Translating errors, warnings, and messages

$ R -e "BiocManager::install(repos = 'foo')"
> BiocManager::install(repos = 'foo')
Error: 'repos' argument to 'install()' not allowed
Execution halted

$ LANGUAGE=fr R -e "BiocManager::install(repos = 'foo')"
> BiocManager::install(repos = 'foo')
Erreur : l'argument 'repos' pour 'install()' est interdit
Exécution arrêtée

$ LANGUAGE=es R -e "BiocManager::install(repos = 'foo')"
> BiocManager::install(repos = 'foo')
Error: argumento 'repos' no permitido en 'install()' 
Ejecución interrumpida

$ LANGUAGE=ja R -e "BiocManager::install(repos = 'foo')"
> BiocManager::install(repos = 'foo')
エラー: 'install()'への'repos'引数は許されていません
実行が停止されました

$ LANGUAGE=zh_CN R -e "BiocManager::install(repos = 'foo')"
> BiocManager::install(repos = 'foo')
错误: `install()` 函数不接受 `repos` 参数
停止执行
How does it work?

stop(), warning(), message(), gettextf() text in R files, e.g., \texttt{R/install.R}

\begin{verbatim}
stop("'repos' argument to 'install()' not allowed")
\end{verbatim}

Collate into \texttt{po/R-BiocManager.pot}

\begin{verbatim}
msgid "'repos' argument to 'install()' not allowed"
msgstr ""
\end{verbatim}

Create a translation in \texttt{po/R-es.po} (\texttt{'es'} indicates Spanish translation)

\begin{verbatim}
msgid "'repos' argument to 'install()' not allowed"
msgstr "argumento 'repos' no permitido en 'install()'"
\end{verbatim}

Install as part of the package \texttt{inst/po/es/LC_MESSAGES/R-BiocManager.mo}

Uses GNU \texttt{gettext} tools
gettext() / gettextf() do the work

Like sprintf(fmt, …), but fmt is translated to the current domain, if possible

```bash
$ LANGUAGE=es R
> gettextf("'repos' argument to 'install()' not allowed", domain = "R-BiocManager")
[1] "argumento 'repos' no permitido en 'install()'"
```

Fails gracefully (returns original string) if no translation available

```r
> gettextf("An untranslated message", domain = "R-BiocManager")
[1] "An untranslated message"
```

sprintf() interpolation

```r
> gettextf("use `BiocManager::install(version = '%s')` with R version %s", "3.12", "4.0.5", domain = "R-BiocManager")
[1] "utiliza `BiocManager::install(version ='3.12')` con R versión 4.0.5"
```
Resources

Writing R extensions

- Chapter 1.8 **Internationalization**

**potools** package

- From Michael Chiroco, being developed in conjunction with data.table useR! 2021 workshop: **Translating R to Your Language**
  - Michael Chiroco, Michael Lawrence

Bioconductor community slack -- **#documentation-translation**

Resources in the wider community -- Qt **Linguist**, **Gnome**, ...
Some technical challenges we're still learning about

- Specifying language on each operating system!
- Standardizing BiocManager to use gettextf() / stop() / warning() / message()
  - Allows use of tools for automatically generating .pot files, etc.
- Validating translations
  - Correct use and pattern of variable substitutions
  - Subtle language issues, e.g., "%s %d packages" where "%s" could be 'upgrade' or 'downgrade'. Some languages would like to change order, "%d packages %s" but simple sprintf-style variable substitution does not work this way!
  - Accurate and consistent with project Code-of-Conduct
- Workflow for updating translations -- even typos require re-translation (though failed translations appear in English so do not cause an error)
  - Probably there is a relatively clean solution to this, we're still learning!
- ...
Is it a good idea? Seems so at first, but...

- Maintainers must understand how translation works, creating significant 'technical debt'
- Users require English language skills to work with R / Bioconductor, and stop() / warning() etc., are comparatively easy to understand compared to a vignette or help page -- only marginal benefit from translation?
- Adopting a single language (by default, English) for the project simplifies communication, e.g., on the support site.
- It seems like a good way to get less experienced members of 'the community' involved, but actually contributors to date are experts!
- Additional issues.
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- French -- Marcel Ramos
- Chinese -- Jiefei Wang
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- Italien (in progress) -- Marcel Ramos, Davide Risso, Dario Righelli, Federico Marini

Michael Chiroco has provided some initial commentary through email

Try it out!

- po-translations branch of BiocManager
- README-Translation.md for notes / hints
- Translation is not too bad, only about 30 messages