

Package ‘glue’

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Title Interpreted String Literals

Version 1.3.1

Description An implementation of interpreted string literals, inspired by Python's Literal String Interpolation <<https://www.python.org/dev/peps/pep-0498/>> and Docstrings <<https://www.python.org/dev/peps/pep-0257/>> and Julia's Triple-Quoted String Literals <<https://docs.julialang.org/en/stable/manual/strings/#triple-quoted-string-literals>>.

Depends R (>= 3.1)

Imports methods

Suggests testthat, covr, magrittr, crayon, knitr, rmarkdown, DBI, RSQLite, R.utils, forcats, microbenchmark, rprintf, stringr, ggplot2, dplyr, withr

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URL <https://github.com/tidyverse/glue>

BugReports <https://github.com/tidyverse/glue/issues>

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as_glue	<i>Coerce object to glue</i>
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Description

Coerce object to glue

Usage

```
as_glue(x, ...)
```

Arguments

x	object to be coerced.
...	further arguments passed to methods.

glue	<i>Format and interpolate a string</i>
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Description

Expressions enclosed by braces will be evaluated as R code. Long strings are broken by line and concatenated together. Leading whitespace and blank lines from the first and last lines are automatically trimmed.

Usage

```
glue_data(x, ..., .sep = "", .envir = parent.frame(), .open = "{",
  .close = "}", .na = "NA", .transformer = identity_transformer,
  .trim = TRUE)
```

```
glue(..., .sep = "", .envir = parent.frame(), .open = "{",
  .close = "}", .na = "NA", .transformer = identity_transformer)
```

Arguments

<code>.x</code>	[listish] An environment, list or data frame used to lookup values.
<code>...</code>	[expressions] Expressions string(s) to format, multiple inputs are concatenated together before formatting.
<code>.sep</code>	[character(1): ""] Separator used to separate elements.
<code>.envir</code>	[environment: parent.frame()] Environment to evaluate each expression in. Expressions are evaluated from left to right. If <code>.x</code> is an environment, the expressions are evaluated in that environment and <code>.envir</code> is ignored.
<code>.open</code>	[character(1): '{'] The opening delimiter. Doubling the full delimiter escapes it.
<code>.close</code>	[character(1): '}'] The closing delimiter. Doubling the full delimiter escapes it.
<code>.na</code>	[character(1): 'NA'] Value to replace NA values with. If NULL missing values are propagated, that is an NA result will cause NA output. Otherwise the value is replaced by the value of <code>.na</code> .
<code>.transformer</code>	[function] A function taking three parameters code, envir and data used to transform the output of each block before during or after evaluation. For example transformers see <code>vignette("transformers")</code> .
<code>.trim</code>	[logical(1): 'TRUE'] Whether to trim the input template with <code>trim()</code> or not.

See Also

<https://www.python.org/dev/peps/pep-0498/> and <https://www.python.org/dev/peps/pep-0257> upon which this is based.

Examples

```
name <- "Fred"
age <- 50
anniversary <- as.Date("1991-10-12")
glue('My name is {name},',
     'my age next year is {age + 1},',
     'my anniversary is {format(anniversary, "%A, %B %d, %Y")}.')
```

single braces can be inserted by doubling them

```
glue("My name is {name}, not {{name}}.")
```

Named arguments can be used to assign temporary variables.

```
glue('My name is {name},',
     ' my age next year is {age + 1},')
```

```

' my anniversary is {format(anniversary, "%A, %B %d, %Y")}.',
name = "Joe",
age = 40,
anniversary = as.Date("2001-10-12"))

# `glue_data()` is useful in magrittr pipes
library(magrittr)
mtcars %>% glue_data("{rownames(.)} has {hp} hp")

# Or within dplyr pipelines
library(dplyr)
head(iris) %>%
  mutate(description = glue("This {Species} has a petal length of {Petal.Length}"))

# Alternative delimiters can also be used if needed
one <- "1"
glue("The value of $e^{2\\pi i}$ is $<<one>>$.", .open = "<<", .close = ">>")

```

glue_col

Construct strings with color

Description

The [crayon](#) package defines a number of functions used to color terminal output. `glue_col()` and `glue_data_col()` functions provide additional syntax to make using these functions in glue strings easier.

Using the following syntax will apply the function blue function to the text 'foo bar'.

```
{blue foo bar}
```

If you want an expression to be evaluated, simply place that in a normal brace expression (these can be nested).

```
{blue 1 + 1 = {1 + 1}}
```

Usage

```
glue_col(..., .envir = parent.frame(), .na = "NA")
```

```
glue_data_col(.x, ..., .envir = parent.frame(), .na = "NA")
```

Arguments

```
... [expressions]
Expressions string(s) to format, multiple inputs are concatenated together before
formatting.
```

<code>.envir</code>	[environment: parent.frame()] Environment to evaluate each expression in. Expressions are evaluated from left to right. If <code>.x</code> is an environment, the expressions are evaluated in that environment and <code>.envir</code> is ignored.
<code>.na</code>	[character(1): 'NA'] Value to replace NA values with. If NULL missing values are propagated, that is an NA result will cause NA output. Otherwise the value is replaced by the value of <code>.na</code> .
<code>.x</code>	[listish] An environment, list or data frame used to lookup values.

Examples

```
if (require(crayon)) {
  glue_col("{blue foo bar}")

  glue_col("{blue 1 + 1 = {1 + 1}}")

  white_on_grey <- bgBlack $ white
  glue_col("{white_on_grey
    Roses are {red {colors()[[552]]}}
    Violets are {blue {colors()[[26]]}}
    `glue_col()` can show {red c}{yellow o}{green l}{cyan o}{blue r}{magenta s}
    and {bold bold} and {underline underline} too!
  }")
}
```

<code>glue_collapse</code>	<i>Collapse a character vector</i>
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Description

Collapses a character vector of any length into a length 1 vector.

Usage

```
glue_collapse(x, sep = "", width = Inf, last = "")
```

Arguments

<code>x</code>	The character vector to collapse.
<code>sep</code>	a character string to separate the terms. Not NA_character_ .
<code>width</code>	The maximum string width before truncating with <code>...</code>
<code>last</code>	String used to separate the last two items if <code>x</code> has at least 2 items.

Examples

```
glue_collapse(glue("{1:10}"))

# Wide values can be truncated
glue_collapse(glue("{1:10}"), width = 5)

glue_collapse(1:4, ", ", last = " and ")
#> 1, 2, 3 and 4
```

glue_sql

*Interpolate strings with SQL escaping***Description**

SQL databases often have custom quotation syntax for identifiers and strings which make writing SQL queries error prone and cumbersome to do. `glue_sql()` and `glue_data_sql()` are analogs to `glue()` and `glue_data()` which handle the SQL quoting.

Usage

```
glue_sql(..., .con, .envir = parent.frame(), .na = DBI::SQL("NULL"))

glue_data_sql(.x, ..., .con, .envir = parent.frame(),
              .na = DBI::SQL("NULL"))
```

Arguments

<code>...</code>	[expressions] Expressions string(s) to format, multiple inputs are concatenated together before formatting.
<code>.con</code>	[DBIConnection]: A DBI connection object obtained from <code>DBI::dbConnect()</code> .
<code>.envir</code>	[environment: <code>parent.frame()</code>] Environment to evaluate each expression in. Expressions are evaluated from left to right. If <code>.x</code> is an environment, the expressions are evaluated in that environment and <code>.envir</code> is ignored.
<code>.na</code>	[character(1): 'NA'] Value to replace NA values with. If NULL missing values are propagated, that is an NA result will cause NA output. Otherwise the value is replaced by the value of <code>.na</code> .
<code>.x</code>	[listish] An environment, list or data frame used to lookup values.

Details

They automatically quote character results, quote identifiers if the glue expression is surrounded by backticks ` and do not quote non-characters such as numbers. If numeric data is stored in a character column (which should be quoted) pass the data to `glue_sql()` as a character.

Returning the result with `DBI::SQL()` will suppress quoting if desired for a given value.

Note **parameterized queries** are generally the safest and most efficient way to pass user defined values in a query, however not every database driver supports them.

If you place a `*` at the end of a glue expression the values will be collapsed with commas. This is useful for the **SQL IN Operator** for instance.

Value

A `DBI::SQL()` object with the given query.

Examples

```
con <- DBI::dbConnect(RSQLite::SQLite(), ":memory:")
colnames(iris) <- gsub("[.]", "-", tolower(colnames(iris)))
DBI::dbWriteTable(con, "iris", iris)
var <- "sepal_width"
tbl <- "iris"
num <- 2
val <- "setosa"
glue_sql("
  SELECT `{var}`
  FROM `{tbl}`
  WHERE `{tbl}`.sepal_length > {num}
    AND `{tbl}`.species = {val}
", .con = con)

# If sepal_length is store on the database as a character explicitly convert
# the data to character to quote appropriately.
glue_sql("
  SELECT `{var}`
  FROM `{tbl}`
  WHERE `{tbl}`.sepal_length > {as.character(num)}
    AND `{tbl}`.species = {val}
", .con = con)

# `glue_sql()` can be used in conjunction with parameterized queries using
# `DBI::dbBind()` to provide protection for SQL Injection attacks
sql <- glue_sql("
  SELECT `{var}`
  FROM `{tbl}`
  WHERE `{tbl}`.sepal_length > ?
", .con = con)
query <- DBI::dbSendQuery(con, sql)
DBI::dbBind(query, list(num))
DBI::dbFetch(query, n = 4)
```

```

DBI::dbClearResult(query)

# `glue_sql()` can be used to build up more complex queries with
# interchangeable sub queries. It returns `DBI::SQL()` objects which are
# properly protected from quoting.
sub_query <- glue_sql("
  SELECT *
  FROM {`tbl`}
  ", .con = con)

glue_sql("
  SELECT s.{`var`}
  FROM ({sub_query}) AS s
  ", .con = con)

# If you want to input multiple values for use in SQL IN statements put ``
# at the end of the value and the values will be collapsed and quoted appropriately.
glue_sql("SELECT * FROM {`tbl`} WHERE sepal_length IN ({vals*})",
  vals = 1, .con = con)

glue_sql("SELECT * FROM {`tbl`} WHERE sepal_length IN ({vals*})",
  vals = 1:5, .con = con)

glue_sql("SELECT * FROM {`tbl`} WHERE species IN ({vals*})",
  vals = "setosa", .con = con)

glue_sql("SELECT * FROM {`tbl`} WHERE species IN ({vals*})",
  vals = c("setosa", "versicolor"), .con = con)

# If you need to reference a table in a different schema use `DBI::Id()` to
# construct the identifiers.
cols <- c("Sepal.Width", "Sepal.Length", "Species")
col_ids <- lapply(cols, function(x) DBI::Id(table="iris", column = x))
values <- c(1, 2, 'Setosa')
glue_sql("INSERT ({values*}) INTO ({`col_ids`})", .con=con)

```

identity_transformer *Parse and Evaluate R code*

Description

This is a simple wrapper around `eval(parse())`, used as the default transformer.

Usage

```
identity_transformer(text, envir)
```

Arguments

<code>text</code>	Text (typically) R code to parse and evaluate.
<code>envir</code>	environment to evaluate the code in

See Also

`vignette("transformers", "glue")` for documentation on creating custom glue transformers and some common use cases.

quoting

Quoting operators

Description

These functions make it easy to quote each individual element and are useful in conjunction with `glue_collapse()`.

Usage

```
single_quote(x)
```

```
double_quote(x)
```

```
backtick(x)
```

Arguments

`x` A character to quote.

Examples

```
x <- 1:5
glue('Values of x: {glue_collapse(backtick(x), sep = ", ", last = " and ")}')
```

trim

Trim a character vector

Description

This trims a character vector according to the trimming rules used by glue. These follow similar rules to [Python Docstrings](#), with the following features.

- Leading and trailing whitespace from the first and last lines is removed.
- A uniform amount of indentation is stripped from the second line on, equal to the minimum indentation of all non-blank lines after the first.
- Lines can be continued across newlines by using `\`.

Usage

```
trim(x)
```

Arguments

x A character vector to trim.

Examples

```
glue("
  A formatted string
  Can have multiple lines
    with additional indention preserved
")
```

```
glue("
  \\ntrailing or leading newlines can be added explicitly\\n
")
```

```
glue("
  A formatted string \\
  can also be on a \\
  single line
")
```

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