texttt{mathgreek}}
}

@symbol{\iota,
    name={\ensuremath{\iota}},
    description={\iota},
    identifier={\texttt{mathgreek}}
}

@symbol{\kappa,
    name={\ensuremath{\kappa}},
    description={\kappa},
    identifier={\texttt{mathgreek}}
}

@symbol{\lambda,
    name={\ensuremath{\lambda}},
    description={\lambda},
    identifier={\texttt{mathgreek}}
}
8 Examples: mathgreek.bib

@symbol{mu,
    name={\ensuremath{\mu}},
    description={\mu},
    identifier={mathgreek}
}

@symbol{nu,
    name={\ensuremath{\nu}},
    description={\nu},
    identifier={mathgreek}
}

@symbol{xi,
    name={\ensuremath{\xi}},
    description={\xi},
    identifier={mathgreek}
}

@symbol{omicron,
    name={\ensuremath{\omicron}},
    description={omicron},
    identifier={mathgreek}
}

@symbol{pi,
    name={\ensuremath{\pi}},
    description={\pi},
    identifier={mathgreek}
}

@symbol{rho,
    name={\ensuremath{\rho}},
    description={\rho},
    identifier={mathgreek}
}

@symbol{varsigma,
    name={\ensuremath{\varsigma}},
    description={\sigma (variant)},
    identifier={mathgreek}
}

@symbol{sigma,
    name={\ensuremath{\sigma}},
    description={\sigma},
    identifier={mathgreek}
}
<table>
<thead>
<tr>
<th>Description</th>
<th>Name</th>
<th>Identifier</th>
</tr>
</thead>
<tbody>
<tr>
<td>sigma</td>
<td>( \sigma )</td>
<td>\text{mathgreek}</td>
</tr>
<tr>
<td>tau</td>
<td>( \tau )</td>
<td>\text{mathgreek}</td>
</tr>
<tr>
<td>upsilon</td>
<td>( \upsilon )</td>
<td>\text{mathgreek}</td>
</tr>
<tr>
<td>( \varphi )</td>
<td>( \varphi )</td>
<td>\text{mathgreek}</td>
</tr>
<tr>
<td>( \chi )</td>
<td>( \chi )</td>
<td>\text{mathgreek}</td>
</tr>
<tr>
<td>psi</td>
<td>( \psi )</td>
<td>\text{mathgreek}</td>
</tr>
<tr>
<td>omega</td>
<td>( \omega )</td>
<td>\text{mathgreek}</td>
</tr>
<tr>
<td>( \epsilon )</td>
<td>( \epsilon )</td>
<td>\text{mathgreek}</td>
</tr>
</tbody>
</table>
`bigmathsymbols.bib`

The `bigmathsymbols.bib` file contains mathematical symbols that have a large version in display mode. As with `mathgreek.bib` the entries are defined using `@symbol`. This example file requires the `stix` package as not all of the commands are provided by the \LaTeX kernel. This file also has a preamble:

```
@preamble{"
\providecommand{\bigoperatornamefmt}{\[1}{\%\$displaystyle#1\textstyle#1$}
\providecommand{\nary}{[1]{#1\text{-ary}}}
}
```

The first command `\bigoperatornamefmt{⟨text⟩}` is used in the `name` field to display both the in-line and display versions of the symbol. The \TeX parser library only has a limited ability to interpret this as not all the symbols have Unicode in-line and large versions. In some cases, such as the integral symbol $\int$, there is only a small version. (A large version...
would require construction from 0x2320, 0x23AE and 0x2321, which is too complicated in this context.) However, the interpreter works well enough to guess at the widest name if set\-widest is used. There’s no advantage in sorting according to the name field here, unless a custom rule is provided, as the Unicode symbols are scattered about different blocks. Better approaches are to sort according to document use (sort=\{use\}) or to sort according to the description field.

The other custom command is \nary\{(text)\} to provide semantic markup for “\(n\)-ary”. This could be defined without an argument:

\providecommand{\nary}{n-ary}

but providing an argument will allow \nary\{n\} to work with first letter upper-casing in the event that the description field has a case-change applied (otherwise it would end up as “\(N\)-ARY”). Of course, it may be that no case-change should be applied, but this example is just for illustrative purposes.

As with the other sample .bib files, each entry is given a custom identifier field, which by default will be ignored. In this case, identifier is either set to naryoperator (for \(n\)-ary operators) or integral for integrals.

The contents of bigmathsymbols.bib are as follows:

\% Encoding: UTF-8
\% requires stix.sty

@preamble{"\providecommand{\bigoperatornamefmt}[1]{ \$\displaystyle\#1\textstyle\#1$}
\providecommand{\nary}[1]{\$#1$-ary}\"}

@symbol{bigsqcap,
    name=\{\bigoperatornamefmt{\bigsqcap}\},
    text=\bigsqcap,
    description=\{\nary\{n\} square intersection operator\},
    identifier=\{naryoperator\}
}

@symbol{bigsqcup,
    name=\{\bigoperatornamefmt{\bigsqcup}\},
    text=\bigsqcup,
    description=\{\nary\{n\} square union operator\},
    identifier=\{naryoperator\}
}

@symbol{sum,
    name=\{\bigoperatornamefmt{\sum}\},
    text=\sum,
    description=\{\nary\{n\} summation\},
    identifier=\{naryoperator\}
}
8 Examples: bigmathsymbols.bib

{symbol{prod,
    name={\bigoperatornamefmt{\prod}},
    text={\prod},
    description={\nary{n} product},
    identifier={naryoperator}
}

{symbol{coprod,
    name={\bigoperatornamefmt{\coprod}},
    text={\coprod},
    description={\nary{n} coproduct},
    identifier={naryoperator}
}

{symbol{bigcap,
    name={\bigoperatornamefmt{\bigcap}},
    text={\bigcap},
    description={\nary{n} intersection},
    identifier={naryoperator}
}

{symbol{bigcup,
    name={\bigoperatornamefmt{\bigcup}},
    text={\bigcup},
    description={\nary{n} union},
    identifier={naryoperator}
}

{symbol{bigodot,
    name={\bigoperatornamefmt{\bigodot}},
    text={\bigodot},
    description={\nary{n} circled dot operator},
    identifier={naryoperator}
}

{symbol{bigoplus,
    name={\bigoperatornamefmt{\bigoplus}},
    text={\bigoplus},
    description={\nary{n} circled plus operator},
    identifier={naryoperator}
}

{symbol{bigtimes,
    name={\bigoperatornamefmt{\bigtimes}},
}
8 Examples: bigmathsymbols.bib

text={\bigotimes},
description={\nary{n} circled times operator},
identifier={naryoperator}
}

@symbol{biguplus,
    name={\bigoperatornamefmt{\biguplus}},
    text={\biguplus},
    description={\nary{n} union operator with plus},
    identifier={naryoperator}
}

@symbol{bigvee,
    name={\bigoperatornamefmt{\bigvee}},
    text={\bigvee},
    description={\nary{n} logical or},
    identifier={naryoperator}
}

@symbol{bigwedge,
    name={\bigoperatornamefmt{\bigwedge}},
    text={\bigwedge},
    description={\nary{n} logical and},
    identifier={naryoperator}
}

@symbol{int,
    name={\bigoperatornamefmt{\int}},
    text={\int},
    description={integral},
    identifier={integral}
}

@symbol{iint,
    name={\bigoperatornamefmt{iint}},
    text={\iint},
    description={double integral},
    identifier={integral}
}

@symbol{iiint,
    name={\bigoperatornamefmt{\iiint}},
    text={\iiint},
    description={triple integral},
    identifier={integral}
}
8 Examples: mathsrelations.bib

The mathsrelations.bib file contains mathematical relational symbols. These use the maths shift character $ in the name field and just the symbol in the text field. This just illustrates an alternative way of defining symbols. Since \texttt{\ensuremath} isn't used, commands like \texttt{\textbackslash gls} must be explicitly placed in maths mode. For example, $\texttt{\textbackslash gls}\{\text{leq}\}$ rather than simply $\texttt{\textbackslash gls}\{\text{leq}\}$. The custom identifier field is set to relation.

The contents of mathsrelations.bib are as follows:

```bibtex
% Encoding: UTF-8

@symbol{leq,    
  name={$\texttt{\textbackslash leq}$},
  text={$\leq$},
  description={less than or equal to},
  identifier={relation}
}

@symbol{less,    
  name={$\texttt{\textbackslash <}$},
  text={<},
  description={less than},
  identifier={relation}
}
```

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@symbol{ll,  
  name={$\ll$},  
  text={\ll},  
  description={much less than},  
  identifier={relation}  
}  

@symbol{geq,  
  name={$\geq$},  
  text={\geq},  
  description={greater than or equal to},  
  identifier={relation}  
}  

@symbol{greater,  
  name={$>$},  
  text={>},  
  description={greater than},  
  identifier={relation}  
}  

@symbol{gg,  
  name={$\gg$},  
  text={\gg},  
  description={much greater than},  
  identifier={relation}  
}  

@symbol{equals,  
  name={$=$},  
  text={=},  
  description={equals},  
  identifier={relation}  
}  

@symbol{neq,  
  name={$\neq$},  
  text={\neq},  
  description={not equals},  
  identifier={relation}  
}  

@symbol{approx,  
  name={$\approx$},  
  text={\approx},  
}
8 Examples: binaryoperators.bib

description={approximately},
identifier={relation}
}

@symbol{in,
   name={$\in$},
   text={\in},
   description={in},
   identifier={relation}
}

@symbol{ni,
   name={$\ni$},
   text={\ni},
   description={not in},
   identifier={relation}
}

binaryoperators.bib

The binaryoperators.bib file contains mathematical binary operators. The format is much like the above mathsrelations.bib file. The custom identifier field is set to binaryoperator. The contents of binaryoperators.bib are as follows:

% Encoding: UTF-8

@symbol{plus,
   name={$+$},
   text={+},
   description={addition},
   identifier={binaryoperator}
}

@symbol{minus,
   name={$-$},
   text={-},
   description={subtraction},
   identifier={binaryoperator}
}

@symbol{times,
   name={$\times$},
   text={\times},
   description={multiplication},
   identifier={binaryoperator}
}
The unaryoperators.bib file contains mathematical unary operators. As above, this again uses @symbol to define the symbols, but in this case \ensuremath is used in the name field and there’s no text field. I’ve also used \mathord to ensure the symbol is treated as a unary (rather than binary) operator, except for the \forall entry which is already defined as an ordinary maths symbol.

The contents of unaryoperators.bib are as follows:

```bib
@symbol{div,
    name={$\div$},
    text={$\div$},
    description={division},
    identifier={binaryoperator}
}

@symbol{factorial,
    name={\ensuremath{\mathord{!}}},
    description={factorial},
    identifier={unary}
}

@symbol{unaryplus,
    name={\ensuremath{\mathord{+}}},
    description={plus},
    identifier={unary}
}

@symbol{unaryminus,
    name={\ensuremath{\mathord{-}}},
    description={minus},
    identifier={unary}
}

@symbol{forall,
    name={\ensuremath{\forall}},
    description={for all},
    identifier={unary}
}
```

The `mathsobjects.bib` file contains entries related to mathematical objects (sets, spaces, vectors and matrices). This provides some custom formatting commands in the preamble:

\setfmt{⟨symbol⟩}

which is used to format ⟨symbol⟩ as a set,

\setcontentsfmt{⟨contents⟩}

which is used to format the set contents,

\setmembershipfmt{⟨variable(s)⟩}{⟨condition⟩}

which is used to format the set membership criteria,

\setcardfmt{⟨maths⟩}

which is used to format the cardinality of a set. (Note this uses \vert not | as in some of the earlier examples.)

\numspacefmt{⟨symbol⟩}

which is used to format ⟨symbol⟩ as a number space,

\transposefmt{⟨maths⟩}

which is used to format matrix and vector transposes,

\invfmt{⟨maths⟩}

which is used to format inverses,

\vecfmt{⟨symbol⟩}

which is used to format ⟨symbol⟩ as a vector, and

\mtxfmt{⟨symbol⟩}

which is used to format ⟨symbol⟩ as a matrix. These commands are intended for use with \glsxtrfmt, but \setmembershipfmt causes a problem as it has two arguments and \glsxtrfmt requires the control sequence to have exactly one argument. This means employing a little trick. A command with just one argument is provided:

\setmembershiponeargfmt{⟨variable(s)⟩}{⟨condition⟩}

that requires the actual two arguments to be supplied inside #1. The outer grouping is removed and the two-argument \setmembershipfmt command is applied:

\providecommand{\setmembershiponeargfmt}[1]{{\setmembershipfmt#1}
This means that the entry needs to be referenced in the document using:
\glsxtrfmt{setmembership}{{⟨variable(s)⟩}⟨condition⟩}

The simplest thing to do here is to provide a wrapper command in the document, for example:
\newcommand*{\setmembership}[2]{\glsxtrfmt{setmembership}{{#1}{#2}}}

Now this can be used as:
\setmembership{⟨variable(s)⟩}⟨condition⟩

There are essentially two types of entry defined in this file: entries that demonstrate the formatting for the objects and entries that represent specific objects. In the first case there’s a custom format field that’s set to the control sequence name of the relevant semantic command. If this field is defined or aliased then it can be used with \glsxtrfmt (as in the example above).

In both cases there’s a custom identifier field that reflects the type of object: set for sets, numberspace for number spaces, matrix for matrices or vectors.

Be careful with the set cardinality example. Remember that nested links cause problems and the glossaries-extra manual advises against using commands like \gls or \glsxtrfmt within link text and that includes within the ⟨text⟩ argument of \glsxtrfmt. See sample-maths.tex for suggested usage.

Some of the description fields use \sortart, so no-interpret-preamble.bib and interpret-preamble.bib are also needed.

The contents of mathsobjects.bib are as follows:

% Encoding: UTF-8
% requires amssymb.sty

@preamble{"\providecommand{\setfmt}[1]{\mathcal{#1}}
\providecommand{\setcontentsfmt}[1]{\{#1\}}
\providecommand{\setmembershipfmt}[2]{\setcontentsfmt{#1: #2}}
\providecommand{\setmembershiponeargfmt}[1]{\setmembershipfmt#1}
\providecommand{\setcardfmt}[1]{\lvert#1\rvert}
\providecommand{\numspacefmt}[1]{\mathbb{#1}}
\providecommand{\transposefmt}[1]{#1^T}
\providecommand{\invfmt}[1]{#1^{-1}}
\providecommand{\vecfmt}[1]{\boldsymbol{#1}}
\providecommand{\mtxfmt}[1]{\boldsymbol{#1}}"}

@symbol{set,
  name=\ensuremath{\setfmt{S}},
  description=\sortart{a}{set},
  format=\setfmt,
  identifier={set}
}
8 Examples: mathsobjects.bib

@symbol{setcontents, name={$\text{setcontentsfmt}\ldots$}, description={set contents}, format={setcontentsfmt}, identifier={set}}

@symbol{setmembership, name={$\text{setmembershipfmt}\vecfmt{x}\ldots$}, description={set membership}, format={setmembershiponeargfmt}, identifier={set}}

@symbol{setcard, name={$\text{setcardfmt}\setfmt{S}$}, description={\sortart{the}cardinality of $\setfmt{S}$}, format={setcardfmt}, identifier={set}}

@symbol{numberspace, name={$\text{numspacefmt}{S}$}, description={\sortart{a}number space}, format={numspacefmt}, identifier={numberspace}}

@symbol{naturalnumbers, name={$\text{numspacefmt}{N}$}, description={\sortart{the}set of natural numbers}, identifier={numberspace}}

@symbol{integernumbers, name={$\text{numspacefmt}{Z}$}, description={\sortart{the}set of integers}, identifier={numberspace}}

@symbol{rationalnumbers, name={$\text{numspacefmt}{Q}$}, description={\sortart{the}set of rational numbers}, identifier={numberspace}}
Examples: mathsobjects.bib

@symbol{algebraicnumbers,
  name={\ensuremath{\numspacefmt{A}}},
  description={\sortart{the}{set of algebraic numbers}},
  identifier={numberspace}
}

@symbol{realnumbers,
  name={\ensuremath{\numspacefmt{R}}},
  description={\sortart{the}{set of real numbers}},
  identifier={numberspace}
}

@symbol{imaginarynumbers,
  name={\ensuremath{\numspacefmt{I}}},
  description={\sortart{the}{set of imaginary numbers}},
  identifier={numberspace}
}

@symbol{complexnumbers,
  name={\ensuremath{\numspacefmt{C}}},
  description={\sortart{the}{set of complex numbers}},
  identifier={numberspace}
}

@symbol{emptyset,
  name={\ensuremath{\emptyset}},
  description={\sortart{the}{empty set}},
  identifier={set}
}

@symbol{universalset,
  name={\ensuremath{\setfmt{U}}},
  description={\sortart{the}{universal set}},
  identifier={set}
}

@symbol{transpose,
  name={\ensuremath{\transposefmt{\vecfmt{x}}}},
  description={\sortart{the}{transpose of $\vecfmt{x}$}},
  format={transposefmt},
  identifier={matrix}
}

@symbol{inverse,
  name={\ensuremath{\invfmt{\mtxfmt{M}}}},
}
\texttt{miscsymbols.bib}

The \texttt{miscsymbols.bib} file contains text symbols provided by the \texttt{marvosym} and \texttt{ifsym} packages. The \texttt{ifsym} package needs to be loaded with the \texttt{weather} option to provide the weather commands. Unfortunately both packages define \texttt{\Sun} and \texttt{\Lightning}, which causes a conflict. See \texttt{sample-textsymbols.tex} for a workaround. Alternatively, you can load \texttt{ifsym} without the \texttt{weather} option and use the internal definition of \texttt{ifsym}'s \texttt{\Sun} and \texttt{\Lightning} commands:

\begin{verbatim}
\symbol{vector,  
   name={\texttt{\ensuremath{\vecfmt{v}}}},  
   description={\texttt{\sortart{a}{vector}}},  
   format={\vecfmt},  
   identifier={matrix} 
}

\symbol{matrix,  
   name={\texttt{\ensuremath{\mtxfmt{M}}}},  
   description={\texttt{\sortart{a}{matrix}}},  
   format={\mtxfmt},  
   identifier={matrix} 
}

\symbol{0vec,  
   name={\texttt{\ensuremath{\vecfmt{0}}}},  
   description={\texttt{\sortart{the}{vector of 0s}}},  
   identifier={matrix} 
}

\symbol{1vec,  
   name={\texttt{\ensuremath{\vecfmt{1}}}},  
   description={\texttt{\sortart{the}{vector of 1s}}},  
   identifier={matrix} 
}

\symbol{identitymatrix,  
   name={\texttt{\ensuremath{\mtxfmt{I}}}},  
   description={\texttt{\sortart{the}{identity matrix}}},  
   identifier={matrix} 
}
\end{verbatim}
8 Examples: miscsymbols.bib

@icon{sun,
    icon={\textweathersymbol{16}},
    description={sunny},
    identifier={weather}
}

@icon{lightning,
    icon={\textweathersymbol{26}},
    description={thunderstorm},
    identifier={weather}
}

This removes the conflict, and \Sun and \Lightning are as defined by marvosym.

This file uses a custom entry type @icon, which must be aliased to a recognised entry identifier otherwise the entries will all be ignored. For example:

entry-type-aliases={icon=symbol}

There are three types of symbols defined: media controls, information and weather. They have the custom identifier field set to mediacontrol, information and weather, respectively. There are two other custom fields: icon and icondescription. These will need to be aliased to name and description.

Neither of these packages are recognised by bib2gls, which means that set-widest won’t be able to determine the widest name nor is this data suitable for sorting according to the icon field (or its alias). Instead, either sort by label (which is the default for @symbol) or by the description. If you want to use one of the alttree styles you can still use set-widest, but it will have to use the fallback command. Alternatively, you can omit set-widest and explicitly use \glsFindWidestTopLevelName.

The contents of miscsymbols.bib are as follows:

% Encoding: UTF-8

% requires marvosym.sty and ifsym.sty

@icon{forward,
    icon={\Forward},
    icondescription={play},
    identifier={mediacontrol}
}

@icon{forwardtoindex,
    icon={\ForwardToIndex},
    icondescription={next track},
    identifier={mediacontrol}
}

@icon{rewindtoindex,
icon={\RewindToIndex},
icondescription={back to start of track},
identifier={mediacontrol}
}

@icon{rewind,
  icon={\Rewind},
  icondescription={rewind},
  identifier={mediacontrol}
}

@icon{bicycle,
  icon={\Bicycle},
  icondescription={bicycle route},
  identifier={information}
}

@icon{coffeecup,
  icon={\Coffeecup},
  icondescription={caf\'e},
  identifier={information}
}

@icon{info,
  icon={\Info},
  icondescription={information centre},
  identifier={information}
}

@icon{gentsroom,
  icon={\Gentsroom},
  icondescription={Gents},
  identifier={information}
}

@icon{ladiesroom,
  icon={\Ladiesroom},
  icondescription={Ladies},
  identifier={information}
}

@icon{wheelchair,
  icon={\Wheelchair},
  icondescription={wheelchair access provided},
  identifier={information}
}
@icon{football,
   icon={\Football},
   icondescription={football stadium},
   identifier={information}
}

@icon{recycling,
   icon={\Recycling},
   icondescription={recycling centre},
   identifier={information}
}

@icon{cloud,
   icon={\Cloud},
   icondescription={cloudy},
   identifier={weather}
}

@icon{fog,
   icon={\Fog},
   icondescription={foggy},
   identifier={weather}
}

@icon{thinfog,
   icon={\ThinFog},
   icondescription={misty},
   identifier={weather}
}

@icon{hail,
   icon={\Hail},
   icondescription={hail},
   identifier={weather}
}

@icon{sun,
   icon={\Sun},
   icondescription={sunny},
   identifier={weather}
}

@icon{lightning,
   icon={\Lightning},
   icondescription={thunderstorm},
   identifier={weather}
}
8 Examples: markuplanguages.bib

```bib
identifier={weather}
}
@icon{suncloud,
    icon={\SunCloud},
    icondescription={overcast},
    identifier={weather}
}
@icon{raincloud,
    icon={\RainCloud},
    icondescription={rain},
    identifier={weather}
}
@icon{weakraincloud,
    icon={\WeakRainCloud},
    icondescription={drizzle},
    identifier={weather}
}
@icon{snowcloud,
    icon={\SnowCloud},
    icondescription={snow},
    identifier={weather}
}
```

**markuplanguages.bib**

The markuplanguages.bib file includes a mixture of `@entry` and `@abbreviation` definitions. A custom command is provided in `@preamble` to tag the letters in the `long` field that are used to form the abbreviation. This simply does its argument and is provided in case it's not set up in the document. If you do want to enable tagging using \GlsXtrEnableInitialTagging, remember that this command must be used before the abbreviations are defined, which means before the resource file is input with \GlsXtrLoadResources. Similarly, the abbreviation style must be set before the abbreviations are defined.

For convenience `@string` is also used to define a .bib variable, which may be appended to fields using the .bib concatenation character #. As with the other sample .bib files, there’s a custom field `identifier` which will be ignored unless defined or aliased.

The empty braces at the start some of the fields are there to protect against first letter uppercasing within \TeX, where it might cause a problem. (For example, with the `glossname` attribute.)

The contents of markuplanguages.bib are as follows:

```bib
% Encoding: UTF-8
```
@preamble{"\providecommand{\abbrvtag}[1]{#1}"
@string{markuplang="\abbrvtag{m}arkup \abbrvtag{l}anguage"}

@entry{TeX,
  name={{}\TeX},
  description={a format for describing complex type and page layout
    often used for mathematics, technical, and academic publications},
  identifier={markuplanguage}
}

@entry{LaTeX,
  name={{}\LaTeX},
  description={a format of \glstext{TeX} designed to separate
    content from style},
  identifier={markuplanguage}
}

@entry{markdown,
  name={markdown},
  description={a lightweight markup language with plain text
    formatting syntax},
  identifier={markuplanguage}
}

@abbreviation{xml,
  short={XML},
  long={e\abbrvtag{x}tensible }#markuplang,
  description={a markup language that defines a set of rules for
    encoding documents},
  identifier={markuplanguage}
}

@abbreviation{html,
  short={HTML},
  long={\abbrvtag{h}yper\abbrvtag{t}ext }#markuplang,
  description={the standard markup language for creating web pages},
  identifier={markuplanguage}
}

@abbreviation{mathml,
  short={MathML},
  long={\abbrvtag{m\NoCaseChange{ath}}}ematical }#markuplang,
  description={markup language for describing mathematical notation},
  identifier={markuplanguage}
}
@abbreviation{xhtml,  
  short={XHTML},  
  long={etensible \hyper{t}ext }  
  # markuplang,  
  description={xml} version of {html},  
  identifier={markuplanguage}  
}

@abbreviation{svg,  
  short={SVG},  
  long={calable \vector {graphics},  
  description={xml}-based vector image format},  
  identifier={markuplanguage}  
}

usergroups.bib

The usergroups.bib file requires either XƎLATEX or LuaLATEX as some of the entry labels use non-ASCII characters. This file has a mixture of @abbreviation and @index entries. It also uses @string for convenience and provides a custom command \dash in @preamble. Each entry is the name of a \TeX{} user group: the international \TeX{} Users Group (TUG) and all the local groups. Most of them have an abbreviated name, so they’re defined with @abbreviation. There are a few without an abbreviation, so they’re defined with @index instead. There’s one alias. (The information was obtained from TUG’s user groups page [18].)

As with the other examples, there are some custom fields which will be ignored if they aren’t defined or aliased: identifier (set to texusergroup), language (a comma-separated list of language tags) and translation (provides a translation if the user group name isn’t in English).

Not all entries have a translation field. If it’s omitted, then the user group name is in English, otherwise it’s in the first language listed in the language field. Most of the language tags are just the ISO 639-1 language code, but a few of them include the ISO 3166-1 region code as well.

The contents of usergroups.bib are as follows:

% Encoding: UTF-8

% Requires XeLaTeX/LuaLaTeX for non-ASCII labels

@string{tug={\TeX{} Users Group}}

@preamble""\providecommand\dash{\---}

@abbreviation{TUG,  
  short={TUG},  
}

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@abbreviation{bgTeX,
    short={bgTeX},
    long={Bulgarian \LaTeX\ Users Group},
    language={bg},
    identifier={texusergroup}
}

@abbreviation{latex-br,
    short={latex-br},
    long={Grupo de Usuários},
    language={pt-BR},
    identifier={texusergroup},
    translation={Brazilian }#tug
}

@abbreviation{CTeX,
    short={CTeX},
    long={Chinese \TeX\ Society},
    identifier={texusergroup},
    language={zh}
}

@abbreviation{CSTUG,
    short={CSTUG},
    long={Československé sdružení uživatelů TeXu, z.-s.},
    language={cs},
    identifier={texusergroup},
    translation={Czech Republic }#tug
}

@abbreviation{DANTE,
    short={DANTE e.V.},
    long={Deutschsprachige Anwendervereinigung \TeX\ e.V.},
    language={de},
    identifier={texusergroup},
    translation={German Speaking }#tug
}

@abbreviation{DKTUG,
    short={DK-TUG},
    long={Danish }#tug,
8 Examples: usergroups.bib

language={da},
identifier={texusergroup}
}

@index{EUG,
  name={Estonian User Group},
  language={et},
  identifier={texusergroup}
}

@abbreviation{CervanTeX,
  short={CervanTeX},
  long={Grupo de Usuarios de \TeX\ Hispanohablantes},
  language={es},
  identifier={texusergroup},
  translation={Spanish Speaking }#tug
}

@abbreviation{TirantloTeX,
  short={Tiran{\-}lo \TeX},
  long={Catalan }#tug,
  language={ca},
  identifier={texusergroup}
}

@abbreviation{GUTenberg,
  short={GUTenberg},
  long={Groupe francophone des utilisateurs de \TeX},
  language={fr},
  identifier={texusergroup},
  translation={French Speaking }#tug
}

@abbreviation{UKTUG,
  short={UK-TUG},
  long={UK }#tug,
  language={en-GB},
  identifier={texusergroup}
}

@abbreviation{ɛϕτ,
  short={ɛϕτ},
  long={Σύλλογος Ελλήνων Φίλων του \TeX},
  language={el},
  identifier={texusergroup},
  translation={Greek \TeX\ Friends}
}
8 Examples: usergroups.bib

name={Lietuvos \TeX'o Vartotojų Grupė},
language={lt},
identifier={texusergroup},
translation={Lithuanian }#tug
}

@index{mxTeX,
   name={\TeX\ México},
   language={es-MX},
   identifier={texusergroup},
   translation={Mexican }#tug
}

@abbreviation{NTG,
   short={NTG},
   long={Nederlandstalige \TeX\ Gebruikersgroep},
   language={nl},
   identifier={texusergroup},
   translation={Netherlands }#tug
}

@index{NTUG,
   name={Nordic \TeX\ Users Group},
   language={da,et,fi,fo,is,nb,nn,sv},
   identifier={texusergroup}
}

@abbreviation{GUST,
   short={GUST},
   long={Polska Grupa Użytkowników Systemu \TeX},
   language={pl},
   identifier={texusergroup},
   translation={Polish }#tug
}

@abbreviation{GUTpt,
   short={GUTpt},
   long={Grupo de Utilizadores de \TeX},
   language={pt},
   identifier={texusergroup},
   translation={Portuguese }#tug
}

@abbreviation{VietTUG,
   short={VietTUG},
   long={Vietnamese }#tug,
animals.bib

The animals.bib file contains entries defined using @entry. As with the above example .bib files, there's a custom identifier field that will be ignored unless defined or aliased.

The contents of animals.bib are as follows:

```latex
% Encoding: UTF-8

@entry{duck,
   name={duck},
   description={a waterbird with webbed feet},
   identifier={animal}
}

@entry{parrot,
   name={parrot},
   description={mainly tropical bird with bright plumage},
   identifier={animal}
}

@entry{goose,
   name={goose},
   plural={geese},
   description={a large waterbird with a long neck, short legs, webbed feet and a short broad bill},
   identifier={animal}
}

@entry{swan,
   name={swan},
   description={a large waterbird with a long flexible neck, short legs, webbed feet and a broad bill},
   identifier={animal}
}
```
@entry{chicken,  
    name={chicken},  
    description={a domestic fowl},  
    identifier={animal}  
}

@entry{aardvark,  
    name={aardvark},  
    description={nocturnal African burrowing mammal},  
    identifier={animal}  
}

@entry{zebra,  
    name={zebra},  
    description={wild African horse with black-and-white stripes},  
    identifier={animal}  
}

@entry{armadillo,  
    name={armadillo},  
    description={nocturnal insectivore with large claws},  
    identifier={animal}  
}

@entry{zander,  
    name={zander},  
    description={large freshwater perch},  
    identifier={animal}  
}

@entry{hedgehog,  
    name={hedgehog},  
    description={small nocturnal mammal with a spiny coat and short legs},  
    identifier={animal}  
}

@entry{seal,  
    name={seal},  
    description={sea-dwelling fish-eating mammal with flippers},  
    identifier={animal}  
}

@entry{sealion,  
    name={sea lion},  
    description={a large type of \gls{seal}},  
    identifier={animal}  
}
8 Examples: minerals.bib

```latex

\begin{verbatim}
identifier={animal}
\end{verbatim}

minerals.bib

The minerals.bib file contains entries defined using @entry. As with the above example .bib files, there's a custom identifier field that will be ignored unless defined or aliased.

The contents of minerals.bib are as follows:

```latex
\begin{verbatim}
% Encoding: UTF-8

@entry{quartz,
  name={quartz},
  description={hard mineral consisting of silica},
  identifier={mineral}
}

@entry{corundum,
  name={corundum},
  description={crystalline form of aluminium oxide},
  identifier={mineral}
}

@entry{beryl,
  name={beryl},
  description={composed of beryllium aluminium cyclosilicate},
  identifier={mineral}
}

@entry{amethyst,
  name={amethyst},
  description={purple variety of \textsc{quartz}},
  identifier={mineral}
}

@entry{chalcedony,
  name={chalcedony},
  description={cryptocrystalline variety of \textsc{quartz}},
  identifier={mineral}
}

@entry{citrine,
  name={citrine},
  description={yellow variety of \textsc{quartz}},
  identifier={mineral}
}
\end{verbatim}
```

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@entry{aquamarine,  
    name={aquamarine},  
    description={light blue variety of \gls{beryl}},  
    identifier={mineral}  
}  

@entry{aragonite,  
    name={aragonite},  
    description={a crystal form of calcium carbonate},  
    identifier={mineral}  
}  

@entry{calcite,  
    name={calcite},  
    description={a crystal form of calcium carbonate},  
    identifier={mineral}  
}  

@entry{vaterite,  
    name={vaterite},  
    description={a crystal form of calcium carbonate},  
    identifier={mineral}  
}  

@entry{bakerite,  
    name={bakerite},  
    description={a borosilicate mineral},  
    identifier={mineral}  
}  

@entry{bilinite,  
    name={bilinite},  
    description={an iron sulfate mineral},  
    identifier={mineral}  
}  

@entry{biotite,  
    name={biotite},  
    description={a common phyllosilicate mineral},  
    identifier={mineral}  
}  

@entry{cobaltite,  
    name={cobaltite},  
    description={a sulfide mineral composed of cobalt, arsenic and
sulfur},
   identifier={mineral}
}

@entry{cyanotrichite,
   name={cyanotrichite},
   description={a hydrous copper aluminium sulfate mineral},
   identifier={mineral}
}

@index{lettsomite,
   alias={cyanotrichite},
   identifier={mineral}
}

@entry{diamond,
   name={diamond},
   description={a metastable allotrope of carbon},
   identifier={mineral}
}

@entry{dolomite,
   name={dolomite},
   description={an anhydrous carbonate mineral},
   identifier={mineral}
}

@entry{quetzalcoatlite,
   name={quetzalcoatlite},
   description={a rare tellurium oxysalt mineral},
   identifier={mineral}
}

@entry{vulcanite,
   name={vulcanite},
   description={a rare copper telluride mineral},
   identifier={mineral}
}

vegetables.bib

The vegetables.bib file contains entries defined using @entry and an entry defined with @index with just the alias field. As with the above example .bib files, there’s a custom identifier field that will be ignored unless defined or aliased.

The contents of vegetables.bib are as follows:
@entry{cabbage,
    name={cabbage},
    description={vegetable with thick green or purple leaves},
    identifier={vegetable}
}

@entry{brussels-sprout,
    name={Brussels sprout},
    description={small leafy green vegetable buds},
    identifier={vegetable}
}

@entry{artichoke,
    name={artichoke},
    description={a variety of thistle cultivated as food},
    identifier={vegetable}
}

@entry{cauliflower,
    name={cauliflower},
    description={type of cabbage with edible white flower head},
    identifier={vegetable}
}

@entry{spinach,
    name={spinach},
    description={green, leafy vegetable},
    identifier={vegetable}
}

@entry{marrow,
    name={marrow},
    description={long white-fleshed gourd with green skin},
    identifier={vegetable}
}

@entry{courgette,
    name={courgette},
    description={immature fruit of a vegetable \gls{marrow}},
    identifier={vegetable}
}

@index{zucchini,
    name={zucchini},
}
\begin{verse}
\begin{verbatim}
alias={courgette},
   identifier={vegetable}
\end{verbatim}
\end{verse}

\textbf{terms.bib}

The \texttt{terms.bib} file contains entries defined using \texttt{@index}. Unlike the above sample \texttt{.bib} files, there are no custom fields here.

The contents of \texttt{terms.bib} are as follows:

\begin{verbatim}
\% Encoding: UTF-8

@index{mineral}
@index{vegetable}
@index{animal}
@index{film}
@index{book}
@index{bacteria, text={bacterium}, plural={bacteria}}
@index{chemical, name={chemical formula}, plural={chemical formulae}}
@index{baseunit, name={base SI unit}}
@index{derivedunit, name={derived SI unit}}
@index{person, plural={people}}
@index{markuplanguage, name={markup language}}
@index{mediacontrol, name={media control}}
@index{information}
@index{weather}
\end{verbatim}
topics.bib

The topics.bib file contains entries defined using @index. Again there are no custom fields here.

The contents of topics.bib are as follows:

\texttt{\% Encoding : UTF-8}

@index{information}
@indexplural{mediacontrol,text={media control}}
@indexplural{weather,text={weather symbol}}

sample-hierarchical.tex

This example uses the terms.bib, animals.bib, minerals.bib and vegetables.bib files to create a hierarchical glossary. These are specified with the resource option:

\texttt{src={terms,animals,minerals,vegetables}}

The custom \texttt{identifier} field is aliased to the \texttt{parent} field since it conveniently matches the labels of the animal, mineral and vegetable entries in the terms.bib file:

\texttt{field-aliases={identifier=parent}}

The default \texttt{selection} setting means that only those terms referenced in the document and their dependencies are selected. The referenced entries simply have “1” in the location list as it’s only a trivial single-paged example.

The dependencies that haven’t actually been referenced in the document don’t have a location list. (The “seal” entry is a dependency, but it’s also been referenced in the document, so it has a location list.) The “quartz”, “beryl” and “marrow” entries are dependencies because they occur in the description of some of the referenced entries. Normally this would mean that they have no location list after the first \texttt{\LaTeX+\bib2gls+\LaTeX} build but once the glossary has been created the references to those dependent entries in the descriptions will create records and so on the next \texttt{\bib2gls+\LaTeX} they will also have location lists. This would make the complete document build:

\texttt{pdflatex sample-hierarchical}
\texttt{\bib2gls --group sample-hierarchical}
\texttt{pdflatex sample-hierarchical}
\texttt{\bib2gls --group sample-hierarchical}
\texttt{pdflatex sample-hierarchical}

However, in this example I’ve decided to ignore any records created in the glossary:
As discussed in section 1.2 there are three ways of creating logical divisions when displaying the entries through the use of the type, group and parent fields. In general, hierarchical glossaries are created with the parent field and an appropriate glossary style (as in the previous sample-hierarchical.tex example).
Some sample terms: duck, sea lion, armadillo, seal, aardvark, amethyst, aquamarine, diamond, dolomite, chalcedony, citrine, quetzalcoatlite, cabbage, cauliflower, artichoke, courgette.

Glossary

A
animal
aardvark nocturnal African burrowing mammal. 1
armadillo nocturnal insectivore with large claws. 1
duck a waterbird with webbed feet. 1
sea lion a large type of seal. 1
seal sea-dwelling fish-eating mammal with flippers. 1

M
mineral
amethyst purple variety of quartz. 1
aquamarine light blue variety of beryl. 1
beryl composed of beryllium aluminium cyclosilicate.
chalcedony cryptocrystalline variety of quartz. 1
citrine yellow variety of quartz. 1
diamond a metastable allotrope of carbon. 1
dolomite an anhydrous carbonate mineral. 1
quartz hard mineral consisting of silica.
quartzite a rare tellurium oxysalt mineral. 1

V
vegetable
artichoke a variety of thistle cultivated as food. 1
cabbage vegetable with thick green or purple leaves. 1
cauliflower type of cabbage with edible white flower head. 1
courgette immature fruit of a vegetable marrow. 1
marrow long white-fleshed gourd with green skin.

Figure 8.1: sample-hierarchical.pdf
This example creates a hierarchical effect but the entries don’t actually have a hierarchical structure as none of them have the parent field set. Instead, what were the child entries in sample-hierarchical.tex now have the type field set. The hierarchical effect is achieved with \printunsrtinnerglossary (which requires at least glossaries-extra v1.44).

The \printunsrtinnerglossary command is unsuitable for use with tabular-like styles, such as long, and can be problematic with list styles. However, those styles aren’t suitable for hierarchical glossaries anyway.

Normally, hierarchy is achieve through definitions like:

@index{animal}
@entry{duck,name={duck},
    description={a waterbird with webbed feet},
    parent={animal}
}

The previous example did this by loading both the terms.bib and animals.bib files and aliasing the custom identifier field to parent. In this example, the custom field is aliased to type, which effectively makes the definitions behave like:

@index{animal}
@entry{duck,name={duck},
    description={a waterbird with webbed feet},
    type={animal}
}

The aim here is for the animal entry to be placed in the main glossary so that it’s listed with \printunsrtglossary. The duck entry is placed in a glossary that has a label (animal) that matches the label of the “parent” entry (even though it’s technically not a parent). This new glossary (animal) can be automatically defined by invoking bib2gls with the --provide-glossaries switch.

This example document defines a custom handler function that will do the current entry as normal (with \glsxtrunsrtdo) but will then check for the existence of a glossary that has the same label as the current entry. This requires the starred version of \ifglossary-exists to included ignored glossaries in the existence check. If the glossary exists, it’s then displayed using \printunsrtinnerglossary:

\newcommand{\nestedhandler}[1]{%
  \glsxtrunsrtdo{#1}%
  \ifglossaryexists*{#1}%
  {%
    \printunsrtinnerglossary[type={#1},leveloffset={++1},groups={false}]
    {}%  
  }
%}
}
The `leveloffset` option is required to achieve a hierarchical effect (provided the glossary style supports it) and the `groups={false}` option is needed to prevent letter groups showing for the nested glossary, which would otherwise create a strange effect. (This example uses the treegroup style, which provides a hierarchical glossary with letter groups.)

The `\printunsrtglossary` handler macro then needs to be set to this custom macro when the main glossary is displayed:

\printunsrtglossary*{\let\printunsrtglossaryhandler\nestedhandler}

The main difficulty comes with ensuring that all the necessary entries are selected. Now that the custom `identifier` field has been aliased to `type` rather than `parent`, the `animal` entry is no longer considered a dependent. The `duck` entry has been referenced in the document with `\gls` but the `animal` entry hasn’t. The previous example ensured that the `animal` entry was selected because it was a parent of a selected entry. If the same resource options are used in this example, the main glossary will be empty, which means that the nested glossaries won’t be displayed either.

One way to ensure that the `animal`, `mineral` and `vegetable` entries are selected is to identify the `type` field as a dependency field:

\GlsXtrLoadResources[src={terms,animals,minerals,vegetables},
   field-aliases={identifier=type},
   dependency-fields={type}]

This will achieve the same effect as the `sample-hierarchical.tex` document, but it’s a far more convoluted method. The reason this example document is listed here is to demonstrate a slightly modified hierarchical effect that can’t be achieved through the normal method.

Suppose that, for some strange reason, I want the “animal”, “mineral” and “vegetable” entries to be listed in a different order (say, reverse alphabetical). The other entries (“duck” etc) need to be sorted in normal alphabetical order.

The `sort` option applies the same sort method to all hierarchical levels. The sort value chosen for particular entries can be altered through the use of fallbacks (such as the `entry-sort-fallback` or `symbol-sort-fallback` options) and a letter comparator may be used to resolve identical sort values (`identical-sort-action`), but the same sort algorithm is applied to all entries in the same set (primary, secondary or dual within the same resource set). The only way to apply different sort methods is to separate the entries into different resource sets (or use dual or secondary sorting).

This can be achieved by having one resource set for the main entries with one sort method and another resource set for all the other entries with a different sort method:

\GlsXtrLoadResources[src={terms},sort={en-reverse}]
\GlsXtrLoadResources[src={animals,minerals,vegetables},sort={en},
   field-aliases={identifier=type},dependency-fields={type}]

This works when cross-resource dependencies are permitted (see section 1.4). In the event that cross-resource dependencies aren’t permitted, the selection criteria is more complicated:
8 Examples: sample-nested.tex

\GlsXtrLoadResources[src={terms,animals,minerals,vegetables},
    sort={en-reverse},
    field-aliases={identifier=parent},
    selection={ancestors but not recorded}]
\GlsXtrLoadResources[
    src={animals,minerals,vegetables},
    field-aliases={identifier=type},
    dependency-fields={type},
    sort={en}]

Fortunately in this example, cross-resource dependencies are permitted so the simpler alternative works. (If they’re not permitted, the bib2gls transcript file will contain “Cross-resource references can’t be supported for resource set ⟨filename⟩”.)

The complete code is listed below. The document build is:

dvlatex sample-nested
bib2gls --group --provide-glossaries sample-nested
dvlatex sample-nested

The complete document is shown in figure 8.2.
\documentclass[12pt,a4paper]{article}
\usepackage[T1]{fontenc}
\usepackage[colorlinks]{hyperref}
\usepackage[record, % use bib2gls
    nostyles, % don’t load default styles
    postdot, % add a full stop after the description
    % load glossary-tree.sty and patch styles: 
    stylemods={tree},
    style=treegroup]{glossaries-extra}
\GlsXtrLoadResources[src={terms},sort={en-reverse}]
\GlsXtrLoadResources[
    src={animals,minerals,vegetables},
    field-aliases={identifier=type},
    dependency-fields={type},
    sort={en}]
\newcommand{\nestedhandler}[1]{%
  \glsxtrunsrtdo{#1} %
  % Is there a glossary whose label (type) matches this entry’s label?
  %
}
8 Examples: sample-constants.tex

\ifglossaryexists*{#1}\
  %
  \printunsrtinnerglossary[type={#1},leveloffset=++1,groups=false]{}{}
%\
{}}%
\}

\begin{document}
Some sample terms: \gls{duck}, \gls{sealion}, \gls{armadillo}, \gls{seal}, \gls{aardvark}, \gls{amethyst}, \gls{aquamarine}, \gls{diamond}, \gls{dolomite}, \gls{chalcedony}, \gls{citrine}, \gls{quetzalcoatlite}, \gls{cabbage}, \gls{cauliflower}, \gls{artichoke}, \gls{courgette}.

\GlsXtrSetDefaultNumberFormat{glsignore} % ignore records in the glossary
\printunsrtglossary*{%
  \let\printunsrtglossaryhandler\nestedhandler
}
\end{document}

\textbf{sample-constants.tex}

This example uses the constants.bib file. The aim here is to just have a list of all the constants defined in the .bib file. (There are no references in the document.) This means I need to use:

\texttt{selection={all}}

in order to select all entries. I also need to alias the custom @constant entry type otherwise all the entries will be ignored. I decided to make @constant behave like @number for semantic reasons:

\texttt{entry-type-aliases={constant=number}}

The custom fields also need aliasing:

\texttt{field-aliases={
  identifier=category, 
  constantsymbol=name, 
  constantname=description, 
  value=user1, 
  definition=user2, 
  alternative=user3, 
}}
Some sample terms: duck, sea lion, armadillo, seal, aardvark, amethyst, aquamarine, diamond, dolomite, chalcedony, citrine, quetzalcoatlite, cabbage, cauliflower, artichoke, courgette.

Glossary

V
vegetable
artichoke a variety of thistle cultivated as food. 1
cabbage vegetable with thick green or purple leaves. 1
cauliflower type of cabbage with edible white flower head. 1
courgette immature fruit of a vegetable marrow. 1
marrow long white-fleshed gourd with green skin.

M
mineral
amethyst purple variety of quartz. 1
aquamarine light blue variety of beryl. 1
beryl composed of beryllium aluminium cyclosilicate.
chalcedony cryptocrystalline variety of quartz. 1
citrine yellow variety of quartz. 1
diamond a metastable allotrope of carbon. 1
dolomite an anhydrous carbonate mineral. 1
quartz hard mineral consisting of silica.
quartz a rare tellurium oxysalt mineral. 1

A
animal
aardvark nocturnal African burrowing mammal. 1
armadillo nocturnal insectivore with large claws. 1
duck a waterbird with webbed feet. 1
sea lion a large type of seal. 1
seal sea-dwelling fish-eating mammal with flippers. 1
I decided to use the altlist style, so I’ve instructed bib2gls to determine the widest name:

```latex
set-widest
```

It’s always a good idea to specify the glossary type when using `set-widest`, although in this example there’s only one glossary so it doesn’t make much difference.

```latex
type={main}
```

I decided to order the constants according to their (approximate) numerical value. I’ve aliased the custom `value` field to `user1`, so I can sort by that field using a numerical comparison:

```latex
sort-field={user1},
sort={double}
```

There are three entries without the `user1` field (as the custom `value` field is missing in the `.bib` file): zero, one and imaginary. In the case of zero and one the exact value can be obtained from the `name` field. Since I’ve change the default `sort-field`, I can’t use `symbol-sort-fallback`. Instead I need to use:

```latex
missing-sort-fallback={name}
```

What happens with the imaginary entry? It has no real representation. The transcript (.glg) file shows the message:

Warning: Can't parse sort value 'i' for: imaginary

With the numerical sort methods, if the field can’t be parsed the value defaults to 0. This means that both zero and imaginary have 0 as the sort value, so the `identical-sort-action` is implemented. The default setting means that bib2gls will fallback on comparing the entry labels, so `imaginary` comes before `zero`.

Since I’m just using the alttree style, I only need glossary-tree. I can improve efficiency in the document build by preventing the other glossary style packages from being loaded using the `nostyles` package option. This also prevents glossary-tree from being loaded, but I can both load it and patch the styles with glossaries-extra-stylemods through the option `stylemods={tree}`. Since the default list style is no longer available, I need to set a new default with `style={alttree}`. I also want to automatically insert a full stop after the description, which can be done with `postdot`. Don’t forget that the `record` option is always needed when using bib2gls. This means that the glossaries-extra package needs to be loaded as follows:

```latex
\usepackage[record,nostyles,postdot,stylemods={tree},style={alttree}]
{glossaries-extra}
```

I’ve assigned the custom `constantname` field to the `description` field and the custom `constantsymbol` field to the `name` field. This means that by default the glossary list will just show the symbolic representation and the constant’s name. I’d like to append the value and definition after the description. With the base glossaries package this would require
defining a new glossary style but with glossaries-extra it can easily be achieved through the post-description hook.

I’ve aliased the custom identifier field to category, which means that all the entries will have the category set to constant. The post-description hook is obtained from \glsxtrpostdesc\texttt{category}, so I need to define the command \glsxtrpostdesc\texttt{constant}. A simple definition is:

```latex
\newcommand{\glsxtrpostdesc\texttt{constant}}{\%
  \space (approximately \texttt{glscurrententrylabel})%:
  \texttt{glscurrententrylabel}\%
}
```

This is fine if all entries have the user1 and user2 fields set. A more generic approach tests for the existence of these fields. This can either be done with \ifglshasfield:

```latex
\newcommand{\glsxtrpostdesc\texttt{constant}}{\%
  \ifglshasfield{user1}{\texttt{glscurrententrylabel}}%
  { (approximately \texttt{glscurrentfieldvalue})%}
  \%\%
  \ifglshasfield{user2}{\texttt{glscurrententrylabel}}%
  { : \texttt{glscurrentfieldvalue}%}
  \%\%
}
```

or with \glsxtrifhasfield:

```latex
\newcommand{\glsxtrpostdesc\texttt{constant}}{\%
  \glsxtrifhasfield{useri}{\texttt{glscurrententrylabel}}%
  { (approximately \texttt{glscurrentfieldvalue})%}
  \%\%
  \glsxtrifhasfield{userii}{\texttt{glscurrententrylabel}}%
  { : \texttt{glscurrentfieldvalue}%}
  \%\%
}
```

(Note the need to use the internal field label useri and userii with \glsxtrifhasfield.)

A modification can be made to also show the alternative representation (obtained from the custom alternative field which has been aliased to user3):

```latex
\newcommand{\glsxtrpostdesc\texttt{constant}}{\%
  \glsxtrifhasfield{useriii}{\texttt{glscurrententrylabel}}%
  { (also denoted \texttt{glscurrentfieldvalue}
    \glsxtrifhasfield{useri}{\texttt{glscurrententrylabel}}%
    { , approximately \texttt{glscurrentfieldvalue}}%}
    \%\%
  )%
  \%\%
}
```
If you have at least glossaries-extra v1.31, it's better to use:

\glsdefpostdesc{constant}

instead of:

\newcommand{\glsxtrpostdescconstant}

as it can guard against accidental misspelling of the \texttt{glsxtrpostdesc} part of the command name.

The complete code is listed below. The document build is:

\texttt{pdflatex sample-constants}
\texttt{bib2gls sample-constants}
\texttt{pdflatex sample-constants}

The complete document is shown in figure 8.3.

\documentclass[12pt,a4paper]{article}
\usepackage[T1]{fontenc}
\usepackage{upgreek}
\usepackage[record, % use \texttt{bib2gls}
nostyles, % don't load default styles
postdot, % add dot after descriptions
% load \texttt{glossary-tree.sty} and patch styles:
% \texttt{stylemods={tree}},
% style=alttree]{glossaries-extra}
\GlsXtrLoadResources[
src={constants}, % data in constants.bib
% make @constant behave like @number
entry-type-aliases={constant=number},
field-aliases={
  identifier=category,
  constantsymbol=name,
  constantname=description,
  value=user1,
}]}
This example just uses the chemicalformula.bib file. The aim here is to have a list of chemical formulae referenced in the document but not have a number list. I could use the nonumberlist package option to suppress the number list display, but it’s more efficient to instruct bib2gls to not save the number list with:

\begin{document}
\printunsrtglossary[title={Constants}]
\end{document}
### Constants

- $i$: imaginary unit (also denoted $j$): defined as $i^2 = -1$.
- $0$: zero: nothing or nil.
- $\gamma$: Euler's constant (approximately 0.57721): the limit of
  \[\sum_{r=1}^{n} \frac{1}{r^\gamma} - \ln n\]
  as $n \to \infty$.
- $1$: one: single entity, unity.
- $\zeta(3)$: Apéry’s constant (approximately 1.2020569): a special value of the Riemann zeta function.
- $\lambda$: Conway's constant (approximately 1.30357): the invariant growth rate of all derived strings.
- $\sqrt{2}$: Pythagoras' constant (approximately 1.41421): the square root of 2.
- $\phi$: golden ratio (approximately 1.61803): the ratio $\frac{1 + \sqrt{5}}{2}$.
- $e$: Euler’s number (approximately 2.71828): base of natural logarithms.
- $\pi$: pi (approximately 3.14159): the ratio of the length of the circumference of a circle to its diameter.

---

Figure 8.3: sample-constants.pdf
Additionally, the entries only have custom fields, so these also need to be aliased. In this case I want the formula in the `name` field and the chemical name in the `description` field:

```latex
field-aliases={formula=name,chemicalname=description}
```

The `@symbol` entry type falls back on the label for the `sort` value by default, but I’ve decided to fallback on the `name` field for sorting:

```latex
symbol-sort-fallback={name}
```

An alternative approach would simply be to alias `@chemical` to `@entry` instead.

Since the `name` field contains chemical formulae rather than words, it makes more sense to use one of the letter sort methods rather than a locale collator. In this case the names contain mixtures of letters and numbers, so one of the letter-number sort methods (listed in table 5.4) would be appropriate.

I want to use the `alttreegroup` style (provided by `glossary-tree`). Since I don’t require the other style packages, I’ve used `nostyles` to suppress the automatic loading and `stylemods={tree}` to both load `glossary-tree` and patch it. The `alttreegroup` style needs to know the widest name, so I’ve use `set-widest` for convenience. The default behaviour of the tree styles is to format the name in bold. This is done through the command `\glstreenamefmt` which is defined as:

```latex
\newcommand*{\glstreenamefmt}[1]{\textbf{#1}}
```

The group headings use `\glstreegroupheaderfmt` which defaults to `\glstreenamefmt`. Since I want to keep bold headings, I need to redefine this as well:

```latex
\renewcommand*{\glstreenamefmt}[1]{#1}
\renewcommand*{\glstreegroupheaderfmt}[1]{\textbf{#1}}
```

(For a more compact layout, you could use `mcolalttreegroup` instead.) I also need the `--group` switch to make the sort method automatically assign letter groups.

The complete code is listed below. The document build is:

```latex
pdflatex sample-chemical
bib2gls --group sample-chemical
pdflatex sample-chemical
```

The complete document is shown in figure 8.4.

```latex
\documentclass[a4paper]{article}
\usepackage[T1]{fontenc}
\usepackage[version=4]{mhchem}
\usepackage[record, % use bib2gls
  nostyles, % don't load default styles
  stylemods={tree}, % load glossary-tree and patch styles
  style=alttreegroup]{glossaries-extra}
```

397
\GlsXtrLoadResources[
  src={chemicalformula}, % definitions in chemicalformula.bib
  entry-type-aliases={chemical=symbol},
  field-aliases={formula=name,chemicalname=description},
  symbol-sort-fallback=name, % use name field as fallback for sort
  sort=letternumber-case, % case-sensitive letter-number sort
  set-widest, % needed for alttree styles
  save-locations=false % don't create location lists
]

\renewcommand{*{\glstreenamefmt}[1]{#1}}
\renewcommand{*{\glstreegroupheaderfmt}[1]{\textbf{#1}}

\begin{document}
\section{Sample}

Reference Entries: \gls{Al2SO43}, \gls{H2O}, \gls{C6H12O6}, \gls{CH3CH2OH}, \gls{CH2O}, \gls{OF2}, \gls{O2F2}, \gls{SO42-}, \gls{H3O+}, \gls{OH-}, \gls{O2}, \gls{AlF3}, \gls{O}, \gls{Al2CoO4}, \gls{As4S4}, \gls{C10H10O4}, \gls{C5H4NCOOH}, \gls{C8H10N4O2}, \gls{SO2}, \gls{S2O72-}, \gls{SbBr3}, \gls{Sc2O3}, \gls{Zr3PO44}, \gls{ZnF2}.

\printunsrtglossary
\end{document}

sample-bacteria.tex

This example just uses the bacteria.bib file. The aim here is to have a simple list of the bacteria referenced in the document. Bacteria names are often shown in the long form on first use (without the short form) and then the short form on subsequent use. This can easily be done with the long-only-short-only style. Bacteria are usually typeset in italic. It’s best to create a semantic command for this:

\newcommand{\bacteriafont}[1]{\emph{#1}}

There are two methods to apply this to the bacteria entries. The first is to redefine the formatting commands used by the long-only-short-only style:

\renewcommand{*{\glsabbrvonlyfont}[1]{\bacteriafont{#1}}
\renewcommand{*{\glslongonlyfont}[1]{\bacteriafont{#1}}

This is fine if I don’t intend to use this style for other types of abbreviations. However, I may decide to extend the document at a later date to include other abbreviations that need long-only-short-only but shouldn’t be emphasized. This can be done through the use of category
1 Sample

Reference Entries: Al₂(SO₄)₃, H₂O, C₆H₁₂O₆, CH₃CH₂OH, CH₂O, OF₂, O₂F₂, SO₄²⁻, H₂O⁺, OH⁻, O₂, AlF₃, O, Al₂₃(CO₃)₂, As₂S₄, C₈H₁₀O₄, C₅H₄NCOOH, C₆H₁₀N₄O₂, SO₂, S₂O₇²⁻, SbBr₃, Sc₂O₃, Zr₃(PO₄)₄, ZnF₂.

Glossary

A
AlF₃ aluminium trifluoride
Al₂(SO₄)₃ aluminium sulfate
Al₂₃(CO₃)₂ cobalt blue
As₂S₄ tetraarsenic tetrasulfide

C
CH₂O formaldehyde
CH₃CH₂OH ethanol
C₅H₄NCOOH niacin
C₆H₁₂O₆ glucose
C₈H₁₀N₄O₂ caffeine
C₁₀H₁₀O₄ ferulic acid

H
H₂O water
H₃O⁺ hydronium

O
O₂ oxygen
OF₂ oxygen difluoride
OH⁻ hydroxide ion
O₂⁻ dioxygen
O₃F₂ dioxygen difluoride

S
SO₂ sulfur dioxide
SO₄²⁻ sulfate
S₂O₇²⁻ disulfate ion
SbBr₃ antimony(III) bromide
Sc₂O₃ scandium oxide

Z
ZnF₂ zinc fluoride
Zr₃(PO₄)₄ zirconium phosphate

Figure 8.4: sample-chemical.pdf
attributes. The font used for the name in the glossary is governed by the glossnamefont attribute, the font used for the description in the glossary is governed by the glossdescfont attribute and the font used by commands like \gls in the document is governed by the text-format attribute (glossaries-extra v1.21+). So if I set the category to bacteria then I can do:

\setabbreviationstyle[bacteria]{long-only-short-only}
\glssetcategoryattribute{bacteria}{textformat}{bacteriafont}
\glssetcategoryattribute{bacteria}{glossnamefont}{bacteriafont}

and (if the description field is displayed in the glossary):

\glssetcategoryattribute{bacteria}{glossdescfont}{bacteriafont}

(Note that the attribute value is the control sequence name without the initial backslash.)

I’d like to use the bookindex style, which is provided by the glossary-bookindex package.¹ This isn’t loaded automatically, but it can be loaded through the stylemods package option:

\usepackage[record,% use bib2gls
nostyles,% don’t load default style packages
stylemods={bookindex},% load glossary-bookindex.sty and patch styles
style={bookindex}]{glossaries-extra}

I’ve used the nostyles package option to suppress loading the default style packages, since I’m not using them. If you inspect the .log file, you may notice that glossary-tree is still loaded. This is because it’s required by glossary-bookindex as the bookindex style is based on the index style provided by glossary-tree. With this style I need to use the --group switch to instruct the sort method to automatically create the letter groups.

The bookindex style doesn’t show the description field (which means I don’t need the glossdescfont attribute) and, since the long-only-short-only style sets the name to the short form by default, only the short form will show in the glossary. I’d rather it was just the long form. This could simply be done using replicate-fields to copy the long field to the name field:

replicate-fields={long=name}

Again, I want to consider the possibility of adding other types of abbreviations and this might not be appropriate for them (for example, I might want some abbreviations with the long form followed by the short form in parentheses). Another approach is to redefine \glsxtrbookindexname which is used by the bookindex style to display the name. This takes the entry’s label as the argument. The default definition is:

\newcommand*{\glsxtrbookindexname}[1]{\glossentryname[#1]}

This can be changed to test for the entry’s category:

¹glossary-bookindex is distributed with glossaries-extra v1.21+. 
8 Examples: sample-bacteria.tex

\renewcommand*\{\glsxtrbookindexname\}[1]{%
  \glsifcategory\{#1\}\{bacteria\}%
  \{\glossentrynameother\{#1\}\{long\}\}%
  \{\glossentryname\{#1\}\}%
}%

Note that I’ve used \glossentrynameother here rather than \glsentrylong. This ensures that it follows the same formatting as \glossentryname (so it will use \glsnamefont or the glossnamefont attribute, the glossname attribute, and the post-name hook, if set). In this case it picks up the glossnamefont attribute, which is used instead of \glsnamefont.

If the sort field is missing for abbreviation styles, the fallback value is the short field (not the name field). In this case it would be better to fallback on the long field instead, which can be done with the abbreviation-sort-fallback option:

abbreviation-sort-fallback={long}

If I do add other types of abbreviations, they will all be sorted according to the long form, but at least this way I can have some ⟨long⟩ (⟨short⟩) names as well.

The complete code is listed below. The document build is:

pdflatex sample-bacteria
bib2gls --group sample-bacteria
pdflatex sample-bacteria

This simple example only references entries on the first page so all entries just have 1 in the number list. The complete document is shown in figure 8.5.

\documentclass[12pt,a4paper]{article}

\usepackage[T1]{fontenc}

\usepackage[record,% use bib2gls
  nostyles,% don’t load default styles
  % load glossary-bookindex.sty and patch styles:
  stylemods={bookindex},
  style=bookindex]{glossaries-extra}

% abbreviation style must be set before \GlsXtrLoadResources
\setabbreviationstyle{bacteria}{long-only-short-only}

\GlsXtrLoadResources[ %
  src=bacteria,% data in bacteria.bib
  category=bacteria, %
  abbreviation-sort-fallback=long
]

\newcommand{\bacteriаfont}[1]{\emph{#1}}
8 Examples: sample-units1.tex

\glssetcategoryattribute{bacteria}{textformat}{bacteriafont}
\glssetcategoryattribute{bacteria}{glossnamefont}{bacteriafont}
\renewcommand*{\glsxtrbookindexname}[1]{%
  \glsifcategory{#1}{bacteria}
  {\glossentrynameother{#1}{long}}%
  {\glossentryname{#1}}%
}
\begin{document}
\section{First Use}
\gls{cbotulinum}, \gls{pputida}, \gls{cperfringens},
\gls{bsubtilis}, \gls{ctetani}, \gls{pcomposti},
\gls{pfimeticola}, \gls{cburnetii}, \gls{raustralis},
\gls{rrickettsii}.
\section{Next Use}
\gls{cbotulinum}, \gls{pputida}, \gls{cperfringens},
\gls{bsubtilis}, \gls{ctetani}, \gls{pcomposti},
\gls{pfimeticola}, \gls{cburnetii}, \gls{raustralis},
\gls{rrickettsii}.
\printunsrtglossary[title={Bacteria Index}]
\end{document}

sample-units1.tex

This example uses the baseunits.bib and derivedunits.bib files. The aim here is to have a glossary in two blocks: base units and derived units. This can be achieved by first loading baseunits.bib with group set to the desired group title (“Base Units” in this case) and then load derivedunits.bib with the group set to the desired title (“Derived Units” in this case). Remember that the group field needs to be used as a label. If the group title contains any problematic characters or commands, then it’s better to use labels:

\texttt{group={baseunits}}

for the first resource set and

\texttt{group={derivedunits}}

for the second, and then set the group titles:

\texttt{\glsxtrsetgrouptitle{baseunits}{Base Units}}
\texttt{\glsxtrsetgrouptitle{derivedunits}{Derived Units}}
1 First Use

Clostridium botulinum, Pseudomonas putida, Clostridium perfringens, Bacillus subtilis, Clostridium tetani, Planifilum composti, Planifilum fimeticola, Coxiella burnetii, Rickettsia australis, Rickettsia rickettsii.

2 Next Use


Bacteria Index

<table>
<thead>
<tr>
<th>B</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bacillus subtilis, 1</td>
<td>Planifilum composti, 1</td>
</tr>
<tr>
<td>Clostridium botulinum, 1</td>
<td>Planifilum fimeticola, 1</td>
</tr>
<tr>
<td>Clostridium perfringens, 1</td>
<td>Pseudomonas putida, 1</td>
</tr>
<tr>
<td>Clostridium tetani, 1</td>
<td>Rickettsia australis, 1</td>
</tr>
<tr>
<td>Coxiella burnetii, 1</td>
<td>Rickettsia rickettsii, 1</td>
</tr>
</tbody>
</table>

Figure 8.5: sample-bacteria.pdf
I’ve used this method to make it easier to adapt to other languages that may need extended characters in the group titles. The \texttt{group} option requires the \texttt{--group} switch to ensure that the \texttt{group} field is correctly assigned.

The \texttt{baseunits} file uses a custom entry type \texttt{@unit}, which must be aliased otherwise \texttt{bib2gls} will ignore the entries. I decided to use \texttt{@symbol} for semantic reasons:

\begin{verbatim}
\texttt{entry-type-aliases={unit=symbol}}
\end{verbatim}

Similarly for the custom \texttt{@measurement} entry type in \texttt{derivedunits}:

\begin{verbatim}
\texttt{entry-type-aliases={measurement=symbol}}
\end{verbatim}

Remember that \texttt{@symbol} uses the label as the default sort fallback, so I’ve changed it to use \texttt{name} instead:

\begin{verbatim}
\texttt{symbol-sort-fallback={name}}
\end{verbatim}

An alternative approach would be to alias \texttt{@unit} and \texttt{@measurement} to \texttt{@entry} instead. Since there’s no \texttt{type} set, all entries end up in the main glossary, but since there are two resource commands the glossary ends up with sorted blocks.

The document doesn’t include any commands like \texttt{\gls}, so I’ve use \texttt{selection={all}} to select all entries in the \texttt{.bib} files. There won’t be any number lists since there are no records. I need a glossary style that shows the \texttt{symbol} field so I’ve used mcolindexgroup. Again I’ve suppressed the automatic loading of the default styles with \texttt{nostyles} and used \texttt{stylemods={mcols}} to load \texttt{glossary-mcols} and patch the styles. Note that although I’ve used \texttt{nostyles}, the glossary–tree style is loaded as it’s required by \texttt{glossary-mcols}.

As with the previous example, the custom fields need to be aliased:

\begin{verbatim}
\texttt{field-aliases={
  unitname=name,
  unitsymbol=symbol,
  measurement=description
}}
\end{verbatim}

The complete document code is listed below. The document build is:

\begin{verbatim}
pdflatex sample-units1
bib2gls --group sample-units1
pdflatex sample-units1
\end{verbatim}

The complete document is shown in figure 8.6.

\begin{verbatim}
\documentclass[a4paper]{report}
\usepackage{siunitx}
\usepackage[record, % use bib2gls
  nostyles, % don't load default styles
  stylemods={mcols}, % load glossary-mcols.sty and patch
  \end{verbatim}
8 Examples: sample-units2.tex

\texttt{sample-units2.tex}

This example is provided for comparison with \texttt{sample-units1.tex}. Instead of having a single glossary with sorted blocks this example has two glossaries:

\begin{verbatim}
\newglossary*[baseunits]{Base Units}
\newglossary*[derivedunits]{Derived Units}
\end{verbatim}
Glossary

**Base Units**
- **ampere** (A) electric current
- **candela** (cd) luminous intensity
- **kelvin** (K) thermodynamic temperature
- **kilogram** (kg) mass
- **metre** (m) length
- **mole** (mol) amount of substance
- **second** (s) time

**Derived Units**
- **ampere per square metre** (A m\(^{-2}\))
- **candela per square metre** (cd m\(^{-2}\))
- **cubic metre** (m\(^3\)) volume
- **cubic metre per kilogram** (m\(^3\) kg\(^{-1}\)) specific volume
- **metre per second** (m s\(^{-1}\)) velocity
- **metre per second squared** (m s\(^{-2}\)) acceleration
- **mole per cubic metre** (mol m\(^{-3}\)) concentration
- **per metre** (m\(^{-1}\)) wave number
- **square metre** (m\(^2\)) area
I’ve used the \texttt{section} package option to use \texttt{\section*} for the glossary titles. This overrides the default \texttt{\chapter*} which is used with book or report type of classes. I’ve also used the \texttt{nomain} option to suppress the creation of the main glossary as I want to define my own glossary types instead.

As before the custom entry types need to be aliased:

\begin{verbatim}
entry-type-aliases={unit=symbol}
\end{verbatim}

for the first resource set and

\begin{verbatim}
entry-type-aliases={measurement=symbol}
\end{verbatim}

for the second. Similarly for the custom entry fields:

\begin{verbatim}
field-aliases={
  unitname=name,
  unitsymbol=symbol,
  measurement=description
}
\end{verbatim}

The \texttt{--group} switch is needed to ensure that the \texttt{group} field is automatically assigned by the sort method.

The complete document code is listed below. The document build is:

\begin{verbatim}
pdflatex sample-units2
bib2gls --group sample-units2
pdflatex sample-units2
\end{verbatim}

The complete document is shown in figure 8.7.

\begin{verbatim}
\documentclass[a4paper]{report}
\usepackage{siunitx}
\usepackage[record,% use bib2gls
  nomain,% don't define 'main' glossary
  section, % use \texttt{\section*} for glossary headings
  nostyles,% don't load default styles
  stylemods={mcols},% load glossary-mcols.sty and patch
  style=mcolindex]{glossaries-extra}
\newglossary*[baseunits]{Base Units}
\newglossary*[derivedunits]{Derived Units}
\GlsXtrLoadResources[
  src={baseunits},
  type=baseunits,
  % make \texttt{@unit} act like \texttt{@symbol}:
  entry-type-aliases={unit=symbol},
}
8 Examples: sample-units3.tex

```latex
\begin{document}
\chapter*{Glossaries}
\printunsrtglossary[type=baseunits,nogroupskip]
\printunsrtglossary[type=derivedunits,style=indexgroup]
\end{document}
```

**sample-units3.tex**

This is another example that uses the baseunits.bib and derivedunits.bib files. As before the custom fields need to be aliased:

```latex
field-aliases=
  unitname=name,
  unitsymbol=symbol,
  measurement=description
}
\GlsXtrLoadResources[
  src={derivedunits},
  type=derivedunits,
  % make @measurement act like @symbol:
  entry-type-aliases={measurement=symbol},
  field-aliases={
    unitname=name,
    unitsymbol=symbol,
    measurement=description
  },
  symbol-sort-fallback=name,
  selection={all}
]
```

This time I want two glossaries containing all the units (base and derived) where the first glossary is ordered by name and the second is ordered by symbol. This can be done with a single resource command that instructs bib2gls to make the custom @unit and @measurement entry types behave like @dualsymbol:
Glossaries

Base Units

`ampere` (A) electric current
`candela` (cd) luminous intensity
`kelvin` (K) thermodynamic temperature
`kilogram` (kg) mass
`metre` (m) length
`mole` (mol) amount of substance
`second` (s) time

Derived Units

`A`

`ampere per square metre` (A m\(^{-2}\)) density

`C`

`candela per square metre` (cd m\(^{-2}\)) luminance
`cubic metre` (m\(^3\)) volume
`cubic metre per kilogram` (m\(^3\)kg\(^{-1}\)) specific volume

`M`

`metre per second` (m s\(^{-1}\)) velocity
`metre per second squared` (m s\(^{-2}\)) acceleration
`mole per cubic metre` (mol m\(^{-3}\)) concentration

`P`

`per metre` (m\(^{-1}\)) wave number

`S`

`square metre` (m\(^2\)) area

Figure 8.7: sample-units2.pdf
entry-type-aliases={
    unit=dualsymbol,
    measurement=dualsymbol
}

This causes the name and symbol fields to be swapped in the dual list. Remember that the fallback for the sort field is the label for the symbol entry types so I need symbol-sort-fallback={name} to fallback on name field instead. (Alternative, I could just sort by the name field instead using sort-field={name}.)

The primary entries can still be sorted according to the default locale collator, but the dual entries need a sort method that’s better suited to symbols. Fortunately, bib2gls has some (very limited) support for \textsc{siunitx} and is able to interpret the \texttt{\si} commands in the sample .bib files. Since \textsc{si} units are a mix of letters and numbers I’ve used one of the letter-number methods listed in table 5.4.

I’ve decided to define a custom style for the first glossary. Since it’s based on the long3col-booktabs style I need to load glossary-longbooktabs, which can conveniently be done with the \texttt{stylemods} option. This uses longtable (provided by longtable, which is automatically loaded) which means an extra \LaTeX{} call is required in the build process to ensure the column widths are correct. Again I’m using nostyles to suppress the automatic loading of the default styles, however glossary-tree will be loaded as it’s listed in the value of stylemods and glossary-long will be loaded as it’s required by glossary-longbooktabs. I can’t use my custom style in the style package option as it hasn’t been defined at that point. The default list style is now unavailable since nostyles has prevented it from being defined, so I’ve used style=alttree to ensure there’s a valid default style.

Since my custom style is based on one of the long styles, I need to set the length register \texttt{\glsdescwidth} to adjust the width of the description column:

\setlength{\glssdescwidth}{.4\textwidth}

The long3col-booktabs style sets up a three column longtable so I just need to adjust the table header (to rename the column headers) and the way each row is formatted:

\newglossarystyle{units}{% style name
    % base it on long3col-booktabs
    \setglossarystyle{long3col-booktabs}%
    \renewcommand*{\glossaryheader}{%
        \toprule
        \textbf{Name} & \textbf{Measurement} & \textbf{Symbol}
        \midrule
    }%
    \renewcommand{\glossentry}[2]{%
        \glsentryitem{##1}\glstarget{##1}{\glossentryname{##1}} &
        \glsentryitem{##2}%
    }%
    \bottomrule
%
    % main entries:
    \renewcommand{\glossentry}[2]{%
        \glsentryitem{##1}\glstarget{##1}{\glossentryname{##1}} &
        \glsentryitem{##2}%
    }%
    \bottomrule
}
There are no sub-entries in this document so I haven’t bothered to redefine `\subglossentry`. (The tabular styles aren’t appropriate for hierarchical glossaries.) This puts the symbol into the third column (rather than the location list, which is ignored). This style supports the letter group separator (although it doesn’t title the groups), so if I want this I need to use the --group switch.

I also need to make sure I’ve defined a glossary for the dual entries:

\newglossary*{units}{Units of Measurement (by SI unit)}

and specify the glossary types for the primary and dual entries:

type={main},
dual-type={units}

The complete document code is listed below. The document build is:

```
\documentclass[12pt,a4paper]{report}
\usepackage{siunitx}
\usepackage[record, % use bib2gls
nostyles, % don't load default styles
% load glossary-tree.sty and glossary-longbooktabs.sty and patch:
/stylemods={tree,longbooktabs},
/style=alttree]{glossaries-extra}
\newglossary*{units}{Units of Measurement (by SI unit)}
\GlsXtrLoadResources[
% data in baseunits.bib and derivedunits.bib:
src={baseunits,derivedunits},
field-aliases={
  unitname=name,
  unitsymbol=symbol,
  measurement=description
},
symbol-sort-fallback={name},
] 411 411
```

The two pages of the document are shown in figure 8.8.
selection=all,% select all entries
% make @measurement and @unit act like @dualsymbol:
entry-type-aliases=
  measurement=dualsymbol,
  unit=dualsymbol,
},
set-widest,% needed for alttree style
dual-sort={letternumber-upperlower},
type=main,% put primary entries in 'main' glossary
dual-type={units}% put dual entries in 'units' glossary
]
\setlength{\glsdescwidth}{.4\hsize}
% define custom glossary style
\newglossarystyle{units}% style name
  {% base it on long3col-booktabs
    \setglossarystyle{long3col-booktabs} %
    \renewcommand*{\glossaryheader}{% \
      \toprule
      \bfseries Name & \bfseries Measurement & \bfseries Symbol
      \bottomrule\endhead
    } %
    % main entries:
    \renewcommand{\glossentry}[2]{% \
      \glossentryitem{##1}{\glstarget{##1}{\glossentryname{##1}} & \glossentrydesc{##1}{\glspostdescription & \glossentrysymbol{##1}\tabularnewline 
      \midrule\endhead
    } %
    }
\begin{document}
\printunsrtglossary[title={SI Units of Measurement},
  style={units}]
\printunsrtglossary[type=units]
\end{document}
SI Units of Measurement

<table>
<thead>
<tr>
<th>Name</th>
<th>Measurement</th>
<th>Symbol</th>
</tr>
</thead>
<tbody>
<tr>
<td>ampere</td>
<td>electric current</td>
<td>A</td>
</tr>
<tr>
<td>ampere per square metre</td>
<td>density</td>
<td>A m⁻²</td>
</tr>
<tr>
<td>candela</td>
<td>luminous intensity</td>
<td>cd</td>
</tr>
<tr>
<td>candela per square metre</td>
<td>luminance</td>
<td>cd m⁻²</td>
</tr>
<tr>
<td>calorie per kilogram</td>
<td>specific volume</td>
<td>kcal</td>
</tr>
<tr>
<td>kelvin</td>
<td>thermodynamic temperature</td>
<td>K</td>
</tr>
<tr>
<td>kilogram</td>
<td>mass</td>
<td>kg</td>
</tr>
<tr>
<td>metre</td>
<td>length</td>
<td>m</td>
</tr>
<tr>
<td>metre per second</td>
<td>velocity</td>
<td>m s⁻¹</td>
</tr>
<tr>
<td>mole per cubic metre</td>
<td>concentration</td>
<td>mol m⁻³</td>
</tr>
<tr>
<td>per metre</td>
<td>wave number</td>
<td>m⁻¹</td>
</tr>
<tr>
<td>second</td>
<td>time</td>
<td>s</td>
</tr>
<tr>
<td>square metre</td>
<td>area</td>
<td>m²</td>
</tr>
</tbody>
</table>

Units of Measurement (by SI unit)

- m³ (cubic metre) volume
- m² (square metre) area
- A (ampere) electric current
- m (metre) length
- s (second) time
- cd (candela) luminous intensity
- K (kelvin) thermodynamic temperature
- m³ kg⁻¹ (cubic metre per kilogram) specific volume
- mol (mole) amount of substance
- m mol⁻³ (mole per cubic metre) concentration
- m² (square metre) area
- m s⁻² (metre per second squared) acceleration
- m s⁻¹ (metre per second) velocity

Figure 8.8: sample-units3.pdf

sample-media.tex

This example uses the sample files books.bib, films.bib, no-interpret-preamble.bib and interpret-preamble.bib. The aim is to produce a combined list of books and films in a single glossary. The films are based on some of the books so some of the entries have the same name. The default setting for identical sort values is identical-sort-action={id}, which means that the ordering for the duplicate names is based on the entry labels. This can lead to the odd effect of sometimes having the film listed first (film.thebigsleep comes before thebigsleep) and sometimes having the book listed first (brightonrock comes before film.brightonrock).

One possible solution would be to also assign prefixes for the book labels, but label-prefix is applied to all primary entries for the given resource set and can’t be applied selectively, so this would require editing the books.bib file.

A more consistent approach would be to fallback on the category. This means that the category field needs to be set. There are two simple ways to achieve this: use category={same as base} (which sets the category to books for entries in books.bib and to films for entries in films.bib) or alias the custom identifier field to category. I’ve chosen the latter method and also provided aliases for the custom year and cast fields:

field-aliases={identifier=category,year=user1,cast=user2}, identical-sort-action={category}
This ensures that books always come before films with the same title. An oddity is the film “Whisky Galore!” which is one character different from the book “Whisky Galore” but the default locale collator ignores punctuation so the two titles are considered identical by the collator (but not by sort-suffix={non-unique}). If a letter comparison was used instead, they would no longer be considered identical, but in this case the film would still be placed after the book since the film title is longer.

Since I’ve set the category I can provide semantic formatting commands (as for sample-bacteria.tex):

\newcommand*{\bookfont}[1]{\textit{#1}}
\newcommand*{\filmfont}[1]{\textsf{\textit{#1}}}
\glssetcategoryattribute{book}{textformat}{bookfont}
\glssetcategoryattribute{book}{glossnamefont}{bookfont}
\glssetcategoryattribute{film}{textformat}{filmfont}
\glssetcategoryattribute{film}{glossnamefont}{filmfont}

I’ve given films a slightly different format to make them easier to distinguish from books of the same name.

Both books.bib and films.bib had the custom year field, indicating the year of first publication or release, which I’ve assigned to the user1 field. I can define post-name hooks for each category to append the year in brackets after the name is displayed in the glossary:

\newcommand*{\glsxtrpostnamebook}{\ifglsfield{user1}{\glsentrylabel}{published \glscurrententryvalue}}
\newcommand*{\glsxtrpostnamefilm}{\ifglsfield{user1}{\glsentrylabel}{released \glscurrententryvalue}}

As with the post-description hook, if you have at least glossaries-extra v1.31, it’s better to use:

\glsdefpostname{⟨category⟩}

instead of:

\newcommand{\glsxtrpostname{⟨category⟩}}

as it can guard against accidental misspelling of the glsxtrpostname part of the command name.

I’ve assigned the cast field to the user2 field, and since this field uses \LaTeX’s contributor markup I need to convert this to a form that’s easier to customize:
I'm not sorting by this field and it would look better in the document to list the forenames before the surname so I've also done:

contributor-order={forenames}

Since I have at least version 2.28 of datatool-base installed, the list will be formatted using \DTLformatlist. If I want an Oxford comma, I need to redefine \DTLlistformatoxford in the document:

\renewcommand*{\DTLlistformatoxford}{,}

If I want to change “&” to “and” I also need to redefine \DTLandname:

\renewcommand*{\DTLandname}{and}

If \DTLformatlist isn’t defined (datatool-base v2.27 or earlier), the cast list will look a little odd as it uses a comma separator between all elements of this list, including the final pair (so there’s no final & or “and”).

I’ve provided a post-description hook \glsxtrpostdesc to append the cast list:

\newcommand*{\glsxtrpostdescfilm}{%
  \ifglsisfield{user2}{\glscurrententrylabel}%
  {
    \glsxtrrestorepostpunc % requires glossaries-extra v1.23+
    \textit{featuring \glscurrentfieldvalue}
  }
%
}%
%
}

This uses \glsxtrrestorepostpunc to restore the post-description punctuation if it was suppressed with \glsxtrnopostpunc. This means that if I decide not to include the user2 field then the post-description punctuation will be revert back to being suppressed for entries containing \glsxtrnopostpunc in the description field.

I haven’t referenced any of the entries in the main body of the document, so I’ve used selection={all} to select all entries. This means that there are no number lists on the first document build (\LaTeX+\bib2gls+\LaTeX) but the next build would show locations for the books that have been referenced by the film entries. Since this looks a bit odd, I’ve added save-locations={false} to prevent \bib2gls from saving the locations.

I’ve used a style that shows letter group headings so I need to use the --group switch. The complete document code is listed below. The document build is:

\pdflatex sample-media
\bib2gls --group sample-media
\pdflatex sample-media

The four pages of the document are shown in figure 8.9.
\documentclass[11pt,a4paper]{report}

\usepackage[T1]{fontenc}
\usepackage[colorlinks]{hyperref}
\usepackage[record,% using bib2gls
  nostyles,% don't load default styles
  postdot,% append a dot after descriptions
  stylemods={list},% load glossary-list.sty and fix styles
  style=altlistgroup]{glossaries-extra}

\GlsXtrLoadResources[
  src=no-interpret-preamble,
  interpret-preamble=false
]

\GlsXtrLoadResources[
  src={interpret-preamble,books,films},
  field-aliases={identifier=category,year=user1,cast=user2},
  bibtext-contributor-fields={user2},
  contributor-order={forenames},
  identical-sort-action={category},
  save-locations=false,
  selection=all
]

% requires datatool-base.sty v2.28+:
\renewcommand*{\DTListformatOxford}{},
\renewcommand*{\DTLandname}{and}

\newcommand*{\bookfont}[1]{{\textbf{#1}}}
\newcommand*{\filmfont}[1]{{\textsl{\textit{#1}}}}
\glssetcategoryattribute{book}{textformat}{bookfont}
\glssetcategoryattribute{book}{glossnamefont}{bookfont}
\glssetcategoryattribute{film}{textformat}{filmfont}
\glssetcategoryattribute{film}{glossnamefont}{filmfont}

\newcommand*{\glsxtrpostnamebook}{%
  \ifglsShasfield{user1}\{\glsCurrentEntryLabel\%
  {\space(published \glsCurrentFieldvalue)\%
  \}%
}}

\newcommand*{\glsxtrpostnamefilm}{%
  \ifglsShasfield{user1}\{\glsCurrentEntryLabel\%
}
8 Examples: sample-people.tex

\{\space (released \glscurrentfieldvalue)\}\%
\%
\}

\texttt{newcommand*{\glsxtrpostdescfilm}{\%
  \ifglshasfield{user2}{\glscurrententrylabel}{\%
    \glsxtrrestorepostpunc \ requires glossaries-extra v1.23+ \ featuring \glscurrentfieldvalue
  \}\%
\}}\%

\begin{document}
\printunsrtglossaries
\end{document}

This example uses the files people.bib, no-interpret-preamble.bib and interpret-preamble.bib. The aim here is to have a list of people ordered alphabetically by surname with a brief description, the same list ordered by date of birth and an index of all the people without their details but with a number list indicating where that person was mentioned in the document. The first two lists shouldn’t include aliases but the index should. Not all the entries defined in people.bib are included in the document. Those that aren’t either explicitly referenced or aliased are filtered by the selection criteria. I’ve used a style that shows letter group headings so I need to use the --group switch.

Since this is just an example document all the \texttt{gls} commands only occur on page 1, which means that each number list is just “1”. A real document would have the references scattered about. The aliases haven’t actually been referenced anywhere in the document.

The \texttt{born}, \texttt{died} and \texttt{othername} fields will be ignored by default since they don’t correspond to recognised keys, so the keys either need to be defined or the fields need to be mapped to existing keys. In this case I’ve decided to map them to the \texttt{user1}, \texttt{user2} and \texttt{user3} fields using \texttt{field-aliases}:

\texttt{field-aliases={\texttt{born=\texttt{user1},\texttt{died=\texttt{user2},\texttt{othername=\texttt{user3}}}}}

Although the aliases haven’t been referenced in the document, I’ve taken into account the possibility that they might later be added. To prevent them from showing in the first two lists I’ve filtered them out. This is easy to do since the aliases are all defined using \texttt{@index} whereas the remaining (non-aliased) entries are defined using \texttt{@entry} so \texttt{match} can be used to only select entries defined with \texttt{@entry}:

\texttt{match={\texttt{entrytype=\texttt{entry}}}}
Glossary

B
The Big Sleep (published 1939)
A film based on the novel The Big Sleep featuring Humphrey Bogart and Lauren Bacall.
The Big Sleep (released 1946)
A film based on the novel The Big Sleep featuring Humphrey Bogart and Lauren Bacall. 
Robbie Ryan (published 1962)
A black-and-white film based on the novel Dr. Anthrom Brown's Electric Sheep? (published 1948) starring Bruce Yarnell and Don Young.

D
Do Androids Dream of Electric Sheep? (published 1968)
A film loosely based on the novel Do Androids Dream of Electric Sheep? featuring Richard Harris and Willem Dafoe.

H
The Hobbit (published 1937)
A novel by J.R.R. Tolkien.
The Hobbit: The Battle of Five Armies (released 2014)
A film based on the novel The Hobbit featuring Ian McKellen, Martin Freeman, and Richard Armitage.
The Hobbit: The Desolation of Smaug (released 2013)
A film based on the novel The Hobbit featuring Ian McKellen, Martin Freeman, and Richard Armitage.
The Hobbit: An Unexpected Journey (released 2012)
A film based on the novel The Hobbit featuring Ian McKellen, Martin Freeman, and Richard Armitage.

I
Ice Station Zebra (published 1963)
A novel by Alistair MacLean.

M
The Lord of the Rings: The Fellowship of the Ring (published 1954)
A novel by J.R.R. Tolkien.
The Lord of the Rings: The Return of the King (released 2003)
The Lord of the Rings: The Two Towers (released 2002)

W
Where Eagles Dare (published 1967)
A novel by Alistair MacLean.

8 Examples: sample-people.tex

Figure 8.9: sample-media.pdf
I’d like the first use of \gls to display the full name, except for the entry that has the \texttt{first} field set. The remaining entries only have \texttt{text} set to a shortened version of the name so they need to have the \texttt{name} field copied to the \texttt{first} field using \texttt{replicate-fields}:

\texttt{replicate-fields={name={first}}}

I’d like the first use to show the other name in parentheses where provided. The simplest way to achieve this is by defining the post-link hook \texttt{\glsxtrpostlink\texttt{\textlangle category \textrangle}}. If the \texttt{category} field isn’t specified it will default to \texttt{general} (for entries defined with \texttt{@entry}), so I could just define \texttt{\glsxtrpostlinkgeneral} but to allow for the possibility of extending the document to incorporate other types of entries I decided to set the \texttt{category} to \texttt{people} through the use of the \texttt{category} option:

\texttt{category={people}}

This means that I now need to define a command called \texttt{\glsxtrpostlinkpeople} that will be used after instances of \texttt{\gls etc} where the entry has the \texttt{category} set to \texttt{people}. This first tests if that was the first use of the entry with \texttt{\glsxtrifwasfirstuse} and then tests if the \texttt{user3} field is set. If so, it does a space followed by that field’s value in parentheses. The entry’s label can be obtained from \texttt{\glslabel}:

\texttt{\newcommand*{\glsxtrpostlinkpeople}{\%
\glsxtrifwasfirstuse
{\%
  \ifglshasfield{user3}{\glslabel}\%
  \{\space(\glscurrentfieldvalue)\}\%
{\%
}{\%
}}}}

I’d also like to do something similar after the name when the entry is displayed in the glossary. This means defining the post-name hook \texttt{\glsxtrpostname\texttt{\textlangle category \textrangle}}, in this case \texttt{\glsxtrpostnamepeople}. The entry’s label is referenced with \texttt{\glscurrententrylabel}:

\texttt{\newcommand*{\glsxtrpostnamepeople}{\%
\ifglshasfield{user3}{\glscurrententrylabel}\%
{\space(\glscurrentfieldvalue)\%}
{\%
}}}

(A different command is used since \texttt{\gls} may occur in the description, which would interfere with the current entry label if they shared the same command to reference the label.)

The post-description hook can be used to append the birth and death dates. Although all the entries that have been selected from \texttt{people.bib} have a \texttt{died} field, I’ve added a check for the corresponding \texttt{user3} field in case new references are added for people who are still alive:
8 Examples: *sample-people.tex*

\newcommand*{\glsxtrpostdescpeople}{%
% born
  \space(\glscurrentfieldvalue\,--,\%
  \ifglshasfield{user1}{\glscurrententrylabel}%
    \space(\glscurrentfieldvalue
    \ifglshasfield{user2}{\glscurrententrylabel}
    \space(\glscurrentfieldvalue
  )%
  )%
%
% died
}%
%
}%
%
%
%
}

The first list is quite straight-forward and can be created with:

\GlsXtrLoadResources[
  src={people},
  match={entrytype=entry},
  category={people},
  replicate-fields={name={first}},
  field-aliases={born=user1,died=user2,othername=user3}
]

I have used the \texttt{sort} option and there's no document language, so\texttt{bib2gls} will sort according to my locale. The custom commands \texttt{\sortname} and \texttt{\sortvonname} ensure that the entries are all sorted alphabetically according to the surnames.

The second list can easily be created by adding the \texttt{secondary} option:

\begin{verbatim}
secondary={date:user1:bybirth}
\end{verbatim}

This sorts according to the \texttt{user1} field (which was originally the \texttt{birth} field). Note that different locales have different default date formats. There may also be a difference in the default date format depending on the Java locale provider. For example, if you switch from using the \texttt{jre} to using the \texttt{cldr} you may find a change in the default format. In case the format provided in the .\texttt{bib} file isn't recognised, the required format can be set with:

\begin{verbatim}
secondary-date-sort-format={d MMM YYYY G}
\end{verbatim}

I've changed the date group headings by redefining \texttt{\bibglsdategroup} and \texttt{\bibglsdategrouptitle}, which means that the grouping in the bybirth glossary will be in the form ⟨\texttt{year}⟩ ⟨\texttt{era}⟩:

\begin{verbatim}
\newcommand{\bibglsdategroup}[7]{#1#4#7}
\newcommand{\bibglsdategrouptitle}[7]{\number#1 \ #4}
\end{verbatim}

I've also defined the bybirth glossary and supplied a title:
\newglossary*{bybirth}{People (Ordered by Birth)}

The first two glossaries have entries with fairly long names (especially those with the post-name hook), so the best style is the altlistgroup. The glossaries-extra-stylemods package patches this style to discourage page breaks occurring after group headings, so I’ve also used the stylemods option to automatically load that package. I’d like to use the bookindex style for the index, which is provided by glossary-bookindex, so I need:

\texttt{stylemods=\{list,bookindex\}}

This ensures that glossary-list and glossary-bookindex are loaded and patches the list styles.

The first two glossaries would look better with a terminating full stop, so I’ve used the \texttt{postdot} package option. (The bookindex style doesn’t use the \texttt{description} field and therefore doesn’t use the post-description hook.) The index glossary type can be defined with the \texttt{index} package option. I’ve set the default style to altlistgroup but this can locally be changed to bookindex when I display the index. The \texttt{record} option is needed to use \texttt{bib2gls}, so the glossaries-extra package is loaded with:

\texttt{\textbackslash usepackage\{record,\% using \texttt{bib2gls} index,\% create index glossary postdot,\% dot after descriptions % load glossary-list.sty and glossary-bookindex.sty and patch: stylemods=\{list,bookindex\}, style=\{altlistgroup\}\}
\{glossaries-extra\}}

The index needs to include all the entries that have already been defined but also needs to include the aliased entries. This means that existing entries simply need their label copied to the index glossary but the other entries need to be defined so this requires setting the \texttt{action} option:

\texttt{action=\{define or copy\}}

I would also like to have groups in the index (which the bookindex style supports) so I need to specify a field in which to save the group information using \texttt{copy-action-group-field}:

\texttt{copy-action-group-field=\{indexgroup\}}

I need to remember to redefine \texttt{\glsxtrgroupfield} to this value before displaying the index:

\texttt{\renewcommand\{\glsxtrgroupfield\}\{indexgroup\}}

The aliased entries won’t be selected by default since they haven’t been used in the document, so I need to change the selection criteria with \texttt{selection}:

\texttt{selection=\{recorded and deps and see\}}
In the index, I’d like the surnames first. This can be done by redefining the custom commands used in the name fields. There’s a slight complication here. These commands aren’t defined on the first \LaTeX run as their definitions are written to the .glistex file by bib2gls, so I can’t use \renewcommand (although I could use \glsrenewcommand). Instead I’ve provided some custom commands:

\newcommand*{\swaptwo}[2]{#2, #1}
\newcommand*{\swapthree}[3]{#2 #3, #1}

Now I just need to make an assignment using \let:

\let\sortname\swaptwo
\let\sortart\swaptwo
\let\sortvonname\swapthree

This doesn’t perform any check to determine if the commands are already defined so there won’t be a problem on the first run.

The first two glossaries shouldn’t have number lists:

\printunsrtglossary[title={People (Alphabetical)},nonumberlist]
\printunsrtglossary[type={bybirth},target={false},nonumberlist]

I’d like to use hyperref but I have to switch off the hypertargets for the second glossary otherwise I’ll end up with duplicate targets. This is done with target={false}. All references using \gls etc will link to the first glossary.

I could also do this for the index but the cross-references in the aliased entries will link to the first glossary rather than the relevant entry in the index. The simplest way to fix this is to redefine \glolinkprefix to provide a different target:

\renewcommand*{\glolinkprefix}{idx:}

These redefinitions need to be done before the index. I’ve decided to use the starred \printunsrtglossary* to localise these changes, although that’s not needed for this document since the index comes right at the end:

\printunsrtglossary*[type={index},style={bookindex}]
{%
\let\sortname\swaptwo
\let\sortart\swaptwo
\let\sortvonname\swapthree
\renewcommand{\glsxtrgroupfield}{indexgroup}%
\renewcommand*{\glolinkprefix}{idx:%
%
}

The complete document code is listed below. The document build is:
pdflatex sample-people
\bib2gls --group --break-space sample-people
pdflatex sample-people

The four pages of the document are shown in figure 8.10.
\documentclass[12pt,a4paper]{report}

\usepackage[colorlinks]{hyperref}
\usepackage[record,% using bib2gls
    index,% create index glossary
    postdot,% dot after descriptions
    % load glossary-list.sty and glossary-bookindex.sty and patch:
% stylemods={list,bookindex},
% style=altlistgroup]{glossaries-extra}

\newglossary*{bybirth}{People (Ordered by Birth)}
\newcommand{\bibglsdategroup}[7]{#1#4#7}
\newcommand{\bibglsdategrouptitle}[7]{\number\#1\ \#4}
\newcommand*{\swaptwo}[2]{#2, #1}
\newcommand*{\swapthree}[3]{#2 #3, #1}
\GlsXtrLoadResources[
    src=no-interpret-preamble,
    interpret-preamble=false
]
\GlsXtrLoadResources[
    src={interpret-preamble,people},
    match={entrytype=entry},
    category={people},
    replicate-fields={name={first}},
    field-aliases={born=user1,died=user2,othername=user3},
    secondary={date:user1:bybirth},
    secondary-date-sort-format={d MMM YYYY G}
]
\GlsXtrLoadResources[
    src={people},
    type=index,
    category=people,
    action={define or copy},
    copy-action-group-field={indexgroup},
    selection={recorded and deps and see}
]
\newcommand*{\glsxtrpostlinkpeople}{%}
\glsxtrifwasfirstuse
{%
  \ifglshasfield{user3}{\glslabel}%
  {\space(\glscurrentfieldvalue)}%
  {}}%
%
}

\newcommand*{\glsxtrpostnamepeople}{%}
\ifglshasfield{user3}{\glscurrententrylabel}%
{\space(\glscurrentfieldvalue)}%
{}}%
}

\newcommand*{\glsxtrpostdescpeople}{%}
\ifglshasfield{user1}{\glscurrententrylabel}
{\% born
  \space(\glscurrentfieldvalue\,--\,,%}
  \ifglshasfield{user2}{\glscurrententrylabel}{%
    \% died
    \glscurrentfieldvalue
  }%
  {}}%
}%
%
}

\begin{document}
\chapter{Sample}
\section{First Use}
\gls{caesar}, \gls{wellesley}, \gls{bonaparte}, \gls{vonrichthofen} and \gls{alexander}.

\section{Next Use}
\gls{caesar}, \gls{wellesley}, \gls{bonaparte}, \gls{vonrichthofen} and \gls{alexander}.

\printunsrtglossary[title={People (Alphabetical)},nonumberlist]
\printunsrtglossary[type=bybirth,target=false,nonumberlist]
This example uses the files people.bib, books.bib, no-interpret-preamble.bib and interpret-preamble2.bib. The aim is to reference the books in books.bib and have them listed by author. This means finding a way of assigning each book entry a parent field that contains the label identifying the relevant author in people.bib. I’ve used a style that shows letter group headings so I need to use the --group switch.

To recap, each author is defined in people.bib in the form:

```latex
@entry{dickens,
  name={\sortname{Charles}{Dickens}},
  text={Dickens},
  description={English writer and social critic},
  born={7~February 1812 AD},
  died={9~June 1870 AD},
  identifier={person}
}
```

and each book is defined in books.bib in the form:

```latex
@entry{bleakhouse,
  name={Bleak House},
  description={novel by Charles Dickens},
  identifier={book},
  author={\sortmediacreator{Charles}{Dickens}},
  year={1852}
}
```

There’s a field here (the custom author field) that contains the author’s name, and this can be aliased to the parent field with field-aliases:

```latex
field-aliases={author=parent}
```

but the author’s label in the people.bib file is just the lower case surname.
Chapter 1
Sample

1.1 First Use
Julius Caesar, Arthur Wellesley (1st Duke of Wellington), Napoleon Bonaparte, Manfred von Richthofen (The Red Baron) and Alexander III of Macedon (Alexander the Great).

1.2 Next Use
Caesar, Wellington, Bonaparte, von Richthofen and Alexander.

People (Alphabetical)

A
Alexander III of Macedon (Alexander the Great)
Ancient Greek king of Macedon (20 July 356 BC – 10 June 323 BC).

B
Bonaparte, Napoleon
French military and political leader (15 July 1769 AD – 5 May 1821 AD).

C
Caesar, Gaius Julius
Roman politician and general (13 July 100 BC – 15 March 44 BC).

V
Von Richthofen, Manfred (The Red Baron)
Prussian ace fighter pilot in the German Air Force during World War I (2 May 1892 AD – 21 April 1918 AD).

W
Wellesley, Arthur (1st Duke of Wellington)
Anglo-Irish soldier and statesman (1 May 1769 AD – 14 September 1852 AD).

People (Ordered by Birth)

357 BC
Alexander III of Macedon (Alexander the Great)
Ancient Greek king of Macedon (20 July 356 BC – 10 June 323 BC).

100 BC
Caesar, Gaius Julius
Roman politician and general (13 July 100 BC – 15 March 44 BC).

1769 AD
Bonaparte, Napoleon
French military and political leader (15 July 1769 AD – 5 May 1821 AD).

1892 AD
Von Richthofen, Manfred (The Red Baron)
Prussian ace fighter pilot in the German Air Force during World War I (2 May 1892 AD – 21 April 1918 AD).

Wellesley, Arthur (1st Duke of Wellington)
Anglo-Irish soldier and statesman (1 May 1769 AD – 14 September 1852 AD).

Index

A
Alexander III of Macedon
(Alexander the Great), 1
Alexander the Great, see Alexander III of Macedon

B
Bonaparte, Napoleon, 1

C
Caesar, Gaius Julius, 1

V
Von Richthofen, Manfred (The Red Baron), 1

W
Wellesley, Arthur (1st Duke of Wellington), 1
Wellington, see Wellesley, Arthur

Figure 8.10: sample-people.pdf
8 Examples: sample-authors.tex

Remember from chapter 2 that the interpreter will be used on the parent field if the value contains \ or { or } and interpret-label-fields={true}. This means that with this field alias and the interpreter on, bib2gls will attempt to interpret the field contents. So all that’s needed is to ensure that bib2gls is given a definition of \sortmediacreator that ignores the first argument and converts the second argument to lower case. This definition is available in interpret-preamble2.bib but, since this file uses \renewcommand rather than \providecommand, write-preamble={false} is required to prevent \LaTeX{} from picking up this definition.

As with the sample-people.tex example, I need to copy the name field to the first field if that field is missing using replicate-fields:

replicate-fields={name={first}}

and I also want to provide a semantic command to format the book title, so the field aliases also need to convert the custom identifier field to category:

field-aliases={identifier=category,author=parent}

so that the document can set the textformat and glossnamefont attributes:

\newcommand*{\bookfont}[1]{\emph{#1}}
\glssetcategoryattribute{book}{textformat}{\bookfont}
\glssetcategoryattribute{book}{glossnamefont}{\bookfont}

As with sample-media.tex, the terminating question mark at the end of some of the name fields can cause an awkward situation if \gls{} is used at the end of a sentence. This can be dealt with by getting bib2gls to make a note of the fields that end with sentence-terminating punctuation through the use of the check-end-punctuation option. In this example, the name, text and first fields are the same for all the books, so it’s sufficient just to check the name field:

check-end-punctuation={name}

With glossaries-extra v1.23+ it’s easy to hook into the post-link hook to check if nameendpunc exists:

\renewcommand*{\glsxtrifcustomdiscardperiod}[2]{% 
\glsXtrIfFieldUndef{nameendpunc}{\glslabel}{#2}{#1}%%
}%

This will now cause the full stops following:
\gls{whydidnttheyaskevans}.

and
\gls{doandroidsdreamofelectricsheep}.
to be discarded.

The complete document code is listed below. The document build is:

```latex
pdflatex sample-authors
bib2gls --group sample-authors
pdflatex sample-authors
```

The resulting document is shown in figure 8.11.

```latex
\documentclass[12pt,a4paper]{article}
\usepackage[colorlinks]{hyperref}
\usepackage[record, % using bib2gls
nostyles, % don't load default styles
stylemods={bookindex}, % load glossary-bookindex and patch styles
style=bookindex]{glossaries-extra}
\GlsXtrLoadResources[
  src=no-interpret-preamble,
  interpret-preamble=false
]
\GlsXtrLoadResources[
  src={interpret-preamble2,people,books},
  write-preamble=false,
  interpret-label-fields,
  field-aliases={identifier=category,author=parent},
  check-end-punctuation={name},
  replicate-fields={name={first}}
]
\newcommand*{\bookfont}[1]{\emph{#1}}
\glssetcategoryattribute{book}{textformat}{\bookfont}
\glssetcategoryattribute{book}{glossnamefont}{\bookfont}

% requires glossaries-extra v1.23
\renewcommand*{\glsxtrifcustomdiscardperiod}[2]{%
  \GlsXtrIfFieldUndef{nameendpunc}{\glslabel}{#2}{#1}%
}
\begin{document}
\section{Sample}
\gls{ataleoftwocities}. \gls{bleakhouse}. \gls{thebigsleep}. \gls{thelonggoodbye}. \gls{redharvest}. \gls{murderontheorientexpress}. \gls{whydidnttheyaskevans}. \gls{icecoldinalex}. \gls{thehobbit}. \gls{thelordoftherings}. \gls{thewonderfulwizardofoz}. \gls{whiskygalore}.
```

428
\gls{whereeaglesdare}. \gls{icestationzebra}. \gls{ubik}. 
\gls{doandroidsdreamofelectricsheep}. \gls{thetroublewithharry}. 
\gls{brightonrock}.

\printunsrtglossary[title={Author and Book List}]
\end{document}

\texttt{sample-citations.tex}

This example uses the \LaTeX{} file \texttt{citations.bib} to create a document that has both a bibliography created by \LaTeX{} and glossaries created by \texttt{bib2gls} listing the authors and the titles. There are no glossary reference commands, such as \gls{}, but \texttt{bib2gls} can be run with \texttt{--cite-as-record} to treat the \citation{} commands (written to the .aux file by \cite) as ignored records. Since \cite doesn't record the page number, there are no associated locations.

The main glossary isn't required, so I've used \texttt{nomain} to suppress its creation. I want to use both the \texttt{altlist} and \texttt{indexgroup} styles but none of the other styles, so I've used \texttt{nostyles} to prevent the automatic loading of the default style packages and \texttt{stylemods} to load the \texttt{glossary-tree} and \texttt{glossary-list} packages and patch the styles. A full stop is automatically placed after the descriptions with \texttt{postdot}.

\usepackage[record,% using \texttt{bib2gls} 
\nomain,% don't define main glossary 
\postdot,% full stop after descriptions 
\nostyles,% don't load default styles 
\% load glossary-tree and glossary-list and patch styles: 
\stylemods={tree,list} 
]{glossaries-extra}

Next I need to create the glossaries for the list of authors and list of titles:

\newglossary*{contributors}{Authors} 
\newglossary*{titles}{Titles}

The simplest way of assigning the authors to the \texttt{contributors} glossary and the titles to the \texttt{titles} glossary is to use:

\texttt{type={contributors}}

in the resource set and provide a modified version of \texttt{\bibglsnewbibtexentry} that assigns \texttt{type} after the options:

\newcommand{\\bibglsnewbibtexentry}[4]{% 
\longnewglossaryentry*{#1}{name={#3},#2,\texttt{type={titles}}}{#4} %
}
1 Sample


Author and Book List

B
Lyman Frank Baum
The Wonderful Wizard of Oz, 1

C
Raymond Chandler
The Big Sleep, 1
The Long Goodbye, 1

Dame Agatha Mary Clarissa Christie
Murder on the Orient Express, 1
Why Didn’t They Ask Evans?, 1

D
Philip K. Dick
Do Androids Dream of Electric Sheep?, 1
Ubik, 1

Charles Dickens
Bleak House, 1
A Tale of Two Cities, 1

G
Henry Graham Green
Brighton Rock, 1

H
Samuel Dashiel Hammett
Red Harvest, 1

L
Christopher Guy Landon
Ice Cold in Alex, 1

M
Compton Mackenzie
Whisky Galore, 1
Alistair MacLean
Ice Station Zebra, 1
Where Eagles Dare, 1

S
Jack Trevor Story
The Trouble with Harry, 1

T
John Ronald Reuel Tolkien
The Hobbit, 1
The Lord of the Rings, 1

Figure 8.11: sample-authors.pdf
The standard \LaTeX entry types need aliasing to \texttt{@bibtexentry}:

\begin{verbatim}
entry-type-aliases={\texttt{\LaTeXBibTeXEntryAliases}}
\end{verbatim}

and the \texttt{title} field is aliased to \texttt{name}:

\begin{verbatim}
field-aliases={title=name}
\end{verbatim}

(The other fields aren’t required for the glossary lists.) The \texttt{category} is set to the original entry type:

\begin{verbatim}
category={same as original entry}
\end{verbatim}

So, for example, an entry that’s provided in the \texttt{.bib} file with \texttt{@article} has the \texttt{category} field set to \texttt{article}. (Compare this with \texttt{category={same as entry}} which would set the \texttt{category} to \texttt{bibtexentry}. The spawned entries are all defined using \texttt{@contributor} and aren’t aliased so both the entry type and the original entry type are \texttt{contributor}.

In order to list the titles according to category, I’ve use this as the sort field:

\begin{verbatim}
sort-field={category}
\end{verbatim}

and setting the sort suffix to the \texttt{name} field sub-sorts the \texttt{@bibtexentry} types according to the title (which was aliased to the \texttt{name}) and the \texttt{@contributor} types according to the author:

\begin{verbatim}
sort-suffix={name}
\end{verbatim}

Next the groups identified by the labels \texttt{article} and \texttt{book} are assigned titles.

\begin{verbatim}
\glsxtrsetgrouptitle{article}{Articles}
\glsxtrsetgrouptitle{book}{Books}
\end{verbatim}

The \texttt{group} field is actually set to the associated letter by the default \texttt{sort} method. The desired labels are stored in the \texttt{category} field. Since the entries are sorted by category, then they are naturally in those sub-blocks, which means that the group titles can be set by locally redefining \texttt{\LaTeXGroupField} to \texttt{category}:

\begin{verbatim}
\printunsrtglossary*[type={titles},style={indexgroup}]
{%
 \renewcommand{\LaTeXGroupField}{category}%
 \renewcommand{\LaTeXEnumName}[1]{\textbf{#1}}%
 \renewcommand{\LaTeXEnumGroupHeaderfmt}[1]{\textbf{#1}}%
}%
\end{verbatim}

This again contradicts the advice given in section 1.2 as I’m sorting by the \texttt{group} label. (Technically it’s sorting by the \texttt{category} label but this is being used as the group.) In this case it’s not a problem as the labels closely match the titles and the sorting options ensure that the groups aren’t broken up.

There’s no \texttt{description} field set for these entries, but the post-description hook can still be used to append information. In this case, I’ve appended a cross-reference to the bibliography. Since the bibliography entry and the glossary term both have the same label, the citation can easily be obtained with \texttt{\cite{\LaTeXCurrentEntryLabel}}:
8 Examples: sample-citations.tex

\newcommand{\glsxtrpostdescarticle}{\cite{\glscurrententrylabel}}
\newcommand{\glsxtrpostdescbook}{\cite{\glscurrententrylabel}}

Note that this needs to be done for each \TeX entry type, but in this case the .bib file only contains \texttt{@article} and \texttt{@book} entries. (Similarly for the group titles above.)

The list of contributors can simply be displayed with:

\printunsrtglossary[type={contributors},style={altlist}]

This will only list the names as there’s no description, but again the post-description hook can be used, in this case for the contributor category. The hook iterates over the internal list provided by the \texttt{bibtexentry} field. This allows the titles to be listed as well:

\newcommand{\glsxtrpostdescontributor}{%
  \glsxtrifhasfield{bibtexentry}{\glscurrententrylabel}{%
    \glsxtrfieldforlistloop
    {\glscurrententrylabel}{bibtexentry}%
    {\contributorhandler}%
  }%
  {\par No titles.}%
}

The handler macro displays the name of the associated \texttt{bibtexentry} term and the citation:

\newcommand{\contributorhandler}[1]{\par\glsentryname{#1} \cite{#1}}

The complete document code is listed below. The document build is:

dlatex sample-citations
bib2gls --cite-as-record sample-citations
bibtex sample-citations
pdflatex sample-citations
pdflatex sample-citations

The resulting document is shown in figure 8.12.
\newglossary*{titles}{Titles}
\newcommand{\bibglsnewbibtexentry}[4]{\longnewglossaryentry*[#1]{name={#3},#2,type={titles}}{#4} }
\GlsXtrLoadResources[src={citations}, % data in citations.bib
entry-type-aliases={\GlsXtrBibTeXEntryAliases},
field-aliases={
title=name },
type={contributors},
category={same as original entry},
sort-field={category},
sort-suffix={name}]
\glsxtrsetgrouptitle{article}{Articles}
\glsxtrsetgrouptitle{book}{Books}
\newcommand{\contributorhandler}[1]{\par\glsentryname{#1} \cite{#1}}
\newcommand{\glsxtrpostdesccontributor}{\par\ifhasfield{bibtexentry}{\glscurrententrylabel}\
\glsxtrfieldforlistloop{\glscurrententrylabel}{bibtexentry}\
{\contributorhandler}\
{\par No titles.}}
\newcommand{\glsxtrpostdescarticle}{\cite{\glscurrententrylabel}}
\newcommand{\glsxtrpostdescbook}{\cite{\glscurrententrylabel}}
\begin{document}
This is a sample document with some citations~\cite{macaw,parrot}
and some more citations~\cite{duck2018,duck2016} and don't
forget~\cite{ing,parrot2012} and lastly~\cite{quackalot}.
\printunsrtglossary[type=contributors,style=altlist]
\printunsrtglossary*[type=titles,style=indexgroup]
{%\renewcommand{\glsxtrgroupfield}{category}\%
\renewcommand{\glstreenamefmt}[1]{\emph{#1}}\%
}
This example uses bigmathsymbols.bib, mathsrelations.bib, binaryoperators.bib, unaryoperators.bib and mathgreek.bib. The stix package is required for some of the commands used in bigmathsymbols.bib, so that must be loaded in the document.

I’m using the mcolalttree style for this document, which means that the glossary–mcols package is required and the styles need patching, which can be done with the stylemods package option:

```
\usepackage[record,% using bib2gls
nostyles,% don’t load default styles
postdot,% append a dot after descriptions
```

Figure 8.12: sample-citations.pdf
I'm not referencing any of the entries in the document as I'm just generating a complete list of all the defined symbols. This means I need to tell bib2gls to select all entries and don't bother saving the location field:

```latex
save-locations={false},
selection={all}
```

Since I'm using a style that's based on alttree I need to find the widest name, which can be done with set-widest.

The simplest way of dividing the glossary into logical blocks is to sort according to the category, but first I need to use field-aliases to convert the custom identifier field to category:

```latex
field-aliases={identifier=category}
```

and sort by the category field:

```latex
sort-field={category}
```

Since this will cause identical sort values, I need to provide a way of ordering these identical values. Here I've decided to fallback on the description field:

```latex
identical-sort-action={description}
```

This means that entries will be ordered by category and then description, which naturally creates blocks of symbol types in the glossary. This only uses a simple case-sensitive string comparison which is fine for English, but for another language it would be better to use sort-suffix as in the sample-textsymbols2.tex file.

Remember that I want a small vertical gap between each logical block. These need the group field which, with the default locale sort, is obtained from the first letter of the sort value. In this case the sort value is obtained from the category field, and as each category happens to start with a different letter, this means I get the desired effect. However, in the event that I add more entries with a new category that happens to start with the same letter as an existing category, it's better to provide a more future-proof method, so I've set the group field to fetch its value from the category field:

```latex
replicate-fields={category=group}
```

(Since the field-aliases option is always performed before replicate-fields, the category field will already have been set and is available for replicating.)

This means that I'm essentially sorting by the group labels, which this manual has warned against doing. In this case, it's an acceptable break from that rule as I've used options that ensure the groups aren't broken up during sorting and I'm not concerned with the group titles. A method such as that used in sample-textsymbols2.tex would end up with titled blocks, which I don't want here. By using resource options such as field-aliases and replicate-fields I can avoid the warning that's triggered with the default --warn-non-bib-fields.

The complete document code is listed below. The document build is:
8 Examples: sample-maths.tex

\documentclass[a4paper]{article}
\usepackage[T1]{fontenc}
\usepackage{stix}
\usepackage[record,% using bib2gls
  nostyles,% don't load default styles
  postdot,% append a dot after descriptions
  stylemods={mcols},% load glossary-mcols.sty and patch
  style=mcolalttree]{glossaries-extra}
\GlsXtrLoadResources[
  src={bigmathsymbols,mathgreek,
    mathsrelations,binaryoperators,unaryoperators},
  sort-field={category},
  identical-sort-action={description},
  field-aliases={identifier=category},
  replicate-fields={category=group},
  set-widest,
  save-locations=false,
  selection=all
]
\begin{document}
\printunsrtglossaries
\end{document}

\texttt{sample-maths.tex}

This example uses bigmathsymbols.bib and mathsobjects.bib. It has a fairly similar
preamble to sample-msymbols.tex, but no-interpret-preamble.bib and interpret-
preamble.bib are now needed to provide the \texttt{\sortart} command:
\begin{verbatim}
\GlsXtrLoadResources[
  src={no-interpret-preamble},
  interpret-preamble={false}
]
\end{verbatim}

There's also an extra custom field to alias:
\begin{verbatim}
field-aliases={identifier=category,format=user1}
\end{verbatim}
Glossary

+ addition.
÷ division.
× multiplication.
− subtraction.
\( \oint \) contour integral.
\( \iint \) double integral.
\( \int \) integral.
\( \iiint \) surface integral.
\( \iiiint \) triple integral.
\( \iiivv \) volume integral.
\( \alpha \) alpha.
\( \beta \) beta.
\( \chi \) chi.
\( \delta \) delta.
\( \epsilon \) epsilon.
\( \varepsilon \) epsilon (variant).
\( \zeta \) zeta.
\( \eta \) eta.
\( \gamma \) gamma.
\( \iota \) iota.
\( \kappa \) kappa.
\( \lambda \) lambda.
\( \mu \) mu.
\( \nu \) nu.
\( \omega \) omega.
\( \omicron \) omicron.
\( \phi \) phi.
\( \varphi \) phi (variant).
\( \pi \) pi.
\( \varpi \) pi (variant).
\( \psi \) psi.
\( \rho \) rho.
\( \varrho \) rho (variant).
\( \sigma \) sigma.
\( \varsigma \) sigma (variant).
\( \tau \) tau.
\( \theta \) theta.
\( \vartheta \) theta (variant).
\( \upsilon \) upsilon.
\( \xi \) xi.
\( \zeta \) zeta.

\( n \)-ary circled dot operator.
\( n \)-ary circled plus operator.
\( n \)-ary circled times operator.
\( n \)-ary coproduct.
\( n \)-ary intersection.
\( n \)-ary logical and.
\( n \)-ary logical or.
\( n \)-ary product.
\( n \)-ary square intersection operator.
\( n \)-ary union operator.
\( n \)-ary summation.
\( n \)-ary union.
\( n \)-ary union operator with plus.

\( \approx \) approximately.
\( = \) equals.
\( > \) greater than.
\( \geq \) greater than or equal to.
\( \in \) in.
\( < \) less than.
\( \leq \) less than or equal to.
\( >> \) much greater than.
\( \ll \) much less than.
\( \neq \) not equals.
\( \notin \) not in.

\( ! \) factorial.
\( \forall \) for all.
\( - \) minus.
\( + \) plus.

Figure 8.13: sample-msymbols.pdf
I’ve aliased format to user1 since \glsxtrfmt defaults to that field. If I decided to use a different field I also need to remember to redefine \GlsXtrFmtField to match.

As with sample-msymbols.tex I’m sorting by the category label and this value is copied to the group field, but again I don’t have a hierarchical glossary as the logical blocks don’t have titles.

In this document I only want to select entries that have been indexed, so I’ve omitted the selection option I used in the sample-msymbols.tex example, however I still don’t want any number lists so I still have save-locations={false}.

I want \glsxtrfmt to index the term (which it doesn’t by default) so that means I need to redefine \GlsXtrFmtDefaultOptions to prevent it from using noindex:

\renewcommand{\GlsXtrFmtDefaultOptions}{}

I’ve provided some convenient wrapper commands that use \glsxtrfmt* or the non-linking \glsxtrentryfmt that are in the form:

\newcommand{\set}[2][]{\glsxtrfmt*[#1]{set}{#2}}
\newcommand{\nlset}[1]{\glsxtrentryfmt{set}{#1}}

The use of the starred form allows:

\[
\set{A} = \gls{bigcup}_{i=1}^n \set{B}_i
\]

which produces:

$$A = \bigcup_{i=1}^n B_i$$

Note the difference if the optional arguments aren’t used:

\[
\set{A} = \gls{bigcup}_{i=1}^n \set{B}_i
\]

This produces:

$$A = \bigcup_{i=1}^n B_i$$

Be careful with the set cardinality example. You might be tempted to nest \set within the argument of \setcard but this results in nested hyperlinks. These are unpredictable and there’s no consistent handling of them between different PDF viewers. It can also be confusing to the reader. If $|B_1 \cup B_2|$ shows up as what appears to be a single hyperlink, where would the reader expect the target? This is the reason for providing the non-linking commands like \nlset and \nlsetcard.

The complete document code is listed below. The document build is:

dflatex sample-maths
bib2gls sample-maths
dflatex sample-maths

The resulting document is shown in figure 8.14.
8 Examples: sample-maths.tex

\documentclass[a4paper]{article}
\usepackage[T1]{fontenc}
\usepackage{amssymb}
\usepackage[record, % using bib2gls
nostyles,% don't load default styles
postdot,% append a dot after descriptions
stylemods={mcols},% load glossary-mcols.sty and patch
style=mcolalttree]{glossaries-extra}
\GlsXtrLoadResources[
   src={no-interpret-preamble},
   interpret-preamble=false
]
\GlsXtrLoadResources[
   src={interpret-preamble,bigmathsymbols,mathsobjects},
   sort-field={category},
   identical-sort-action={description},
   field-aliases={identifier=category,format=user1},
   replicate-fields={category=group},
   set-widest,
   save-locations=false
]
\renewcommand{\GlsXtrFmtDefaultOptions}{}% requires glossaries-extra.sty v1.23+
\newcommand{\set}[2][]{\glsxtrfmt*[#1]{set}{#2}}
\newcommand{\nlset}[1]{\glsxtrfmtset{#1}}
\newcommand{\setcontents}[2][]{\glsxtrfmt*[#1]{setcontents}{#2}}
\newcommand{\setmembership}[2][]{\glsxtrfmt*[#1]{setmembership}{#2}}
\newcommand{\setcard}[2][]{\glsxtrfmt*[#1]{setcard}{#2}}
\newcommand{\nlsetcard}[1]{\glsxtrfmtsetcard{#1}}
\newcommand{\transpose}[2][]{\glsxtrfmt*[#1]{transpose}{#2}}
\newcommand{\nltranspose}[1]{\glsxtrfmttranspose{#1}}
\newcommand{\inv}[2][]{\glsxtrfmt*[#1]{inverse}{#2}}
\newcommand{\nlinv}[1]{\glsxtrfmtinverse{#1}}
\newcommand{\Vtr}[2][]{\glsxtrfmt*[#1]{vector}{#2}}
\newcommand{\nlVtr}[1]{\glsxtrfmtvector{#1}}
\newcommand{\Mtx}[2][]{\glsxtrfmt*[#1]{matrix}{#2}}
\newcommand{\nlMtx}[1]{\glsxtrfmtmatrix{#1}}
\begin{document}
\section{Sets}
The universal set ($\gls{universalset}$) contains everything.
The empty set ($\gls{emptyset}$) contains nothing.
Some assignments:
\[
\set{B}[1] = \setcontents{1, 3, 5, 7},
\set{B}[2] = \setcontents{2, 4, 6, 8},
\set{B}[3] = \setcontents{9, 10}
\]
Define:
\[
\set{A} = \gls{bigcup}[{i=1}^3] \set{B}[i]
\]
The cardinality of a set \gls{set} is denoted \gls{setcard} and is the number of elements in the set.
\[
\setcard{\set{B}[1]} = 4,
\setcard{\set{B}[2]} = 4,
\setcard{\set{B}[3]} = 2,
\setcard{\set{B}[1] \cup \set{B}[2]} = 8,
\setcard{\gls{emptyset}} = 0
\]
\section{Spaces}
a number space (denoted $\gls{numberspace}$) is characterised by a set of entities with a set of axioms. For example:
\begin{align*}
\gls{naturalnumbers} &= \setmembership{x}{x\text{ is positive integer}}\\n\gls{integernumbers} &= \setmembership{x}{x\text{ is an integer}}\\n\gls{realnumbers} &= \setmembership{x}{x\text{ is a real number}}
\end{align*}
\section{Vectors and Matrices}
a matrix (denoted $\gls{matrix}$) is a rectangular array of values. A vector (denoted $\gls{vector}$) is a column or row of values (that is a one-dimensional matrix).
\[
\gls{identitymatrix}\Vtr{x} = \Vtr{x},
\Mtx{A}\inv{\Mtx{A}} = \gls{identitymatrix},
\inv{\nlVtr{x}}\gls{1vec} = \gls{sum}[i] x_i
\]
\printunsrtglossaries
8 Examples: sample-textsymbols.tex

\end{document}

sample-textsymbols.tex

This example uses \texttt{miscsymbols.bib}. This requires both \texttt{marvosym} and (with the \texttt{weather} option) \texttt{ifsym}. Unfortunately both define the commands \texttt{\textbackslash Sun} and \texttt{\textbackslash Lightning}, so these commands need to be undefined after the first package is loaded and before the second. Since I want the definitions provide by \texttt{ifsym} I have to first load \texttt{marvosym}, then undefine the conflicting commands and then load \texttt{ifsym}:

\usepackage{etoolbox}
\usepackage{marvosym}
\undef\Sun
\undef\Lightning
\usepackage[weather]{ifsym}

The \texttt{etoolbox} package is also loaded as it provides \texttt{\textbackslash undef}. (An alternative is to modify the \texttt{miscsymbols.bib} file so that it uses \texttt{ifsym}'s more generic \texttt{\textbackslash textweathersymbol} command and omit the \texttt{weather} option when loading the package, but the method used here demonstrates how to deal with such conflicts.)

The custom entry type \texttt{@icon} must be aliased for the entries to be recognised:

\texttt{entry-type-aliases={icon=symbol}}

Since none of the entries have a \texttt{name} or \texttt{description} field, the custom fields \texttt{icon} and \texttt{icondescription} need to be aliased to them. The document uses the \texttt{alttreegroup} style where the groups are obtained from the \texttt{category}, which again I obtain from the custom \texttt{identifier} field using:

\texttt{field-aliases={
  identifier=category,
  icon=name,
  icondescription=description},
replicate-fields={category=group}}

The \texttt{group} field is just a label and an appropriate title needs to be supplied for each group label:

\texttt{\glsxtrsetgrouptitle{information}{Information}}
\texttt{\glsxtrsetgrouptitle{mediacontrol}{Media Controls}}
\texttt{\glsxtrsetgrouptitle{weather}{Weather Symbols}}

This also requires sorting first by \texttt{category} and then fallback on another field. The most appropriate here is the \texttt{description} field, but instead of using \texttt{identical-sort-action}, I'm using \texttt{sort-suffix}, which works better with the default locale sort when the fallback field consists of words or phrases.
1 Sets
The universal set ($U$) contains everything. The empty set ($\emptyset$) contains nothing. Some assignments:

$$B_1 = \{1, 3, 5, 7\}, \quad B_2 = \{2, 4, 6, 8\}, \quad B_3 = \{9, 10\}$$

Define:

$$\mathcal{A} = \bigcup_{i=1}^{3} B_i = \{1, \ldots, 10\}$$

The cardinality of a set $S$ is denoted $|S|$ and is the number of elements in the set.

$$|B_1| = 4, \quad |B_2| = 4, \quad |B_3| = 2, \quad |B_1 \cup B_2| = 8, \quad |\emptyset| = 0$$

2 Spaces
A number space (denoted $\mathbb{S}$) is characterised by a set of entities with a set of axioms. For example:

$$\mathbb{N} = \{x : x \text{ is a positive integer}\}$$
$$\mathbb{Z} = \{x : x \text{ is an integer}\}$$
$$\mathbb{R} = \{x : x \text{ is a real number}\}$$

3 Vectors and Matrices
A matrix (denoted $M$) is a rectangular array of values. A vector (denoted $v$) is a column or row of values (that is a one-dimensional matrix).

$$Ix = x, \quad AA^{-1} = I, \quad x^{-1} = \sum_{i} x_i$$

Glossary

- $I$ the identity matrix.
- $M^{-1}$ the inverse of $M$.
- $M$ a matrix.
- $v$ a vector.
- $1$ the vector of 1s.
- $\sum$ $n$-ary summation.
- $\bigcup$ $n$-ary union.
- $\mathbb{S}$ a number space.
- $\mathbb{Z}$ the set of integers.
- $\mathbb{N}$ the set of natural numbers.
- $\mathbb{R}$ the set of real numbers.
- $|S|$ the cardinality of $S$.
- $\emptyset$ the empty set.
- $\{\ldots\}$ set contents.
- $\{x : \ldots\}$ set membership.
- $U$ the universal set.

Figure 8.14: sample-maths.pdf
Since I’m using one of the alttree styles, I need to set the widest name:

```
set-widest
```

In this case, bib2gls won’t be able to determine the widest name since it doesn’t recognise any of the commands, so it will have to use the fallback command, which will use one of the commands provided by the glossaries-extra-stylemods package.

This is actually not the best method as bib2gls can’t see the group titles as they’re in the document, so it’s only able to sort by the label. While this might work for English, it can become a problem for other languages that use extended Latin or non-Latin characters in their alphabet. A much better method is to treat this as a hierarchical glossary with topic titles as the top-level entries. This is covered in the next example `sample-textsymbols2.tex`.

The complete document code is listed below. The document build is:

```
pdflatex sample-textsymbols
bib2gls sample-textsymbols
pdflatex sample-textsymbols
```

The resulting document is shown in figure 8.15.

```latex
\documentclass[a4paper]{article}
\usepackage[T1]{fontenc}
\usepackage{etoolbox}
\usepackage{marvosym}
% package conflict, need to undefined conflicting commands
\undefined\Sun
\undefined\Lightning
\usepackage[weather]{ifsym}
\usepackage[record,% using bib2gls
nostyles,% don't load default styles
postdot,% append a dot after descriptions
stylemods={tree},% load glossary-tree.sty and patch
style=alttreegroup]{glossaries-extra}
\GlsXtrLoadResources[
 src={miscsymbols},
 % make @icon behave like @symbol:
 entry-type-aliases={icon=symbol},
 field-aliases={
```
8 Examples: sample-textsymbols2.tex

```latex
\begin{document}
\printunsrtglossaries
\end{document}
```

sample-textsymbols2.tex

This example is a better approach than the sample-textsymbols.tex example above. As with the previous example, this requires both marvosym and ifsym so the same patch is applied to avoid conflict.

As before, the custom entry type `@icon` must be aliased for the entries to be recognised:

```latex
entry-type-aliases={icon=symbol}
```

The `topics.bib` file contains terms with labels that match the custom `identifier` fields used in the `miscsymbols.bib` file. So both files are loaded and the `identifier` field is now aliased to `parent`. These parent entries represent the topics and unlike the previous example it’s now possible to sort by the topic title (obtained from the `name` field) instead of by the label.

```latex
src={topics,miscsymbols},
field-aliases={
  identifier=parent,
  icon=name,
  icondescription=description},
```

There’s no `sort-field` option in this example. The default `sort` field is used. Since it’s not set for any of the entries, the fallback value will be used. In the case of the topic titles (`@index` and `@indexplural`), I want to sort by the `name`, which is the default fallback if the `sort` field is missing for the index entry types.

The default fallback for the `sort` field for `@symbol` entries is the label, but in this case I want to use the `description` field:
Glossary

Information

- bicycle route.
- café.
- football stadium.
- Gents.
- information centre.
- Ladies.
- recycling centre.
- wheelchair access provided.

Media Controls

- back to start of track.
- next track.
- play.
- rewind.

Weather Symbols

- cloudy.
- drizzle.
- foggy.
- hail.
- misty.
- overcast.
- rain.
- snow.
- sunny.
- thunderstorm.
symbol-sort-fallback={description}

The best styles for this kind of glossary are the topic styles provided by glossary-topic. This package was only added to glossaries-extra v1.40, so you need to make sure you have at least that version installed.

In this case I’ve decided to use the topic style. I can use it with or without the set-widest option. As with the previous example, bib2gls won’t be able to determine the widest name since it doesn’t recognise any of the commands contained in the name fields, so it will have to use the fallback method, which will use one of the commands provided by the glossaries-extra-stylemods package. The tree option is needed to enable the appropriate commands:

\usepackage[record,  
ostyles,  
postdot,  
stylemods={tree,topic}, 
style={topic}]{glossaries-extra}

The complete document code is listed below. The document build is:

deplatex sample-textsymbols2  
bib2gls --group sample-textsymbols2  
deplatex sample-textsymbols2

The resulting document is shown in figure 8.16.

\documentclass[a4paper]{article}

\usepackage[T1]{fontenc}

\usepackage{etoolbox}
\usepackage{marvosym}

% package conflict, need to undefine conflicting commands  
\undef\Sun  
\undef\Lightning

\usepackage[weather]{ifsym}

\usepackage[record, % using bib2gls  
ostyles, % don't load default styles  
postdot, % append a dot after descriptions  
stylemods={tree,topic}, % load glossary-tree.sty and glossary-topic.sty  
style=topic]{glossaries-extra}

\GlsXtrLoadResources[  
src={topics,miscsymbols},  
% make @icon behave like @symbol:  
entry-type-aliases={icon=symbol},  
}
field-aliases={
    identifier=parent,
    icon=name,
    icondescription=description
},
symbol-sort-fallback={description},
set-widest,
selection=all
]

\begin{document}
\printunsrtglossaries
\end{document}

\begin{document}
\printunsrtglossaries
\end{document}

\setabbreviationstyle{markuplanguage}{long-short-desc}

This style sets the \texttt{name} field using \texttt{\glsxtrlongshortdescname}, which defaults to the long form followed by the short form in parentheses. I decided to switch this round so that the short form is shown first, which conveniently matches the default abbreviation-sort-fallback.

\renewcommand*{\glsxtrlongshortdescname}{% 
    \protect\glsabbrevfont{\the\glsshorttok}\space
    \glsxtrparen{\glslongfont{\the\glslongtok}}%}

(The long form is still shown before the short form on the first use of \texttt{\gls} in the document. The switch in the above code only affects how the term is displayed in the glossary.)

This redefinition must be done before the abbreviations are defined as it’s expanded when the \texttt{name} field is set. (Note the need to protect commands that shouldn’t be expanded.) If I decide not to change the \texttt{name} format in this way, I would then need to use abbreviation-sort-fallback={long}.

I also decided to make use of the custom command \texttt{\abbrvtag} that marks up the letters in the \texttt{long} field used to obtain the abbreviation. As with the abbreviation style, this must be done before the abbreviations are defined:

\GlsXtrEnableInitialTagging{markuplanguage}{\abbrvtag}

If you accidentally place it after \texttt{\GlsXtrLoadResources}, you’ll encounter an error on the second \LaTeX run (but not the first). This is because \texttt{\GlsXtrEnableInitialTagging} requires that the supplied command (\texttt{\abbrvtag} in this case) be undefined. On the first \LaTeX run,
Glossary

Information

® bicycle route.
• café.
◇ football stadium.
○ Gents.
□ information centre.
♀ Ladies.
※ recycling centre.
♂ wheelchair access provided.

Media controls

 back to start of track.
 next track.
► play.
◄ rewind.

Weather symbols

 cloudy.
鼀 drizzle.
鼠 foggy.
❄ hail.
鼤 misty.
 overcast.
 rain.
❄❄ snow.
☀ sunny.
∩ thunderstorm.

Figure 8.16: sample-textsymbols2.pdf
it’s undefined, but on the second it picks up the @preamble definition, which is now in the resource file.

The tagging format is governed by \glsxtrtagfont which underlines its argument by default. I’ve redefined it to also convert the letter to upper case:

\renewcommand*{\glsxtrtagfont}[1]{\underline{\MakeTextUppercase{#1}}}

Note that in the mathml case, the first tag consists of more than one letter:

long={\abbrvtag{m\NoCaseChange{ath}}}#markuplang

Here \NoCaseChange prevents \MakeTextUppercase from applying the case change.

The default selection criteria includes entries that have been indexed and any cross-references. Some of the description fields include \glsxtrshort, which bib2gls picks up and the referenced entry is included in the dependency list. However, I don’t want any indexing performed by commands occurring in the glossary. This can be dealt with in one of two ways: either switch the format to glsignore or suppress the indexing by changing the default options with \GlsXtrSetDefaultGlsOpts. In this case I decided to turn the records into ignored records:

\GlsXtrSetDefaultNumberFormat{glsignore}

This means that some of the entries won’t have location lists, so I’ve defined a post-description hook that inserts a full stop after the description if there’s no location otherwise it inserts a comma:

\newcommand{\glsxtrpostdescmarkuplanguage}{\glxtrifhasfield{location}{\glscurrententrylabel}{,}{.}}

I’ve used loc-suffix to append a full stop after the location lists. This doesn’t affect the entries that haven’t been indexed.

I decided to convert the first letter of the name field to upper case. Since the name is implicitly set for abbreviations based on the style, I’ve decided to implement this through the glossname attribute rather than using name-case-change:

\glssetcategoryattribute{markuplanguage}{glossname}{firstuc}

If this line causes an error when the glossary is displayed that goes away if it’s commented out, make sure you have at least version 2.06 of mfirstuc. For most of the entries, this doesn’t make a difference as they already start with a capital. It’s only the markdown entry that’s actually affected.

The description case change is dealt with by bib2gls instead:

description-case-change={firstuc}
This works better than the glossdesc attribute as bib2gls can convert commands like \glistext into \Glstext which \makefirstuc can’t do. (Although in this particular example, there's no difference as both instances of \glistext already produce upper case text.)

The complete document code is listed below. The document build is:

pdflatex sample-markuplanguages
bib2gls --group sample-markuplanguages
pdflatex sample-markuplanguages

The resulting document is shown in figure 8.17.

8 Examples: sample-markuplanguages.tex

\documentclass[fontsize=12pt]{scrartcl}
\usepackage{T1}{fontenc}
\usepackage{colorlinks}{hyperref}
\usepackage[record,% use bib2gls
nstyles,% don’t load default styles
% load glossary-tree.sty and patch styles:
stylemods={tree},
style=treegroup]{glossaries-extra}

% abbreviation style must be set before \GlsXtrLoadResources
\GlsXtrEnableInitialTagging{markuplanguage}{long-short-desc}
\renewcommand*{\glsxtrlongshortdescname}{%
  \protect\protect\glsabbrvfont{the}\glsshorttok\space
  \glsxtrparen{\glslongfont{the}\glslongtok}}%
}
\GlsXtrLoadResources[
  src=markuplanguages,% data in markuplanguages.bib
  loc-suffix,
  category=markuplanguage,
  description-case-change=firstuc
]
\newcommand{\glsxtrpostdescmarkuplanguage}{%
  \glsxtrifhasfield{location}\{\glscurrententrylabel\}%
  {,}\%
  {.}\%
}
\glssetcategoryattribute{markuplanguage}{glossname}{firstuc}
\renewcommand*{\glsxtrtagfont}[1]{\underline{\MakeTextUppercase{#1}}}
\begin{document}
\section{First Use}
\gls{LaTeX}, \gls{markdown}, \gls{xhtml}, \gls{mathml}, \gls{svg}.
\section{Next Use}
\gls{LaTeX}, \gls{markdown}, \gls{xhtml}, \gls{mathml}, \gls{svg}.
\GlsXtrSetDefaultNumberFormat{glsignore}
\printunsrtglossary
\end{document}

sample-usergroups.tex

This example uses usergroups.bib. This requires XƎL̽A̽TEX or LuaL̽A̽TEX as the .bib file includes non-ASCII labels. The entries include fields in different languages, the main one being English. If an entry has a non-English name or long field, it also includes the custom field translation that provides an (approximate) translation. If this field is present, the language is given by the first element of the custom language field.

In this case, I’m providing keys for the custom language and translation fields, and, for a bit of variety from the other examples, I’m ignoring the custom identifier field. The custom keys are provided with \glsaddstoragekey:

\glsaddstoragekey{language}{}{\glsentrylanguage}
\glsaddstoragekey{translation}{}{\glsentrytranslation}

The .bib file includes abbreviations. Remember that the abbreviation style must be set before the resource file is loaded:

\setabbreviationstyle[tug]{long-short-user}

For this example, I’m explicitly setting the category field to tug:

category={tug}

Some of the fields end with a full stop. This isn’t a problem with the long field as the first use follows the long form with the short form in parentheses, but it will be a problem on subsequent use if the short field ends with a full stop. This means I need to check for end-of-sentence punctuation for the short field. It’s also a good idea to do this for the name field for the non-abbreviations.

check-end-punctuation={name,short}
1 First Use
\LaTeX, markdown, extensible hypertext markup language (XHTML), mathematical markup language (MathML), scalable vector graphics (SVG).

2 Next Use
\LaTeX, markdown, XHTML, MathML, SVG.

Glossary

H
HTML (HyperText Markup Language) The standard markup language for creating web pages.

L
\LaTeX A format of \TeX designed to separate content from style, 1

M
Markdown A lightweight markup language with plain text formatting syntax, 1

MathML (Mathematical Markup Language) Markup language for describing mathematical notation, 1

S
SVG (Scalable Vector Graphics) XML-based vector image format, 1

T
\TeX A format for describing complex type and page layout often used for mathematics, technical, and academic publications.

X
XHTML (eXtensible HyperText Markup Language) XML version of HTML, 1
XML (eXtensible Markup Language) A markup language that defines a set of rules for encoding documents.

Figure 8.17: sample-markuplanguages.pdf
It’s now possible to discard a full stop that follows \gls:

\renewcommand*{\glsxtrifcustomdiscardperiod}{% 
  \ifgls hasshort{\glslabel}%
    %
    \glsxtrifwasfirstuse{}% 
    \GlsXtrIfFieldUndef{shortendpunc}{\glslabel}{#2}{#1}%
  }%
  %
  \GlsXtrIfFieldUndef{nameendpunc}{\glslabel}{#2}{#1}%
%
%
}

This first tests if the entry that’s just been referenced has a short field. If it has, then the next test is to check if that was the first use for that entry. If it was, nothing is done. If it wasn’t, then \GlsXtrIfFieldUndef is used to determine if shortendpunc has been set. If it has been set then the period discard function is performed. If the entry doesn’t have a short field, then the nameendpunc field needs checking instead.

Since the document requires \LaTeX{} or \LuaTeX{} and has some non-ASCII characters, it needs fontspec and an appropriate font. In this case I’ve chosen “Linux Libertine O”. If you don’t have it installed, you’ll need to change it.

\usepackage{fontspec}
\setmainfont{Linux Libertine O}

Since it’s a multilingual document I also need polyglossia with the main language set to english:

\usepackage{polyglossia}
\setmainlanguage[variant=uk]{english}

Now comes the difficult bit. The document needs to determine what other languages need to be loaded. The tracklang package provides a convenient interface when dealing with language tags. This is automatically loaded by glossaries but I’ve loaded it here explicitly as a reminder:

\usepackage{tracklang}

Once the resource file has been loaded, I need to iterate over all the defined entries and check if the translation field has been set. If it has, then the first language tag in the language field will supply the language, but this needs to be converted from the IETF language tag to a language name recognised by polyglossia.

Iterating over all entries can be done with \forglsentries but remember that no entries will be defined before \bib2gls has been run, so this does nothing on the first \LaTeX{} run.
Within the outer \texttt{\forglsetries} loop, there’s a check for the \texttt{translation} field using \texttt{\glsxtrifhasfield}. If it’s present, then the first element of the \texttt{language} field is required. The simplest way to get this is to use \texttt{\glsxtrforcsvfield} which iterates over all elements of the given field (\texttt{language} in this case) and break out of the loop (with \texttt{\glsxtrendfor}) once the language has been found.

The handler function (\addfirstlang) is defined so that it adds the given language tag as a tracked language using \TrackLocale. This command sets \TrackLangLastTrackedDialect to the associated (\texttt{tracklang}) dialect label for convenience. This dialect label can then be converted to the root language label using \TrackedLanguageFromDialect. If this language is supported by polyglossia, then there should be a file called \texttt{gloss-⟨language⟩.ldf}.

Some of the entries use the same language, so it’s necessary to check if the language has already been defined before loading it. There’s also a problem in that the language file should not be loaded in a scoped context, but both \texttt{\glsxtrforcsvfield} and the unstarred \texttt{\glsxtrifhasfield} add implicit grouping. To solve both problems, an internal \texttt{etoolbox} list is defined:

\texttt{\newcommand{\langlist}{}}\%

and \texttt{\xifinlist} is used to first check if the language label is already in the list before adding it. Since this part of the code is scoped, the global \texttt{\listxadd} is used to add the language label to the list.

Next the \texttt{useri} field is set to \texttt{text⟨language⟩} which is the name of the control sequence used with polyglossia to switch language for a short block of text. This means that \texttt{\glsxtr-entryfmt{⟨text⟩}} can be used to format \langle text⟩ in the relevant language. Finally, \texttt{\glsxtrendfor} is used to break out of the loop.
Once the \forglsentries loop has found the appropriate languages, it’s now necessary to iterate over the internal list \langlist and set the language:

\forlistloop{\setotherlanguage}{\langlist}

The long-short-user style now needs to be adjusted to ensure that it picks up the appropriate language change. By default this style checks the user field, so this needs to be changed to translation by redefining \glsxtruserfield:

\renewcommand*{\glsxtruserfield}{translation}

The command that governs the format of the parenthetical material (\glsxtruserparen) also needs adjusting. I’ve changed the space before the parenthesis to \, because some of the long fields end with a full stop and this corrects the spacing. The translation field is in English, so this needs to be encapsulated with textenglish in case the surrounding text is in a different language.

\renewcommand*{\glsxtruserparen}[2]{%\, \glsxtrparen{#1\iffielhasfield{\glsxtruserfield}{#2}{,\textenglish{\glscurrentfieldvalue}}{}}}%

Next I’ve defined a convenient command for use in the textformat attributes for the custom tug category:

\newcommand*{\tugtextformat}[1]{\glsxtrentryfmt{\glslabel}{#1}}%

This uses \glsxtrentryfmt to encapsulate the given text in the appropriate language command (if provided). When this is set as the textformat attribute, it will be used instead of \glstextformat, which means that the entry label can be referenced with \glslabel.

There’s a similar command for use in the glossnamefont attribute. This is used in the glossary, so the label is referenced with \glscurrententrylabel:

\newcommand*{\tugnameformat}[1]{\glsxtrentryfmt{\glscurrententrylabel}{#1}}%

The attributes can now be set to the relevant control sequence name:
8 Examples: sample-usergroups.tex

\glssetcategoryattribute{tug}{textformat}{tugtextformat}
\glssetcategoryattribute{tug}{glossnamefont}{tugnameformat}

The document uses the bookindex style, which is set in the package options:

\usepackage[record,
nostyles,
stylemods={bookindex},
style={bookindex}
]{glossaries-extra}

The bookindex style ignores the description field, so I've provided a post-name hook to append it in parentheses (with the translation, if provided):

\newcommand{\glsxtrpostnametug}{%  
  \ifglishasdesc{\glscurrententrylabel}{%  
    \glossentrydesc{\glscurrententrylabel}{%  
      \glsxtrifhasfield{translation}{\glscurrententrylabel}{%  
        {, \textenglish{\glscurrentfieldvalue}}}%  
        %  
      %  
      %  
      %  
    }%  
    %  
    \glsxtrifhasfield{translation}{\glscurrententrylabel}{%  
      %  
      %  
      %  
    }%  
  }%  
}%

Remember that this hook is included within the name font (provided by the glossnamefont attribute in this case) so \textenglish is again used to switch the language to English for the translation.

The complete document code is listed below. The document build is:

\texttt{xelatex sample-usergroups}
\texttt{bib2gls --group sample-usergroups}
\texttt{xelatex sample-usergroups}
\texttt{xelatex sample-usergroups}

The two pages of the document are shown in figure 8.18. Since the entries have all been referenced on page 1, the location lists are all simply “1”.

\documentclass{scrreprt}
\usepackage{fontspec}
\setmainfont{Linux Libertine O}
\usepackage{polyglossia}
\setmainlanguage[variant=uk]{english}
\usepackage{tracklang}
\usepackage{etoolbox}
\usepackage[record,% use bib2gls
  nostyles,% don't load default styles
  stylemods={bookindex},
  style={bookindex}
]{glossaries-extra}
\glsaddstoragekey{language}{}{\glsentrylanguage}
\glsaddstoragekey{translation}{}{\glsentrytranslation}
\setabbreviationstyle[tug]{long-short-user}
\GlsXtrLoadResources[
  src={usergroups}, % data in usergroups.bib
  check-end-punctuation={name,short},
  category=tug
]
\renewcommand*{\glsxtrifcustomdiscardperiod}[2]{%
  \ifglsxtrishasshort{\glslabel}%
  {%\glsxtrifwasfirstuse{}%
   \GlsXtrIfFieldUndef{shortendpunc}{\glslabel}{#2}{#1}%
  }%
  {%\GlsXtrIfFieldUndef{nameendpunc}{\glslabel}{#2}{#1}%
  }%
}
\newcommand{\langlist}{}%
\newcommand*{\addfirstlang}[1]{%
  \TrackLocale{#1}%
  \edef\thislanguage{%\TrackedLanguageFromDialect\TrackLangLastTrackedDialect}%
  \IfFileExists{gloss-\thislanguage.ldf}%
  {%\xifinlist{\thislanguage}{\langlist}{}%
   \listxadd{\langlist}{\thislanguage}%
   \GlsXtrSetField{\thislabel}{useri}{text\thislanguage}%
  }%
8 Examples: sample-usergroups.tex

\forglsentries{thislabel}{\%
  \glsxtrifhasfield{translation}{thislabel}{%
    \%
    \glsxtrforcsvfield{thislabel}{language}{\addfirstlang}{%
      \%
    }
  }
}

\forlistloop{setotherlanguage}{langlist}
\renewcommand*{\glsxtruserfield}{translation}
\renewcommand*{\glsxtruserparen}[2]{\%
  \glsxtrparen{#1\%
    \ifglsishasfield{\glsxtruserfield}{#2}{, \textenglish{\glscurrentfieldvalue}}{}}
}
\newcommand*{\tugtextformat}[1]{\%
  \glsxtrentryfmt{\glslabel}{#1}
}
\newcommand*{\tugnameformat}[1]{\%
  \glsxtrentryfmt{\glscurrententrylabel}{#1}
}\glssetcategoryattribute{tug}{textformat}{tugtextformat}\glssetcategoryattribute{tug}{glossnamefont}{tugnameformat}
\newcommand{\glsxtrpostnametug}{\%
  \ifglsishasdesc{\glscurrententrylabel}{%
    \glsxtrifhasfield{translation}{\glscurrententrylabel}{%
      {, \textenglish{\glscurrentfieldvalue}}
    }
  }
}458
\begin{document}
\chapter{Sample}
\section{First Use}
\gls{TUG}. \gls{bgTeX}. \gls{latex-br}. \gls{CTeX}. \gls{CSTUG}. \gls{DANTE}. \gls{DKTUG}. \gls{EUG}. \gls{CervanTeX}. \gls{TirantloTeX}. \gls{GUTenberg}. \gls{UKTUG}. \gls{MaTeX}. \gls{ITALIC}. \gls{ÍsTeX}. \gls{GuIT}. \gls{KTS}. \gls{LTVG}. \gls{mxTeX}. \gls{NTG}. \gls{NTUG}. \gls{GUST}. \gls{GUTpt}. \gls{VietTUG}. \gls{LUGSA}.
\section{Next Use}
\gls{TUG}. \gls{bgTeX}. \gls{latex-br}. \gls{CTeX}. \gls{CSTUG}. \gls{DANTE}. \gls{DKTUG}. \gls{EUG}. \gls{CervanTeX}. \gls{TirantloTeX}. \gls{GUTenberg}. \gls{UKTUG}. \gls{MaTeX}. \gls{ITALIC}. \gls{ÍsTeX}. \gls{GuIT}. \gls{KTS}. \gls{LTVG}. \gls{mxTeX}. \gls{NTG}. \gls{NTUG}. \gls{GUST}. \gls{GUTpt}. \gls{VietTUG}. \gls{LUGSA}.
\printunsrtglossaries
\end{document}

\textbf{sample-multi1.tex}

This example uses bacteria.bib, markuplanguages.bib, vegetables.bib, minerals.bib, animals.bib, chemicalformula.bib, baseunits.bib and derivedunits.bib. Since there’s one or more UTF-8 character, the document requires UTF-8 support:
\usepackage[T1]{fontenc}
\usepackage[utf8]{inputenc}

The aim of this example document is to have a separate glossary (without number lists) for each type of data (bacteria, markup languages, vegetables, minerals, animals, chemical formula, base units and derived units) and also an index listing all referenced entries with number lists as well as aliased entries that haven’t explicitly been used but the cross-reference term as been indexed. This requires:

\texttt{selection={\texttt{recorded and deps and see}}}

to ensure the aliased entries are selected.
Since I don’t need the default main glossary (I’m providing my own custom glossaries) I’ve used the `nomain` option to suppress its automatic creation, but I do want the index glossary so I’ve used the `index` package option. As with the other examples, I’ve used `nostyles` to suppress the creation of the default styles and used `stylemods` to load the particular style packages that I need and use `glossaries-extra-stylemods` to patch them. The index needs to be in an unnumbered chapter, which is the default for book-like styles, but I want the other glossaries in unnumbered sections so I’ve used the `section` option. I just need to remember to switch this before displaying the index:

```latex
\usepackage[record,% use bib2gls
section,% use \section* for glossary headings
postdot,% insert dot after descriptions in glossaries
nomain,% don't create 'main' glossary
index,% create 'index' glossary
nostyles,% don't load default styles
% load and patch required style packages:
stylemods={list,mcols,tree,bookindex}
]{glossaries-extra}
```

The remaining glossaries need defining:

```latex
\newglossary*{bacteria}{Bacteria}
```
As with \texttt{sample-bacteria.tex} and \texttt{sample-markuplanguages.tex} I need to set the abbreviation styles before the abbreviations are defined:

\setabbreviationstyle[bacteria]{long-only-short-only}
\setabbreviationstyle[markuplanguage]{long-short-desc}

Unlike the \texttt{sample-markuplanguages.tex} example, I’m not interested in tagging the initials in this case, but I still want to change the way the \texttt{name} field is set with the long-short-desc abbreviation style:

\renewcommand*{\glsxtrlongshortdescname}{%
  \protect\glsabbrvfont{\the\glsshorttok}\space
  \glsxtrparen{\glslongfont{\the\glslongtok}}%
}

Remember that this also needs to be set before the abbreviations are defined. The \texttt{textformat} and \texttt{glossnamefont} attributes may be set after definition:

\newcommand\bacteriafont[1]{\emph{#1}}
\glssetcategoryattribute{bacteria}{textformat}{bacteriafont}
\glssetcategoryattribute{bacteria}{glossnamefont}{bacteriafont}

The description font also needs to be set since this will contain the long form:

\glssetcategoryattribute{bacteria}{glossdescfont}{bacteriafont}

The \texttt{markuplanguage} glossary contains descriptions and some long names, so it’s better suited to the altlist style, in which case the descriptions would look better if they started with a capital letter:

\glssetcategoryattribute{markuplanguage}{glossdesc}{firstuc}

Remember that the altlist style uses the description environment, which is governed by the document class (and may be modified by list-related packages). In this case, one of the KOMA-Script classes is used, so the list items are typeset in sans-serif.

There are various ways of dealing with the duplicated data in the index, such as using the secondary option or having a separate resource set with a copy action. In this case, I’ve decided to use a dual entry system. Since the entries aren’t defined using any dual types, I’ve used entry-type-aliases to make \texttt{bib2gls} treat them as though they were, and I also need to alias the custom @chemical, @unit and @measurement entry types:
8 Examples: sample-mult1.tex

entry-type-aliases={
  abbreviation=dualindexabbreviation,
  entry=dualindexentry,
  symbol=dualindexsymbol,
  unit=dualindexsymbol,
  measurement=dualindexsymbol,
  chemical=dualindexsymbol
}

Note that I haven’t aliased the \index types as I only want these in the index and not replicated in a separate glossary.

The primary entries for the \dualindexabbreviation type ignore the short form. It would be useful to store it. This could be done by copying the short field with replicate-fields. For example, replicate-fields={short=symbol}. However, this will cause the symbol field to be set for both the primary and dual entries, which will cause an unwanted duplication if the dual entries are displayed using a glossary style that shows the symbol field. Another field (such as user1) could be used instead or \bibglsnewdualindexabbreviation could be defined before \GlsXtrLoadResources:

\newcommand{\bibglsnewdualindexabbreviation}[7]{%
  \longnewglossaryentry*{#1}{%
    name={\protect\bibglsuselongfont{#4}{\glscategory{#2}}},%
    symbol={\protect\bibglsuseabbrvfont{#5}{\glscategory{#2}}},%
    category={index},#3{}}%
}

However, this will affect all \dualindexabbreviation entry types, but it’s not necessary for the bacteria abbreviations. Instead it’s simpler to just keep a record of the dual label so that the short form can be obtained from the dual entry:

dual-field

By default, the \dualindexabbreviation entry type falls back on the short field if the name is omitted. In this case I want it to fall back on the long field instead.

abbreviation-name-fallback={long}

Remember that the sort fallback for abbreviations is still short (but can be changed with abbreviation-sort-fallback), but I’ve changed the sort fallback for symbols:

symbol-sort-fallback={name}

I also need to alias the custom fields (especially for those in the chemicalformula.bib, baseunits.bib and derivedunits.bib files):

field-aliases={
  identifier=category,
There’s a slight problem here. This ensures that the entries defined in chemicalformula.bib have a name and symbol field, which are swapped round for the dual (according to the default dual-indexsymbol-map) but these entries don’t have a description field. Since I’d like to use the mcolalttreegroup style, this will end up with the odd appearance of the formula (stored in the name field for the dual) followed by the chemical name (stored in the symbol field for the dual) in parenthesis. This is the default ⟨name⟩ ⟨⟨symbol⟩⟩ ⟨description⟩ format for the style. I’ve fixed this by locally redefining \glsxtralttreeSymbolDescLocation for just that glossary:

```latex
\printunsrtglossary*[type={chemical},style={mcolalttreegroup}]
{%
  \renewcommand\glsxtralttreeSymbolDescLocation[2]{%\glossentrysymbol{#1}\glspostdescription\glsxtrAltTreePar
%}
  \renewcommand*\glstreenamefmt[1]{#1}\renewcommand*\glstreegroupheaderfmt[1]{\textbf{#1}}%
}%
```

I’ve also redefined \glstreenamefmt to prevent the names appearing in bold, which means I also need to redefine \glstreegroupheaderfmt to keep the headers bold.

All the @dualindex⟨type⟩ entry types provide a primary entry that behaves like @index. The secondary behaves like @⟨type⟩. This means that the primaries are conveniently gathered together with all the unaliased @index entries, so the primary entry type needs to be set to index:

```
type={index}
```

The dual entry type depends on the entry’s category. Since I’ve defined my custom glossaries with a label that matches the custom identifier field, I can both alias this custom field to the category field and also set dual-type so that it matches the category:

```
field-aliases={identifier=category},
dual-type={same as category}
```

The primary entries (in the index glossary) need to be sorted alphabetically, and since the document is in English I’m sorting according to that language (identified by the language code en), but I also want to make sure that all the primary entries are sorted by the name field to avoid discrepancies in the fallback value for the sort field:

```
sort={en},
sort-field={name}
```

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With \texttt{abbreviation-name-fallback=\{long\}} now set, this means that \textit{Coxiella burnetii} comes after \textit{Clostridium tetani} in the index. I haven’t changed the sort field for the dual entries, so in that case the \texttt{abbreviation-sort-fallback} and \texttt{symbol-sort-fallback} settings will be used with the duals. This means that \textit{C. burnetii} is between \textit{C. botulinum} and \textit{C. perfringens} rather than after \textit{C. tetani}.

I’d like to sort the dual entries according to a letter-number rule (as for the above \texttt{sample-chemical.tex} and \texttt{sample-units3.tex} examples) but this would order “bilinite” after “biotite” in the \texttt{minerals} glossary, so instead I’m also using the English sort rule for the duals, but with the numbers padded:

\begin{verbatim}
dual-sort=\{en\},
dual-sort-number-pad=\{2\},
\end{verbatim}

This method doesn’t work as well as the method used in \texttt{sample-chemical.tex} as it doesn’t separate the capitals, digits and lower case characters in the way that can be achieved with the letter-number methods. An improvement can be made by changing the break-points. I could use \texttt{dual-break-at=\{upper-upper\}} but this would put “seal” before “sea lion” in the \texttt{animal} glossary, so instead I’ve used:

\begin{verbatim}
dual-break-at=\{upper-upper-word\}
\end{verbatim}

This now puts “sea lion” before “seal”. Unfortunately the word break points will cause a break at the markers used to indicate positive and negative numbers that are inserted with \texttt{dual-sort-number-pad}, so these need to be changed to something that won’t cause them to be discarded:

\begin{verbatim}
dual-sort-pad-minus=\{0\},
dual-sort-pad-plus=\{1\}
\end{verbatim}

The document loads \texttt{hyperref} which means that all the \texttt{\gls} references will create hyperlinks. Since the primaries are in the index, the default prefixes mean that, for example, \texttt{\gls{svg}} links to the “scalable vector graphics” item in the index rather than to the abbreviation “SVG” in the markup language glossary. There are two alternatives: change \texttt{\gls{svg}} to \texttt{\gls{dual.svg}} or change the default prefixes, which is the more convenient approach and is the one used here:

\begin{verbatim}
label-prefix=\{idx.\},
\end{verbatim}
\begin{verbatim}
dual-prefix=\{}
\end{verbatim}

Now \texttt{\gls{svg}} refers to the dual abbreviation “SVG” and \texttt{\gls{idx.svg}} refers to the primary entry “scalable vector graphics”. Unfortunately this means that the records created with \texttt{\gls{svg}} now refer to the dual abbreviation and will end up being displayed in the glossary instead of the index. This can be fixed with:

\begin{verbatim}
combine-dual-locations=\{primary\}
\end{verbatim}
Which transfers the dual entry locations to the corresponding primary.

The other problem is the cross-references in the description fields. Since the labels don’t start with “dual.” bib2gls will assume they refer to the primary entries, which means that “idx.” (the value of label-prefix) will be inserted. This means that they’ll link to the index rather than the glossary entry. It also means that the cross-references where the dual is an abbreviation won’t behave like an abbreviation as the reference is to the primary (non-abbreviation) entry. This can be fixed by setting cs-label-prefix to the same value as dual-prefix:

cs-label-prefix={}

The index is displayed using the bookindex style. This doesn’t show the description or symbol by default, but it would be useful to include the symbol in parentheses after the name. This can be done by redefining \glsxtrbookindexname:

\renewcommand*{\glsxtrbookindexname}[1]{{%
\glossentryname{#1}\
\ifglshassymbol{#1}{\space(\glossentrysymbol{#1})}{}}}%

However the chemical formulae look a little odd in parentheses (especially those that contain parenthetical parts) but this can be fixed by adding a category check:

\renewcommand*{\glsxtrbookindexname}[1]{{%
\glossentryname{#1}\
\ifglshassymbol{#1}\
{\%\glsifcategory{#1}{chemical}{\%}{\,\glossentrysymbol{#1}}{\%}{\space(\glossentrysymbol{#1})}{}}}{%}

Unfortunately \glossentrysymbol doesn’t pick up the glossnamefont attribute, so if the short form of the abbreviations is saved in the symbol field, using one of the methods discussed above, then the custom \bacteriafont won’t be applied. (As from glossaries-extra version 1.42, there is now the glosssymbolfont attribute that’s used by \glossentrysymbol.)

A simple solution is to use \glossentrynameother instead:

\renewcommand*{\glsxtrbookindexname}[1]{{%
\glossentryname{#1}\
\ifglshassymbol{#1}\
{\%\glsifcategory{#1}{chemical}{\%}{\,\glossentrysymbol{#1}}{\%}{\space(\glossentrysymbol{#1})}{}}}{%}
8 Examples: sample-multi1.tex

However, since I decided not to store the short form in the symbol field and just saved the dual entry label instead, I need to lookup the short form from the dual entry:

```
\renewcommand*{\glsxtrbookindexname}[1]{%
  \glossentryname{#1}%
  \ifglishassymbol{#1}%
    {%
      \glsifcategory{#1}{chemical}%
      , \glossentrysymbol{#1}%
      \{\space(\glossentrynameother{#1}{symbol})\}%
    }%
    {%
      \glsifcategory{#1}{markuplanguage}%
      {%
        \glsxtrifhasfield{short}\{\glsxtrusefield{#1}{dual}\}%
        \{\space(\glscurrentfieldvalue)\}%
      }%
    }%
  }%
%
\glsifcategory{#1}{markuplanguage}%
%
\glsxtrifhasfield{short}\{\glsxtrusefield{#1}{dual}\}%
\{\space(\glscurrentfieldvalue)\}%
{}%
{}%
}%
```

Not all of the markup languages are abbreviations so this uses \glsxtrifhasfield to check if the short field is set. The dual entry’s label is easily obtained because dual-field has provided the dual internal field and set it to the corresponding label.

It’s sometimes useful for the index to include a reference to the term’s definition. This can be done by making use of \glsextrapostnamehook, which can be redefined before the glossaries to automatically record each entry:

```
\renewcommand{\glsextrapostnamehook}[1]{\glsadd[format={hyperbf}]{#1}}
```

This needs to be redefined to ignore its argument before the index, to avoid the redundant index record:

```
\renewcommand{\glsextrapostnamehook}[1]{}
```

Remember that if any records are added within a glossary, an extra \LaTeX{} and bib2gls call are required to ensure that the location list is correct, so the document build is:

```
pdflatex sample-multi1
bib2gls --group sample-multi1
pdflatex sample-multi1
bib2gls --group sample-multi1
pdflatex sample-multi1
```
The complete document code is listed below. The resulting document is shown in figure 8.19 and figure 8.20.

\documentclass{scrreprt}
\usepackage[T1]{fontenc}
\usepackage[utf8]{inputenc}
\usepackage[version=4]{mhchem}
\usepackage{siunitx}
\usepackage[colorlinks]{hyperref}
\usepackage[record, % use bib2gls
section, % use \section* for glossary headings
postdot, % insert dot after descriptions in glossaries
nomain, % don't create 'main' glossary
index, % create 'index' glossary
nostyles, % don't load default styles
% load and patch required style packages:
stylenods={list,mcols,tree,bookindex}
]{glossaries-extra}
\newglossary*{bacteria}{Bacteria}
\newglossary*{markuplanguage}{Markup Languages}
\newglossary*{vegetable}{Vegetables}
\newglossary*{mineral}{Minerals}
\newglossary*{animal}{Animals}
\newglossary*{chemical}{Chemical Formula}
\newglossary*{baseunit}{SI Units}
\newglossary*{derivedunit}{Derived Units}
\setabbreviationstyle[bacteria]{long-only-short-only}
\setabbreviationstyle[markuplanguage]{long-short-desc}
\renewcommand*{\glsxtrlongshortdescname}{%
  \protect\glsabbrvfont{\the\glsshorttok}\space
  \glsxtrparen{\glslongfont{\the\glslongtok}}%}
\GlsXtrLoadResources[
  src={bacteria,markuplanguages,vegetables,minerals,animals,chemicalformula,baseunits,derivedunits},
  selection={recorded and deps and see},
  set-widest,
  type=index,
label-prefix={idx.},
dual-prefix={},
cs-label-prefix={},
combine-dual-locations={primary},
dual-field,
sort={en},
sort-field={name},
dual-type={same as category},
dual-sort={en},
dual-sort-number-pad={2},
dual-sort-pad-plus={1},
dual-sort-pad-minus={0},
dual-break-at=upper-upper-word,
entry-type-aliases={
  abbreviation=dualindexabbreviation,
  entry=dualindexentry,
  symbol=dualindexsymbol,
  unit=dualindexsymbol,
  measurement=dualindexsymbol,
  chemical=dualindexsymbol
},
abbreviation-name-fallback={long},
symbol-sort-fallback={name},
field-aliases={
  identifier=category,
  formula=symbol,
  chemicalname=name,
  unitname=name,
  unitsymbol=symbol,
  measurement=description
},
\newcommand{"\bacteriafont}[1]{\emph{#1}}
\glssetcategoryattribute{bacteria}{textformat}{bacteriafont}
\glssetcategoryattribute{bacteria}{glossnamefont}{bacteriafont}
\glssetcategoryattribute{bacteria}{glossdescfont}{bacteriafont}
\glssetcategoryattribute{markuplanguage}{glossdesc}{firstuc}
\renewcommand*{\glsxtrbookindexname}[1]{%
  \glossentryname{#1}%
  \ifglsifcategory{#1}{chemical}%
  {, \glossentrysymbol{#1}%%}
8 Examples: sample-multi1.tex

\begin{document}
\chapter{Sample}
\section{Bacteria}
\subsection{First Use}
\gls{cbotulinum}, \gls{pputida}, \gls{cperfringens}, \gls{bsubtilis}, \gls{ctetani}, \gls{pcomposti}, \gls{pfimeticola}, \gls{cburnetii}, \gls{raustralis}, \gls{rrickettsii}.

\subsection{Next Use}
\gls{cbotulinum}, \gls{pputida}, \gls{cperfringens}, \gls{bsubtilis}, \gls{ctetani}, \gls{pcomposti}, \gls{pfimeticola}, \gls{cburnetii}, \gls{raustralis}, \gls{rrickettsii}.

\section{Markup Languages}
\subsection{First Use}
\gls{LaTeX}, \gls{markdown}, \gls{xhtml}, \gls{mathml}, \gls{svg}.

\subsection{Next Use}
\gls{LaTeX}, \gls{markdown}, \gls{xhtml}, \gls{mathml}, \gls{svg}.

\section{Vegetables}
\gls{cabbage}, \gls{brussels-sprout}, \gls{artichoke}, \gls{cauliflower}, \gls{courgette}, \gls{spinach}.

\section{Minerals}
\gls{beryl}, \gls{amethyst}, \gls{chalcedony}, \gls{aquamarine}, \gls{aragonite}, \gls{calcite}, \gls{bilinite}, \gls{cyanotrichite}, \gls{biotite}, \gls{dolomite}, \gls{quetzalcoatlite}, \gls{vulcanite}.

\section{Animals}

\end{document}
\section{Chemicals}
\gls{duck}, \gls{parrot}, \gls{hedgehog}, \gls{sealion}.
\gls{Al2SO43}, \gls{H2O}, \gls{C6H12O6}, \gls{CH3CH2OH}, \gls{CH2O}, \gls{OF2}, \gls{O2F2}, \gls{SO42-}, \gls{H3O+}, \gls{OH-}, \gls{O2}, \gls{AlF3}, \gls{O}, \gls{Al2CoO4}, \gls{As4S4}, \gls{C10H10O4}, \gls{C5H4NCOOH}, \gls{C8H10N4O2}, \gls{SO2}, \gls{S2O72-}, \gls{SbBr3}, \gls{Sc2O3}, \gls{Zr3P044}, \gls{ZnF2}.

\section{SI Units}
Base: \gls{ampere}, \gls{kilogram}, \gls{metre}, \gls{second}, \gls{kelvin}, \gls{mole}, \gls{candela}.
Derived: \gls{area}, \gls{volume}, \gls{velocity}, \gls{acceleration}, \gls{density}, \gls{luminance}, \gls{specificvolume}, \gls{concentration}, \gls{wavenumber}.

\chapter*{Glossaries}
\renewcommand{\glsextrapostnamehook}[1]{\glsadd{format=hyperbf}{#1}}
\printunsrtglossary[type=bacteria,style=mcoltree]
\printunsrtglossary[type=markuplanguage,style=altlist]
\printunsrtglossary[type=vegetable,style=tree,nogroupskip]
\printunsrtglossary[type=mineral,style=treegroup]
\printunsrtglossary[type=animal,style=tree]
\printunsrtglossary*[type=chemical,style=mcolalttreegroup]{%
\renewcommand{\glsxtralttreeSymbolDescLocation}[2]{{}
\glossentrysymbol{#1}\glspostdescription\glsxtrAltTreePar}
}\renewcommand*{\glistreenamefmt}[1]{#1}%
\renewcommand*{\glistreegroupheaderfmt}[1]{textbf{#1}}%
\printunsrtglossary[type=baseunit,style=alttree]
\printunsrtglossary[type=derivedunit,style=alttree]
\renewcommand{\glsextrapostnamehook}[1]{}
\setupglossaries{section=chapter}
\printunsrtglossary[type=index,style=bookindex}
\end{document}

\textbf{sample-multi2.tex}

This example is an alternative approach to sample-multi1.tex. Instead of using dual entry types to define entries that appear in both a glossary and the index, this example makes use of \texttt{record-label-prefix} to reselect the recorded entries for the index. This is more
1 Sample

1.1 Bacteria

1.1.1 First Use

Clostridium tetani, Pseudomonas putida, Clostridium perfringens, Bacillus subtilis, Clostridium botulinum, Phanerochaete chrysosporium, Francisella tularensis, Black-stripe metallopath, Rickettsia rickettsii.

1.1.2 Next Use


1.2 Markup Languages

1.2.1 First Use

XHTML, MathML, extensible hypertext markup language (XHTML), markup language for describing mathematical notation.

1.2.2 Next Use

XHTML, MathML, XML, SGML.

1.3 Vegetables

cabbage, Brussels sprout, artichoke, cauliflower, courgette, spinach.

1.4 Minerals

beryl, amethyst, chalcedony, aquamarine, aragonite, calcite, bílinite, cyanotrichite, biotite, dolomite, quetzalcoatlite, vulcanite.

1.5 Animals

Duck, parrot, hedgehog, sea lion.

1.6 Chemicals

Al2(SO4)3, H2O, C6H12O6, CH3CH2OH, CH2O, OF2, O2F2, SO42–, H3O+, OH–, O2, AlF3, O, Al2CoO4, As4S4, ZrF4, VO, CoO, ZnF2.

1.7 SI Units

Base: A, kg, m, s, K, mol, cd. Derived: m2, m3, m s−1, m s−2, A m−2, cd m−2, m3 kg−1, mol m−3, m−1.
complicated but it allows the entries that have natural word ordering to use a locale sort method while the entries that are symbolic can use one of the letter-number sort methods.

This document uses some additional .bib files to the previous example, so it has extra glossaries, which all need to be defined:

\newglossary*{bacteria}{Bacteria}
\newglossary*{markuplanguage}{Markup Languages}
\newglossary*{vegetable}{Vegetables}
\newglossary*{mineral}{Minerals}
\newglossary*{animal}{Animals}
\newglossary*{chemical}{Chemical Formula}
\newglossary*{baseunit}{SI Units}
\newglossary*{measurement}{Measurements}
\newglossary*{film}{Films}
\newglossary*{book}{Books}
\newglossary*{person}{People}
\newglossary*{mediacontrol}{Media Control Symbols}
\newglossary*{information}{Information Symbols}
\newglossary*{weather}{Weather Symbols}

Note that this is a total of 15 glossaries (including the index). With the basic \makeglossaries method, this would require 16 write registers (including the write register used to create the indexing style file), and a total of $15 \times 3 + 1 = 46$ associated files. (This doesn’t include the standard .aux file and the .out file created by hyperref.) With bib2gls, no additional write registers are required and the number of associated bib2gls files is equal to the number of resource commands plus the transcript file (in this example, $9 + 1 = 10$).

Since this document requires people.bib, books.bib and films.bib it also requires the files that supply the definitions of the custom commands (no-interpret-preamble.bib and either interpret-preamble.bib or interpret-preamble2.bib) to ensure the custom commands are provided both for the document and for bib2gls’s interpreter.

The first resource set to be loaded simply reads no-interpret-preamble.bib with the preamble interpreter switched off:

\GlsXtrLoadResources[
  src={no-interpret-preamble},
  interpret-preamble={false}
]

This ensures that Bib\TeX can pick up the provided commands and prevents them from being added to the interpreter.

The people.bib file is the next to be loaded with interpret-preamble.bib. This is loaded separately from the other resources as this needs the name field to be copied to first (if not already set), as in the sample-people.tex file. By having a separate resource set, this setting doesn’t affect the other entries. I’ve also converted the date fields so that I can customise the format in the document.
As with the sample-people.tex document, I need to use the --break-space switch to convert the ~ to a normal breakable space so that it matches the given format. I've loaded the datetime2 package:\n\usepackage[en-GB]{datetime2}\n
so that I can use \DTMdisplaydate to adjust the formatting:

\newcommand*{\bibglstartdate}[7]{\DTMdisplaydate{#1}{#2}{#3}{#4}}

This needs to go before the resource set is loaded. Note that the en-GB option identifies the document locale as en-GB (since there are no language packages loaded).

Note that unlike sample-people.tex which had category={people}, this document obtains the category field from the custom identifier field, which in this case has the value person. This means that the category hooks from sample-people.tex need to be renamed to reflect the different category label:

\newcommand*{\glsxtrpostlinkperson}{%\glsxtrifwasfirstuse {% \ifglshasfield{user3}{\glslink}{% \space(\glscurrentfieldvalue){% }% }% {}% }%\glsxtrpostnameperson{% \ifglshasfield{user3}{\glshere}{% \space(\glscurrentfieldvalue){% }% }%}

\verb|^2^The en-GB option to datetime2 also requires that datetime2-english must be installed.
The other .bib files that require locale sorting can now be loaded, but remember that the abbreviation style settings must be set first since this resource set includes abbreviations:

\setabbreviationstyle[bacteria]{long-only-short-only}
\setabbreviationstyle[markuplanguage]{long-short-desc}

\renewcommand*{\glsxtrlongshortdescname}{%
    \protect\glsabbrvfont{\the\glsshorttok}\space
    (\TeX\ Users Group)}

Now the resource set can be loaded:

\GlsXtrLoadResources[
    src={bacteria,markuplanguages,vegetables,
        minerals,animals,books,films},
    field-aliases={identifier=category},
    type={same as category},
    save-locations={false}
]

The semantic markup command and attributes are as for sample-multi1.tex:

\newcommand{\bacteriafont}[1]{\emph{#1}}
\glssetcategoryattribute{bacteria}{textformat}{bacteriafont}
\glssetcategoryattribute{bacteria}{glossnamefont}{bacteriafont}
\glssetcategoryattribute{bacteria}{glossdescfont}{bacteriafont}
\glssetcategoryattribute{markuplanguage}{glossdesc}{firstuc}

Similarly for the books:
\newcommand{\bookfont}[1]{\textit{#1}}
\glssetcategoryattribute{book}{textformat}{\bookfont}
\glssetcategoryattribute{book}{glossnamefont}{\bookfont}

(as for \texttt{sample-media.tex}) and for films:
\newcommand{\filmfont}[1]{\textit{#1}}
\glssetcategoryattribute{film}{textformat}{\filmfont}
\glssetcategoryattribute{film}{glossnamefont}{\filmfont}

Next come the chemical formulae:
\GlsXtrLoadResources[
  src={chemicalformula},
  entry-type-aliases={chemical=symbol},
  field-aliases={
    identifier=category,
    formula=name,
    chemicalname=description
  },
  type={chemical},
  set-widest,
  sort={letternumber-case},
  symbol-sort-fallback={name},
  save-locations={false}
]

and the SI units, which are now combined into a single glossary:
\GlsXtrLoadResources[
  src={baseunits,derivedunits},
  entry-type-aliases={measurement=symbol,unit=symbol},
  field-aliases={
    unitname=description,
    unitsymbol=symbol,
    measurement=name
  },
  category={measurement},
  type={measurement},
  set-widest,
  symbol-sort-fallback={name},
  save-locations={false}
]

Here the name field is obtained from the custom measurement field. Since this contains a word, the default locale sort is appropriate. I’ve locally redefined \glsxtralttreeSymbolDescLocation to place the symbol in parentheses after the description:
The base units are replicated in the baseunit glossary, this time with the name field obtained from the custom unitsymbol field. This means that I need to find a way to prevent duplicate labels. The simplest method is to use duplicate-label-suffix:

\GlsXtrLoadResources[
  src={baseunits},
  entry-type-aliases={unit=symbol},
  field-aliases={
    unitname=description,
    unitsymbol=name
  },
  category={measurement},
  type={baseunit},
  duplicate-label-suffix={.copy},
  symbol-sort-fallback={name},
  save-locations={false}
]

I can’t use set-widest here as it won’t pick up the modified label and will instead use the label from the original entry. Instead I’ve used \glsFindWidestTopLevelName to find it:

\printunsrtglossary*[type={baseunit},style={alttree},nogroupskip]
{\glsFindWidestTopLevelName[baseunit]}%}

The text symbols from miscsymbols.bib are all loaded in a single resource set, where the type field can be obtained from the category, which in turns is obtained from the custom identifier field. Since \bib2gls doesn’t recognise any of the symbol commands, I’m sorting according to the description field. (Even if \bib2gls could determine a Unicode value for each of the symbols, sorting by the description makes more sense in this case.)

\GlsXtrLoadResources[
  src={miscsymbols},
  field-aliases={
    identifier=category,
8 Examples: sample-multi2.tex

Finally, all recorded and cross-referenced terms are needed for the index. This includes entries that have already been defined in the earlier resource sets (so a guard against duplicates is necessary) but it also includes entries from the terms.bib file that haven’t yet been dealt with. I’d like the index to start with a symbol group containing the icons from miscsymbols.bib. This needs to be dealt with separately from the rest of the index to keep them together in a single group:

\GlsXtrLoadResources[
  src={miscsymbols},
  selection={recorded no deps},
  duplicate-label-suffix={.copy},
  entry-type-aliases={icon=index},
  field-aliases={
    identifier=category,
    icondescription=symbol,
    icon=name
  },
  type={index},
  sort-field={symbol},
  group={glssymbols}
]

Since I know that there are no parents or cross-references in this set of entries I’ve used selection={recorded no deps} to skip the dependency checks. In this resource set, the name field has the symbol command (obtained from the custom icon field), and the symbol field has the symbol description (obtained from the custom icondescription field), which is used as the sort field. I’ve set the group label to glssymbols, which keeps all these entries in a single group and the title will be obtained from \glssymbolsgroupname.

Before loading the final resource set \glsxtrlongshortdescname needs to be changed so that the abbreviations using the long–short–desc style (that is, the abbreviations with the category set to markuplanguage) have the name field set to ⟨long⟩ ⟨short⟩:

\renewcommand\{\glsxtrlongshortdescname\}{%
  \protect\glslongfont{\the\glslongtok}\space
  \glsxtrparen{\glsabbrvfont{\the\glsshorttok}}%}
}
The long-only-short-only style has a similar command, but it was only introduced to glossaries-extra version 1.25:

\renewcommand*{\glsxtronlyname}%
\protect\glsabbrvonlyfont{\the\glslongtok}%

The abbreviations all need to be sorted according to the long form:

abbreviation-sort-fallback={long}

The custom entry types and fields again need to be aliased

entry-type-aliases={
  chemical=index,
  measurement=entry,
  unit=dualentry,
  icon=index
},
field-aliases={
  identifier=category,
  formula=symbol,
  chemicalname=name,
  unitname=description,
  unitsymbol=symbol,
  measurement=name,
  icon=symbol,
  icondescription=name
}

The chemical formulae and icons are now defined using @index with the name field set to a word form (chemical name and icon description). This means they’re appropriate for alphabetical sorting. (Both @entry and @symbol require the description field, which is why I’ve aliased @chemical and @icon to @index here.) The custom @measurement entry type has a description field (obtained from unitname), so that’s aliased to @entry as again the name field is suitable for alphabetical sorting.

I’ve aliased @unit to @dualentry rather than @symbol as I want both the unit name and the measurement in the index and I’ve combined their location lists:

combine-dual-locations={both}

Both primary and dual entries need to go in the index glossary:

type={index},
dual-type={index}

All .bib files used in the previous resource sets are needed as well as the terms.bib file:
8 Examples: sample-multi2.tex

src={terms, bacteria, markuplanguages, vegetables, minerals, animals, chemicalformula, baseunits, derivedunits, people, films, books, miscsymbols}

but this time I also want to select entries that haven’t been recorded but have a cross-reference to a recorded entry:

\texttt{selection[recorded and deps and see]}

Again it’s necessary to provide a way to avoid duplicate entry labels, which can be done with\n\texttt{duplicate-label-suffix={.copy}},

as above. However, this will cause the cross-references (from the \texttt{alias} fields) to link to the glossary rather than the index. This may or may not confuse the reader. For consistency, it may be more suitable to have the cross-reference in the index link to the aliased entry in the index rather than in the glossary. I’ve therefore instead used:

\texttt{label-prefix={idx.},}  
\texttt{record-label-prefix={idx.},}

This means that the entries defined in \texttt{terms.bib} need to be referenced with this prefix.

All instances of \\texttt{\gls} will link to the original entry, so all entries except for those in the \texttt{terms.bib} file will link to the relevant glossary. Those in the \texttt{terms.bib} file will link to the index. It’s possible to disable the hyperlinks for those entries, but the reader may find it useful to jump to the index to look up other locations for that entry in the document.

To deal with the identical book and film titles, I’m again using the \texttt{category} to resolve identical sort values:

\texttt{identical-sort-action={category}}

For the people who have a \texttt{first} field, I’ve decided that this would be more appropriate for the index as it’s more compact than the \texttt{name}, so here I’ve done the reverse to earlier and copied the \texttt{first} field (if supplied) into the \texttt{name} field, but since the \texttt{name} field is already provided the override setting needs to be on:

\texttt{replicate-override,}  
\texttt{replicate-fields={first=name}}

As with \texttt{sample-people.tex} I’ve provided some custom commands to make it easier to locally redefine \texttt{\sortname} and \texttt{\sortvonname}:

\texttt{\newcommand*{\swaptwo}[2]{#2, #1}}  
\texttt{\newcommand*{\swapthree}[3]{#2 #3, #1}}

I’ve redefined \texttt{\glsxtrbookindexname} in a similar manner to \texttt{sample-multi1.tex} but it has some modifications:
This appends “(film)” to film names. I’ve chosen this method rather than using the post-name hook as I only want this in the index and not in the list of films.

For some of the entries that are referenced in the document, I’ve appended information in parentheses:

\gls{Al2SO43} (\glsdesc{Al2SO43})

This is all right for odd instances, but if this always needs to be done on first use, then it’s better to use the post-link hook, which is what I’ve done for the icons for comparison:

\newcommand*{\glsxtrpostlinkmedialink}{\glsxtrpostlinkAddDescOnFirstUse}
\newcommand*{\glsxtrpostlinkinformation}{\glsxtrpostlinkAddDescOnFirstUse}
\newcommand*{\glsxtrpostlinkweather}{\glsxtrpostlinkAddDescOnFirstUse}

I’ve also provided some custom commands to make it easier to reference entries without worrying about the prefixes:

\newcommand{\unit}{\glssymbol}
\newcommand{\measurement}{\gls}
\glsxtrnewgls{film.}{\film}

As with sample-multi1.tex, it would be useful to include the page where the entries are defined in their corresponding lists. Again this can be done by redefining the general purpose non-category post-name hook \glsextrapostnamehook:
\newcommand*{\glsextrapostnamehook}[1]{%
  \glsadd[format={hyperbf}]{#1}%
}\glsprep
This needs resetting before the index, since it's redundant to record an entry in the index. This will require an extra \bib2gls+\LaTeX{} system call as this code can't be performed until the glossaries have been created.

The complete document code is listed below. The document build is:

deplatex sample-multi2
\bib2gls --group --break-space sample-multi2
deplatex sample-multi2
\bib2gls --group --break-space sample-multi2
deplatex sample-multi2

The resulting document is shown in figure 8.21, figure 8.22 and figure 8.23.

\documentclass{scrreprt}
\usepackage[T1]{fontenc}
\usepackage[utf8]{inputenc}
\usepackage[version=4]{mhchem}
\usepackage{siunitx}
\usepackage{etoolbox}
\usepackage{marvosym}
% package conflict, need to undefine conflicting commands
\undef\Sun
\undef\Lightning
\usepackage[weather]{ifsym}
\usepackage[en-GB]{datetime2}
\usepackage[colorlinks]{hyperref}
\usepackage[record, % use \bib2gls
  section, % use \section* for glossary headings
  postdot, % insert dot after descriptions in glossaries
  nomain, % don't create 'main' glossary
  index, % create 'index' glossary
  nostyles, % don't load default styles
% load and patch required style packages:
  \stylemods={list,mcols,tree,bookindex}
][glossaries-extra]
\newglossary*[bacteria]{Bacteria}
\newglossary*[markuplanguage]{Markup Languages}
\newglossary*[vegetable]{Vegetables}
\newglossary*[mineral]{Minerals}
\newglossary*{animal}{Animals}
\newglossary*{chemical}{Chemical Formula}
\newglossary*{baseunit}{SI Units}
\newglossary*{measurement}{Measurements}
\newglossary*{film}{Films}
\newglossary*{book}{Books}
\newglossary*{person}{People}
\newglossary*{mediacontrol}{Media Control Symbols}
\newglossary*{information}{Information Symbols}
\newglossary*{weather}{Weather Symbols}

\newcommand*{\bibglsdate}[7]{\DTMdisplaydate{#1}{#2}{#3}{#4}}
\GlsXtrLoadResources[
  src={no-interpret-preamble},
  interpret-preamble=false
]
\GlsXtrLoadResources[
  src={interpret-preamble,people},
  field-aliases={
    identifier=category,
    born=user1,
    died=user2,
    othername=user3
  },
  replicate-fields={name={first}},
  type=person,
  save-locations=false,
  date-fields={user1,user2},
  date-field-format={d MMM y G}
]

% Abbreviation styles must be set before the resource set
% that defines the abbreviations:
\setabbreviationstyle[bacteria]{long-only-short-only}
\setabbreviationstyle[markuplanguage]{long-short-desc}

% And also the style-dependent name format:
\renewcommand*{\glsxtrlongshortdescname}{%
  \protect\glsabbrvfont{the\glsshorttok}\space
  \glsxtrparen{\glslongfont{the\glslongtok}}%
}
\GlsXtrLoadResources[
  src={bacteria,markuplanguages,vegetables,
minerals, animals, books, films},
field-aliases={
    identifier=category,
    year=user1,
    cast=user2
},
type={same as category},
bibtex-contributor-fields={user2},
contributor-order={forenames},
save-locations=false
]
\GlsXtrLoadResources[
src={chemicalformula},
entry-type-aliases={chemical=symbol},
field-aliases={
    identifier=category,
    formula=name,
    chemicalname=description,
},
type={chemical},
set-widest,
sort={letternumber-case},
symbol-sort-fallback={name},
save-locations=false
]
\GlsXtrLoadResources[
src={baseunits, derivedunits},
entry-type-aliases={measurement=symbol, unit=symbol},
field-aliases={
    unitname=description,
    unitsymbol=symbol,
    measurement=name
},
category={measurement},
type={measurement},
set-widest,
symbol-sort-fallback={name},
save-locations=false
]
\GlsXtrLoadResources[
src={baseunits},
entry-type-aliases={unit=symbol},
field-aliases={
unitname=description,
unisymbol=name
},
category={measurement},
type={baseunit},
duplicate-label-suffix={.copy},
symbol-sort-fallback={name},
save-locations=false
]
\GlsXtrLoadResources[
src={miscsymbols},
field-aliases={
  identifier=category,
  icon=name,
  icondescription=description
},
entry-type-aliases={icon=symbol},
type={same as category},
sort-field={description},
save-locations=false,
set-widest
]
\renewcommand*{\glsxtrlongshortdescname}{
  \protect\protect\glslongfont{\the\glslongtok}\space
  \glsxtrparen{\glsabbrvfont{\the\glsshorttok}}%
}
% requires glossaries-extra v1.25:
\renewcommand*{\glsxtronlyname}{%
  \protect\glsabbrvonlyfont{\the\glslongtok}%
}
\GlsXtrLoadResources[
src={miscsymbols},
selection={recorded no deps},
duplicate-label-suffix={.copy},
entry-type-aliases={icon=index},
field-aliases={
  identifier=category,
  icondescription=symbol,
  icon=name
},
type=index,
sort-field={symbol},
}
\GlsXtrLoadResources[
src={terms,bacteria,markuplanguages,vegetables,minerals,
animals,chemialformula,baseunits,derivedunits,people,
films,books,miscsymbols},
selection={recorded and deps and see},
field-aliases={
  identifier=category,
  formula=symbol,
  chemicalname=name,
  unitname=description,
  unitsymbol=symbol,
  measurement=name,
  icon=symbol,
  icondescription=name
},
extry-alises={
  chemical=index,
  measurement=entry,
  unit=dualentry,
  icon=index
},
label-prefix={idx.},
record-label-prefix={idx.},
type=index,
dual-type=index,
combine-dual-locations=both,
abbreviation-sort-fallback={long},
replicate-override,
replicate-fields={first=name},
identical-sort-action={category}
]

\newcommand*{\swaptwo}[2]{#2, #1}
\newcommand*{\swapthree}[3]{#2 #3, #1}

\newcommand{\bacteriafont}[1]{\textbf{#1}}
\glssetcategoryattribute{bacteria}\{textformat\}\{bacteriafont\}
\glssetcategoryattribute{bacteria}\{glossnamefont\}\{bacteriafont\}
\glssetcategoryattribute{bacteria}\{glossdescfont\}\{bacteriafont\}

\newcommand{\bookfont}[1]{\textbf{#1}}
\glssetcategoryattribute{book}\{textformat\}\{bookfont\}
\glssetcategoryattribute{book}\{glossnamefont\}\{bookfont\}
\newcommand{\filmfont}[1]{\textbf{#1}}
\glssetcategoryattribute{film}{textformat}{filmfont}
\glssetcategoryattribute{film}{glossnamefont}{filmfont}
\glssetcategoryattribute{film}{glossdesc}{firstuc}

\glssetcategoryattribute{markuplanguage}{glossdesc}{firstuc}

\newcommand*{\glsxtrpostlinkmediacontrol}{\%}
\glsxtrpostlinkAddDescOnFirstUse
}

\newcommand*{\glsxtrpostlinkinformation}{\%}
\glsxtrpostlinkAddDescOnFirstUse
}

\newcommand*{\glsxtrpostlinkweather}{\%}
\glsxtrpostlinkAddDescOnFirstUse
}

\newcommand*{\glsxtrpostlinkperson}{\%}
\glsxtrifwasfirstuse
{%
  \ifgls\hasfield{user3}{\glslabel}{\space(\glscurrentfieldvalue)}
\}%
%
%
}

\newcommand*{\glsxtrpostnameperson}{\%}
\ifgls\hasfield{user3}{\glscurrententrylabel}{\space(\glscurrentfieldvalue)}
{\%}

\newcommand*{\glsxtrpostdescperson}{\%}
\ifgls\hasfield{user1}{\glscurrententrylabel}
{\% born
  \space(\glscurrentfieldvalue\textemdash\textemdash\%}
  \ifgls\hasfield{user2}{\glscurrententrylabel}{\% died
    \glscurrentfieldvalue
  }{\%}
}

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\newcommand*{\glsxtrpostdescfilm}{% 
\ifglshasfield{user1}{\glscurrententrylabel} %
\ifglshasfield{user2}{\glscurrententrylabel} %
\glsxtrrestorepostpunc % requires glossaries-extra v1.23+
(released \glscurrentfieldvalue))%
\ifglshasfield{user1}{\glscurrententrylabel} %
\ifglshasfield{user2}{\glscurrententrylabel} %
\glsxtrrestorepostpunc % requires glossaries-extra v1.23+
\glsifcategory{#1}{chemical} %
, \glossentriesymbol{#1} %
\space(\glossentrynameother{#1}{symbol})% 
\glsifcategory{#1}{film} %
(\film)% 
\gelsifname{#1} %
\glsxtrbookindexname{#1}{1} %
\glsadd[format=hyperbf]{#1} %
\unit{\glssymbol}
\measurement{\gls}
\glsxtrnewgls{film.}{\film}
\glsxtrnewglslike{idx.}{\idx}{\idxpl}{\Idx}{\Idxpl}
\begin{document}
\chapter{Sample}
\section{Bacteria}
This section is about \idxpl{bacteria}.
\subsection{First Use}
\gls{cbotulinum}, \gls{pputida}, \gls{cperfringens},
\gls{bsubtilis}, \gls{ctetani}, \gls{pcomposti},
\gls{pfimeticola}, \gls{cburnetii}, \gls{raustralis},
\gls{rrickettsii}.

\subsection{Next Use}
\gls{cbotulinum}, \gls{pputida}, \gls{cperfringens},
\gls{bsubtilis}, \gls{ctetani}, \gls{pcomposti},
\gls{pfimeticola}, \gls{cburnetii}, \gls{raustralis},
\gls{rrickettsii}.

\section{Markup Languages}
This section is about \idxpl{markuplanguage}.
\subsection{First Use}
\gls{LaTeX}, \gls{markdown}, \gls{xhtml}, \gls{mathml}, \gls{svg}.

\subsection{Next Use}
\gls{LaTeX}, \gls{markdown}, \gls{xhtml}, \gls{mathml}, \gls{svg}.

\section{Vegetables}
This section is about \idxpl{vegetable}.
\gls{cabbage}, \gls{brussels-sprout}, \gls{artichoke},
\gls{cauliflower}, \gls{courgette}, \gls{spinach}.

\section{Minerals}
This section is about \idxpl{mineral}.
\gls{beryl}, \gls{amethyst}, \gls{chalcedony}, \gls{aquamarine},
\gls{aragonite}, \gls{calcite}, \gls{bilinite},
\gls{cyanotrichite}, \gls{biotite}, \gls{dolomite},
\gls{quetzalcoatlite}, \gls{vulcanite}.

\section{Animals}
This section is about \idxpl{animal}.
\gls{duck}, \gls{parrot}, \gls{hedgehog}, \gls{sealion},
\gls{zander}, \gls{aardvark}, \gls{zebra}, \gls{swan},
\gls{armadillo}.

\section{Chemicals}
This section is about \idxpl{chemical}.
\gls{Al2SO43} (\glsdesc{Al2SO43}), \gls{H2O} (\glsdesc{H2O}),
\gls{C6H12O6} (\glsdesc{C6H12O6}), \gls{CH3CH2OH} (\glsdesc{CH3CH2OH}), \gls{CH2O} (\glsdesc{CH2O}), \gls{OF2} (\glsdesc{OF2}), \gls{O2F2} (\glsdesc{O2F2}), \gls{SO42-} (\glsdesc{SO42-}), \gls{H3O+} (\glsdesc{H3O+}), \gls{OH-}
8 Examples: sample-multi2.tex

\( \text{Examples: } \{ \text{OH}^-, \text{O}_2, \text{AlF}_3, \text{C}_{10} \text{H}_{10} \text{O}_4, \text{C}_5 \text{H}_4 \text{NCOOH}, \text{SO}_2, \text{S}_2 \text{O}_7^{2-}, \text{SbBr}_3, \text{Sc}_2 \text{O}_3, \text{Zr}_3 \text{PO}_4_4, \text{ZnF}_2 \} \). \\

\textbf{section}{SI Units} \\
\Idxpl{baseunit}: \unit{ampere} (measures \measurement{ampere}), \unit{kilogram} (measures \measurement{kilogram}), \unit{metre}, \unit{second}, \unit{kelvin}, \unit{mole}, \unit{candela}. \\
\Idxpl{derivedunit}: \unit{area}, \unit{volume}, \unit{acceleration}, \unit{density}, \unit{luminance}, \unit{specificvolume}, \unit{concentration}, \unit{wavenumber}. \\

\textbf{section}{Books and Films} \\
\Idxpl{book}: \gls{ataleoftwocities} (by \gls{dickens}), \gls{thebigsleep} (by \gls{chandler}, \idx{film} adaptation: \film{thebigsleep}), \gls{icecoldinalex} (by \gls{landon}, \idx{film} adaptation: \film{icecoldinalex}), \gls{whydidnttheyaskevans} (by \gls{christie}, \idx{film} adaptation: \film{whydidnttheyaskevans}), \gls{doandroidsdreamofelectricsheep} (by \gls{dick}, inspired the \idx{film} \film{bladerunner}). \\
\Idxpl{film}: \film{anunexpectedjourney}, \film{desolationofsmaug} and \film{thebattleoffivearmies} (adapted from the \idx{book} \gls{thehobbit} by \gls{tolkien}), \film{thefellowshipofthering}, \film{thetwotowers} and \film{thereturnoftheking} (adapted from the \idx{book} \gls{thelordoftherings} also by \gls{tolkien}). \\

\textbf{section}{Miscellaneous Symbols} \\
\subsection{First Use} \\
\Idxpl{mediacontrol}: \gls{forward}, \gls{forwardtoindex}, \gls{rewindtoindex}, \gls{rewind}. \\
\Idx{information}: \gls{bicycle}, \gls{coffeecup}, \gls{info}, \gls{gentsroom}, \gls{ladiesroom}, \gls{wheelchair}, \gls{football}, \gls{recycling}. \\

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8 Examples: sample-multi2.tex

\Idx{weather}: \gls{cloud}, \gls{fog}, \gls{hail}, \gls{sun}, \gls{lightning}.

\subsection{Next Use}
\Idxpl{mediacontrol}: \gls{forward}, \gls{forwardtoindex}, \gls{rewindtoindex}, \gls{rewind}.

\Idx{information}: \gls{bicycle}, \gls{coffeecup}, \gls{info}, \gls{gentsroom}, \gls{ladiesroom}, \gls{wheelchair}, \gls{football}.

\Idx{weather}: \gls{cloud}, \gls{fog}, \gls{hail}, \gls{sun}, \gls{lightning}.

\section{Measurements}
\Idxpl{measurement}: \measurement{ampere}, \measurement{area}, \measurement{metre}.

\chapter{Glossaries}
\printunsrtglossary[type=bacteria,style=mcoltree]
\printunsrtglossary[type=markuplanguage,style=altlist]
\printunsrtglossary[type=vegetable,style=tree,nogroupskip]
\printunsrtglossary[type=mineral,style=treegroup]
\printunsrtglossary[type=animal,style=tree]
\printunsrtglossary[type=person,style=tree,nogroupskip]
\printunsrtglossary[type=book,style=tree,nogroupskip]
\printunsrtglossary[type=film,style=tree,nogroupskip]
\printunsrtglossary*[type=chemical,style=mcolalttreegroup]
{\%\renewcommand*{\glstreenamefmt}[1]{#1}\%\renewcommand*{\glstreegroupheaderfmt}[1]{\textbf{#1}}\%}
\printunsrtglossary*[type=measurement,style=alttree,nogroupskip]
{\%\renewcommand{\glsxtralttreeSymbolDescLocation}[2]{\%\glossentrydesc{#1}\%\ifglshassymbol{#1}{space{\glossentrysymbol{#1}}}{}\%\glspostdescription\glsxtrAltTreePar\%}
}
\printunsrtglossary*[type=baseunit,style=alttree,nogroupskip]
{\%}
8 Examples: sample-multi2.tex

\glsFindWidestTopLevelName[baseunit]%

\printunsrtglossary[type=information,style=alttree,nogroupskip]
\printunsrtglossary[type=mediacontrol,style=alttree,nogroupskip]
\printunsrtglossary[type=weather,style=alttree,nogroupskip]

\printunsrtglossary*[type=index,style=bookindex]
{\setupglossaries{section=chapter}%
 \let\sortname\swaptwo
 \let\sortphonename\swapthree
 \renewcommand*{\glsextrapostnamehook}[1]{}}% 
\end{document}
8 Examples: sample-multi2.tex
8 Examples: sample-multi2.tex

Animals
- savannah: a large, open area with scattered trees and shrubs.
- antelope: a large, graceful antelope species.
- roe: a small mammal with brown fur.
- gazelle: a small, graceful antelope species.

Minerals
- graphite: a black, flaky mineral.
- diamond: a transparent, hard mineral.
- talc: a soft, white mineral.

Vegetables
- spinach: a leafy green vegetable.
- tomato: a red, juicy vegetable.
- potato: a starchy root vegetable.

Books
- The Big Sleep: A novel by Raymond Chandler.

Films

 mesurements
- meter per second squared (m s⁻²).
- amount of substance mole (mol).
- area square meter (m²).
- length meter (m).

SI Units
- A: ampere.
- cd: candela.
- Hz: hertz.
- Pa: pascal.
- K: kelvin.

Information Symbols
- &: and.
- %: percent.
- °: degree.
- ′: minute.
- ″: second.

Figure 8.22: sample-multi2.pdf (pages 5 to 8)
Index

Symbols

- (back to start of track), 1, 3, 9
- (rewind), 1, 3, 9
- ( preorder), 1, 3, 9
- (wheelchair access provided), 1, 3, 9
- (i), 1, 3, 9

Media Control Symbols

- (back to start of track), 1, 3, 9
- (rewind), 1, 3, 9
- (next track), 1, 3, 9
- (play), 1, 3, 9
- (pause), 1, 3, 9
- (stop), 1, 3, 9
- (forward), 1, 3, 9
- (next), 1, 3, 9
- (previous), 1, 3, 9
- (rewind), 1, 3, 9
- (next), 1, 3, 9
- (stop), 1, 3, 9

Weather Symbols

- cloudy
- /k
- /m
- /o
- /n

Weather Symbols

- cloudy
- /k
- /m
- /o
- /n

Weather Symbols

- cloudy
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Weather Symbols

- cloudy
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Weather Symbols

- cloudy
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Weather Symbols

- cloudy
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Weather Symbols

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Weather Symbols

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Weather Symbols

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Weather Symbols

- cloudy
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- /m
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Weather Symbols

- cloudy
- /k
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- /n

Weather Symbols

- cloudy
Package Option Summary

Most options are in the form \langle option \rangle = \langle value \rangle and may have a default if \langle value \rangle is omitted, but some options don’t have values and should not have one assigned. For boolean options, if the value is omitted true is assumed. †Indicates a value that’s only provided by glossaries-extra and not by the base glossaries package.

A

abbreviations
Creates the abbreviations glossary.
»Provided by glossaries-extra.

accsupp
Load the glossaries-accsupp package to provide accessibility support.
»Provided by glossaries and modified by glossaries-extra.

acronym=\langle boolean \rangle
If true, creates a new glossary with the label acronym.
»Provided by glossaries.

acronymlists=\langle list \rangle
Identifies the glossaries that are lists of acronyms (don’t use with glossaries-extra).
»Provided by glossaries.

acronyms
Equivalent to acronym={true}.
»Provided by glossaries.

automake=\langle boolean \rangle
If true, tries to use \TeX’s shell escape to automatically run the required indexing application (may not be permitted by \TeX’s security settings).
»Provided by glossaries.

autoseeindex=\langle boolean \rangle
If true, the see and seealso keys automatically indexes the cross-referenced term.
»Provided by glossaries-extra. Not relevant with bib2gls.

B

counter=\langle value \rangle
Sets the default location counter to \langle value \rangle (which must be the name of a counter). May be overridden on an individual basis using the counter option in commands like \gls and \glsadd.
»Provided by glossaries.

counterwithin=\langle counter name \rangle
Automatically sets the option entrycounter={true} and indicates the master counter for glossaryentry.
»Provided by glossaries.

counterwithin=\langle counter name \rangle
Automatically sets the option entrycounter={true} and indicates the master counter for glossaryentry.
»Provided by glossaries.

D

debug=\langle value \rangle
Add debugging information; allowed values: false (default), true (info added to transcript), showtargets (info added to transcript and show target name in the document for glossary-related hyperlinks), showwrgloss† show mark in document where indexing occurs and all† (implement both showtargets and showwrgloss).
»Provided by glossaries and modified by glossaries-extra.
docdef=⟨value⟩

Determines whether entries can be defined in the document environment; the ⟨value⟩ may be one of: false (entries must be defined in the preamble), true (entries may be defined in the document environment), restricted (entries may only be defined in the document environment if the definition comes before all glossaries and before any reference to the entry).

Provided by glossaries-extra. Not relevant with bib2gls.

entrycounter=⟨boolean⟩

If true, creates the glossaryentry counter and each main (level 0) glossary entry will be numbered (which can be referenced with \glsrefentry or \glsxtrpageref).

Provided by glossaries.

esclocations=⟨boolean⟩

If true, glossaries tries to escape special characters from the locations.

Provided by glossaries. Not relevant with bib2gls.

hyperfirst=⟨boolean⟩

If false, terms on first use don’t have hyperlinks unless explicitly set (with glossaries-extra, the nohyperfirst category attribute can selectively apply this).

Provided by glossaries.

index

Defines the index glossary and \newterm.

Provided by glossaries.

indexcounter

Creates the wrglossary counter, which is incremented every time an entry is indexed with that counter, and sets that as the default location counter.

Provided by glossaries-extra.

indexcrossrefs=⟨boolean⟩

If true, at the end of the document automatically index cross-referenced entries that haven’t been marked as used.

Provided by glossaries-extra. Not relevant with bib2gls.

indexonlyfirst=⟨boolean⟩

If true, only performs indexing on first use.

Provided by glossaries.

makeindex

Write the indexing information using makeindex’s format.

Provided by glossaries. Not relevant with bib2gls.

nogroupskip=⟨boolean⟩

If true, suppresses the visual separation between letter groups in glossary styles that support this option.

Provided by glossaries.

nohypertypes=⟨list⟩

Suppress hyperlinks for the listed glossary types.

Provided by glossaries.

nolangwarn

Suppresses warnings generated by missing language modules.

Provided by glossaries.

nolist

Prevents the glossary-list package (which provides the list styles) from being automatically loaded.

Provided by glossaries.
nolong
Prevents the glossary–long package (which provides the long styles) from being automatically loaded.
Provided by glossaries.
nomain
Suppresses the creation of the default main glossary. If used an alternative glossary must be created.
Provided by glossaries.
nomissingglistext=⟨boolean⟩
If true, suppress the warning text that appears in the document with \printglossary if the associated external file doesn’t exist.
Provided by glossaries-extra. Not relevant with bib2gls.
nonumberlist
Suppresses the location lists from being displayed in the glossary lists (the package option isn’t boolean, but the option of the same name for \printglossary, \printunsrtglossary and \printnoidxglossary is boolean); with bib2gls you can use save-locations={false} instead.
Provided by glossaries.
nopostdot=⟨boolean⟩
If true, suppresses the automatic post-description punctuation. With glossaries-extra you can also use postpunc={none} instead of nopostdot={true} and postdot or postpunc={dot} instead of nopostdot={false}.
Provided by glossaries and modified by glossaries-extra.
noredefwarn
 Suppresses warnings if overriding glossary commands provided by another class or package.
Provided by glossaries.
nostyles
Prevents all the default styles from being loaded. If this option is used a style must be defined in the document or a package providing a style needs to be loaded (either through \stylesmods or with \usepackage).
Provided by glossaries.
nosuper
Prevents the glossary–super package (which provides the super styles) from being automatically loaded.
Provided by glossaries.
notranslate
Equivalent to translate={false}.
Provided by glossaries.
notree
Prevents the glossary–tree package (which provides the tree styles) from being automatically loaded.
Provided by glossaries.
nowarn
Suppresses all glossaries-related warnings.
Provided by glossaries.
numberedsection=⟨value⟩
Determines whether to use numbered or unnumbered section units, and whether or not to automatically add \label; the value may be one of: false (default, no numbering and no label), nolabel (numbered but no label), autolabel (numbered with automatic label), nameref (unnumbered but labelled). If no value is given nolabel is assumed.
Provided by glossaries.
numberline=⟨boolean⟩
When used with toc={true}, this will add \numberline{} to the start of the TOC entry.
Provided by glossaries.
numbers
Defines the numbers glossary; with glossaries-extra additionally defines \glsxtrnewnumber.
Provided by glossaries and modified by glossaries-extra.
**Package Option Summary**

**O**

order=⟨value⟩

Sets whether to use word or letter ordering.

*Provided by glossaries. Not relevant with bib2gls, use the break-at resource option instead.

**P**

postdot

Equivalent to postpunc={dot}.

*Provided by glossaries-extra.

postpunc=⟨value⟩

Controls the automatic post-description punctuation; the value may be one of: none (not required, the description or glossary style already supplies the terminating punctuation), comma (use a comma), dot (use a full stop with the space factor adjusted), ⟨punctuation⟩ (use ⟨punctuation⟩).

*Provided by glossaries-extra.

**R**

record=⟨value⟩

Unless the value is off, this option sets up glossaries-extra for use with bib2gls: only (assumed if no ⟨value⟩ supplied) indexing is performed by bib2gls; nameref (glossaries-extra v1.37+) like only but includes extra information in the records; alsoindex (hybrid method) bib2gls is used to provide the entry definitions but makeindex or xindy is used for the indexing.

*Provided by glossaries-extra.

**S**

sanitizesort=⟨boolean⟩

Determines whether or not to sanitize the sort key (not relevant with bib2gls).

*Provided by glossaries. Not relevant with bib2gls.

savenumberlist=⟨boolean⟩

If true, stores the number list for each entry (with bib2gls use the save-locations resource option instead).

*Provided by glossaries.

savewrites=⟨boolean⟩

If true, indexing information is stored in token registers that are only written at the end of the document to save creating a write register per glossary indexing file.

*Provided by glossaries. Not relevant with bib2gls.

section=⟨value⟩

Indicates the sectional unit to use for the glossary heading (the value should be the name of the section command without the leading backslash, for example section={subsection}). If no value is supplied then section={section} is assumed. If this option is omitted, then the default is either section={chapter} or section={section}, depending on whether or not \chapter has been defined. The starred or unstarred version is determined by numberedsection.

*Provided by glossaries.

seeautonumberlist

If nonumberlist is used, this allows the see key to override the setting for the associated entry.

*Provided by glossaries. Not relevant with bib2gls.

seenoindex=⟨value⟩

Determines whether the see key automatically indexes the entry using \glsadd; allowed values: error (attempts indexing but triggers an error if used before \makeglossaries); warn (attempts indexing but triggers a warning if used before \makeglossaries); ignore (attempts indexing but does nothing if used before \makeglossaries).

*Provided by glossaries. Not relevant with bib2gls.
bib2gls.

**shortcuts**\{value\}

Sets up shortcut commands; the value may be one of `false` (default), `true` (assumed if no value supplied), implements `shortcuts\{ac\}`, `shortcuts\{abbreviations\}` and `shortcuts\{other\}`, `acronyms`\* (equivalent to base `shortcuts\{true\}`), `synonym acro`, `ac`\* (provides `\ac` shortcuts that use glossaries-extra’s new abbreviation commands), `abbreviations`\* (provides `\ab` shortcuts), `other`\* (provides other shortcut commands), `all`\* (synonym for `shortcuts\{true\}`) and `none`\* (synonym for `shortcuts\{false\}`).

Provided by glossaries and modified by glossaries-extra.

**sort**\{value\}

Indicates how to assign the sort key if not explicitly set, the value may be one of: `none` (don’t automatically assign the sort field), `standard` (obtain the sort value from the name field), `def` (assign the sort field to a numerical value that represents the order of definition), `user` (assign the sort field to a numerical value that represents the order of first use).

Provided by glossaries. Not relevant with bib2gls, use the sort resource option instead.

**style**\{name\}

Sets the default glossary style to \{name\}.

Provided by glossaries.

**stylemods**\{value\}

Load the glossaries-extra-stylemods package with the supplied options (which should be a list of suffix parts identifying glossary style packages `glossary-\{suffix\}`); there are two keyword values: `default` (equivalent to omitting `\{value\}`) and `all`, which loads all predefined styles.

Provided by glossaries-extra.

**toc**\{boolean\}

If true (default for glossaries-extra), automatically add each glossary to the table of contents.

Provided by glossaries.

**translate**\{value\}

Determines the multilingual support provided by glossaries; allowed values: `true` (default with just base glossaries; if babel has been loaded and translator is installed, use translator interface), `false` (don’t provide translations), `babel` (default with glossaries-extra; don’t load the translator package, just load glossaries-babel).

Provided by glossaries.

**ucmark**\{boolean\}

If true, converts the glossary mark (used in page headings) to upper case with `\MakeTextUppercase`.

Provided by glossaries.

**undefaction**\{value\}

Indicates what to do if an undefined entry is referenced: `warn` (generate a warning and
show ?? in the text, default with record,
error (generate an error).
Provided by glossaries-extra.

\texttt{xindy=(settings)}

Write the indexing information using xindy’s format where the optional \texttt{(settings)} may supply the language and code page and whether or not to define the default number group.
Provided by glossaries. Not relevant with bib2gls.

\texttt{xindygloss}
Equivalent to \texttt{xindy=\{\}}.
Provided by glossaries. Not relevant with bib2gls.

\texttt{xindynoglsnumbers}
Equivalent to \texttt{xindy=\{glsnumbers=false\}}.
Provided by glossaries. Not relevant with bib2gls.
General Command Summary

This is an alphabetical summary of commands referenced in this document. See the relevant user guides for further details.

*Indicates command is recognised by bib2gls’s interpreter although it may have a slightly different implementation.

\}\text{ kernel command}*
 Produces the close brace symbol }.

\text{ kernel command}*
 Produces the open brace symbol {.

\{"\langle character\}\}
 Produces an umlaut accent over \langle character\>.

\#
 Produces the hash symbol #.

\%
 Produces the percent symbol %.

\&
 Produces the ampersand symbol &.

\{"\langle character\}\}
 Produces an acute accent over \langle character\>.

\,
 Thin space.

\{"\langle character\}\}
 Produces a dot accent over \langle character\>.

\@
 Adjusts the space factor to indicate the following punctuation character marks the end of the sentence.

\@currentHref
 Used to store the current anchor for the next instance of \label.

\@currentlabelname
 Used to store the current title information for the next instance of \label.
General Command Summary

\firstofone{\langle code\rangle}
Does \langle code\rangle.

\for{\langle cs\rangle}{=}{\langle list\rangle}{\do}{\langle code\rangle}
Iterates over each item in the comma-separated \langle list\rangle, and on each iteration sets \langle cs\rangle to the current element and performs \langle code\rangle.

\gls@hypergroup{\langle type\rangle}{\langle group id\rangle}
Command written to the .aux file that identifies that the given group was used in the glossary on the previous run.

\gobble{\langle code\rangle}
Does nothing (the argument is discarded).

\istfilename{\langle filename\rangle}
Identifies the style file in the .aux file for the benefit of external tools like makeglossaries and makeglossaries-lite.

{\langle len\rangle}
Starts a new row in a tabular or array context with an extra vertical space of length \langle len\rangle above it (starred form prohibits a page break).

{\langle character\rangle}
Puts a circumflex accent over \langle character\rangle.

\_
Produces the underscore symbol _.

\s
Produces an inter-word space.

A

\AA
Produces the upper case A-ring character Å.

\aa
Produces the lower case a-ring character å.

\ab[\langle options\rangle]{\langle label\rangle}{\langle insert\rangle}
Equivalent to \gls.

\abbreviationname
Language-sensitive name used for the title of the glossary created with the abbreviations package option.

\abbrvpluralsuffix
The style sensitive suffix used to construct the default plural for the short form of abbreviations.

\ac[\langle options\rangle]{\langle label\rangle}{\langle insert\rangle}
Equivalent to \gls.
General Command Summary

\`\texttt{\textbackslash acronymname}\`\hspace{0.5cm}glossaries
Language-sensitive name used for the title of the glossary created with the \texttt{acronym} or \texttt{acronyms} package option.

\`\texttt{\textbackslash acronymtype}\`\hspace{0.5cm}glossaries
Expands to the default acronym glossary type when using \texttt{\textbackslash newacronym}.

\`\texttt{\textbackslash acrpluralsuffix}\`\hspace{0.5cm}glossaries*
The suffix used to construct the default plural for the short form of acronyms using the base glossaries package’s acronym mechanism (not used with the glossaries-extra enhanced abbreviation mechanism).

\`\texttt{\textbackslash AE}\`\hspace{0.5cm}kernel command*
Produces the upper case AE-ligature.

\`\texttt{\textbackslash ae}\`\hspace{0.5cm}kernel command*
Produces the lower case æ-ligature.

\`\texttt{\textbackslash alph}\{\textbackslash counter\}\}\hspace{0.5cm}kernel command
Displays the given counter as an alphabetic character from “a” to “z”.

\`\texttt{\textbackslash Alpha}\`\hspace{0.5cm}glossaries-extra-bib2gls*
Greek letter alpha A.

\`\texttt{\textbackslash alpha}\`\hspace{0.5cm}kernel command* (maths mode)
Greek letter alpha $\alpha$.

\`\texttt{\textbackslash alsoname}\`\hspace{0.5cm}language packages
Language sensitive “see also” text.

\`\texttt{\textbackslash approx}\`\hspace{0.5cm}kernel command* (maths mode)
Approximate symbol $\approx$.

\`\texttt{\textbackslash appto}\{\textbackslash cs\}\{\textbackslash code\}\}\hspace{0.5cm}etoolbox*
Appends \texttt{\textbackslash code} to the definition of the control sequence \texttt{\textbackslash cs}.

\`\texttt{\textbackslash apptoglossarypreamble}\{\textbackslash type\}\{\textbackslash code\}\}\hspace{0.5cm}glossaries-extra
Appends \texttt{\textbackslash code} to the preamble for the given glossary (or the default of \texttt{\textbackslash type} is omitted).

\`\texttt{\textbackslash AtEndDocument}\{\textbackslash code\}\}\hspace{0.5cm}kernel command
Perform \texttt{\textbackslash code} at the end of the document.

\`\texttt{\textbackslash autoref}\{\textbackslash id\}\}\hspace{0.5cm}hyperref
Cross-reference with textual tag inferred from the associated counter.

\`\texttt{\textbackslash backmatter}\`\hspace{0.5cm}book-like classes
Switches to back matter.

\`\texttt{\textbackslash bfseries}\`\hspace{0.5cm}kernel command
Switch to bold (until end of current scope).
\bibglsaliassep
Separator between alias cross-reference and location list.
\bibglsampersandchar
Expands to a literal ampersand character.
\bibglscircumchar
Expands to a literal circumflex character.
\bibglscompact\{\(\langle\text{pattern}\rangle\}\{\langle\text{part1}\rangle\}\{\langle\text{part2}\rangle\}
Compaction used on the end range location.
\bibglscontributor\{\langle\text{forenames}\rangle\}\{\langle\text{von-part}\rangle\}\{\langle\text{surname}\rangle\}\{\langle\text{suffix}\rangle\}
Used to markup a contributor’s name that was converted from \TeX’s contributor syntax.
\bibglscontributorlist\{\langle\text{list}\rangle\}\{\langle\text{number}\rangle\}
Used to markup a list of names from a field that was converted from \TeX’s contributor syntax.
\bibglsdate\{\langle\text{year}\rangle\}\{\langle\text{month}\rangle\}\{\langle\text{day-of-month}\rangle\}\{\langle\text{day-of-week}\rangle\}\{\langle\text{day-of-year}\rangle\}\{\langle\text{era}\rangle\}\{\langle\text{original}\rangle\}
Used to markup a date converted from a field value.
\bibglsdatetime\{\langle\text{year}\rangle\}\{\langle\text{month}\rangle\}\{\langle\text{day-of-month}\rangle\}\{\langle\text{day-of-week}\rangle\}\{\langle\text{day-of-year}\rangle\}\{\langle\text{era}\rangle\}\{\langle\text{hour}\rangle\}\{\langle\text{minute}\rangle\}\{\langle\text{second}\rangle\}\{\langle\text{millisec}\rangle\}\{\langle\text{dst}\rangle\}\{\langle\text{zone}\rangle\}\{\langle\text{original}\rangle\}
Used to markup a date-time instance converted from a field value.
\bibglsdatetimegroup\{\langle\text{YYYY}\rangle\}\{\langle\text{MM}\rangle\}\{\langle\text{DD}\rangle\}\{\langle\text{G}\rangle\}\{\langle\text{title}\rangle\}\{\langle\text{group-id}\rangle\}\{\langle\text{type}\rangle\}
Expands to the date-time group label.
\bibglsdatetimegrouptitle\{\langle\text{YYYY}\rangle\}\{\langle\text{MM}\rangle\}\{\langle\text{DD}\rangle\}\{\langle\text{hh}\rangle\}\{\langle\text{mm}\rangle\}\{\langle\text{ss}\rangle\}\{\langle\text{zone}\rangle\}\{\langle\text{title}\rangle\}\{\langle\text{group-id}\rangle\}\{\langle\text{type}\rangle\}\{\langle\text{original}\rangle\}\langle\text{group-id}\rangle\{\langle\text{type}\rangle\}
Expands to the date-time group title.
\bibglsdatetimeremainder\{\langle\text{millisec}\rangle\}\{\langle\text{dst}\rangle\}\{\langle\text{zone}\rangle\}\{\langle\text{original}\rangle\}
Used internally to pick up the final four arguments of \bibglsdatetime.
\bibglsdelimN
Separator for individual locations (except last).
\bibglsdollarchar
Expands to a literal dollar character.
\bibglsdualprefixlabel\{\langle\text{prefix}\rangle\}
Hook provided to pick up the dual prefix, if required.
\bibglsemptygroup\{(type)\} \hspace{1em} \textit{bib2gls}
Expands to the empty group label.

\bibglsemptygrouptitle\{(type)\} \hspace{1em} \textit{bib2gls}
Expands to the empty group title.

\bibglsexternalprefixlabel\{(n)\}\{(prefix)\} \hspace{1em} \textit{bib2gls}
Hook provided to pick up the \langle n\rangle th external prefix, if required.

\bibglsfirstuc\{(text)\} \hspace{1em} \textit{bib2gls}
Converts the first letter of \langle text\rangle to upper case.

\bibglsflattenedchildpostsort\{(parent name)\}\{(child name)\} \hspace{1em} \textit{bib2gls*}
Expands to the post-sort flattened child entry’s new name.

\bibglsflattenedchildpresort\{(child name)\}\{(parent name)\} \hspace{1em} \textit{bib2gls*}
Expands to the pre-sort flattened child entry’s new name.

\bibglsflattenedhomograph\{name\}\{(parent label)\} \hspace{1em} \textit{bib2gls}
Expands to the flattened entry’s new name.

\bibglshashchar \hspace{1em} \textit{bib2gls*}
Expands to a literal hash character.

\bibglshrefchar\{\langle hex\rangle\}\{\langle char\rangle\} \hspace{1em} \textit{bib2gls*}
Expands to a literal percent character followed by \langle hex\rangle.

\bibglshrefunicode\{\langle hex\rangle\}\{\langle char\rangle\} \hspace{1em} \textit{bib2gls*}
Expands to \langle char\rangle by default.

\bibglshypergroup\{(type)\}\{(group-id)\} \hspace{1em} \textit{bib2gls}
Creates group navigation information.

\bibglshyperlink\{\langle text\rangle\}\{\langle label\rangle\} \hspace{1em} \textit{bib2gls*}
Displays \langle text\rangle with a hyperlink to the entry given by \langle label\rangle, if supported.

\bibglsinterloper\{\langle location\rangle\} \hspace{1em} \textit{bib2gls}
Interloper location format.

\bibglslastDelimN \hspace{1em} \textit{bib2gls}
Separator before the last location (where there is more than one location).

\bibglslettergroup\{\langle title\rangle\}\{\langle letter\rangle\}\{\langle id\rangle\}\{\langle type\rangle\} \hspace{1em} \textit{bib2gls}
Expands to the letter group label.

\bibglslettergrouptitle\{\langle title\rangle\}\{\langle letter\rangle\}\{\langle id\rangle\}\{\langle type\rangle\} \hspace{1em} \textit{bib2gls}
Expands to the letter group title.

\bibglslocationgroup\{(n)\}\{\langle counter\rangle\}\{\langle list\rangle\} \hspace{1em} \textit{bib2gls}
Location group encapsulator.

\bibglslocationgroupsep \hspace{1em} \textit{bib2gls}
Location group separator.
General Command Summary

\bibglslocprefix\langle n\rangle
Location list prefix.

\bibglslocsuffix\langle n\rangle
Location list suffix.

\bibglslowercase\langle text\rangle
Converts \langle text\rangle to lower case.

\bibglsnewabbreviation\langle label\rangle\langle options\rangle\langle short\rangle\langle long\rangle
Defines terms provided with \texttt{@abbreviation}.

\bibglsnewacronym\langle label\rangle\langle options\rangle\langle short\rangle\langle long\rangle
Defines terms provided with \texttt{@acronym}.

\bibglsnewbibtexentry\langle label\rangle\langle options\rangle\langle name\rangle\langle description\rangle
Defines terms provided with \texttt{@bibtexentry}.

\bibglsnewcontributor\langle label\rangle\langle options\rangle\langle name\rangle\langle description\rangle
Defines terms provided with \texttt{@contributor}.

\bibglsnewdualabbreviation\langle label\rangle\langle options\rangle\langle short\rangle\langle long\rangle
Defines terms provided with \texttt{@dualabbreviation}.

\bibglsnewdualabbreviationentry\langle label\rangle\langle options\rangle\langle short\rangle\langle long\rangle\langle description\rangle
Defines primary terms provided with \texttt{@dualabbreviationentry}.

\bibglsnewdualabbreviationentrysecondary\langle label\rangle\langle options\rangle\langle short\rangle\langle long\rangle\langle description\rangle
Defines secondary terms provided with \texttt{@dualabbreviationentry}.

\bibglsnewdualacronym\langle label\rangle\langle options\rangle\langle short\rangle\langle long\rangle
Defines terms provided with \texttt{@dualacronym}.

\bibglsnewdualentry\langle label\rangle\langle options\rangle\langle name\rangle\langle description\rangle
Defines terms provided with \texttt{@dualentry}.

\bibglsnewdualentryabbreviation\langle label\rangle\langle options\rangle\langle short\rangle\langle long\rangle\langle description\rangle
Defines primary terms provided with (deprecated) \texttt{@dualentryabbreviation}.

\bibglsnewdualentryabbreviationsecondary\langle label\rangle\langle options\rangle\langle short\rangle\langle long\rangle\langle description\rangle
Defines secondary terms provided with (deprecated) \texttt{@dualentryabbreviation}.

\bibglsnewdualindexabbreviation\langle label\rangle\langle dual-label\rangle\langle options\rangle\langle name\rangle\langle short\rangle\langle long\rangle\langle description\rangle
Defines primary terms provided with \texttt{@dualindexabbreviation}.

\bibglsnewdualindexabbreviationsecondary\langle label\rangle\langle options\rangle\langle name\rangle\langle short\rangle\langle long\rangle\langle description\rangle
Defines secondary terms provided with \texttt{@dualindexabbreviation}.
General Command Summary

\bibglsnewdualindexentry\((label)\)|\(\langle options\rangle\)|\(\langle name\rangle\)|\(\langle description\rangle\) \bib2gls
Defines primary terms provided with @dualindexentry.

\bibglsnewdualindexentrysecondary\((label)\)|\(\langle options\rangle\)|\(\langle name\rangle\)|\(\langle description\rangle\) \bib2gls
Defines secondary terms provided with @dualindexentry.

\bibglsnewdualindexnumber\((label)\)|\(\langle options\rangle\)|\(\langle name\rangle\)|\(\langle symbol\rangle\)|\(\langle description\rangle\) \bib2gls
Defines primary terms provided with @dualindexnumber.

\bibglsnewdualindexnumbersecondary\((label)\)|\(\langle options\rangle\)|\(\langle name\rangle\)|\(\langle description\rangle\) \bib2gls
Defines secondary terms provided with @dualindexnumber.

\bibglsnewdualindexsymbol\((label)\)|\(\langle options\rangle\)|\(\langle name\rangle\)|\(\langle symbol\rangle\)|\(\langle description\rangle\) \bib2gls
Defines primary terms provided with @dualindexsymbol.

\bibglsnewdualindexsymbolsecondary\((label)\)|\(\langle options\rangle\)|\(\langle name\rangle\)|\(\langle description\rangle\) \bib2gls
Defines secondary terms provided with @dualindexsymbol.

\bibglsnewdualnumber\((label)\)|\(\langle options\rangle\)|\(\langle name\rangle\)|\(\langle description\rangle\) \bib2gls
Defines terms provided with @dualnumber.

\bibglsnewdualsymbol\((label)\)|\(\langle options\rangle\)|\(\langle name\rangle\)|\(\langle description\rangle\) \bib2gls
Defines terms provided with @dualsymbol.

\bibglsnewentry\((label)\)|\(\langle options\rangle\)|\(\langle name\rangle\)|\(\langle description\rangle\) \bib2gls
Defines terms provided with @entry.

\bibglsnewindex\((label)\)|\(\langle options\rangle\) \bib2gls
Defines terms provided with @index.

\bibglsnewindexplural\((label)\)|\(\langle options\rangle\)|\(\langle name\rangle\) \bib2gls
Defines terms provided with @index.

\bibglsnewnumber\((label)\)|\(\langle options\rangle\)|\(\langle name\rangle\)|\(\langle description\rangle\) \bib2gls
Defines terms provided with @number.

\bibglsnewprogenitor\((label)\)|\(\langle options\rangle\)|\(\langle name\rangle\)|\(\langle description\rangle\) \bib2gls
Defines terms provided with @progenitor.

\bibglsnewspawnabbreviation\((label)\)|\(\langle options\rangle\)|\(\langle short\rangle\)|\(\langle long\rangle\) \bib2gls
Defines terms provided with @spawnabbreviation.

\bibglsnewspawnacronym\((label)\)|\(\langle options\rangle\)|\(\langle short\rangle\)|\(\langle long\rangle\) \bib2gls
Defines terms provided with @spawnacronym.

\bibglsnewspawndualindexentry\((label)\)|\(\langle options\rangle\)|\(\langle name\rangle\)|\(\langle description\rangle\) \bib2gls
Defines terms provided with @spawndualindexentry.

\bibglsnewspawndualindexentrysecondary\((label)\)|\(\langle options\rangle\)|\(\langle name\rangle\)|\(\langle description\rangle\) \bib2gls
Defines secondary terms provided with @spawndualindexentry.

\bibglsnewspawnedabbreviation\((label)\)|\(\langle options\rangle\)|\(\langle short\rangle\)|\(\langle long\rangle\) \bib2gls
Defines terms spawned from @spawnabbreviation.
General Command Summary

\bibglsnewspawnedacronym{(label)}{(options)}{(short)}{(long)}

Defines terms spawned from @spawnacronym.

\bibglsnewspawnedentry{(label)}{(options)}

Defines terms spawned from @spawnentry.

\bibglsnewspawnedindex{(label)}{(options)}

Defines terms spawned from @progenitor or @spawnindex.

\bibglsnewspawnedindexplural{(label)}{(options)}{(name)}

Defines terms spawned from @spawnindexplural.

\bibglsnewspawnednumber{(label)}{(options)}{(name)}{(description)}

Defines terms spawned from @spawnnumber.

\bibglsnewspawnedsymbol{(label)}{(options)}{(name)}{(description)}

Defines terms spawned from @spawnsymbol.

\bibglsnewspawnentry{(label)}{(options)}{(name)}{(description)}

Defines terms provided with @spawnentry.

\bibglsnewspawnindex{(label)}{(options)}{(name)}{(description)}

Defines terms provided with @spawnindex.

\bibglsnewspawnindexplural{(label)}{(options)}{(name)}{(description)}

Defines terms provided with @spawnindexplural.

\bibglsnewspawnnumber{(label)}{(options)}{(name)}{(description)}

Defines terms provided with @spawnnumber.

\bibglsnewspawnsymbol{(label)}{(options)}{(name)}{(description)}

Defines terms provided with @spawnsymbol.

\bibglsnewsymbol{(label)}{(options)}{(name)}{(description)}

Defines terms provided with @symbol.

\bibglsnewtertiaryindexabbreviationentry{(label)}{(dual-label)}{(options)}{(name)}{(short)}{(long)}{(description)}

Defines primary terms provided with @tertiaryindexabbreviationentry.

\bibglsnewtertiaryindexabbreviationentrysecondary{(label)}{(tertiary-label)}{(options)}{(tertiary-opts)}{(primary-name)}{(short)}{(long)}{(description)}

Defines secondary and tertiary terms provided with @tertiaryindexabbreviationentry.

\bibglsnumbergroup{(value)}{(id)}{(type)}

Expands to the number group label.

\bibglsnumbergrouptitle{(value)}{(id)}{(type)}

Expands to the number group title.

\bibglsothergroup{(character)}{(id)}{(type)}

Expands to the non-letter group label.
General Command Summary

```latex
\bibglsothergrouptitle\{\langle character\rangle\}\{\langle id\rangle\}\{\langle type\rangle\}
\bib2gls
Expands to the non-letter group title.

\bibglspagename\bib2gls
Name used for single page.

\bibglspagesname\bib2gls
Name used for multiple pages.

\bibglspassim\bib2gls
Passim range suffix.

\bibglspassimname\bib2gls
Name used by passim range suffix.

\bibglspostlocprefix\bib2gls
Location list post prefix.

\bibglprimary\{\langle n\rangle\}\{\langle locations\rangle\}
\bib2gls
Location list encapsulator used in the primarylocations field.

\bibglprimaryprefixlabel\{\langle prefix\rangle\}
\bib2gls
Hook provided to pick up the primary prefix, if required.

\bibglrange\{\langle start\rangle\}\{\langle end\rangle\}
\delimR\bib2gls
Explicit range format.

\bibglseealsosep\bib2gls
Separator between seealso cross-references and location list.

\bibglseesep\bib2gls
Separator between see cross-references and location list.

\bibglsetdategrouptitle\{\langle YYYY\rangle\}\{\langle MM\rangle\}\{\langle DD\rangle\}\{\langle G\rangle\}\{\langle title\rangle\}\{\langle group-id\rangle\}\{\langle type\rangle\}\bib2gls
Sets the date (no time) group title.

\bibglsetdatetimegrouptitle\{\langle YYYY\rangle\}\{\langle MM\rangle\}\{\langle DD\rangle\}\{\langle hh\rangle\}\{\langle mm\rangle\}\{\langle ss\rangle\}\{\langle zone\rangle\}\{\langle title\rangle\}\{\langle group-id\rangle\}\{\langle type\rangle\}\bib2gls
Sets the date-time group title.

\bibglsetemptygrouptitle\{\langle type\rangle\}\bib2gls
Sets the empty group title.

\bibglsetlastgrouptitle\{\langle cs\rangle\}\{\langle specs\rangle\}\bib2gls
Sets the last group title.

\bibglsetlettergrouptitle\{\langle title\rangle\}\{\langle letter\rangle\}\{\langle id\rangle\}\{\langle type\rangle\}\bib2gls
Sets the letter group title.

\bibglsetnumbergrouptitle\{\langle value\rangle\}\{\langle id\rangle\}\{\langle type\rangle\}\bib2gls
Sets the number group title.

\bibglsetothergrouptitle\{\langle character\rangle\}\{\langle id\rangle\}\{\langle type\rangle\}\bib2gls
Sets the non-letter group title.
```
General Command Summary

\bibglsettimegrouptitle\{(\texttt{hh})\{(\texttt{mm})\{(\texttt{ss})\{(\texttt{zone})\{(\texttt{title})\{(\texttt{group-id})\{\texttt{type}\}}\}\}\}\}\}\bib2gls
Sets the time (no date) group title.

\bibglsetunicodetitle\{(\texttt{label})\{(\texttt{character})\{(\texttt{id})\{(\texttt{type})\}}\}\}\bib2gls
Sets the Unicode script, category or character code title.

\bibglsetwidest\{(\texttt{level})\{(\texttt{name})\}\}\bib2gls
Sets the widest name.

\bibglsetwidestfallback\{(\texttt{glossary list})\}\bib2gls
Fallback used instead of \texttt{bibglsetwidest} in the event that \texttt{bib2gls} can’t determine the widest name, where \texttt{glossary list} is a comma-separated list of glossary labels.

\bibglsetwidestfor\{(\texttt{type})\{(\texttt{level})\{(\texttt{name})\}\}\}\bib2gls
Sets the widest name for the given glossary type.

\bibglsetwidestfor\{(\texttt{type})\}\bib2gls
Fallback used instead of \texttt{bibglsetwidestfor} in the event that \texttt{bib2gls} can’t determine the widest name.

\bibglsetwidestto\{(\texttt{glossary list})\}\bib2gls
Fallback used instead of \texttt{bibglsetwidest} in the event that \texttt{bib2gls} can’t determine the widest name where there are only top-level entries, where \texttt{glossary list} is a comma-separated list of glossary labels.

\bibglsetwidestto\{(\texttt{type})\}\bib2gls
Fallback used instead of \texttt{bibglsetwidestfor} in the event that \texttt{bib2gls} can’t determine the widest name where there are only top-level entries.

\bibglssupplemental\{(\texttt{n})\{(\texttt{list})\}\}\bib2gls
Supplemental list encapsulator.

\bibglssupplements\bib2gls
Separator between main and supplementary locations.

\bibglssupplementalsub\{(\texttt{n})\{(\texttt{external document})\{(\texttt{list})\}\}\bib2gls
Supplemental sub-list encapsulator.

\bibglssupplementalsub\bib2gls
Separator between supplementary sub-lists.

\bibglstertiaryprefix\{(\texttt{prefix})\}\bib2gls
Hook provided to pick up the tertiary prefix, if required.

\bibglstime\{(\texttt{hour})\{(\texttt{minute})\{(\texttt{second})\{(\texttt{millisecond})\{(\texttt{day})\{(\texttt{zone})\{(\texttt{original})\}\}\}\}\}\}\}\bib2gls
Used to markup a time converted from a field value.

\bibglstime\{(\texttt{hour})\{(\texttt{minute})\{(\texttt{second})\{(\texttt{millisecond})\{(\texttt{day})\{(\texttt{zone})\{(\texttt{title})\{(\texttt{group-id})\{\texttt{type}\}}\}\}\}\}\}\}\bib2gls
Expands to the time group label.

\bibglstime\{(\texttt{hour})\{(\texttt{minute})\{(\texttt{second})\{(\texttt{millisecond})\{(\texttt{day})\{(\texttt{zone})\{(\texttt{title})\{(\texttt{group-id})\{\texttt{type}\}}\}\}\}\}\}\}\bib2gls
Expands to the time group title.
\texttt{\textbackslash bibglstitlecase\{\textbf{text}\}} \hfill \texttt{\textbackslash bib2gls^*}

Converts \texttt{\{text\}} to title case.

\texttt{\textbackslash bibglunderscorechar} \hfill \texttt{\textbackslash bib2gls^*}

Expands to a literal underscore character.

\texttt{\textbackslash bibglsunicodegroup\{\textbf{label}\}\{\textbf{character}\}\{\textbf{id}\}\{\textbf{type}\}} \hfill \texttt{\textbackslash bib2gls}

Expands to the Unicode script or category label or character code.

\texttt{\textbackslash bibglsunicodegrouptitle\{\textbf{label}\}\{\textbf{character}\}\{\textbf{id}\}\{\textbf{type}\}} \hfill \texttt{\textbackslash bib2gls}

Expands to the Unicode script or category label or character code.

\texttt{\textbackslash bibglsuppercase\{\textbf{text}\}} \hfill \texttt{\textbackslash bib2gls^*}

Converts \texttt{\{text\}} to upper case.

\texttt{\textbackslash bibglsuseabbrvfont\{\textbf{text}\}\{\textbf{category}\}} \hfill \texttt{\textbackslash bib2gls}

Ensures that the given text is formatted according to the given category’s short format.

\texttt{\textbackslash bibglsusealias\{\textbf{label}\}} \hfill \texttt{\textbackslash bib2gls}

Display the alias cross-reference for given entry.

\texttt{\textbackslashbibglsuselongfont\{\textbf{text}\}\{\textbf{category}\}} \hfill \texttt{\textbackslash bib2gls}

Ensures that the given text is formatted according to the given category’s long format.

\texttt{\textbackslashbibglsusesee\{\textbf{label}\}} \hfill \texttt{\textbackslash bib2gls}

Display \texttt{see} cross-reference list for given entry.

\texttt{\textbackslashbibglsuseseealso\{\textbf{label}\}} \hfill \texttt{\textbackslash bib2gls}

Display the \texttt{seealso} cross-reference list for given entry.

\texttt{\textbackslashbibliography\{\texttt{file list}\}} \hfill \texttt{\textbackslash kernel command^*}

Display bibliography created by \TeX{}.

\texttt{\textbackslash bigoperatornamefmt\{\textbf{text}\}} \hfill \texttt{\textbackslash kernel command^*}

Example command.

\texttt{\textbackslash boldsymbol\{\textbf{symbol}\}} \hfill \texttt{\textbackslash amsmath}

Renders given maths symbol in bold if supported by the current font.

\texttt{\textbackslash bottomrule} \hfill \texttt{\textbackslash booktabs}

Horizontal rule for the bottom of a tabular-like environment.

\texttt{\textbackslash c\{\textbf{character}\}} \hfill \texttt{\textbackslash kernel command^*}

Puts a cedilla accent over \texttt{\{character\}}.

\texttt{\textbackslash capitalisewords\{\textbf{text}\}} \hfill \texttt{\textbackslash mfirstuc^* v1.06+}

Converts the first letter of each word to upper case using \texttt{\textbackslash makefirstuc}.

\texttt{\textbackslash caption\{\texttt{list title}\}\{\textbf{title}\}} \hfill \texttt{\textbackslash kernel command}

Caption title.

\texttt{\textbackslash \{} \texttt{\textbackslash c\{\textbf{character}\}\}} \hfill \texttt{\textbackslash kernel command^*}

\texttt{\textbackslash \{} \texttt{\textbackslash capitalisewords\{\textbf{text}\}\}} \hfill \texttt{\textbackslash mfirstuc^* v1.06+}

\texttt{\textbackslash \{} \texttt{\textbackslash caption\{\texttt{list title}\}\{\textbf{title}\}\}} \hfill \texttt{\textbackslash kernel command}

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\ce{\{formula\}}
\begin{center}
Displays the chemical formula.
\end{center}

\chapter{\{toc title\}\{title\}}
\text{Chapter heading.}

\chapter*[\{title\}]
\text{Unnumbered chapter heading.}

\char\{number\}
\begin{center}
\text{\TeX \ primitive}\textsuperscript{*}
\end{center}
\begin{center}
\text{Accesses the character identified by \textit{\{number\}} (use \texttt{\char\{hex\}} if the number is hexadecimal).}
\end{center}

\citation{\{label\}}
\begin{center}
\text{kernel command}
\end{center}
\begin{center}
\text{Written to the .aux file on each occurrence of \texttt{\cite}.}
\end{center}

\cite{\{label\}}
\begin{center}
\text{kernel command}\textsuperscript{*}
\end{center}
\begin{center}
\text{Cross-reference a bibliographic citation.}
\end{center}

\cjkname{\{CJK characters\}}
\begin{center}
\text{Example command.}
\end{center}

\color{\{model\}\{spec\}}
\begin{center}
\text{color}
\end{center}
\begin{center}
\text{Switches the current font colour.}
\end{center}

\csuse{\{cs-name\}}
\begin{center}
\text{etoolbox}\textsuperscript{*}
\end{center}
\begin{center}
\text{Uses the control sequence whose name is given by \textit{\{cs-name\}} or does nothing if the command isn't defined.}
\end{center}

\currentglossary
\begin{center}
\text{glossaries}
\end{center}
\begin{center}
\text{Defined within the glossary to the current glossary type, this has no meaning outside of the glossary list.}
\end{center}

\textbf{D}

\DeclareOptions{\{name\}\{code\}}
\begin{center}
\text{kernel command}\textsuperscript{*}
\end{center}
\begin{center}
\text{Declares an option with the given \textit{\{name\}}.}
\end{center}

\DeclareOptions*[\{code\}]
\begin{center}
\text{kernel command}\textsuperscript{*}
\end{center}
\begin{center}
\text{Indicates what to do with unknown options.}
\end{center}

\def{\{cs\}\{syntax\}\{definition\}}
\begin{center}
\text{\TeX \ primitive}\textsuperscript{*}
\end{center}
\begin{center}
\text{Defines the control sequence \textit{\{cs\}}, without checking if the command already exists.}
\end{center}

\delimN
\begin{center}
\text{glossaries}
\end{center}
\begin{center}
\text{Used to delimited individual locations.}
\end{center}

\delimR
\begin{center}
\text{glossaries}
\end{center}
\begin{center}
\text{Used as a separator between the start and end locations of a range.}
\end{center}

\descriptionname
\begin{center}
\text{glossaries}
\end{center}
\begin{center}
\text{Language-sensitive name used for the description header for some glossary styles.}
\end{center}

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\texttt{\detokenize\{\textit{general text}\}}
\hfill $\epsilon$-\LaTeX primitive
Expands the argument to a list of character tokens.

\texttt{\dGls\{\textit{options}\}\{\textit{label}\}\{\textit{insert}\}}
glossaries-extra-bib2gls v1.37+
Intended for documents with a mixture of single and dual entries, this is like \Gls but tries to determine the label prefix from the label prefix list.

\texttt{\dgls\{\textit{options}\}\{\textit{label}\}\{\textit{insert}\}}
glossaries-extra-bib2gls v1.37+
Intended for documents with a mixture of single and dual entries, this is like \Gls but tries to determine the label prefix from the label prefix list.

\texttt{\dglsdisp\{\textit{options}\}\{\textit{label}\}\{\textit{text}\}}
glossaries-extra-bib2gls v1.37+
Like \Glsdisp but tries the prefixes identified with commands like \glsxtraddlabelprefix.

\texttt{\dglslink\{\textit{options}\}\{\textit{label}\}\{\textit{text}\}}
glossaries-extra-bib2gls v1.37+
Like \Glslink but tries the prefixes identified with commands like \glsxtraddlabelprefix.

\texttt{\dGlspl\{\textit{options}\}\{\textit{label}\}\{\textit{insert}\}}
glossaries-extra-bib2gls v1.37+
Intended for documents with a mixture of single and dual entries, this is like \Glspl but tries to determine the label prefix from the label prefix list.

\texttt{\dglspl\{\textit{options}\}\{\textit{label}\}\{\textit{insert}\}}
glossaries-extra-bib2gls v1.37+
Intended for documents with a mixture of single and dual entries, this is like \Glspl but tries to determine the label prefix from the label prefix list.

\texttt{\DH}
kern kernel command
Produces the upper case eth Ð.

\texttt{\dh}
kern kernel command
Produces the lower case eth ð.

\texttt{\diamondsuit}
kernel command (maths mode)
Diamond symbol (♦).

\texttt{\displaystyle}
kernel command (maths mode)
Switch to display maths style.

\texttt{\DJ}
kern kernel command
Produces the upper case d-stroke Đ.

\texttt{\dj}
kern kernel command
Produces the lower case d-stroke đ.

\texttt{\DTLandname}
datatool-base v2.28+
Used in the definition of \DTLlistformatlastsep.

\texttt{\DTLformatlist\{\textit{list}\}}
datatool-base v2.28+
Formats a comma-separated list.

\texttt{\DTListformatlastsep}
datatool-base v2.28+
Used by \DTLformatlist to separate the last two items in the list.
General Command Summary

\DTLlistformat oxford  \textit{datatool-base* v2.28+}
Insert before \DTLlistformatlastsep if the list has three or more items.

\DTMdisplaydate\langle \textit{year}\rangle\langle \textit{month}\rangle\langle \textit{day}\rangle\langle \textit{dow}\rangle
permissions\textit{datetime2}
Formats the given date where all arguments are numeric.

E

\edef\langle \textit{cs}\rangle\langle \textit{syntax}\rangle\langle \textit{definition}\rangle
\textit{TeX primitive*}
 Defines the control sequence \langle \textit{cs}\rangle to the full expansion of \langle \textit{definition}\rangle, without checking if the command already exists.

\eglsupdatewidest\langle \textit{level}\rangle\langle \textit{text}\rangle
\textit{glossaries-extra-stylemods v1.23+}
As \eglsupdatewidest but expands \langle \textit{text}\rangle.

\em
\textit{kernel command}
Switch to emphasized font (until end of current scope).

\emph\langle \textit{text}\rangle
\textit{kernel command}
Emphasizes the given text (italic or slanted if the surrounding font is upright, otherwise upright font is used).

\endfoot
\textit{longtable}
Ends the footer section.

\endhead
\textit{longtable}
Ends the header section.

\ensuremath\langle \textit{maths}\rangle
\textit{kernel command*}
Ensures the argument is in math mode. As a general rule this should only be used if you know for certain that the argument just contains mathematical markup and doesn’t cause a change in mode.

F

\footnote\langle \textit{number}\rangle\langle \textit{text}\rangle
\textit{kernel command}
Displays the given text as a footnote.

\forall
\textit{kernel command* (maths mode)}
For all symbol (\forall).

\forallglossaries\langle \textit{glossary-list}\rangle\langle \textit{cs}\rangle\langle \textit{body}\rangle
\textit{glossaries}
Iterates over all glossaries identified in the comma-separated \langle \textit{glossary-list}\rangle (or all defined non-ignored glossaries if the optional argument is omitted) and performs \langle \textit{body}\rangle where you can use the control sequence \langle \textit{cs}\rangle to reference the current glossary label.

\forallglsentries\langle \textit{glossary-list}\rangle\langle \textit{cs}\rangle\langle \textit{body}\rangle
\textit{glossaries}
Iterates over all entries defined in the comma-separated \langle \textit{glossary-list}\rangle (or all defined non-ignored glossaries if the optional argument is omitted) and perform \langle \textit{body}\rangle where you can use the control sequence \langle \textit{cs}\rangle to reference the current entry label.

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\forglsentries[\langle type\rangle][\langle cs\rangle][\langle body\rangle]
glossaries
Iterates over all entries defined in the glossary identified by \langle type\rangle (or the default, if \langle type\rangle is omitted) and perform \langle body\rangle where you can use the control sequence \langle cs\rangle to reference the current entry label.

\forlistloop[\langle handler cs\rangle][\langle list cs\rangle]
etoolbox
Iterates over the internal list given by the command \langle list cs\rangle and performs \langle handler cs\rangle[\langle element\rangle] for each element.

\frontmatter
book-like classes
Switches to front matter.

G

\glolinkprefix
glossaries
Target name prefix used in entry hyperlinks.

\glossariesextrasetup[\langle key=value list\rangle]
glossaries-extra
Applies the extension glossaries-extra options that are allowed to be changed after the package has loaded.

\glossaryheader
glossaries
Implemented at the start of a glossary (modified by glossary styles).

\glossaryname
glossaries or language packages
Language-sensitive name used for the title of the default main glossary.

\glossarypostamble
glossaries
The postamble that’s placed after each glossary.

\glossarypreamble
glossaries
The preamble for all glossaries except those that have the preamble explicitly set with \apptoglossarypreamble.

\glossentry[\langle label\rangle][\langle location list\rangle]
glossaries v3.08a+
Used in the glossary to display a top-level entry.

\Glossentrydesc[\langle label\rangle]
glossaries
Like \glossentrydesc but converts the first letter to upper case.

\glossentrydesc[\langle label\rangle]
glossaries
Used by glossary styles to display the description.

\Glossentryname[\langle label\rangle]
glossaries
Like \glossentryname but converts the first letter to upper case.

\glossentryname[\langle label\rangle]
glossaries
Used by glossary styles to display the name.

\glossentrynameother[\langle label\rangle][\langle field\rangle]
glossaries-extra v1.22+
Acts like \glossentryname (obeys glossname and glossnamefont or \glsnamefont and the post-name hook) but uses the given \langle field\rangle instead of the name field.
\Glossentrysymbol{⟨label⟩}
glossaries
Like \glossentrysymbol but converts the first letter to upper case.
\glossentrysymbol{⟨label⟩}
glossaries
Used by glossary styles to display the symbol.
\glossxtrsetpopts glossaries-extra v1.07+
Glossary hook that uses \glsxtrsetpopts to enable hyperlinks by default for \glsxtrp.
\GLS[⟨options⟩]{⟨label⟩}{⟨insert⟩} glossaries
As \gls but converts the link text to upper case.
\Gls[⟨options⟩]{⟨label⟩}{⟨insert⟩} glossaries
As \gls but converts the first letter of the link text to upper case.
\gls[⟨options⟩]{⟨label⟩}{⟨insert⟩} glossaries
On first use displays the first use text (the value of the \texttt{first} field for general entries) and on subsequent use displays the subsequent use text (the value of the \texttt{text} field for general entries) where the text is optionally hyperlinked to the relevant place in the glossary. The options are the same as for \glslink.
\glsabbrvdefaultfont{⟨text⟩} glossaries-extra
Used by the abbreviation styles that don’t have a specific font to format the short form. The default definition just does its argument without any formatting.
\glsabbrvemfont{⟨text⟩} glossaries-extra v1.04+
Used with “em” abbreviation styles to format the short form using \texttt{\emph}.
\glsabbrvfont{⟨text⟩} glossaries-extra
Generic abbreviation font command for the short form.
\glsabbrvhyphenfont{⟨text⟩} glossaries-extra v1.17+
Used by the “hyphen” abbreviation styles to format the short form.
\glsabbrvonlyfont{⟨text⟩} glossaries-extra v1.17+
Used with “only” abbreviation styles to format the short form. The default definition just uses \glsabbrvdefaultfont.
\glsabbrvscfont{⟨text⟩} glossaries-extra v1.17+
Used with “sc” abbreviation styles to format the short form using \texttt{\textsc}.
\glsabbrvsmfont{⟨text⟩} glossaries-extra v1.17+
Used with “sm” abbreviation styles to format the short form using \texttt{\textsmaller}.
\glsabbrvuserfont{⟨text⟩} glossaries-extra v1.04+
Used with “user” abbreviation styles to format the short form. The default definition just uses \glsabbrvdefaultfont.
\Glsaccessdesc{⟨label⟩} glossaries-extra
Expands to the value of the \texttt{description} field with the first letter converted to upper case and with the accessibility support for that field, if provided (otherwise behaves the same as \Glsentrydesc).
General Command Summary

\glsaccessdesc{\langle label \rangle} \quad \text{glossaries-extra}\*

Expands to the value of the description field with the accessibility support for that field, if provided (otherwise behaves the same as \glsentrydesc).

\Glsaccessdescplural{\langle label \rangle} \quad \text{glossaries-extra}\*

Expands to the value of the descriptionplural field with the first letter converted to upper case and with the accessibility support for that field, if provided (otherwise behaves the same as \glsentrydescplural).

\glsaccessdescplural{\langle label \rangle} \quad \text{glossaries-extra}\*

Expands to the value of the descriptionplural field with the accessibility support for that field, if provided (otherwise behaves the same as \glsentrydescplural).

\glsaccessdisplay{\langle field \rangle}{\langle text \rangle}{\langle label \rangle} \quad \text{glossaries-access}

Displays \langle text \rangle with the accessibility support provided by \glsentry\langle field\rangle access\{\langle label \rangle\}.

\Glsaccessfirst{\langle label \rangle} \quad \text{glossaries-extra}\*

Expands to the value of the first field with the first letter converted to upper case and with the accessibility support for that field, if provided (otherwise behaves the same as \glsentryfirst).

\glsaccessfirst{\langle label \rangle} \quad \text{glossaries-extra}\*

Expands to the value of the first field with the accessibility support for that field, if provided (otherwise behaves the same as \glsentryfirst).

\Glsaccessfirstplural{\langle label \rangle} \quad \text{glossaries-extra}\*

Expands to the value of the firstplural field with the first letter converted to upper case and with the accessibility support for that field, if provided (otherwise behaves the same as \glsentryfirstplural).

\glsaccessfirstplural{\langle label \rangle} \quad \text{glossaries-extra}\*

Expands to the value of the firstplural field with the accessibility support for that field, if provided (otherwise behaves the same as \glsentryfirstplural).

\Glsaccesslong{\langle label \rangle} \quad \text{glossaries-extra}\*

Expands to the value of the long field with the first letter converted to upper case and with the accessibility support for that field, if provided (otherwise behaves the same as \glsentrylong).

\glsaccesslong{\langle label \rangle} \quad \text{glossaries-extra}\*

Expands to the value of the long field with the accessibility support for that field, if provided (otherwise behaves the same as \glsentrylong).

\Glsaccesslongpl{\langle label \rangle} \quad \text{glossaries-extra}\*

Expands to the value of the longplural field with the first letter converted to upper case and with the accessibility support for that field, if provided (otherwise behaves the same as \glsentrylongpl).
General Command Summary

\glsaccesslongpl{⟨label⟩}  \glossaries-extra*
Expands to the value of the longplural field with the accessibility support for that field, if provided (otherwise behaves the same as \glsentrylongpl).

\Glsaccessname{⟨label⟩}  \glossaries-extra*
Expands to the value of the name field with the first letter converted to upper case and with the accessibility support for that field, if provided (otherwise behaves the same as \Glsentryname).

\glsaccessname{⟨label⟩}  \glossaries-extra*
Expands to the value of the name field with the accessibility support for that field, if provided (otherwise behaves the same as \glsentryname).

\Glsaccessplural{⟨label⟩}  \glossaries-extra*
Expands to the value of the plural field with the first letter converted to upper case and with the accessibility support for that field, if provided (otherwise behaves the same as \Glsentryplural).

\glsaccessplural{⟨label⟩}  \glossaries-extra*
Expands to the value of the plural field with the accessibility support for that field, if provided (otherwise behaves the same as \glsentryplural).

\Glsaccessshort{⟨label⟩}  \glossaries-extra*
Expands to the value of the short field with the first letter converted to upper case and with the accessibility support for that field, if provided (otherwise behaves the same as \Glsentryshort).

\glsaccessshort{⟨label⟩}  \glossaries-extra*
Expands to the value of the short field with the accessibility support for that field, if provided (otherwise behaves the same as \glsentryshort).

\Glsaccessshortpl{⟨label⟩}  \glossaries-extra*
Expands to the value of the shortplural field with the first letter converted to upper case and with the accessibility support for that field, if provided (otherwise behaves the same as \Glsentryshortpl).

\glsaccessshortpl{⟨label⟩}  \glossaries-extra*
Expands to the value of the shortplural field with the accessibility support for that field, if provided (otherwise behaves the same as \glsentryshortpl).

\Glsaccesssymbol{⟨label⟩}  \glossaries-extra*
Expands to the value of the symbol field with the first letter converted to upper case and with the accessibility support for that field, if provided (otherwise behaves the same as \Glsentriesymbol).

\glsaccesssymbol{⟨label⟩}  \glossaries-extra*
Expands to the value of the symbol field with the accessibility support for that field, if provided (otherwise behaves the same as \glsentriesymbol).
\Glsaccsymbolplural{\textit{label}} \*\glossaries-extra

Expands to the value of the \texttt{symbolplural} field with the first letter converted to upper case and with the accessibility support for that field, if provided (otherwise behaves the same as \Glsentrysymbolplural).

\glsaccsymbolplural{\textit{label}} \*\glossaries-extra

Expands to the value of the \texttt{symbolplural} field with the accessibility support for that field, if provided (otherwise behaves the same as \glsentrysymbolplural).

\Glsaccsupp{\textit{accessible text}}{\textit{text}} \*\glossaries-accsupp

Used by the accessibility support to interface with the accsupp package (use \xglsaccsupp if \textit{text} needs to be fully expanded first).

\glsadd{\textit{options}}{\textit{label}} \*\glossaries

Indexes the entry without displaying any text.

**Options:**

\texttt{counter=\{\textit{counter-name}\}} \*\glossaries

Sets the counter to use for the record

\texttt{format=\{\textit{encap}\}} \*\glossaries

Sets the \texttt{ENCAP} for the record to \textit{encap}, optionally with the start or end range markers

\texttt{theHvalue=\{\textit{value}\}} \*\glossaries-extra v1.14+

The hyperlink target corresponding to the value of \texttt{thevalue}, if appropriate

\texttt{thevalue=\{\textit{value}\}} \*\glossaries-extra v1.14+

Overrides the record value so that it’s the given \textit{value} not obtained from the associated counter

\glsaddall{\textit{options}} \*\glossaries

Iterates over all entries defined for all glossaries (or for the sub-list provided by \texttt{types=\{\textit{list}\}} in the options) and performs \glsadd{\textit{options}} for each entry. This command isn’t suitable for use with \texttt{bib2gls}. Use the \texttt{selection} option instead.

\glsaddallunused{\textit{list}} \*\glossaries

Iterates over all entries defined for all glossaries (or for the sub-list provided in the options) and performs \glsadd for each entry that hasn’t been used with the \texttt{format} set to \texttt{glsignore}. This command isn’t suitable for use with \texttt{bib2gls}. Use the \texttt{selection} option instead.
\gl saddeach\{\textit{options}\}\{\textit{label list}\} \hspace{1cm} \textit{glossaries-extra v1.31+}

Indexes each entry identified in the comma-separated list of labels without displaying any text.

\gl saddkey\{\textit{key}\}\{\textit{default value}\}\{\textit{no link cs}\}\{\textit{no link ucfirst cs}\}\{\textit{link cs}\}\{\textit{link ucfirst cs}\}\{\textit{link allcaps cs}\} \hspace{1cm} \textit{glossaries}

Adds a new key for use in \newglossaryentry and associated commands to access it.

\gl saddstoragekey\{\textit{key}\}\{\textit{default value}\}\{\textit{no link cs}\} \hspace{1cm} \textit{glossaries}

Adds a new key for internal use that can be set in \newglossaryentry.

\gl autoprefix \hspace{1cm} \textit{glossaries}

Prefix used for the automatically labelling triggered by the \texttt{numberedsection=\{autolabel\}} option.

\gl backslash \hspace{1cm} \textit{glossaries*}

Expands to a literal backslash \ character.

\gl capturedgroup \hspace{1cm} \textit{glossaries-extra-bib2gls v1.31+}

Expands to \string$\$. 

\glscategory\{\textit{label}\} \hspace{1cm} \textit{glossaries-extra}

Expands to the value of the \texttt{category} field for the entry identified by \texttt{\{label\}} or nothing if the entry hasn’t been defined.

\glsclosebrace \hspace{1cm} \textit{glossaries*}

Expands to a literal close brace } character.

\gls currententrylabel \hspace{1cm} \textit{glossaries}

Only for use in the glossary, such as in the style or in the post-name or post-description hooks, this expands to the label of the current entry.

\gls currentfieldvalue \hspace{1cm} \textit{glossaries}

Only for use in the \texttt{\{true\}} part of \texttt{\ifglshasfield} or \texttt{\glsxtrifhasfield}, this expands to the field value.

\gls defaulttype \hspace{1cm} \textit{glossaries}

The default glossary type.

\gls defpostdesc\{\textit{category}\}\{\textit{definition}\} \hspace{1cm} \textit{glossaries-extra v1.31+}

Define the post-description hook \texttt{\glsxtrpostdesc\{category\}} for the given category.

\gls defpostlink\{\textit{category}\}\{\textit{definition}\} \hspace{1cm} \textit{glossaries-extra v1.31+}

Define the post-link hook \texttt{\glsxtrpostlink\{category\}} for the given category.

\gls defpostname\{\textit{category}\}\{\textit{definition}\} \hspace{1cm} \textit{glossaries-extra v1.31+}

Define the post-name hook \texttt{\glsxtrpostname\{category\}} for the given category.

\gls desc\{\textit{options}\}\{\textit{label}\}\{\textit{insert}\} \hspace{1cm} \textit{glossaries}

Links to the entry’s definition in the glossary with the link text obtained from the \texttt{description} field without altering the first use flag.
**General Command Summary**

\texttt{\glsdescriptionaccessdisplay\{(text)\}\{(label)\}} \quad \text{glossaries-access}

Displays \texttt{(text)} with the accessibility support provided by \texttt{\glsentrydescaccess\{(label)\}}.

\texttt{\glsdescriptionpluralaccessdisplay\{(text)\}\{(label)\}} \quad \text{glossaries-access}

Displays \texttt{(text)} with the accessibility support provided by \texttt{\glsentrydescpluralaccess\{(label)\}}.

\texttt{\glsdescwidth} \quad \text{glossary-long and glossary-super}

Length register used by the tabular styles to specify the width of the description column.

\texttt{\glsdisablehyper} \quad \text{glossaries}

Disables the creation of hyperlinks and targets for the glossary commands that support them (automatically implemented if hyperref isn’t loaded before glossaries).

\texttt{\glsdisp\{(options)\}\{(label)\}\{(text)\}} \quad \text{glossaries}

Links to the entry’s definition in the glossary with the given link text and marks the entry as having been used. The options are the same as for \texttt{\glslink}.

\texttt{\glsdoifexists\{(label)\}\{(code)\}} \quad \text{glossaries}

If the entry given by \texttt{(label)} exists, \texttt{(code)} is done, otherwise an error (or warning with glossaries-extra’s undefaction={warn} option) is triggered.

\texttt{\glsdoifexistsordo\{(label)\}\{(code)\}\{(else code)\}} \quad \text{glossaries}

If the entry given by \texttt{(label)} exists, \texttt{(code)} is done, otherwise an error (or warning with glossaries-extra’s undefaction={warn} option) is triggered and \texttt{(else code)} is done.

\texttt{\glsdoifnoexists\{(label)\}\{(code)\}} \quad \text{glossaries}

If the entry given by \texttt{(label)} doesn’t exist, \texttt{(code)} is done, otherwise an error (or warning with glossaries-extra’s undefaction={warn} option) is triggered.

\texttt{\glsdoifnoexistsordo\{(label)\}\{(code)\}\{(else code)\}} \quad \text{glossaries}

If the entry given by \texttt{(label)} doesn’t exist, \texttt{(code)} is done, otherwise an error (or warning with glossaries-extra’s undefaction={warn} option) is triggered and \texttt{(else code)} is done.

\texttt{\glsenablehyper} \quad \text{glossaries}

Enables the creation of hyperlinks and targets for the glossary commands that support them (automatically implemented if hyperref is loaded before glossaries).

\texttt{\glsentryaccess\{(label)\}} \quad \text{glossaries-access}

Expands to the value of the \texttt{access} field.

\texttt{\glsentrycounterlabel} \quad \text{glossaries}

Governs the way the glossaryentry counter is displayed by \texttt{\glsentryitem}.

\texttt{\GlsEntryCounterLabelPrefix} \quad \text{glossaries v4.38+}

Used as a prefix in the \texttt{\label} command automatically implemented by the \texttt{entrycounter} and \texttt{subentrycounter} options.

\texttt{\Glsentrydesc\{(label)\}} \quad \text{glossaries*}

Displays the value of the \texttt{description} field with the first letter converted to upper case.
\glsentrydesc{⟨label⟩}  
Expands to the value of the description field.

\glsentrydescaccess{⟨label⟩}  
Expands to the value of the descriptionaccess field.

\Glsentrydescplural{⟨label⟩}  
Displays the value of the descriptionplural field with the first letter converted to upper case.

\glsentrydescplural{⟨label⟩}  
Expands to the value of the descriptionplural field.

\glsentrydescpluralaccess{⟨label⟩}  
Expands to the value of the descriptionpluralaccess field.

\Glsentryfirst{⟨label⟩}  
Displays the value of the first field with the first letter converted to upper case.

\glsentryfirst{⟨label⟩}  
Expands to the value of the first field.

\glsentryfirstaccess{⟨label⟩}  
Expands to the value of the firstaccess field.

\Glsentryfirstplural{⟨label⟩}  
Displays the value of the firstplural field with the first letter converted to upper case.

\glsentryfirstplural{⟨label⟩}  
Expands to the value of the firstplural field.

\glsentryfirstpluralaccess{⟨label⟩}  
Expands to the value of the firstpluralaccess field.

\glsentryitem{⟨label⟩}  
Increments and displays the glossaryentry counter, if appropriate.

\Glsentrylong{⟨label⟩}  
Displays the value of the long field without any formatting or indexing but with the first letter converted to upper case.

\glsentrylong{⟨label⟩}  
Expands to the value of the long field without any formatting or indexing.

\glsentrylongaccess{⟨label⟩}  
Expands to the value of the longaccess field.

\Glsentrylongpl{⟨label⟩}  
Displays the value of the longplural field without any formatting or indexing but with the first letter converted to upper case.

\glsentrylongpl{⟨label⟩}  
Expands to the value of the longplural field without any formatting or indexing.

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\glsentrylongpluralaccess{\langle label \rangle} \hfill glossaries-access
Expands to the value of the \texttt{longpluralaccess} field.

\Glsentryname{\langle label \rangle} \hfill glossaries*
Displays the value of the \texttt{name} field with the first character converted to upper case.

\glsentryname{\langle label \rangle} \hfill glossaries*
Expands to the value of the \texttt{name} field.

\Glsentryplural{\langle label \rangle} \hfill glossaries*
Displays the value of the \texttt{plural} field with the first letter converted to upper case.

\glsentryplural{\langle label \rangle} \hfill glossaries*
Expands to the value of the \texttt{plural} field.

\glsentrypluralaccess{\langle label \rangle} \hfill glossaries-access
Expands to the value of the \texttt{pluralaccess} field.

\Glsentryprefix{\langle label \rangle} \hfill glossaries-prefix
Expands to the value of the \texttt{prefix} field with the first letter converted to upper case.

\glsentryprefix{\langle label \rangle} \hfill glossaries-prefix
Expands to the value of the \texttt{prefix} field.

\Glsentryprefixfirst{\langle label \rangle} \hfill glossaries-prefix
Expands to the value of the \texttt{prefixfirst} field with the first letter converted to upper case.

\glsentryprefixfirst{\langle label \rangle} \hfill glossaries-prefix
Expands to the value of the \texttt{prefixfirst} field.

\Glsentryprefixfirstplural{\langle label \rangle} \hfill glossaries-prefix
Expands to the value of the \texttt{prefixfirstplural} field with the first letter converted to upper case.

\glsentryprefixfirstplural{\langle label \rangle} \hfill glossaries-prefix
Expands to the value of the \texttt{prefixfirstplural} field.

\Glsentryprefixplural{\langle label \rangle} \hfill glossaries-prefix
Expands to the value of the \texttt{prefixplural} field with the first letter converted to upper case.

\glsentryprefixplural{\langle label \rangle} \hfill glossaries-prefix
Expands to the value of the \texttt{prefixplural} field.

\Glsentryshort{\langle label \rangle} \hfill glossaries*
Displays the value of the \texttt{short} field without any formatting or indexing but with the first letter converted to upper case.

\glsentryshort{\langle label \rangle} \hfill glossaries*
Expands to the value of the \texttt{short} field without any formatting or indexing.

\glsentryshortaccess{\langle label \rangle} \hfill glossaries-access
Expands to the value of the \texttt{shortaccess} field.
\Glsentryshortpl{⟨label⟩} \glossaries* Displays the value of the \texttt{shortplural} field without any formatting or indexing but with the first letter converted to upper case.

\glsentryshortpl{⟨label⟩} \glossaries* Expands to the value of the \texttt{shortplural} field without any formatting or indexing.

\glsentryshortpluralaccess{⟨label⟩} \glossaries-access Expands to the value of the \texttt{shortpluralaccess} field.

\Glsentrysymbol{⟨label⟩} \glossaries* Displays the value of the \texttt{symbol} field with the first letter converted to upper case.

\glsentrysymbol{⟨label⟩} \glossaries* Expands to the value of the \texttt{symbol} field.

\glsentrysymbolaccess{⟨label⟩} \glossaries-access Expands to the value of the \texttt{symbolaccess} field.

\Glsentrysymbolplural{⟨label⟩} \glossaries* Displays the value of the \texttt{symbolplural} field with the first letter converted to upper case.

\glsentrysymbolplural{⟨label⟩} \glossaries* Expands to the value of the \texttt{symbolplural} field.

\glsentrysymbolpluralaccess{⟨label⟩} \glossaries-access Expands to the value of the \texttt{symbolpluralaccess} field.

\Glsentrytext{⟨label⟩} \glossaries* Displays the value of the \texttt{text} field with the first letter converted to upper case.

\glsentrytext{⟨label⟩} \glossaries* Expands to the value of the \texttt{text} field.

\glsentrytextaccess{⟨label⟩} \glossaries-access Expands to the value of the \texttt{textaccess} field.

\Glsentrytitlecase{⟨entry label⟩}{⟨field label⟩} \glossaries* v4.22+ Fetches the given field and applies \texttt{\capitalisewords} to it.

\Glsentryuseri{⟨label⟩} \glossaries* Displays the value of the \texttt{user1} field with the first letter converted to upper case.

\glsentryuseri{⟨label⟩} \glossaries* Expands to the value of the \texttt{user1} field.

\Glsentryuserii{⟨label⟩} \glossaries* Displays the value of the \texttt{user2} field with the first letter converted to upper case.

\glsentryuserii{⟨label⟩} \glossaries* Expands to the value of the \texttt{user2} field.

\Glsentryuseriii{⟨label⟩} \glossaries* Displays the value of the \texttt{user3} field with the first letter converted to upper case.
General Command Summary

\glsentryuseriii{\langle label \rangle} \hspace{1cm} \textit{glossaries}\textsuperscript{*}
Expands to the value of the \texttt{user3} field.

\Glsentryuseriv{\langle label \rangle} \hspace{1cm} \textit{glossaries}\textsuperscript{*}
Displays the value of the \texttt{user4} field with the first letter converted to upper case.

\glsentryuseriv{\langle label \rangle} \hspace{1cm} \textit{glossaries}\textsuperscript{*}
Expands to the value of the \texttt{user4} field.

\Glsentryuseriv{\langle label \rangle} \hspace{1cm} \textit{glossaries}\textsuperscript{*}
Displays the value of the \texttt{user5} field with the first letter converted to upper case.

\glsentryuseriv{\langle label \rangle} \hspace{1cm} \textit{glossaries}\textsuperscript{*}
Expands to the value of the \texttt{user5} field.

\Glsentryuservi{\langle label \rangle} \hspace{1cm} \textit{glossaries}\textsuperscript{*}
Displays the value of the \texttt{user6} field with the first letter converted to upper case.

\glsentryuservi{\langle label \rangle} \hspace{1cm} \textit{glossaries}\textsuperscript{*}
Expands to the value of the \texttt{user6} field.

\glsexpandfields \hspace{1cm} \textit{glossaries}
Switches on field expansion.

\glsextrapostnamehook{\langle label \rangle} \hspace{1cm} \textit{glossaries-extra v1.25+}
Additional category-independent code for the post-name hook.

\glsfielddef{\langle entry label \rangle}{\langle field label \rangle}{\langle definition \rangle} \hspace{1cm} \textit{glossaries v4.16+}
Changes the value of the given entry’s field to \langle definition \rangle (localised by any scope).

\glsfieldedef{\langle entry label \rangle}{\langle field label \rangle}{\langle definition \rangle} \hspace{1cm} \textit{glossaries v4.16+}
Changes the value of the given entry’s field to the full expansion of \langle definition \rangle (localised by any scope).

\glsfieldfetch{\langle label \rangle}{\langle field \rangle}{\langle cs \rangle} \hspace{1cm} \textit{glossaries v4.16+}
Fetches the value of the given field for the given label and stores it in the command \langle cs \rangle.

\glsfieldgdef{\langle entry label \rangle}{\langle field label \rangle}{\langle definition \rangle} \hspace{1cm} \textit{glossaries v4.16+}
Globally changes the value of the given entry’s field to \langle definition \rangle.

\glsfieldxdef{\langle entry label \rangle}{\langle field label \rangle}{\langle definition \rangle} \hspace{1cm} \textit{glossaries v4.16+}
Globally changes the value of the given entry’s field to the full expansion of \langle definition \rangle.

\glsFindWidestLevelTwo{\langle glossary list \rangle} \hspace{1cm} \textit{glossaries-extra-stylemods}
Finds the widest name in the given glossaries for the top level and first two sub-levels.

\glsFindWidestTopLevelName{\langle glossary list \rangle} \hspace{1cm} \textit{glossaries-extra-stylemods}
CamelCase synonym for \texttt{\glsFindWidestTopLevelName}.

\glsfindwidesttoplevelname{\langle glossary list \rangle} \hspace{1cm} \textit{glossary-tree}
Finds the widest top-level name in the given glossaries.

\Glsfirst{\langle options \rangle}{\langle label \rangle}{\langle insert \rangle} \hspace{1cm} \textit{glossaries}
As \texttt{\glsfirst} but converts the first letter to upper case.

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\glsfirst\{options\}\{label\}\{insert\}
glossaries
Links to the entry’s definition in the glossary with the link text obtained from the first field without altering the first use flag.

\glsfirstabbrvdefaultfont\{text\}
glossaries-extra
Used by the abbreviation styles that don’t have a specific font to format the short form on first use. The default definition uses \glsabbrvdefaultfont.

\glsfirstabbrvemfont\{text\}
glossaries-extra v1.04+
Used with “em” abbreviation styles to format the short form on first use. This defaults to \glsabbrvemfont.

\glsfirstabbrvyphenfont\{text\}
glossaries-extra v1.17+
Used by the “hyphen” abbreviation styles to format the short form on first use.

\glsfirstabbrvonlyfont\{text\}
glossaries-extra v1.17+
Used with “only” abbreviation styles to format the short form on first use. The default definition just uses \glsabbrvonlyfont.

\glsfirstabbrvscfont\{text\}
glossaries-extra v1.17+
Used with “sc” abbreviation styles to format the short form on first use. This defaults to \glsabbrvscfont.

\glsfirstabbrvsmfont\{text\}
glossaries-extra v1.17+
Used with “sm” abbreviation styles to format the short form on first use. This defaults to \glsabbrvsmfont.

\glsfirstabbrvuserfont\{text\}
glossaries-extra v1.04+
Used with “user” abbreviation styles to format the short form on first use. The default definition just uses \glsabbrvuserfont.

\glsfirstaccessdisplay\{text\}\{label\}
glossaries-access
Displays \{text\} with the accessibility support provided by \glsentryfirstaccess\{label\}.

\glsfirstlongdefaultfont\{text\}
glossaries-extra
Used by the abbreviation styles that don’t have a specific font to format the long form on first use. The default definition uses \glslongdefaultfont.

\glsfirstlongemfont\{text\}
glossaries-extra v1.04+
Used with “long-em” abbreviation styles to format the long form on first use. This defaults to \glslongemfont.

\glsfirstlongfootnotefont\{text\}
glossaries-extra v1.05+
Used with the “footnote” abbreviation styles to format the long form on first use.

\glsfirstlonghyphenfont\{text\}
glossaries-extra v1.17+
Used by the “hyphen” abbreviation styles to format the long form on first use.

\glsfirstlongonlyfont\{text\}
glossaries-extra v1.17+
Used with “only” abbreviation styles to format the long form on first use. The default definition just uses \glslongonlyfont.
\glsfirstlonguserfont{(text)}  
Used with “user” abbreviation styles to format the long form on first use. The default definition just uses \glslonguserfont.

\glsfirstpluralaccessdisplay{(text)}{(label)}  
Displays (text) with the accessibility support provided by \glsentryfirstpluralaccess{(label)}.

\glsfmtfirst{(label)}  
Provided for use in section or caption titles, this displays the given entry’s first field.

\glsfmtfull{(label)}  
Provided for use in section or caption titles, this displays the full form of the given abbreviation (using the inline style that matches \glsxtrfull).

\glsfmtlong{(label)}  
Provided for use in section or caption titles, this displays the long form of the given abbreviation.

\glsfmtname{(label)}  
Provided for use in section or caption titles, this displays the given entry’s name.

\glsfmtshort{(label)}  
Provided for use in section or caption titles, this displays the short form of the given abbreviation.

\glsfmttext{(label)}  
Provided for use in section or caption titles, this displays the given entry’s text field.

\glsgroupheading{(label)}  
Formats the heading for the group identified by the given label.

\glsgroupsip  
Inserted between groups to create some vertical spacing (this command is modified by glossary styles, and may be switched off with the nogroupskip option).

\glshex  
Expands to \string\u. (moved to glossaries-extra-bib2gls in v1.27)

\glshyperlink{(link text)}{(label)}  
Creates a hyperlink to the entry information in the glossary.

\glshypernumber{(text)}  
A location format that has a hyperlink (if enabled).

\glsifcategory{(label)}{(category)}{(true)}{(false)}  
Does (true) if the category field for the entry given by (label) is (category).

\glsignore{(text)}  
Does nothing but when used as a location format bib2gls recognises it as an ignored record.
General Command Summary

\glsinlinedescformat{⟨description⟩}{⟨symbol⟩}{⟨location list⟩}
glossary-inline v3.03+
Format's the entry’s description, symbol and location list. This ignores the symbol and location by default.

\glsinlinedopostchild
glossary-inline v3.03+
Group headings aren’t supported by default, but if they are required, this command should be added to start of the definition of \glsgroupheading in case a heading follows a child entry.

\glsinlinenameformat{⟨label⟩}{⟨name⟩}
glossary-inline v3.03+
Format’s the entry’s name including target, if supported.

\glsinlineparentchildseparator
glossary-inline v3.03+
Separator between parent and child entries.

\glsinlinepostchild
glossary-inline v3.03+
Hook between child and next entry.

\glslineseparator
glossary-inline v3.03+
Separator between entries.

\glslinesubseparator
glossary-inline v3.03+
Separator between sub-entries.

\glslabel
glossaries
Only for use in the post-link hooks, this expands to the label of the entry that was last referenced.

\glslink{⟨options⟩}{⟨label⟩}{⟨text⟩}
glossaries
Links to the entry’s definition in the glossary with the given link text without altering the first use flag.

Options:

counter={⟨counter-name⟩}
glossaries
Sets the counter to use for the record

format={⟨encap⟩}
glossaries
Sets the ENCAP for the record to ⟨encap⟩, optionally with the start or end range markers

hyper={⟨boolean⟩}
glossaries
Indicates whether or not to make a hyperlink to the relevant glossary entry

hyperoutside={⟨boolean⟩}
glossaries-extra v1.21+
Determines whether \hyperlink should be outside of \glstextformat (default
hyperoutside=true) or inside (hyperoutside=false)

local={⟨boolean⟩}
glossaries
If true indicates to use \glslocalunset instead of the default global \glsunset to unset the first use flag

noindex={⟨boolean⟩}
glossaries-extra
Indicates whether or not to suppress indexing
General Command Summary

prefix=\langle label \rangle  \quad \text{glossaries-extra v1.31+}
Locally changes \glolinkprefix to the given \langle label \rangle

textformat=\langle cs-name \rangle  \quad \text{glossaries-extra v1.30+}
If set, replaces \glstextformat with the command given by the control sequence
name \langle cs-name \rangle to format the link text

theHvalue=\langle value \rangle  \quad \text{glossaries-extra v1.19+}
The hyperlink target corresponding to the value of thevalue, if appropriate

thevalue=\langle value \rangle  \quad \text{glossaries-extra v1.19+}
Overides the record value so that it’s the given \langle value \rangle not obtained from the
associated counter

wrgloss=\langle value \rangle  \quad \text{glossaries-extra v1.14+}
Indicates whether to write the glossary information before (wrgloss=before) or after
(wrgloss=after) the link text (default: before)

\glslocalreset\langle label \rangle  \quad \text{glossaries}
Locally resets the first use flag so that the entry is marked as not used.

\glslocalunset\langle label \rangle  \quad \text{glossaries}
Locally unsets the first use flag so that the entry is marked as having been used.

\glslongaccessdisplay\langle text \rangle\langle label \rangle  \quad \text{glossaries-access}
Displays \langle text \rangle with the accessibility support provided by
\glsentrylongaccess\langle label \rangle.

\glslongdefaultfont\langle text \rangle  \quad \text{glossaries-extra v1.04+}
Used by the abbreviation styles that don’t have a specific font to format the long form.
The default definition just does its argument without any formatting.

\glslongemfont\langle text \rangle  \quad \text{glossaries-extra v1.04+}
Used with “long-em” abbreviation styles to format the long form using \emph.

\glslongextraSetWidest\langle text \rangle  \quad \text{glossary-longextra v1.37+}
Used with the styles provided by the glossary-longextra package to set the widest entry
name.

\glslongextraUpdateWidest\langle text \rangle  \quad \text{glossary-longextra v1.37+}
As \glslongextraSetWidest but only sets if \langle text \rangle is wider than the current value.

\glslongfont\langle text \rangle  \quad \text{glossaries-extra v1.04+}
Generic abbreviation font command for the long form.

\glslongfootnotefont\langle text \rangle  \quad \text{glossaries-extra v1.05+}
Used with the “footnote” abbreviation styles to format the long form.

\glslonghyphenfont\langle text \rangle  \quad \text{glossaries-extra v1.17+}
Used by the “hyphen” abbreviation styles to format the long form.

\glslongonlyfont\langle text \rangle  \quad \text{glossaries-extra v1.17+}
Used with “only” abbreviation styles to format the long form. The default definition just
uses \glslongdefaultfont.
General Command Summary

```latex
\glslongpluralaccessdisplay\{\text\}{\langle label\rangle}
glossaries-access
Displays \text with the accessibility support provided by \glsentrylongpluralaccess\{\langle label\rangle\}.
```

```latex
\glslongtok
\glossaries
Token register used in the construction of acronyms or abbreviations to allow the style hooks to access the long form.
```

```latex
\glslonguserfont\{\text\}
glossaries-extra v1.04+
Used with “user” abbreviation styles to format the long form. The default definition just uses \glslongdefaultfont.
```

```latex
\glsname[\langle options\rangle]\{\langle label\rangle\}\{\langle insert\rangle\}
glossaries
Links to the entry’s definition in the glossary with the link text obtained from the \text{name} field without altering the first use flag.
```

```latex
\glsnameaccessdisplay\{\text\}\{\langle label\rangle\}
glossaries-access
Displays \text with the accessibility support provided by \glsentryaccess\{\langle label\rangle\}.
```

```latex
\glsnamefont\{\text\}
glossaries
Used by \glossentryname to format the name.
```

```latex
\glsnavhypertarget[\langle type\rangle]\{\langle label\rangle\}\{\text\}
glossary-hypernav
Creates a hyper target for the group given by \langle label\rangle for the given glossary type and uses \text for the hyperlink text.
```

```latex
\glsnoexpandfields
\glossaries
Switches off field expansion.
```

```latex
\glsnoidxdisplayloc[\langle prefix\rangle]\{\langle counter\rangle\}\{\langle format\rangle\}\{\langle location\rangle\}
glossaries v4.04+
Used to display a regular location in the \text{location} field (with a hyperlink, if enabled).
```

```latex
\glsnoidxloclist\{\langle location list cs\rangle\}
glossaries
Iterates over the given internal location list using the \glsnoidxloclisthandler handler.
```

```latex
\glsnoidxloclisthandler\{\langle location\rangle\}
glossaries
The handler used by the internal list loop function used in \glsnoidxloclist.
```

```latex
\glsnumberformat\{\text\}
glossaries
Default location format, uses \glshypernumber if hyperlinks enabled otherwise just does \langle text\rangle.
```

```latex
\glsnumbersgroupname
\glossaries
Language-sensitive name used for the numbers group and also used for the title of the glossary created with the \text{numbers} package option.
```

```latex
\glsopenbrace
\glossaries
Expands to a literal open brace \{ character.
```

```latex
\glspatchtabularx
\glossaries
Preamble command that will patch the \text{tabularx} environment to deal with the problem of unsetting the first use flag either explicitly with \glsunset or implicitly through commands like \gls (does nothing if \text{tabularx} hasn’t been loaded).
```
\glspctnchar \hspace{1cm} glossaries*  
Expands to a literal percent character \% character.

\GLSpl[\langle options \rangle][\langle label \rangle][\langle insert \rangle]  
glossaries  
As \GLS but shows the plural form.

\Glsp[\langle options \rangle][\langle label \rangle][\langle insert \rangle]  
glossaries  
As \GLS but shows the plural form.

\glspl[\langle options \rangle][\langle label \rangle][\langle insert \rangle]  
glossaries  
As \GLS but shows the plural form.

\glsp pluralaccessdisplay\{\langle text \rangle\}[\langle label \rangle]  
glossaries-access  
Displays \langle text \rangle with the accessibility support provided by \glsentrypluralaccess\{\langle label \rangle\}.

\glsplursuffix \hspace{1cm} glossaries*  
The suffix used to construct the default plural.

\glsp post-inline \hspace{1cm} glossary-inline v3.03+  
Glossary terminator.

\glsp postdescription \hspace{1cm} glossaries and modified by glossaries-extra  
A hook added after the description in some glossary styles (all if the glossaries-extra-stylemods package is loaded to patch them). This hook is used to reflect the nopostdot package option for glossaries and the postpunc option for glossaries-extra.

\glsp\{\langle label \rangle\} \hspace{1cm} glossaries-extra v1.07+  
Shortcut for \glsxtrp{short}\{\langle label \rangle\}.

\glsp\{\langle label \rangle\} \hspace{1cm} glossaries-extra v1.07+  
Shortcut for \glsxtrp{text}\{\langle label \rangle\}.

\glsquote\{\langle text \rangle\} \hspace{1cm} glossaries  
Encapsulates \langle text \rangle with literal straight double-quotes \"\langle text \rangle\".

\glsrefentry\{\langle label \rangle\} \hspace{1cm} glossaries v3.0+  
When used with entrycounter or subentrycounter may be used to cross-reference the entry’s number in the glossary list with \ref.

\glsrenewcommand\{\langle cs \rangle\}[\langle n \rangle][\langle def \rangle][\langle code \rangle] \hspace{1cm} glossaries-extra-bib2gls* v1.37+  
Behaves like \renewcommand but only generates a warning rather than an error if the command isn’t already defined.

\glsreset\{\langle label \rangle\} \hspace{1cm} glossaries  
Resets the first use flag so that the entry is marked as not used.

\glsresetentrycounter \hspace{1cm} glossaries  
Resets the glossaryentry counter if the entrycounter setting is on.

\glssee[\langle tag \rangle][\langle label \rangle][\langle xr label list \rangle] \hspace{1cm} glossaries  
Indexes a “see” cross-reference.
\glsseeformat{"\text{tag}\}\{\text{labels}\}\{\text{location (ignored)}\}  
\text{glossaries}

Formats the entries identified in the comma separated list of labels as a set of  
cross-references, where each item in the list is encapsulated with \glsseeitem and each  
element is separated with \glsseesep or \glsseelastsep.

\glsseeitem{"\text{label}\}  
\text{glossaries}

Formats an element of the cross-reference list. The default behaviour is to create a  
hyperlink (if enabled) to the referenced entry with the link text given by \glsseeitemformat{"\text{label}\}.

\glsseeitemformat{"\text{label}\}  
\text{glossaries v3.0+}

Formats an element of the cross-reference list. With the base glossaries package this just  
does \glsentrytext{"\text{label}\}. With glossaries-extra this uses either \glsentryshort or  \glsentryname depending on whether or not the \text{short} field has been set.

\glsseelastsep  
\text{glossaries}

The separator used between the penultimate and ultimate entries of a cross-reference list.

\glsseesep  
\text{glossaries}

The separator used between all but the last entries of a cross-reference list.

\glssetcategoryattribute{"\text{category}\}\{\text{attribute}\}\{\text{value}\}  
\text{glossaries-extra}

Sets the value of the attribute for the given category.

\glssetexpandfield{"\text{field}\}  
\text{glossaries}

Switches on field expansion for the given field.

\glssetnoexpandfield{"\text{field}\}  
\text{glossaries}

Switches off field expansion for the given field.

\glssetwidest{"\text{level}\}\{\text{text}\}  
\text{glossary-tree}

Used with the alttree style to set the widest entry name for the given level.

\glsshortaccessdisplay{"\text{text}\}\{\text{label}\}  
\text{glossaries-access}

Displays \text{text} with the accessibility support provided by \glsentryshortaccess{"\text{label}\}.

\glsshortpluralaccessdisplay{"\text{text}\}\{\text{label}\}  
\text{glossaries-access}

Displays \text{text} with the accessibility support provided by \glsentryshortpluralaccess{"\text{label}\}.

\glsshorttok  
\text{glossaries}

Token register used in the construction of acronyms or abbreviations to allow the style  
hooks to access the short form.

\glsshowtarget{"\text{label}\}  
\text{glossaries v4.32+}

Used to show the target name when the \text{debug=showtargets} option is on.

\glstepentry{"\text{label}\}  
\text{glossaries}

Increments the glossaryentry counter, which is defined with the \text{entrycounter} option,  
and automatically labels it with \\text{\label}.  

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General Command Summary

\glssubentrycounterlabel\textsuperscript{glossaries}\textsuperscript{v3.0+}
Governs the way the glossary subentry counter is displayed by \glssubentryitem.

\glssubentryitem{⟨label⟩}\textsuperscript{glossaries v3.0+}
Increments and displays the glossary subentry counter, if appropriate.

\glsymbol{⟨options⟩}{⟨label⟩}{⟨insert⟩}\textsuperscript{glossaries}\textsuperscript{v3.0+}
Links to the entry’s definition in the glossary with the link text obtained from the symbol field without altering the first use flag.

\glsymbolaccessdisplay{⟨text⟩}{⟨label⟩}\textsuperscript{glossaries-access}
Displays ⟨text⟩ with the accessibility support provided by \glsentrysymbolaccess{⟨label⟩}.

\glsymbolpluralaccessdisplay{⟨text⟩}{⟨label⟩}\textsuperscript{glossaries-access}
Displays ⟨text⟩ with the accessibility support provided by \glsentrysymbolpluralaccess{⟨label⟩}.

\glssymbolsgroupname\textsuperscript{glossaries}
Language-sensitive name used for the symbols group and also used for the title of the glossary created with the symbols package option.

\glstarget{⟨label⟩}{⟨text⟩}\textsuperscript{glossaries v1.18+}
Creates a hypertarget for the entry given by ⟨label⟩ (the target for commands like \gls) and displays ⟨text⟩.

\Glstext{⟨options⟩}{⟨label⟩}{⟨insert⟩}\textsuperscript{glossaries}\textsuperscript{v3.09a+}
As \gls but converts the first letter to upper case.

\Glstext{⟨options⟩}{⟨label⟩}{⟨insert⟩}\textsuperscript{glossaries}
Links to the entry’s definition in the glossary with the link text obtained from the text field without altering the first use flag.

\glstextaccessdisplay{⟨text⟩}{⟨label⟩}\textsuperscript{glossaries-access}
Displays ⟨text⟩ with the accessibility support provided by \glsentrytextaccess{⟨label⟩}.

\glstextformat{⟨text⟩}\textsuperscript{glossaries}
Used by commands like \gls to format the link text.

\glstextup{⟨text⟩}\textsuperscript{glossaries v3.09a+}
Typesets ⟨text⟩ in an upright font (used to cancel the effect of \textsc in abbreviation styles that use \glsabbrvscfont).

\glstildechar\textsuperscript{glossaries}\textsuperscript{*}
Expands to a literal tilde ~ character.

\glstreedefaultnamefmt{⟨text⟩}\textsuperscript{glossaries-extra-stylemods v1.31+}
Used as the default format for \glstreecontentfmt, \glstreegroupheaderfmt and \glstreenavigationfmt.

\glstreegroupheaderfmt{⟨text⟩}\textsuperscript{glossary-tree v4.22+ and glossaries-extra-stylemods v1.31+}
Used with the tree styles to format the group headings.

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\glstreenamefmt{\langle text \rangle} \quad \text{glossary-tree v4.08+ and glossaries-extra-stylemods v1.31+}

Used with the tree styles to format the entry’s name.

\glstreenavigationfmt{\langle text \rangle} \quad \text{glossary-tree v4.22+ and glossaries-extra-stylemods v1.31+}

Used with the tree styles to format the navigation elements.

\glstreenonamedesc{\langle label \rangle} \quad \text{glossaries-extra-stylemods v1.31+}

Displays the pre-description separator, the description and the post-description hook for the treenoname styles.

\glstreepredesc{\langle label \rangle} \quad \text{glossary-tree v4.26+}

Separator used before the description for the tree styles.

\glstreeprelocation \quad \text{glossaries-extra-stylemods v1.21+}

Inserted before the location list for top-level entries in the tree-like styles.

\glstriggerrecordformat{\langle text \rangle} \quad \text{glossaries-extra v1.21+}

Does nothing but when used as a location format \texttt{bib2gls} recognises it as an ignored record indexed by commands like \texttt{\_rgls}.

\glsunset{\langle label \rangle} \quad \text{glossaries}

Unsets the first use flag so that the entry is marked as having been used.

\glsetwidest{\langle level \rangle}{\langle text \rangle} \quad \text{glossaries-extra-stylemods v1.23+}

As \texttt{\_glsetwidest} but only sets if \texttt{\langle text \rangle} is wider than the current value.

\glsuseabbrvfont{\langle text \rangle}{\langle category \rangle} \quad \text{glossaries-extra v1.21+}

Applies the formatting command used for the short form for the abbreviation style associated with the given category.

\glsuselongfont{\langle text \rangle}{\langle category \rangle} \quad \text{glossaries-extra v1.21+}

Applies the formatting command used for the long form for the abbreviation style associated with the given category.

\glsuserdescription{\langle description \rangle}{\langle label \rangle} \quad \text{glossaries-extra v1.30+}

Used with “user” abbreviation styles to encapsulate the description. Just does \glslonguserfont{\langle description \rangle} by default.

\glsuseri{\langle options \rangle}{\langle label \rangle}{\langle insert \rangle} \quad \text{glossaries}

Links to the entry’s definition in the glossary with the link text obtained from the user1 field without altering the first use flag.

\glsuserii{\langle options \rangle}{\langle label \rangle}{\langle insert \rangle} \quad \text{glossaries}

Links to the entry’s definition in the glossary with the link text obtained from the user2 field without altering the first use flag.

\glsuseriii{\langle options \rangle}{\langle label \rangle}{\langle insert \rangle} \quad \text{glossaries}

Links to the entry’s definition in the glossary with the link text obtained from the user3 field without altering the first use flag.

\glsuseriv{\langle options \rangle}{\langle label \rangle}{\langle insert \rangle} \quad \text{glossaries}

Links to the entry’s definition in the glossary with the link text obtained from the user4 field without altering the first use flag.

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\texttt{\glsuserv[(options)]{(label)}{(insert)}} \quad \textbf{glossaries}

Links to the entry’s definition in the glossary with the link text obtained from the \texttt{user5} field without altering the first use flag.

\texttt{\glsuservi[(options)]{(label)}{(insert)}} \quad \textbf{glossaries}

Links to the entry’s definition in the glossary with the link text obtained from the \texttt{user6} field without altering the first use flag.

\texttt{\glxsstr@record[(label)]{(prefix)}{(counter)}{(format)}{(location)}} \quad \textbf{glossaries-extra v1.08+}

This command is written to the .aux file each time an entry is indexed to provide \texttt{bib2gls} with the record information.

\texttt{\glxsstr@record@nameref[(label)]{(prefix)}{(counter)}{(format)}{(location)}{(title)}{(href)}{(hcounter)}} \quad \textbf{glossaries-extra v1.37+}

Used instead of \texttt{\glxsstr@record} when the \texttt{record={nameref}} option is used.

\texttt{\glxsstr@resource[(options)]{(filename)}} \quad \textbf{glossaries-extra v1.08+}

This internal command is written to the .aux file by \texttt{\glxsstrresourcefile} to provide \texttt{bib2gls} with the resource information.

\texttt{\glxsstr@wrglossarylocation{(n)}{(page)}} \quad \textbf{glossaries-extra-bib2gls v1.29+}

This command simply expands to \texttt{(n)}, the value of the \texttt{wrglossary} counter for the given page.

\texttt{\glxsstrabbreviationfont{(text)}} \quad \textbf{glossaries-extra v1.30+}

Used by commands like \texttt{\gls} to format the link text for (non-regular) abbreviations.

\texttt{\glxsstrabbrvfootnote[(label)]{(long form)}} \quad \textbf{glossaries-extra v1.07+}

Used with the “footnote” abbreviation styles to do the footnote. The \texttt{⟨label⟩} is ignored by default. The \texttt{⟨long form⟩} includes the font changing command. This just does \texttt{\footnote{⟨long form⟩}}.

\texttt{\glxsstrabbrvpluralsuffix} \quad \textbf{glossaries-extra*}

The default suffix used to construct the plural for the short form of abbreviations. This just uses \texttt{\glspolysuffix}. If you don’t want a plural suffix, you can use the \texttt{noshortplural} attribute.

\texttt{\glxsstrabbrvtype} \quad \textbf{glossaries-extra}

Expands to the default glossary type when using \texttt{\newabbreviation}.

\texttt{\glxsstraddlabelprefix{(prefix)}} \quad \textbf{glossaries-extra-bib2gls v1.37+}

Appends \texttt{⟨prefix⟩} to the prefix label list.

\texttt{\glxsstrAltTreePar} \quad \textbf{glossaries-extra-stylemods v1.05+}

Used by the alttree styles to indicate a paragraph break that retains the hanging indent.

\texttt{\glxsstralttreeSymbolDescLocation[(label)]{(location list)}} \quad \textbf{glossaries-extra-stylemods v1.05+}

Used by the alttree styles to format the symbol, description and location.

\texttt{\GlsXtrAutoAddOnFormat[(label)]{(format list)}{(glsadd options)}} \quad \textbf{glossaries-extra v1.37+}

Makes commands like \texttt{\gls} and \texttt{\glslink} (but not \texttt{\glsadd}) automatically insert \texttt{\glsadd{(glsadd options)}{(label)}} if the format (supplied in the optional argument of the
invoking \gls, \glslink etc) matches any in the given comma-separated elements of \langle format list \rangle. The format isn’t automatically applied to the \glsadd options.

\glsxtrautoindexassignsort\langle cs \rangle\langle label \rangle \quad \text{glossaries-extra v1.16+}
Assigns the sort value for \index when using auto-indexing.

\glsxtrautoindexentry\langle label \rangle \quad \text{glossaries-extra v1.16+}
Used for the actual value in \index when using auto-indexing.

\GlsXtrBibTeXEntryAliases \quad \text{glossaries-extra-bib2gls v1.29+}
Expands to the set of common entry aliases for \texttt{bibtexentry}.

\glsxtrbookindexname\langle label \rangle \quad \text{glossary-bookindex}
Used with the bookindex style to format the entry’s name.

\glsxtrbookindexprelocation\langle label \rangle \quad \text{glossary-bookindex}
Used with the bookindex style before the location list.

\glsxtrclearlabelprefixes\langle prefix \rangle \quad \text{glossaries-extra-bib2gls v1.37+}
Clears the prefix label list.

\glsxtrcombiningdiacriticrules \quad \text{glossaries-extra-bib2gls v1.27+}
Collation sub-rule for combining diacritic characters.

\glsxtrcontrolrules \quad \text{glossaries-extra-bib2gls v1.27+}
Collation sub-rule for control characters usually placed at the start of a rule in the “ignored characters” section (although there typically won’t be any control codes in sort fields).

\glsxtrcopytoglossary\langle label \rangle\langle type \rangle \quad \text{glossaries-extra v1.12+}
Copies the entry given by \langle label \rangle to the glossary given by \langle type \rangle.

\GlsXtrDefaultResourceOptions \quad \text{glossaries-extra v1.40+}
Provides default options for \glsxtrresourcefile.

\glsxtrdigitrules \quad \text{glossaries-extra-bib2gls v1.27+}
Collation sub-rule for digits from the basic Latin set (0, ..., 9) as well as their subscript and superscript variants.

\glsxtrdisplaylocnameref\langle prefix \rangle\langle counter \rangle\langle location \rangle\langle format \rangle\langle title \rangle\langle href \rangle\langle hcounter \rangle\langle file \rangle \quad \text{glossaries-extra-bib2gls v1.37+}
Used to display a \texttt{nameref} location in the \texttt{location} field (with a hyperlink, if enabled).

\glsxtrdisplaysupplloc\langle prefix \rangle\langle counter \rangle\langle format \rangle\langle src \rangle\langle location \rangle \quad \text{glossaries-extra-bib2gls v1.36+}
Used to display an external location in the supplementary list (with a hyperlink, if enabled).

\GlsXtrDualBackLink\texttt{text}\langle label \rangle \quad \text{glossaries-extra-bib2gls v1.30+}
Creates a hyperlink to the dual entry whose label is obtained from the field given by \GlsXtrDualField.
\GlsXtrDualField \textit{glossaries-extra-bib2gls v1.30+} 
The field used to store the dual label. This defaults to \texttt{dual} but will need to be redefined if a different value is given by \texttt{dual-field}.

\glsxtremesuffix \textit{glossaries-extra} 
The suffix used to construct the plural for the short form of abbreviations with the “em” styles. This defaults to \texttt{\glsxtrabbrvpluralsuffix}.

\GlsXtrEnableInitialTagging\texttt{\{\{category list\}\}\{\textit{cs}\} } \textit{glossaries-extra*} 
Defines the control sequence \texttt{(cs)} to be used with abbreviation tagging with the given categories.

\glsxtrenablerecordcount \textit{glossaries-extra v1.21+} 
Redefines \texttt{\gls} etc to their \texttt{\rgls} counterpart.

\glsxtrendfor \textit{glossaries-extra v1.24+} 
May be used within the handler macro of \texttt{\glsxtrforcsvfield} to prematurely break the loop.

\glsxtrentryfmt\texttt{\{\{label\}\}\{\{text\}\} } \textit{glossaries-extra v1.12+} 
Alternative to \texttt{\glsxtrfmt} for use in section headings.

\glsxtrentryparentname\texttt{\{\{label\}\} } \textit{glossaries-extra* v1.39+} 
Expands to the entry’s parent’s name.

\GlsXtrExpandedFmt\texttt{\{\{cs\}\}\{\{text\}\} } \textit{glossaries-extra v1.30+} 
Fully expands \texttt{(text)} and then does \texttt{(cs)}\{\texttt{expanded text}\}.

\glsxtrfielddolistloop\texttt{\{\{label\}\}\{\{field\}\} } \textit{glossaries-extra v1.12+} 
Iterates over the items the given field, which contains an etoolbox internal list.

\glsxtrfieldforlistloop\texttt{\{\{label\}\}\{\{field\}\}\{\{handler\}\} } \textit{glossaries-extra v1.29+} 
Iterates over the items the given field, which contains an etoolbox internal list, using the given handler.

\glsxtrfieldformatcsvlist\texttt{\{\{label\}\}\{\{field\}\} } \textit{glossaries-extra v1.42+} 
Formats the items in the given field, which contains a comma-separated list, using the same handler as \texttt{\DTLformatlist}.

\glsxtrfieldformatlist\texttt{\{\{label\}\}\{\{field\}\} } \textit{glossaries-extra v1.42+} 
Formats the items in the given field, which contains an etoolbox internal list, using the same handler as \texttt{\DTLformatlist}.

\glsxtrfieldifinlist\texttt{\{\{label\}\}\{\{field\}\}\{\{item\}\}\{\{true\}\}\{\{false\}\} } \textit{glossaries-extra v1.12+} 
Tests if the given item is in the given field that contains an etoolbox internal list.

\glsxtrfieldlistadd\texttt{\{\{label\}\}\{\{field\}\}\{\{item\}\} } \textit{glossaries-extra v1.12+} 
Adds the given item to the given field that contains an etoolbox internal list.

\glsxtrfieldxifinlist\texttt{\{\{label\}\}\{\{field\}\}\{\{item\}\}\{\{true\}\}\{\{false\}\} } \textit{glossaries-extra v1.12+} 
Tests if the expansion of the given item is in the given field that contains an etoolbox internal list.
General Command Summary

\glsxtrfmt{(options)}{(label)}{(text)} \textit{glossaries-extra v1.12+}
Formats the given text according to the formatting command identified by the value of the field obtained from \GlsXtrFmtField.

\glsxtrfmt*{(options)}{(label)}{(text)}{(insert)} \textit{glossaries-extra v1.23+}
Like \glsxtrfmt but inserts extra material into the link text but outside of the formatting command.

\GlsXtrFmtDefaultOptions \textit{glossaries-extra v1.12+}
The default options used by \glsxtrfmt.

\glsxtrfmtdisplay{(cs-name)}{(text)}{(insert)} \textit{glossaries-extra}
Used by \glsxtrfmt to format the given \langle text \rangle where \langle cs-name \rangle is obtained from the field identified by \GlsXtrFmtField and \langle insert \rangle is empty for the unstarred \glsxtrfmt and the final optional argument of the starred version \glsxtrfmt*.

\GlsXtrFmtField \textit{glossaries-extra v1.12+}
Expands to the internal label of the field used to store the control sequence name for use with \glsxtrfmt.

\glsxtrfootnotename \textit{glossaries-extra v1.25+}
Hook for the “footnote” abbreviation styles that expands to the value that the name field is assigned to when the abbreviation is defined with \newabbreviation (defaults to the short form).

\glsxtrforcsvfield{(label)}{(field)}{(handler)} \textit{glossaries-extra v1.24+}
Iterates over the comma-separated list in the given \langle field \rangle for the entry identified by \langle label \rangle and performs \langle handler \rangle\langle element \rangle on each element of the list, where \langle handler \rangle is a control sequence which takes a single argument.

\GlsXtrForeignText{(label)}{(text)} \textit{glossaries-extra v1.32+}
Encapsulates \langle text \rangle in \foreignlanguage where the language label is obtained from the locale tag given in the field identified by \GlsXtrForeignTextField.

\GlsXtrForeignTextField \textit{glossaries-extra v1.32+}
Used by \GlsXtrForeignText to identify the field containing the locale tag.

\GlsXtrForUnsetBufferedList{(cs)} \textit{glossaries-extra v1.31+}
Iterates over all the entry whose labels are stored in the buffer that was started with \GlsXtrStartUnsetBuffering and implements \langle cs \rangle\langle label \rangle at each iteration.

\glsxtrfractionrules \textit{glossaries-extra-bib2gls v1.27+}
Collation sub-rule for vulgar fraction characters.

\glsxtrfull{(options)}{(label)} \textit{glossaries-extra}
Links to the entry’s definition in the glossary with the link text obtained from the long and short fields (using the appropriate abbreviation style) without altering the first use flag.

\glsxtrfullsep{(label)} \textit{glossaries-extra}
The separator used in the full format for the parenthetical abbreviation styles or for inline parenthetical styles. This just does a space by default.

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General Command Summary

\glsxtrGeneralLatinIIIrules\gls{glossaries-extra-bib2gls} v1.27+
Collation sub-rule for Latin characters (as \glsxtrGeneralLatinIrules but includes D/ð between D/d and E/e and ß treated as “sz”).

\glsxtrGeneralLatinIIrules\gls{glossaries-extra-bib2gls} v1.27+
Collation sub-rule for Latin characters (as \glsxtrGeneralLatinIrules but includes D/ð between D/d and E/e and ß treated as “ss”).

\glsxtrGeneralLatinIrules\gls{glossaries-extra-bib2gls} v1.27+
Collation sub-rule for Latin characters (basic Latin set plus subscript and superscript Latin characters).

\glsxtrGeneralLatinIVrules\gls{glossaries-extra-bib2gls} v1.27+
Collation sub-rule for Latin characters (as \glsxtrGeneralLatinIrules but includes Ð/ð between D/d and E/e and Æ/æ treated as AE/ae, Œ/œ treated as OE/oe, Þ/þ treated as TH/th and ß treated as “ss”).

\glsxtrGeneralLatinVIIIrules\gls{glossaries-extra-bib2gls} v1.27+
Collation sub-rule for Latin characters: as \glsxtrGeneralLatinIrules but includes Æ/æ treated as A/a, Œ/œ treated as OE/oe, Þ/þ treated as TH/th, ß treated as “ss”, Ð/ð treated as D/d, Ø/ø treated as O/o and Ł/ł treated as L/l.

\glsxtrGeneralLatinVIIrules\gls{glossaries-extra-bib2gls} v1.27+
Collation sub-rule for Latin characters: as \glsxtrGeneralLatinIrules but includes Æ/æ between A/a and B/b, Ð/ð between D/d and E/e, Ᵹ/ᵹ (insular G) as G/g, Õ/œ between O/o and P/p, ſ (long S) equivalent to S/s, ð/þ between T/t and U/u and Ƿ/ƿ (wynn) as W/w.

\glsxtrGeneralLatinVIrules\gls{glossaries-extra-bib2gls} v1.27+
Collation sub-rule for Latin characters (as \glsxtrGeneralLatinIrules but includes Ð/ð between D/d and E/e and Þ/þ treated as TH/th and ß treated as “sz”).

\glsxtrGeneralLatinVrules\gls{glossaries-extra-bib2gls} v1.27+
Collation sub-rule for Latin characters (as \glsxtrGeneralLatinIrules but includes Ð/ð between D/d and E/e and ß treated as “ss”).

\glsxtrgeneralpuncrules\gls{glossaries-extra-bib2gls} v1.27+
Collation sub-rule for general punctuation characters.

\glsxtringentry\gls{glossaries-extra}\v1.21
Displays the given entry name including a hypertarget (if \hyperref has been loaded) as the destination for commands like \gls.

\glsxtringentryother\gls{glossaries-extra}\v1.22+
Like \glsxtringentry but uses the value given in the supplied internal \gls{field} where \gls{header} is the code to use in the header (leave empty for default).

\glsxtrgroupfield\gls{glossaries-extra}\v1.21+
Expands to the field label used to store the entry group labels.

\GLSXTRhiername\gls{glossaries-extra}\v1.37+
Displays the hierarchical name for the entry identified by \gls{label} with each level separated by \glsxtrhiernamesep where each name is converted to upper case.
\GLSxtrhiernamemath{⟨label⟩} \text{glossaries-extra*v1.37+}

Displays the hierarchical name for the entry identified by \textit{⟨label⟩} with each level separated by \texttt{\glsxtrhiernamesep} where the top-most name is converted to upper case.

\GlsXtrhiernamemath{⟨label⟩} \text{glossaries-extra*v1.37+}

Displays the hierarchical name for the entry identified by \textit{⟨label⟩} with each level separated by \texttt{\glsxtrhiernamesep} where each name has the first letter converted to upper case.

\Glsxtrhiernamemath{⟨label⟩} \text{glossaries-extra*v1.37+}

Displays the hierarchical name for the entry identified by \textit{⟨label⟩} with each level separated by \texttt{\glsxtrhiernamesep} where the top-most name has the first letter converted to upper case.

\glsxtrhiernamesep \text{glossaries-extra*v1.37+}

Separator between hierarchical levels displayed with \texttt{\Glsxtrhiernamemath} (and case-changing variants). This defaults to “\textgreater” with the glossaries-extra package, but the bib2gls interpreter has a different definition to assist sorting.

\glsxtrhyphenrules \text{glossaries-extra-bib2gls v1.27+}

Collation sub-rule for hyphen characters.

\glsxtrhyphensuffix \text{glossaries-extra v1.17+}

The suffix used to construct the plural for the short form of abbreviations with the “hyphen” styles.

\glsxtrifcustomdiscardperiod{⟨true⟩}{⟨false⟩} \text{glossaries-extra v1.23+}

Should expand to \textit{⟨true⟩} if the post-link hook should check for a following full stop (in addition to attribute checks) otherwise should expand to \textit{⟨false⟩}.

\GlsXtrIfFieldCmpNum{⟨field⟩}{⟨entry label⟩}{⟨comparison⟩}{⟨number⟩}{⟨true⟩}{⟨false⟩} \text{glossaries-extra v1.31+}

Compares the given (numerical) field value to the given integer \textit{⟨number⟩}. The \textit{⟨comparison⟩} may be one of: \textit{=}, \textit{<} or \textit{>}. If the field is undefined or empty, the value is assumed to be 0. If the field is set, it must expand to an integer value. The value can be referenced in \textit{⟨true⟩} or \textit{⟨false⟩} with \texttt{\glscurrentfieldvalue}. The unstarred form adds implicit grouping. The starred form (new to v1.39) doesn’t.

\GlsXtrIfFieldEqNum{⟨field⟩}{⟨entry label⟩}{⟨number⟩}{⟨true⟩}{⟨false⟩} \text{glossaries-extra v1.31+}

Tests if the given field value expands to the given integer \textit{⟨number⟩}. If the field is undefined or empty, the value is assumed to be 0. If the field is set, it must expand to an integer value. The value can be referenced in \textit{⟨true⟩} or \textit{⟨false⟩} with \texttt{\glscurrentfieldvalue}. The unstarred form adds implicit grouping. The starred form (new to v1.39) doesn’t.
\GlsXtrIfFieldEqStr\{⟨field label⟩\}\{⟨entry label⟩\}\{⟨text⟩\}\{⟨true⟩\}\{⟨false⟩\}
glossaries-extra v1.21+
Tests if the given field value is the same as \text{⟨text⟩} for the given entry, which may not
exist. The unstarred form adds implicit grouping. The starred form (new to v1.39) doesn’t.

\GlsXtrIfFieldEqXpStr\{⟨field label⟩\}\{⟨entry label⟩\}\{⟨text⟩\}\{⟨true⟩\}\{⟨false⟩\}
glossaries-extra v1.31+
Like \GlsXtrIfFieldEqStr but first (protected) fully expands \text{⟨text⟩} (but not the field
value). The unstarred form adds implicit grouping. The starred form (new to v1.39)
doesn’t.

\GlsXtrIfFieldNonZero\{⟨field⟩\}\{⟨entry label⟩\}\{⟨true⟩\}\{⟨false⟩\}
glossaries-extra v1.31+
Tests if the given field value expands to a non-zero integer. If the field is undefined or
empty, the value is assumed to be 0. If the field is set, it must expand to an integer value.
The value can be referenced in \{⟨true⟩\} or \{⟨false⟩\} with \glscurrentfieldvalue. The
unstarred form adds implicit grouping. The starred form (new to v1.39) doesn’t.

\GlsXtrIfFieldUndef\{⟨field label⟩\}\{⟨entry label⟩\}\{⟨true⟩\}\{⟨false⟩\}
glossaries-extra v1.23+
Tests if the given field isn’t defined for the given entry, which may also not exist.

\glsxtrifhasfield\{⟨field label⟩\}\{⟨entry label⟩\}\{⟨true⟩\}\{⟨false⟩\}
glossaries-extra v1.19+
Tests if the given entry has the given \text{internal} field set (defined and not empty)
without testing if the entry exists and adds implicit scoping to \{⟨true⟩\} and \{⟨false⟩\}.

\glsxtrifhasfield*\{⟨field label⟩\}\{⟨entry label⟩\}\{⟨true⟩\}\{⟨false⟩\}
glossaries-extra v1.19+
Tests if the given entry has the given field set (defined and not empty) without testing if
the entry exists and without introducing an implicit scope.

\GlsXtrIfHasNonZeroChildCount\{⟨entry label⟩\}\{⟨true⟩\}\{⟨false⟩\}
glossaries-extra-bib2gls v1.31+
For use with the \text{save-child-count} resource option, this uses
\GlsXtrIfFieldNonZero to test if the \text{childcount} field has a non-zero value. The value
can be referenced in \{⟨true⟩\} or \{⟨false⟩\} with \glscurrentfieldvalue.

\glsxtrifhyphenstart\{⟨text⟩\}\{⟨true⟩\}\{⟨false⟩\}
glossaries-extra v1.17+
Used by the “hyphen” abbreviation styles, this checks if \text{⟨text⟩} starts with a hyphen.

\glsxtrifinmark\{⟨true⟩\}\{⟨true⟩\}
glossaries-extra v1.07+
Used by commands like \glsfmtshort, this expands to \{⟨true⟩\} in page headings and the
table of contents, otherwise it expands to \{⟨false⟩\}.

\glsxtriflabelinlist\{⟨label⟩\}\{⟨list⟩\}\{⟨true⟩\}\{⟨false⟩\}
glossaries-extra v1.21+
Tests if the \{⟨label⟩\} is contained in the comma-separated \{⟨list⟩\}, where both \{⟨label⟩\} and
\{⟨list⟩\} are fully expanded before testing. This test is designed for \text{labels} that are fully
expandable.

\GlsXtrIfUnusedOrUndefined\{⟨label⟩\}\{⟨true⟩\}\{⟨false⟩\}
glossaries-extra v1.34+
Does \{⟨true⟩\} if the entry given by \{⟨label⟩\} hasn’t been used or is undefined, otherwise it
does \{⟨false⟩\}. This command is not for use in the post-link hooks.
\glsxtrifwasfirstuse{(true)}{(false)}  
glossaries-extra
Only for use in the post-link hooks this tests if the entry just referenced was used for the first time.

\GlsXtrIfXpFieldEqXpStr{{field label}}{{entry label}}{{text}}{{true}}{{false}}  
glossaries-extra v1.31+
Like \GlsXtrIfFieldEqStr but first (protected) fully expands both the field value and \text. The unstarred form adds implicit grouping. The starred form (new to v1.39) doesn’t.

\GlsXtrIndexCounterLink{{text}}{{label}}  
glossaries-extra-bib2gls v1.29+
Creates a hyperlink to the wrglossary location obtained from the \text{indexcounter} field.

\glsxtrindexseealso{{label}}{{xr list}}  
glossaries-extra v1.16+
Indexes a “see also” cross-reference.

\glsxtrinsertinsidefalse  
glossaries-extra v1.02+
Sets the \text{ifglsxtrinsertinside} switch to false.

\glsxtrinsertsidetruen  
Sets the \text{ifglsxtrinsertinside} switch to true.

\glsxtrLatinAA  
glossaries-extra-bib2gls v1.27+
Collation sub-rule for Å/å.

\glsxtrLatinOslash  
glossaries-extra-bib2gls v1.27+
Collation sub-rule for Ø/ø.

\GlsXtrLoadResources\[\langle options\rangle\]  
glossaries-extra v1.11+
A shortcut command that uses \glsxtrresourcefile.

\glsxtrlocalsetgrouptitle\{\langle group label\rangle\}\{\langle group title\rangle\}  
glossaries-extra v1.24+
Locally sets the title for the group identified by the given label.

\GlsXtrLocationField  
Expands to the internal name of the field storing the location list, defaulting to \text{location}.

\glsxtrlocationhyperlink\{\langle counter\rangle\}\{\langle prefix\rangle\}\{\langle location\rangle\}  
glossaries-extra v1.14+
Used to create the location hyperlink, this tests if an internal or external link is required depending on the definition of \text{glsxtrsupplocationurl}.

\glsxtrlong\[\langle options\rangle\]\{\langle label\rangle\}  
glossaries-extra v1.17+
Links to the entry’s definition in the glossary with the link text obtained from the \text{long} field (using the appropriate abbreviation style) without altering the first use flag.

\glsxtrlonghyphen\{\langle long\rangle\}\{\langle label\rangle\}\{\langle insert\rangle\}  
glossaries-extra v1.17+
Used by the long-hyphen-postshort-hyphen abbreviation to format the long form and check if the \text{insert} starts with a hyphen.

\glsxtrlonghyphennoshort\{\langle label\rangle\}\{\langle long\rangle\}\{\langle insert\rangle\}  
glossaries-extra v1.17+
Used by the “long-hyphen-noshort” styles to format the first use form. This checks if the inserted material starts with a hyphen and makes the appropriate modifications.
General Command Summary

\glsxtrlonghyphenshort\langle label\rangle\langle long\rangle\langle short\rangle\langle insert\rangle \quad \text{l}\text{o}\text{g}\text{s}\text{s}\text{a}r\text{i}e\text{s}\text{-e}xtra \text{v}1.17+

Used by the “long–hyphen–short–hyphen” abbreviation styles to format the full form.

\glsxtrlongnoshortdescname \quad \text{l}\text{o}\text{g}\text{s}\text{s}\text{a}r\text{i}e\text{s}\text{-e}xtra \text{v}1.25+

Hook for the long–noshort–desc abbreviation styles that expands to the value that the name field is assigned to when the abbreviation is defined with \newabbreviation (defaults to the long form).

\glsxtrlongnoshortname \quad \text{l}\text{o}\text{g}\text{s}\text{s}\text{a}r\text{i}e\text{s}\text{-e}xtra \text{v}1.25+

Hook for the long–noshort abbreviation styles that expands to the value that the name field is assigned to when the abbreviation is defined with \newabbreviation (defaults to the short form).

\glsxtrlongshortdesname \quad \text{l}\text{o}\text{g}\text{s}\text{s}\text{a}r\text{i}e\text{s}\text{-e}xtra \text{v}1.17+

Hook for the long–short–desc abbreviation styles that expands to the value that the name field is assigned to when the abbreviation is defined with \newabbreviation (defaults to the long form followed by the short form in parentheses).

\glsxtrlongshortname \quad \text{l}\text{o}\text{g}\text{s}\text{s}\text{a}r\text{i}e\text{s}\text{-e}xtra \text{v}1.25+

Hook for the long–short abbreviation styles that expands to the value that the name field is assigned to when the abbreviation is defined with \newabbreviation (defaults to the short form).

\glsxtrlongshortuserdesname \quad \text{l}\text{o}\text{g}\text{s}\text{s}\text{a}r\text{i}e\text{s}\text{-e}xtra \text{v}1.25+

Hook for the long–short–user–desc abbreviation styles that expands to the value that the name field is assigned to when the abbreviation is defined with \newabbreviation (defaults to the long form followed by the parenthetical material).

\glsxtrMathItalicGreekIrules \quad \text{l}\text{o}\text{g}\text{s}\text{s}\text{a}r\text{i}e\text{s}\text{-e}xtra\text{-bib2gls} \text{v}1.27+

Collation sub-rule for math-Greek characters (includes upright digamma between epsilon and zeta).

\glsxtrmultisupplocation\langle location\rangle\langle src\rangle\langle format\rangle \quad \text{l}\text{o}\text{g}\text{s}\text{s}\text{a}r\text{i}e\text{s}\text{-e}xtra\text{-bib2gls} \text{v}1.36+

Used by \glsxtrdisplaysupploc to format the external location (with a hyperlink, if enabled).

\glsxtrnewgls\langle options\rangle\langle prefix\rangle\langle cs\rangle \quad \text{l}\text{o}\text{g}\text{s}\text{s}\text{a}r\text{i}e\text{s}\text{-e}xtra \text{v}1.21+

Defines the command \langle cs\rangle to behave like $\text{gls}$ with the given label prefix.

\glsxtrnewglslike\langle options\rangle\langle prefix\rangle\langle gls-like cs\rangle\langle glspl-like cs\rangle\langle Gls-like cs\rangle\langle Glspl-like cs\rangle \quad \text{l}\text{o}\text{g}\text{s}\text{s}\text{a}r\text{i}e\text{s}\text{-e}xtra \text{v}1.21+

Defines commands to behave like $\text{gls}$, $\text{glspl}$, $\text{Gls}$ and $\text{Glspl}$ with the given label prefix.

\glsxtrnewnumber\langle key=value list\rangle\langle label\rangle \quad \text{l}\text{o}\text{g}\text{s}\text{s}\text{a}r\text{i}e\text{s}\text{-e}xtra \text{numbers}

Defines a new number.

\glsxtrnewsymbol\langle key=value list\rangle\langle label\rangle\langle symbol\rangle \quad \text{l}\text{o}\text{g}\text{s}\text{s}\text{a}r\text{i}e\text{s}\text{-e}xtra \text{symbols}

Defines a new symbol.

\glsxtrnonprintablerules \quad \text{l}\text{o}\text{g}\text{s}\text{s}\text{a}r\text{i}e\text{s}\text{-e}xtra\text{-bib2gls} \text{v}1.27+

Collation sub-rule for non-printable characters.
\glsxtrnopostpunc \textit{glossaries-extra v1.22+}
Suppresses the post-description punctuation without suppressing the post-description hook.

\glsxtronlydescname \textit{glossaries-extra v1.17+}
Hook for the long-only–short-only–desc style that expands to the value that the \texttt{name} field is assigned to when the abbreviation is defined with \texttt{\newabbreviation} (defaults to the long form).

\glsxtronlyname \textit{glossaries-extra v1.25+}
Hook for the long-only–short-only style that expands to the value that the \texttt{name} field is assigned to when the abbreviation is defined with \texttt{\newabbreviation} (defaults to the short form).

\glsxtronlysuffix \textit{glossaries-extra v1.17+}
The suffix used to construct the plural for the short form of abbreviations with the “only” styles. The default definition just uses \texttt{\glsxtrabbrvpluralsuffix}.

\glsxtrp{⟨field⟩}{⟨label⟩} \textit{glossaries-extra v1.07+}
Displays the given ⟨field⟩ value for the entry given by ⟨label⟩ (no hyperlinks, except in the glossary, and no indexing by default, but includes formatting, if appropriate).

\glsxtrpageref{⟨label⟩} \textit{glossaries-extra v1.11}
When used with \texttt{entrycounter} or \texttt{subentrycounter} may be used to cross-reference the entry’s number in the glossary list with \texttt{\pageref}.

\glsxtrparen{⟨text⟩} \textit{glossaries-extra v1.17+}
Used to markup parenthetical material, such as in \texttt{\glsxtrpostlinkAddDescOnFirstUse} or in the long-short and short-long abbreviation styles.

\glsxtrpostdescabbreviation \textit{glossaries-extra}
Hook used after the description is displayed in the glossary for entries that have the \texttt{category} set to \texttt{abbreviation}.

\glsxtrpostdesc{⟨category⟩} \textit{glossaries-extra}
Hook used after the description is displayed in the glossary for entries that have the \texttt{category} set to ⟨category⟩. Common category hooks such as \texttt{\glsxtrpostdescgeneral} are provided by \textit{glossaries-extra}. If required, this hook can be defined with \texttt{\glsdefpostdesc}.

\glsxtrpostdescgeneral \textit{glossaries-extra}
Hook used after the description is displayed in the glossary for entries that have the \texttt{category} set to \texttt{general}.

\glsxtrpostdescsymbol \textit{glossaries-extra}
Hook used after the description is displayed in the glossary for entries that have the \texttt{category} set to \texttt{symbol}.

\glsxtrposthyphenlong{⟨label⟩}{⟨insert⟩} \textit{glossaries-extra v1.17+}
Used by the “postlong-hyphen” styles in the post-link hook.
\glsxtrposthyphenshort\{⟨label⟩\}\{⟨insert⟩\} \hfill glossaries-extra v1.17+
Used by the long-hyphen-postshort-hyphen style in the post-link hook.

\glsxtrposthyphensubsequent\{⟨label⟩\}\{⟨insert⟩\} \hfill glossaries-extra v1.17+
Used by the long-hyphen-postshort-hyphen abbreviation in the post-link hook for subsequent use.

\glsxtrpostlinkAddDescOnFirstUse \hfill glossaries-extra
Only for use in the post-link hooks, this appends a space and the value of the description field in parentheses if the entry that was just referenced was used for the first time.

\glsxtrpostlinkAddSymbolDescOnFirstUse \hfill glossaries-extra v1.31+
Only for use in the post-link hooks, if the entry that was just referenced was used for the first time, this appends a space and, in parentheses, the value of the symbol field (if set) followed by the value of the description field.

\glsxtrpostlinkAddSymbolOnFirstUse \hfill glossaries-extra
Only for use in the post-link hooks, this appends a space and the value of the symbol field in parentheses if the entry that was just referenced was used for the first time and has the symbol field set.

\glsxtrpostlink\{category\} \hfill glossaries-extra
Hook used after commands like \gls for entries that have the category set to \{category\}. If required, this hook can be defined with \glsdefpostlink.

\glsxtrpostname\{category\} \hfill glossaries-extra
Hook used by \glossentryname for entries that have the category set to \{category\}. If required, this hook can be defined with \glsdefpostname.

\glsxtrprelocation \hfill glossary-bookindex v1.21+ and glossaries-extra-stylemods v1.21+
Used before the location list in the bookindex style and the styles patched by glossaries-extra-stylemods.

\glsxtrprependlabelprefix\{⟨prefix⟩\} \hfill glossaries-extra-bib2gls v1.37+
Prepends \{⟨prefix⟩\} to the prefix label list.

\GlsXtrProvideBibTeXFields \hfill glossaries-extra-bib2gls v1.29+
Defines the standard BibTeX fields using \glsaddstoragekey.

\glsxtrprovidecommand\{⟨cs⟩\}[⟨n⟩][⟨def⟩][⟨code⟩] \hfill glossaries-extra-bib2gls v1.27+
Behaves like \providecommand in the document but like \renewcommand in bib2gls.

\glsxtrprovidestoragekey\{⟨key⟩\}[⟨default value⟩][⟨no link cs⟩] \hfill glossaries-extra v1.12+
Adds a new key, if not already defined, for use in \newglossaryentry and an associated command to access it where (unlike \glsaddstoragekey) the \{⟨no link cs⟩\} part may be empty if unrequired.

\glsxtrregularfont\{⟨text⟩\} \hfill glossaries-extra v1.04+
Used by commands like \gls to format the link text for regular terms.
\glsxtrresourcefile\{\langle options\rangle\}\{\langle filename\rangle\} \quad \text{glossaries-extra v1.08+}
\ Input the \texttt{.glstex} file created by \texttt{bib2gls} and write resource instructions to the \texttt{.aux} file.

\glsxtrresourceinit \quad \text{glossaries-extra v1.21+}
\ Provides code that locally redefines commands during the protected write operation performed by \texttt{\glsxtrresourcefile}.

\glsxtrrestorepostpunc \quad \text{glossaries-extra v1.23+}
\ Used within post-description category hooks, this restores the post-description punctuation if it's been suppressed with \texttt{\glsxtrnopostpunc}.

\glsxtrRevertTocMarks \quad \text{glossaries-extra v1.07+}
\ Restores original behaviour of \texttt{\tableofcontents} so that \texttt{\glsxtrifinmark} expands to \langle false \rangle in the table of contents.

\glsxtrscsuffix \quad \text{glossaries-extra}
\ The suffix used to construct the plural for the short form of abbreviations with the small-cap "sc" styles. This counteracts the effect of \texttt{\textsc} using \texttt{\glstextup}.

\glsxtrseelist\{\langle xr label list\rangle\} \quad \text{glossaries-extra v1.16+}
\ Formats the list of cross-reference labels, without the initial "see" tag.

\glsxtrsetaliasnoindex \quad \text{glossaries-extra v1.12+}
\ Hooks into the alias \texttt{noindex} setting.

\GlsXtrSetDefaultGlsOpts\{\langle options\rangle\} \quad \text{glossaries-extra}
\ Set the default options for commands like \texttt{\gls}.

\GlsXtrSetDefaultNumberFormat\{\langle format\rangle\} \quad \text{glossaries-extra v1.19+}
\ Set the default format to use if the \texttt{\texttt{format}} key isn’t set.

\GlsXtrSetField\{\langle entry label\rangle\}\{\langle field label\rangle\}\{\langle value\rangle\} \quad \text{glossaries-extra v1.12+}
\ Assigns the given \langle value \rangle to the field identified by \langle field label \rangle for the entry identified by \langle entry label \rangle.

\glsxtrsetglossarylabel\{\langle label\rangle\} \quad \text{glossaries-extra v1.39+}
\ Sets the label for subsequent glossaries (should be scoped or updated per glossary to prevent duplicate labels) and defines \texttt{\@currentlabelname} to the glossary’s \texttt{\tableofcontents} title. This is an alternative to the \texttt{\numberedsection=\{\nameref\}} package option or \texttt{\label} \texttt{\printunsrtglossary} option.

\glsxtrsetgrouptitle\{\langle group label\rangle\}\{\langle group title\rangle\} \quad \text{glossaries-extra v1.14+}
\ Globally sets the title for the group identified by the given label.

\glsxtrsetpopts\{\langle options\rangle\} \quad \text{glossaries-extra v1.07+}
\ Sets the default options for \texttt{\glsxtrp}.

\GlsXtrSetRecordCountAttribute\{\langle category list\rangle\}\{\langle value\rangle\} \quad \text{glossaries-extra v1.21+}
\ Sets the \texttt{recordcount} attribute to \langle value \rangle for the given categories.
\glsxtrSetWidest{\langle type \rangle}{\langle level \rangle}{\langle text \rangle}
glossaries-extra-bib2gls v1.37+
Used by \bibglssetwidest to set the widest entry name for the given level for the alttree style and the styles provided by glossary-longextra.

\glsxtrSetWidestFallback{\langle max depth \rangle}{\langle list \rangle}
glossaries-extra-bib2gls v1.37+
Used by \bibglssetwidesttoplevelfallback and \bibglssetwidestfallback to set the widest entry name for the alttree style and the styles provided by glossary-longextra using the commands provided by glossaries-extra-stylemods.

\glsxtrshort{\langle options \rangle}{\langle label \rangle}
glossaries-extra
Links to the entry’s definition in the glossary with the link text obtained from the short field (using the appropriate abbreviation style) without altering the first use flag.

\glsxtrshortdescname
glossaries-extra v1.17+
Hook for the short-nolong-desc abbreviation styles that expands to the value that the name field is assigned to when the abbreviation is defined with \newabbreviation (defaults to the short form followed by long form in parentheses).

\glsxtrshorthyphen{\langle short \rangle}{\langle label \rangle}{\langle insert \rangle}
glossaries-extra v1.17+
Used by the “postlong-hyphen” styles to format the short form and check if \langle insert \rangle starts with a hyphen.

\glsxtrshorthyphenlong{\langle label \rangle}{\langle short \rangle}{\langle long \rangle}{\langle insert \rangle}
glossaries-extra v1.17+
Used by the short-hyphen-long-hyphen style to format the full form.

\glsxtrshortlongdescname
glossaries-extra v1.17+
Hook for the short-long-desc abbreviation styles that expands to the value that the name field is assigned to when the abbreviation is defined with \newabbreviation (defaults to the long form followed by the short form in parentheses).

\glsxtrshortlongname
glossaries-extra v1.25+
Hook for the short-long abbreviation styles that expands to the value that the name field is assigned to when the abbreviation is defined with \newabbreviation (defaults to the short form).

\glsxtrshortlonguserdescname
glossaries-extra v1.25+
Hook for the short-long-user-desc abbreviation styles that expands to the value that the name field is assigned to when the abbreviation is defined with \newabbreviation (defaults to the short form followed by the parenthetical material).

\glsxtrshortnolongname
glossaries-extra v1.25+
Hook for the short-nolong abbreviation styles that expands to the value that the name field is assigned to when the abbreviation is defined with \newabbreviation (defaults to the short form).

\glsxtrsmsuffix
glossaries-extra
The suffix used to construct the plural for the short form of abbreviations with the "sm" styles. This defaults to \glsxtrabbrvpluralsuffix.

\glsxtrspacerules
glossaries-extra-bib2gls v1.27+
Collation sub-rule for space characters.
General Command Summary

\GlsXtrStandaloneEntryName\{\langle label \rangle\}\glossaries-extra v1.37+
Used within \glsxtrglossentry to display the name (with a hypertarget, if supported).

\GlsXtrStandaloneEntryOther\{\langle label \rangle\}\{\langle field \rangle\}\glossaries-extra v1.37+
Used within \glsxtrglossentryother to display the given field value (with a hypertarget, if supported).

\GlsXtrStandaloneGlossaryType\glossaries-extra v1.31+
Expands to the label for \currentglossary within \glsxtrglossentry and \glsxtrglossentryother.

\GlsXtrStandaloneSubEntryItem\{\langle label \rangle\}\glossaries-extra v1.31+
Used within \glsxtrglossentry and \glsxtrglossentryother to display sub-item labels.

\GlsXtrStartUnsetBuffering\glossaries-extra v1.30+
Starts buffering calls to \glsunset (which is internally used by commands like \gls) for use in code where the boolean switch causes a problem. The buffer can later be processed and cleared with \GlsXtrStopUnsetBuffering. The starred form (added to v1.31) avoids duplicate labels in the buffer’s internal list.

\GlsXtrStopUnsetBuffering\glossaries-extra v1.30+
Unsets (locally with the starred form) the first use flag of all the entry whose labels are stored in the buffer that was started with \GlsXtrStartUnsetBuffering and then clears the buffer.

\glsxtrsupphypernumber\{\langle location \rangle\}\glossaries-extra v1.14+
Uses \glshypernumber to create a hyperlink to the given location (if hyperlinks are supported) but first checks the exernallocation attribute to determine if an external link is required.

\glsxtrsupplocationurl\glossaries-extra v1.14+
Set by \glsxtrsupphypernumber and \glsxtrmultisupplocation to the URL of the supplemental document for use by \glshypernumber.

\glsxtrtagfont\{\langle text \rangle\}\glossaries-extra
Font used by tagging command defined by \GlsXtrEnableInitialTagging.

\glsxtrunsrtdo\{\langle label \rangle\}\glossaries-extra v1.12+
Displays the entry given by \langle label \rangle using \glossentry or \subglossentry depending on the entry’s hierarchical level (taking leveloffset into account).

\GLSxtrusefield\{\langle entry label \rangle\}\{\langle field label \rangle\}\glossaries-extra* v1.37+
As \glsxtrusefield but converts the value to upper case.

\Glsxtrusefield\{\langle entry label \rangle\}\{\langle field label \rangle\}\glossaries-extra* v1.12+
Like \glsxtrusefield but converts the first letter to upper case.

\glsxtrusefield\{\langle entry label \rangle\}\{\langle field label \rangle\}\glossaries-extra* v1.12+
Expands to the value of the given field for the given entry.
General Command Summary

\glsxtruserfield
glossaries-extra v1.04+
Used by the parenthetical abbreviation styles, this expands to the internal label of the field used to store the additional parenthetical material. The default value is useri.

\glsxtruserparen{⟨text⟩}{⟨label⟩}
glossaries-extra v1.04+
Used by the “user” abbreviation styles to format the parenthetical material where ⟨text⟩ is the default parenthetical text and ⟨label⟩ is the entry’s label. This checks the field given by \glsxtruserfield and, if set, the ⟨text⟩ is followed by a comma and the user value.

\glsxtrusersuffix
glossaries-extra v1.04+
The suffix used to construct the plural for the short form of abbreviations with the “user” styles. The default definition just uses \glsxtrabbrvpluralsuffix.

\glsxtrusesee{⟨label⟩}
glossaries-extra v1.06+
Applies \glsseeformat to the entry’s see field if not empty.

\glsxtruseseealso{⟨label⟩}
glossaries-extra v1.16+
Applies \glsseeformat to the entry’s seealso field if not empty.

\glsxtruseseealsoformat{⟨xr list⟩}
glossaries-extra v1.16+
Used to format the entries whose labels are given in ⟨xr list⟩ as a list of “see also” cross-references.

\glsxtruseseeformat{⟨tag⟩}{⟨labels⟩}
glossaries
Formats the entries identified in the comma separated list of labels as a set of cross-references.

\glsxtrword{⟨text⟩}
glossaries-extra v1.17+
Used to encapsulate each word in the long form of an abbreviation by the markwords attribute.

\glsxtrwordsep
glossaries-extra v1.17+
Used to mark spaces between each word in the long form of an abbreviation by the markwords attribute.

H

\heartsuit
kernel command* (maths mode)
Heart symbol (♥).

\hyperbf{⟨text⟩}
glossaries
A location format that uses the bold font that also has a hyperlink (if enabled).

\hyperemph{⟨text⟩}
glossaries
A location format that uses \emph to set the font and also has a hyperlink (if enabled).

\hyperit{⟨text⟩}
glossaries
A location format that uses the italic font that also has a hyperlink (if enabled).

\hyperlink{⟨target name⟩}{⟨text⟩}
hyperref*
Create a hyperlink to ⟨target name⟩ with the given ⟨text⟩.
\hyperref
This command has 2 forms:
\hyperref{⟨URL⟩}{⟨category⟩}{⟨name⟩}{⟨text⟩}
Create a hyperlink to an external location with the anchor formed from
⟨category⟩.⟨name⟩ and the displayed ⟨text⟩.
\hyperref{⟨label⟩}{⟨text⟩}
Create an internal hyperlink with the displayed ⟨text⟩ to the same place that
\ref{⟨label⟩} would be linked. Note that the ⟨label⟩ argument isn’t optional. The
square bracket notation disambiguates from the syntax for the external form of
\hyperref.
\hyperrm{⟨text⟩}
glossaries
A location format that uses the serif (Roman) font that also has a hyperlink (if enabled).
\hypersf{⟨text⟩}
glossaries
A location format that uses the sans-serif font that also has a hyperlink (if enabled).

\ifcase⟨number⟩
Case conditional.
\ifcsdef{⟨cs-name⟩}{⟨true⟩}{⟨false⟩}
etoolbox
Tests if the control sequence given by ⟨cs-name⟩ is defined.
\ifcsstrequaI{⟨cs-name1⟩}{⟨cs-name2⟩}{⟨true⟩}{⟨false⟩}
etoolbox
Tests if the replacement text of the command given by the control sequence name
⟨cs-name1⟩ equals the replacement text of the command given by the control sequence
name ⟨cs-name2⟩.
\ifcsstring{⟨cs-name⟩}{⟨string⟩}{⟨true⟩}{⟨false⟩}
etoolbox
Tests if the replacement text of the command given by the control sequence name
⟨cs-name⟩ equals ⟨string⟩.
\ifdef{⟨cs⟩}{⟨true⟩}{⟨false⟩}
etoolbox
Tests if the control sequence ⟨cs⟩ is defined.
\ifdefstrequaI{⟨cs1⟩}{⟨cs2⟩}{⟨true⟩}{⟨false⟩}
etoolbox
Tests if the replacement text of the command ⟨cs1⟩ equals the replacement text of the
command ⟨cs2⟩.
\ifDTLlistskipempty
datatool-base* v2.31+
Conditional that determines whether or not commands like \DTLformatlist should
skip empty elements.
\IfFileExists{⟨file⟩}{⟨true⟩}{⟨false⟩}
kerneld command*
If the given ⟨file⟩ exists does ⟨true⟩ otherwise does ⟨false⟩.
\texttt{\textbackslash ifglossaryexists\{\langle type\}\{\langle true\}\{\langle false\}\}} \hspace{1cm} \text{glossaries} \\
Tests if the glossary identified by \langle type\rangle exists and does \langle true\rangle if it does exists, otherwise does \langle false\rangle. The unstarred form treats ignored glossaries as non-existent.

\texttt{\textbackslash ifglossaryexists*\{\langle type\}\{\langle true\}\{\langle false\}\}} \hspace{1cm} \text{glossaries v4.46+ (or glossaries-extra v1.44+)} \\
The starred form of \texttt{\textbackslash ifglossaryexists} treats ignored glossaries as existing.

\texttt{\textbackslash ifglsentryexists\{\langle label\}\{\langle true\}\{\langle false\}\}} \hspace{1cm} \text{glossaries} \\
Tests if the entry given by \langle label\rangle exists.

\texttt{\textbackslash ifglsfieldcseq\{\langle entry label\}\{\langle field label\}\{\langle cs-name\}\{\langle true\}\{\langle false\}\}} \hspace{1cm} \text{glossaries v4.16+} \\
Tests if the given entry has the given field value equal to the replacement text of the command given by the control sequence name \langle cs-name\rangle, where \langle field label\rangle is the internal field label (not the key name). The test uses \texttt{\textbackslash ifcsstrequal}.

\texttt{\textbackslash ifglsfielddefeq\{\langle entry label\}\{\langle field label\}\{\langle cs\}\{\langle true\}\{\langle false\}\}} \hspace{1cm} \text{glossaries v4.16+} \\
Tests if the given entry has the given field value equal to the replacement text of the command given by \langle cs\rangle, where \langle field label\rangle is the internal field label (not the key name). The test uses \texttt{\textbackslashifdefstrequal}.

\texttt{\textbackslash ifglsfieldeq\{\langle entry label\}\{\langle field label\}\{\langle string\}\{\langle true\}\{\langle false\}\}} \hspace{1cm} \text{glossaries v4.16+} \\
Tests if the given entry has the given field value equal to \langle string\rangle, where \langle field label\rangle is the internal field label (not the key name). No expansion is performed in the test (which just uses \texttt{\textbackslash ifcsstring})

\texttt{\textbackslash ifglshaschildren\{\langle entry label\}\{\langle true\}\{\langle false\}\}} \hspace{1cm} \text{glossaries} \\
Tests if the given entry, which must be defined, has child entries. This method is inefficient as it has to iterate over all defined entries to determine which ones have \langle entry label\rangle as the value of the parent field. With \texttt{bib2gls}, a more efficient approach is to use \texttt{save-child-count} and test the value of the childcount field.

\texttt{\textbackslash ifglshasdesc\{\langle entry label\}\{\langle true\}\{\langle false\}\}} \hspace{1cm} \text{glossaries} \\
Tests if the given entry, which must be defined, has the description field set.

\texttt{\textbackslash ifglshasfield\{\langle field label\}\{\langle entry label\}\{\langle true\}\{\langle false\}\}} \hspace{1cm} \text{glossaries} \\
Tests if the given entry, which must be defined, has the given field set to a non-empty value.

\texttt{\textbackslash ifglshaslong\{\langle entry label\}\{\langle true\}\{\langle false\}\}} \hspace{1cm} \text{glossaries} \\
Tests if the given entry, which must be defined, has the long field set.

\texttt{\textbackslash ifglshasparent\{\langle entry label\}\{\langle true\}\{\langle false\}\}} \hspace{1cm} \text{glossaries} \\
Tests if the given entry, which must be defined, has the parent field set.

\texttt{\textbackslash ifglshasprefix\{\langle entry label\}\{\langle true\}\{\langle false\}\}} \hspace{1cm} \text{glossaries-prefix} \\
Tests if the given entry, which must be defined, has the prefix field set to value that’s not empty.

\texttt{\textbackslash ifglshasprefixfirst\{\langle entry label\}\{\langle true\}\{\langle false\}\}} \hspace{1cm} \text{glossaries-prefix} \\
Tests if the given entry, which must be defined, has the prefixfirst field set to value that’s not empty.

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\ifglshasprefixfirstplural\langle entry label\rangle\langle true\rangle\langle false\rangle\glossaries-prefix
Tests if the given entry, which must be defined, has the prefixfirstplural field set to value that’s not empty.

\ifglshasprefixplural\langle entry label\rangle\langle true\rangle\langle false\rangle\glossaries-prefix
Tests if the given entry, which must be defined, has the prefixplural field set to value that’s not empty.

\ifglsasshort\langle entry label\rangle\langle true\rangle\langle false\rangle\glossaries
Tests if the given entry, which must be defined, has the short field set.

\ifglsassuppressedesc\langle entry label\rangle\langle true\rangle\langle false\rangle\glossaries
Tests if the given entry, which must be defined, has the description field set to \nopostdesc.

\ifglsassymbol\langle entry label\rangle\langle true\rangle\langle false\rangle\glossaries
Tests if the given entry, which must be defined, has the symbol field set to value that’s not empty and not \relax.

\ifglsused\langle label\rangle\langle true\rangle\langle false\rangle\glossaries
Does \langle true\rangle if the entry given by \langle label\rangle has been used, \langle false\rangle if the entry hasn’t been used and neither if the entry doesn’t exist (an error or warning message will occur and ?? will appear in the document). This command is not for use in the post-link hooks.

\ifglsxtrinsertinside\glossaries-extra v1.02+
Switch that determines whether or not inserted text (provided in the final optional argument of commands like \gls) is inside or outside of the font changing commands in the predefined abbreviation styles. The default is false.

\ifignoreddglossary\langle type\rangle\langle true\rangle\langle false\rangle\glossaries v4.08+
Tests if the glossary given by \langle type\rangle was defined as an ignored glossary.

\ifnum\langle number1\rangle\langle comparison\rangle\langle number2\rangle\TEX primitive*
Integer conditional.

\ifstrempty\langle string\rangle\langle true\rangle\langle false\rangle\etoolbox
Tests if \langle string\rangle is empty.

\immediate\langle file operation\rangle\TEX primitive
Perform the file operation immediately instead of the usual delay.

\index{\langle text\rangle}\kernel command
Indexes the given term by writing the relevant information to an associated file that can then be processed by makeindex or xindy.

\indexname\glossaries or language packages
Language-sensitive name used for the title of the glossary created with the index package option.

\input{\langle file\rangle}\kernel command*
Input the given file.
General Command Summary

\invfmt\{\textit{maths}\}
Example command.

\jobname\primitive
The current job name, which is usually the name of the main .\texttt{tex} file without the extension.

\textsc{L}

\L\kernel\command*
Produces the upper case L-slash character Ł.

\l\kernel\command*
Produces the lower case l-slash character ł.

\label\{\textit{id}\}\kernel\command*
Creates a label that can be referenced with \texttt{\ref} or \texttt{\pageref}.

\let\langle\textit{token1}\rangle\langle\textit{token2}\rangle\tex\primitive*
Assigns \langle\textit{token1}\rangle to \langle\textit{token2}\rangle.

\listbreak\etoolbox
May be used within the handler macro of etoolbox’s internal list loop commands to prematurely break the loop.

\listxadd\{\textit{list cs}\}\{\textit{element}\}\etoolbox
Globally adds (expanded) \langle\textit{element}\rangle to the list stored in the control sequence \langle\textit{list cs}\rangle.

\loadglsentries\{\textit{type}\}\{\textit{file}\}\glossaries
Locally redefines \texttt{\glsdefaulttype} to \langle\textit{type}\rangle and inputs \langle\textit{file}\rangle.

\longnewglossaryentry\{\textit{label}\}\{\textit{key}=\textit{value list}\}\{\textit{description}\}\glossaries
Defines a new glossary entry and appends \texttt{\leavemode\unskip\nopostdesc} at the end of \langle\textit{description}\rangle.

\longnewglossaryentry*\{\textit{label}\}\{\textit{key}=\textit{value list}\}\{\textit{description}\}\glossaries-extra v1.12+
Defines a new glossary entry without appending any extra code to the end of \langle\textit{description}\rangle.

\longprovideglossaryentry\{\textit{label}\}\{\textit{key}=\textit{value list}\}\{\textit{description}\}\glossaries
Defines a new glossary entry if one doesn’t already exist with the given label.

\textsc{M}

\mainmatter\book-like\classes
Switches to main matter.

\maketitle\{\textit{text}\}\mfirstuc*
Converts the first letter of \langle\textit{text}\rangle to upper case.
General Command Summary

\makeglossaries\glossaries
Opens associated glossary files to be processed by \makeindex or \xindy.

\MakeLowercase{⟨text⟩}
Converts ⟨text⟩ to lower case.

\makenoidxglossaries\glossaries v4.04+
Indicates that \TeX should be used to sort and collate the glossary information instead of using an external application; this command should not be used with \bib2gls.

\MakeTextLowercase{⟨text⟩}
Converts ⟨text⟩ to lower case.

\MakeTextUppercase{⟨text⟩}
Converts ⟨text⟩ to upper case.

\MakeUppercase{⟨text⟩}
kernel command*
Converts ⟨text⟩ to upper case.

\mathcal{⟨character⟩}
kernel command (maths mode)
Renders the given (upper case) maths character in a calligraphic font.

\mathord{⟨maths⟩}
\TeX primitive
Assigns the character or sub-formula in the argument to class 0, ordinary.

\MFUnocap{⟨word⟩}
mfirstuc* v1.09+
Identifies ⟨word⟩ as one that should not have its case-changed by \capitalisewords unless it occurs at the start.

\midrule
booktabs
Horizontal rule for divider between header and main content of a tabular-like environment.

\mtxfmt{⟨symbol⟩}
Example command.

\nary{⟨text⟩}
Example command.

\newabbreviation[[⟨key=value list⟩][⟨label⟩][⟨short⟩][⟨long⟩]]\glossaries-extra
Defines a new abbreviation.

\newacronym[[⟨key=value list⟩][⟨label⟩][⟨short⟩][⟨long⟩]]\glossaries
Defines a new abbreviation. The \glossaries-extra package redefines this to use \newabbreviation with the \texttt{category} set to \texttt{acronym}.

\newcommand{⟨cs⟩}[[⟨n⟩][⟨def⟩]][⟨code⟩]
kernel command*
Defines a new command.

\newdualentry[[⟨key=value list⟩][⟨label⟩][⟨short⟩][⟨long⟩][⟨description⟩]]
Example given in \glossaries user manual.
\newentry{⟨label⟩}{⟨key=value list⟩} \hspace{2cm} glossaries-extra shortcuts  
Equivalent to \newglossaryentry.

\newglossary[⟨log⟩]{⟨type⟩}{⟨gls⟩}{⟨glo⟩}{⟨title⟩} \hspace{2cm} glossaries  
Defines a new glossary identified by ⟨type⟩ with the given title and associated file extensions used by makeindex or xindy.

\newglossary*{⟨type⟩}{⟨title⟩} \hspace{2cm} glossaries  
Defines a new glossary identified by ⟨type⟩ with the given title.

\newglossaryentry{⟨label⟩}{⟨key=value list⟩} \hspace{2cm} glossaries  
Defines a new glossary entry.

\newglossarystyle{⟨name⟩}{⟨definition⟩} \hspace{2cm} glossaries  
Defines a new glossary style called ⟨name⟩.

\newignoredglossary{⟨type⟩} \hspace{2cm} glossaries v4.08+  
Defines a new ignored glossary (with hyperlinks suppressed) identified by ⟨type⟩ that’s not included in the list used by commands, such as \printunsrtglossaries, that iterate over defined glossaries.

\newignoredglossary*{⟨type⟩} \hspace{2cm} glossaries-extra v1.11+  
Defines a new ignored glossary (without suppressing hyperlinks) identified by ⟨type⟩ that’s not included in the list used by commands, such as \printunsrtglossaries, that iterate over defined glossaries.

\newnum{⟨label⟩}{⟨key=value list⟩} \hspace{2cm} glossaries-extra shortcuts  
Equivalent to \glsxtrnewnumber.

\newrobustcmd{⟨cs⟩}{⟨n⟩}{⟨def⟩}{⟨code⟩} \hspace{2cm} etoolbox  
Behaves like \newcommand but the newly defined command will be robust.

\newsym{⟨label⟩}{⟨key=value list⟩}{⟨symbol⟩} \hspace{2cm} glossaries-extra shortcuts  
Equivalent to \glsxtrnewsymbol.

\newterm{⟨key=value list⟩}{⟨label⟩} \hspace{2cm} glossaries's index package option  
Defines a new glossary entry where the description field defaults to empty.

\NG \hspace{2cm} kernel command*  
Produces the upper case eng ኣ.

\ng \hspace{2cm} kernel command*  
Produces the lower case eng ኢ.

\nobreakspace \hspace{2cm} kernel command*  
Produces a non-breakable space.

\NoCaseChange{⟨text⟩} \hspace{2cm} textcase*  
Prevents \MakeTextUppercase and \MakeTextLowercase from converting ⟨text⟩.

\nopostdesc \hspace{2cm} glossaries  
Suppresses the post-description hook.
\number\(<value>\) \quad \text{T\!\TeX \ primitive}\text{*}

Expands the given numerical \(<value>\) to a base 10 integer number stripping any leading zeros (use \texttt{\char"\langle\langle\text{hex}\rangle}\rangle\text{ if the value is hexadecimal}).

\numspacefmt\{\langle\text{symbol}\rangle\}

Example command.

\begin{itemize}
  \item \textbf{O}
  \item \texttt{\O}\text{} \quad \text{kern}el \text{command}\text{*}
    Produces the upper case O-slash character Ø.
  \item \texttt{\o}\text{} \quad \text{kern}el \text{command}\text{*}
    Produces the lower case o-slash character ø.
  \item \texttt{\OE}\text{} \quad \text{kern}el \text{command}\text{*}
    Produces the upper case Æ-ligature.
  \item \texttt{\oe}\text{} \quad \text{kern}el \text{command}\text{*}
    Produces the lower case œ-ligature.
  \item \texttt{\oldacronym}\{\langle\text{label}\rangle\}{\langle\text{short}\rangle}\{\langle\text{long}\rangle\}{\langle\text{options}\rangle}\}
    \glossaries
    Emulates the way the old \textsf{glossary} package defined acronyms.
  \item \texttt{\omicron}\text{} \quad \text{glossaries-extra-bib2gls}\text{*}
    Greek letter omicron ο.
\end{itemize}

\begin{itemize}
  \item \textbf{P}
  \item \texttt{\PackageError}\{\langle\text{name}\rangle\}{\langle\text{code}\rangle}\{\langle\text{help}\rangle\}\}
    \text{kern}el \text{command}\text{*}
    Generates an error message for the package identified by \langle\text{name}\rangle.
  \item \texttt{\pagelistname}\text{} \quad \glossaries
    Language-sensitive name used for the location list header for some glossary styles.
  \item \texttt{\pageref}\{\langle\text{id}\rangle\}\text{} \quad \text{kern}el \text{command}\text{*}
    Cross-reference the page where \texttt{\label}\{\langle\text{id}\rangle\} occurred.
  \item \texttt{\par}\text{} \quad \text{kern}el \text{command}\text{*}
    Paragraph break.
  \item \texttt{\parenswap}\{\langle\text{text1}\rangle\}\{\langle\text{text2}\rangle\}\text{} \quad \text{Ex}ample \text{com}mand.
  \item \texttt{\PGLS}\{\langle\text{options}\rangle\}\{\langle\text{label}\rangle\}\{\langle\text{insert}\rangle\}\}
    \text{glossaries-prefix}\text{}
    Does \langle\text{prefix}\rangle\texttt{GLS}\{\langle\text{options}\rangle\}\{\langle\text{label}\rangle\}\{\langle\text{insert}\rangle\}, where the \langle\text{prefix}\rangle is obtained from the appropriate prefix field with the text converted to upper case.
  \item \texttt{\Pgls}\{\langle\text{options}\rangle\}\{\langle\text{label}\rangle\}\{\langle\text{insert}\rangle\}\}
    \text{glossaries-prefix}\text{}
    Does \langle\text{prefix}\rangle\texttt{gls}\{\langle\text{options}\rangle\}\{\langle\text{label}\rangle\}\{\langle\text{insert}\rangle\}, where the \langle\text{prefix}\rangle is obtained from the appropriate prefix field with the first letter converted to upper case.
\end{itemize}
General Command Summary

\gls{(options)}{(label)}{(insert)} \quad \text{glossaries-prefix}
\text{Does (prefix)\gls{(options)}{(label)}{(insert)}}, where the (prefix) is obtained from the appropriate prefix field.

\glsp1{(options)}{(label)}{(insert)} \quad \text{glossaries-prefix}
\text{Does (prefix)\glsp1{(options)}{(label)}{(insert)}}, where the (prefix) is obtained from the appropriate prefix field with the text converted to upper case.

\glspl{(options)}{(label)}{(insert)} \quad \text{glossaries-prefix}
\text{Does (prefix)\glspl{(options)}{(label)}{(insert)}}, where the (prefix) is obtained from the appropriate prefix field with the first letter converted to upper case.

\pit \quad \text{kernel command* (maths mode)}
\text{Greek letter pi } \pi.

\printglossaries \quad \text{glossaries}
\text{Iterates over all non-ignored defined glossaries and performs \printglossary for each one.}

\printglossary{(options)} \quad \text{glossaries}
\text{Inputs file created by makeindex or xindy.}

\printnoidxglossaries \quad \text{glossaries v4.04+}
\text{Iterates over all non-ignored defined glossaries and performs \printnoidxglossary for each one.}

\printnoidxglossary{(options)} \quad \text{glossaries v4.04+}
\text{Uses \TeX to sort, collate and list the glossary.}

\printunsrtglossaries \quad \text{glossaries-extra v1.08+}
\text{Iterates over all non-ignored defined glossaries and performs \printunsrtglossary for each one.}

\printunsrtglossary{(options)} \quad \text{glossaries-extra v1.08+}
\text{Display a glossary by iterating over all entries associated with that glossary in the order in which they were defined (which, with \bib2gls, should correspond to the order obtained from the sort settings given in the resource set options).}

**Options:**

\text{entrycounter=\textit{(boolean)}}
\text{Locally enable or disable top-level enumeration (overrides entrycounter package option)}

\text{groups=\textit{(boolean)}}
\text{Controls whether or not \printunsrtglossary (or \printunsrtinnerglossary) should insert letter group markup. There’s no visible difference for glossary styles that}
don’t support letter groups (and nogroupskip is in effect) or if there’s no group information (for example, --no-group has been used)

label={⟨label⟩}
Creates a label for this glossary by locally using \glsxtrsetglossarylabel{⟨label⟩}

leveloffset={⟨n⟩}
Makes the glossary style act as though each entry’s hierarchical level is ⟨offset⟩ more than it actually is where ⟨offset⟩ is either ⟨n⟩ or is locally incremented by ⟨n⟩ if ⟨n⟩ starts with ++

nogroupskip={⟨boolean⟩}
Locally change whether or not to separate groups with a vertical space if the glossary style that support this option (overrides nogroupskip package option)

nonumberlist={⟨boolean⟩}
Locally change whether or not to display the location lists (overrides nonumberlist package option)

nopostdot={⟨boolean⟩}
Locally omit the post-description punctuation (overrides nopostdot and related package options)

numberedsection={⟨value⟩}
Locally change whether or not to use a numbered sectioning command (overrides numberedsection package option)

prefix={⟨label⟩}
Locally redefine \glolinkprefix for the item hypertargets and for any entry reference or cross-reference hyperlinks

style={⟨style-name⟩}
Use the glossary style identified by ⟨style-name⟩ (overrides current style setting)

subentrycounter={⟨boolean⟩}
Locally enable or disable level 1 enumeration (overrides subentrycounter package option)

target={⟨boolean⟩}
Locally enables or disables the hypertargets for each item

targetnameprefix={⟨label⟩}
Locally assign a prefix for the hypertargets assigned to each item (if target={true}) to avoid duplicate target names

title={⟨text⟩}
Locally sets the title for this glossary

toctitle={⟨text⟩}
Locally sets the TOC title for this glossary

type={⟨glossary-label⟩}
Identifies the glossary list (\glsdefaulttype, if omitted)
General Command Summary

\printunsrtglossary*[⟨\texttt{options}⟩]*{⟨\texttt{code}⟩}
glossaries-extra v1.12+
As \printunsrtglossary but performs ⟨\texttt{code}⟩ first (scoped to localise any assignments within ⟨\texttt{code}⟩).

\printunsrtglossaryentryprocesshook{⟨\texttt{label}⟩}
glossaries-extra v1.21+
Performed at each iteration of the internal loop used by \printunsrtglossary.

\printunsrtglossaryhandler{⟨\texttt{label}⟩}
glossaries-extra v1.12+
Used by \printunsrtglossary and \printunsrtinnerglossary to handler each entry within the loop. By default this simply does \glsxtrunsrtdo.

\printunsrtglossarypredoglossary
glossaries-extra v1.21+
Hook performed by \printunsrtglossary.

\printunsrtglossaryskipentry
glossaries-extra v1.21+
Only allowed within \printunsrtglossaryentryprocesshook this command indicates that the current entry should be skipped.

\printunsrtinnerglossary[⟨\texttt{options}⟩]*{⟨\texttt{pre code}⟩}*{⟨\texttt{post code}⟩}
glossaries-extra v1.44+
Similar to \printunsrtglossary but only contains the code that would typically be placed inside the \texttt{the\glsentryname} environment. This command should either be placed inside the \printunsrtglossarywrap environment or inside the handler macro used by \printunsrtglossary. This command is unsuitable for certain glossary styles, particularly tabular-like styles.

\ProcessOptions kernel command*
Processes supplied options.

\protect{⟨\texttt{token}⟩}
kernell command*
Protects ⟨\texttt{token}⟩ from expansion.

\providecommand{⟨\texttt{cs}⟩}*{⟨\texttt{n}⟩}*{⟨\texttt{def}⟩}*{⟨\texttt{code}⟩} kernel command*
Defines a command if it’s not already defined.

\provideglossaryentry{⟨\texttt{label}⟩}*{⟨\texttt{key=value list}⟩} glossaries
Defines a new glossary entry if one doesn’t already exist with the given label.

\provideignoreddglossary[⟨\texttt{type}⟩] glossaries-extra v1.12+
As \newignoreddglossary but does nothing if a glossary identified by ⟨\texttt{type}⟩ already exists.

\provideignoreddglossary*[⟨\texttt{type}⟩] glossaries-extra v1.12+
As \provideignoreddglossary but doesn’t suppress hyperlinks.

\ProvidesPackage{⟨\texttt{name}⟩}*{⟨\texttt{version}⟩} kernel command*
Identifies a package.

\ref{⟨\texttt{id}⟩} kernel command*
Cross-reference the location where \texttt{\label{⟨\texttt{id}⟩}} occurred.
\refstepcounter{\counter name}\ 
Increments the given counter in a manner compatible with the \label cross-referencing mechanism.

\renewcommand{\cs}[\n][\def][\code]\ 
Redefines an existing command.

\RequirePackage{\options}{\name}[\min version]\ 
Loads the package identified by \name from within another package.

\rgls[\options]{\label}[\insert]\ 
Like \gls but checks for the record count trigger setting (the formatting is governed by \rglsformat).

\rglsformat{\label}[\insert]\ 
Used by \rgls if the record count switch is triggered.

\section[\toc title]{\title}
most classes that have a concept of document sections
Section heading.

\section*{\title}
most classes that have a concept of document sections
Unnumbered section heading.

\seealso{\name}\ 
glossaries-extra
Language sensitive "see also" text (as from v1.42 this will be defined to \alsonenname if that command exists).

\selectlanguage{\language name}\ 
babel and polyglossia
Switch to the rules of the given language.

\setabbreviationstyle{\category}{\style-name}\ 
glossaries-extra
Sets the abbreviation style to \style-name for the given \category, must be used before the abbreviation is defined.

\setcardfmt{\maths}\ 
Example command.

\setcontentsfmt{\contents}\ 
Example command.

\setentrycounter{\prefix}{\counter}\ 
glossaries
Sets up the entry’s associated counter and prefix required by \glshypernumber.

\setfmt{\symbol}\ 
Example command.

\setglossarypreamble[\type]{\code}\ 
glossaries
Sets \code as the preamble for the given glossary (or the default of \type is omitted).

\setglossarystyle{\name}\ 
glossaries
Sets the glossary style identified by \name.
General Command Summary

\setmainlanguage[\langle options \rangle]\\langle language name \rangle} \quad \text{polyglossia}
Load the main document language.

\setmembershipfmt\langle variable(s) \rangle\\langle condition \rangle}
Example command.

\setmembershiponeargfmt\langle variable(s) \rangle\\langle condition \rangle}
Example command.

\setotherlanguage[\langle options \rangle]\\langle language name \rangle} \quad \text{polyglossia}
Load a secondary document language.

\setupglossaries\{\langle key = value list \rangle\}
\text{glossaries}
Applies the base glossaries options that are allowed to be changed after the package has loaded.

\showglocounter\{\langle label \rangle\}
\text{glossaries}
Interrupts the document build and shows the value of the counter field in the transcript.

\showglodesc\{\langle label \rangle\}
\text{glossaries}
Interrupts the document build and shows the value of the description field in the transcript.

\showglodescplural\{\langle label \rangle\}
\text{glossaries}
Interrupts the document build and shows the value of the descriptionplural field in the transcript.

\showglofield\{\langle entry label \rangle \langle internal field \rangle\}
\text{glossaries}
Interrupts the document build and shows the value of the given field in the transcript.

\showglofirst\{\langle label \rangle\}
\text{glossaries}
Interrupts the document build and shows the value of the first field in the transcript.

\showglofirstpl\{\langle label \rangle\}
\text{glossaries}
Interrupts the document build and shows the value of the firstplural field in the transcript.

\showgloflag\{\langle label \rangle\}
\text{glossaries}
Interrupts the document build and shows the value of the first use flag in the transcript.

\showgloglossaries \quad \text{glossaries}
Interrupts the document build and shows the list of all non-ignored glossary types in the transcript.

\showglolevel\{\langle label \rangle\}
\text{glossaries}
Interrupts the document build and shows the entry’s hierarchical level in the transcript.

\showgloloclist\{\langle label \rangle\}
\text{glossaries}
Interrupts the document build and shows the value of the loclist field in the transcript.

\showglolong\{\langle label \rangle\}
\text{glossaries}
Interrupts the document build and shows the value of the long field in the transcript.
General Command Summary

\showgloname{⟨label⟩}\glossaries Interrupts the document build and shows the value of the name field in the transcript.

\showgloparent{⟨label⟩}\glossaries Interrupts the document build and shows the value of the parent field in the transcript.

\showgloplural{⟨label⟩}\glossaries Interrupts the document build and shows the value of the plural field in the transcript.

\showgloshort{⟨label⟩}\glossaries Interrupts the document build and shows the value of the short field in the transcript.

\showglosort{⟨label⟩}\glossaries Interrupts the document build and shows the value of the sort field in the transcript.

\showglossarycounter{⟨type⟩}\glossaries Interrupts the document build and shows the default counter for the given glossary in the transcript.

\showglossaryentries{⟨type⟩}\glossaries Interrupts the document build and shows the list of entry labels for the given glossary in the transcript.

\showglossarytitle{⟨type⟩}\glossaries Interrupts the document build and shows the title of the given glossary in the transcript.

\showglosymbol{⟨label⟩}\glossaries Interrupts the document build and shows the value of the symbol field in the transcript.

\showglosymbolplural{⟨label⟩}\glossaries Interrupts the document build and shows the value of the symbolplural field in the transcript.

\showglotext{⟨label⟩}\glossaries Interrupts the document build and shows the value of the text field in the transcript.

\showglostype{⟨label⟩}\glossaries Interrupts the document build and shows the value of the type field in the transcript.

\showglouser{i}{⟨label⟩}\glossaries Interrupts the document build and shows the value of the user1 field in the transcript.

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\showglouser{v}{⟨label⟩}\glossaries Interrupts the document build and shows the value of the user5 field in the transcript.
\showglouservi{\{label\}} \hspace{1cm} \textit{glossaries}
Interrupts the document build and shows the value of the user6 field in the transcript.

\si{\{unit\}} \hspace{1cm} \textit{siunitx*}
Displays the unit with intelligent formatting.

\sigma \hspace{1cm} \textit{kernel command* (maths mode)}
Greek letter sigma $\sigma$.

\sortart{\{article\}}{\{text\}} \hspace{1cm} \textit{Example command.}

\sortmediacreator{\{first name(s)\}}{\{surname\}} \hspace{1cm} \textit{Example command.}

\sortname{\{first name(s)\}}{\{surname\}} \hspace{1cm} \textit{Example command.}

\sortop{\{text1\}}{\{text2\}} \hspace{1cm} \textit{Example command.}

\sortvonname{\{first name(s)\}}{\{von\}}{\{surname\}} \hspace{1cm} \textit{Example command.}

\space \hspace{1cm} \textit{kernel command*}
Produces a space.

\SS \hspace{1cm} \textit{kernel command*}
Produces the upper case eszett $\beta$.

\ss \hspace{1cm} \textit{kernel command*}
Produces the lower case eszett $\beta$.

\string{\{token\}} \hspace{1cm} \textit{\TeX primitive*}
If \{token\} is a control sequence it expands to the escape character followed by the control sequence name.

\strong{\{text\}} \hspace{1cm} \textit{Example command.}

\subglossentry{\{level\}}{\{label\}}{\{location list\}} \hspace{1cm} \textit{glossaries v3.08a+}
Used in the glossary to display a sub-entry.

\surd \hspace{1cm} \textit{kernel command* (maths mode)}
Surd symbol $\sqrt{}$.

\tableofcontents \hspace{1cm} \textit{kernel command*}
Displays the table of contents (by reading in the .toc file) and then opens .toc file to allow the sectioning commands to write to it.
\textbf{\{text\}} \textbf{kernel command}\n
Displays the given text in bold.

\textcolor{\langle model \rangle}{\langle spec \rangle}{\langle text \rangle} \textcolor{color}{kernel command}
Typesets \langle text \rangle in the given colour.

\text{\langle language \rangle}{\langle options \rangle}{\langle text \rangle} \text{polyglossia}
Typeset \langle text \rangle according to \langle language \rangle.

\textsc{\langle text \rangle} \textsc{kernel command}
Applies small-caps font to \langle text \rangle.

\textsf{\langle text \rangle} \textsf{kernel command}
Displays the given text in sans-serif.

\textsmaller{\langle text \rangle} \textsmaller{relsize}
Typesets \langle text \rangle in a font size that’s smaller than the surrounding text.

\textstyle \textstyle{kernel command} (maths mode)
Switch to in-line maths style (vertically compact).

\textscript{\langle text \rangle} \textscript{kernel command}\* as from 2015/01/01
Displays \langle text \rangle as a subscript.

\textsuperscript{\langle text \rangle} \textsuperscript{kernel command}\*
Displays \langle text \rangle as a superscript.

\texttt{\langle text \rangle} \texttt{kernel command}
Displays the given text in monospaced font.

\textweathersymbol{\langle number \rangle} \textweathersymbol{ifsym}
Displays weather symbol identified by \langle number \rangle.

\TH \TH{kernel command}\*
Produces the upper case thorn Þ.

\th \th{kernel command}\*
Produces the lower case thorn þ.

\the{\langle register \rangle} \TeX primitive\*
Expands \langle register \rangle to the current value of the register.

\theglossaryentry \theglossaryentry{glossaries}
Textual representation of the glossaryentry counter, which is defined with the \texttt{entrycounter} option.
**General Command Summary**

- `\the\entrycounter` \textit{glossaries}
  
  When indexing, this is set to the `\the\langle\text{counter}\rangle` command corresponding to the current indexing counter (or, if undefined, `\the\langle\text{counter}\rangle`).

- `\the\glossaryentry` \textit{glossaries}
  
  Hypertarget associated with the `\glossaryentry` counter, which is defined with the `\entrycounter` option.

- `\toprule` \textit{booktabs}
  
  Horizontal rule for the top of a tabular-like environment.

- `\TrackLangLastTrackedDialect` \textit{tracklang}
  
  Set by commands like `\TrackLocale`.

- `\TrackLocale\{\langle\text{language tag}\rangle\}` \textit{tracklang v1.3+}
  
  Tracks the given language tag.

- `\transposefmt\{\langle\text{maths}\rangle\}`
  
  Example command.

**U**

- `\u\{\langle\text{character}\rangle\}` \textit{kernel command*}
  
  Puts a breve accent over `\langle\text{character}\rangle`.

- `\u\langle\text{hex}\rangle` \textit{bib2gls}
  
  Identifies a character by its hexadecimal code in the values of some (but not all) resource options.

- `\undef\{\langle\text{cs}\rangle\}` \textit{etoolbox*}
  
  Undefines the control sequence `\langle\text{cs}\rangle`.

- `\underline\{\langle\text{text}\rangle\}` \textit{kernel command}
  
  Underlines the given text.

- `\unexpanded\{\langle\text{general text}\rangle\}` \textit{\TeX primitive*}
  
  Expands to the argument.

- `\usepackage\{\langle\text{options}\rangle\}\{\langle\text{name}\rangle\}\{\langle\text{min version}\rangle\}` \textit{kernel command*}
  
  Loads the package identified by `\langle\text{name}\rangle`.

**V**

- `\vec\{\langle\text{character}\rangle\}` \textit{kernel command* (maths mode)}
  
  Puts right arrow accent over `\langle\text{character}\rangle`.

- `\vecfmt\{\langle\text{symbol}\rangle\}`
  
  Example command.
\textbf{General Command Summary}

\texttt{\textbackslash vert} \hspace{1cm} \textit{kernel command* (maths mode)}

\hspace{1cm} Vertical bar delimiter $|$.  

\texttt{\textbackslash write18\{\textit{system call}\}} \hspace{1cm} \textit{kernel command}

\hspace{1cm} Perform shell escape if permitted.

\texttt{\textbackslash xglsaccsupp\{\textit{accessible text}\}\{\textit{text}\}} \hspace{1cm} \textit{glossaries-accsupp}

\hspace{1cm} Used by the accessibility support to interface with the accsupp package, where \textit{\textit{text}} is fully expanded.

\texttt{\textbackslash XGlsXtrSetField\{\textit{entry label}\}\{\textit{field label}\}\{\textit{value}\}} \hspace{1cm} \textit{glossaries-extra v1.12+}

\hspace{1cm} Globally assigns the (protected) full expansion of the given \textit{\textit{value}} to the field identified by \textit{\textit{field label}} for the entry identified by \textit{\textit{entry label}}.

\texttt{\textbackslash xifinlist\{\textit{element}\}\{\textit{list cs}\}\{true\}\{false\}} \hspace{1cm} \textit{etoolbox}

\hspace{1cm} Tests if the expansion of \textit{\textit{element}} is in the list stored in the control sequence \textit{\textit{list cs}}.

\texttt{\textbackslash xmakefirstuc\{\textit{text}\}} \hspace{1cm} \textit{mfirstuc* v1.01+}

\hspace{1cm} Applies \texttt{\textbackslash makefirstuc} with one level expansion of the first token of \textit{\textit{text}}.
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