

# Package: tidytable (via r-universe)

November 25, 2024

**Title** Tidy Interface to 'data.table'

**Version** 0.11.1.9

**Description** A tidy interface to 'data.table', giving users the speed of 'data.table' while using tidyverse-like syntax.

**License** MIT + file LICENSE

**Encoding** UTF-8

**Imports** data.table (>= 1.16.0), glue (>= 1.4.0), lifecycle (>= 1.0.3), magrittr (>= 2.0.3), pillar (>= 1.8.0), rlang (>= 1.1.0), tidysselect (>= 1.2.0), vctrs (>= 0.6.0)

**RoxygenNote** 7.3.2

**Roxygen** list(markdown = TRUE)

**Config/testthat/edition** 3

**URL** <https://markfairbanks.github.io/tidytable/>,  
<https://github.com/markfairbanks/tidytable>

**BugReports** <https://github.com/markfairbanks/tidytable/issues>

**Suggests** testthat (>= 2.1.0), bit64, knitr, rmarkdown, crayon

**Repository** <https://ar-puuk.r-universe.dev>

**RemoteUrl** <https://github.com/markfairbanks/tidytable>

**RemoteRef** HEAD

**RemoteSha** a3e9d6208ba9dcce30451a81097ec07830dc02e3

## Contents

across	3
add_count	4
arrange	5
as_tidytable	6
between	6
bind_cols	7
case	8

case_match . . . . .	9
case_when . . . . .	9
coalesce . . . . .	10
complete . . . . .	11
consecutive_id . . . . .	11
context . . . . .	12
count . . . . .	13
crossing . . . . .	14
cross_join . . . . .	15
c_across . . . . .	15
desc . . . . .	16
distinct . . . . .	16
drop_na . . . . .	17
dt . . . . .	18
enframe . . . . .	19
expand . . . . .	19
expand_grid . . . . .	20
extract . . . . .	21
fill . . . . .	22
filter . . . . .	23
first . . . . .	23
fread . . . . .	24
get_dummies . . . . .	25
group_by . . . . .	26
group_cols . . . . .	27
group_split . . . . .	27
group_vars . . . . .	28
if_all . . . . .	29
if_else . . . . .	29
inv_gc . . . . .	30
is_grouped_df . . . . .	31
is_tidytable . . . . .	31
lag . . . . .	32
left_join . . . . .	33
map . . . . .	34
mutate . . . . .	36
mutate_rowwise . . . . .	37
n . . . . .	38
na_if . . . . .	38
nest . . . . .	39
nest_by . . . . .	40
nest_join . . . . .	41
new_tidytable . . . . .	41
n_distinct . . . . .	42
pick . . . . .	42
pivot_longer . . . . .	43
pivot_wider . . . . .	44
pull . . . . .	46

reframe . . . . .	47
relocate . . . . .	47
rename . . . . .	48
rename_with . . . . .	49
replace_na . . . . .	49
rowwise . . . . .	50
row_number . . . . .	51
select . . . . .	52
separate . . . . .	53
separate_longer_delim . . . . .	54
separate_rows . . . . .	54
separate_wider_delim . . . . .	55
separate_wider_regex . . . . .	56
slice_head . . . . .	57
summarize . . . . .	58
tidytable . . . . .	60
top_n . . . . .	60
transmute . . . . .	61
tribble . . . . .	62
uncount . . . . .	62
unite . . . . .	63
unnest . . . . .	64
unnest_longer . . . . .	65
unnest_wider . . . . .	66
%in% . . . . .	67

## Index 68

---

across *Apply a function across a selection of columns*

---

### Description

Apply a function across a selection of columns. For use in `arrange()`, `mutate()`, and `summarize()`.

### Usage

```
across(.cols = everything(), .fns = NULL, ..., .names = NULL)
```

### Arguments

<code>.cols</code>	vector <code>c()</code> of unquoted column names. <code>tidyselect</code> compatible.
<code>.fns</code>	Function to apply. Can be a purrr-style lambda. Can pass also list of functions.
<code>...</code>	Other arguments for the passed function
<code>.names</code>	A glue specification that helps with renaming output columns. <code>{.col}</code> stands for the selected column, and <code>{.fn}</code> stands for the name of the function being applied. The default (NULL) is equivalent to " <code>{.col}</code> " for a single function case and " <code>{.col}_{.fn}</code> " when a list is used for <code>.fns</code> .

**Examples**

```
df <- data.table(
  x = rep(1, 3),
  y = rep(2, 3),
  z = c("a", "a", "b")
)

df %>%
  mutate(across(c(x, y), ~ .x * 2))

df %>%
  summarize(across(where(is.numeric), ~ mean(.x)),
            .by = z)

df %>%
  arrange(across(c(y, z)))
```

---

add_count	<i>Add a count column to the data frame</i>
-----------	---

---

**Description**

Add a count column to the data frame.

`df %>% add_count(a, b)` is equivalent to using `df %>% mutate(n = n(), .by = c(a, b))`

**Usage**

```
add_count(.df, ..., wt = NULL, sort = FALSE, name = NULL)
```

```
add_tally(.df, wt = NULL, sort = FALSE, name = NULL)
```

**Arguments**

<code>.df</code>	A data.frame or data.table
<code>...</code>	Columns to group by. tidyselect compatible.
<code>wt</code>	Frequency weights. Can be NULL or a variable: <ul style="list-style-type: none"> <li>• If NULL (the default), counts the number of rows in each group.</li> <li>• If a variable, computes <code>sum(wt)</code> for each group.</li> </ul>
<code>sort</code>	If TRUE, will show the largest groups at the top.
<code>name</code>	The name of the new column in the output. If omitted, it will default to n.

**Examples**

```
df <- data.table(  
  a = c("a", "a", "b"),  
  b = 1:3  
)  
  
df %>%  
  add_count(a)
```

---

arrange	<i>Arrange/reorder rows</i>
---------	-----------------------------

---

**Description**

Order rows in ascending or descending order.

**Usage**

```
arrange(.df, ...)
```

**Arguments**

.df	A data.frame or data.table
...	Variables to arrange by

**Examples**

```
df <- data.table(  
  a = 1:3,  
  b = 4:6,  
  c = c("a", "a", "b")  
)  
  
df %>%  
  arrange(c, -a)  
  
df %>%  
  arrange(c, desc(a))
```

---

<code>as_tidytable</code>	<i>Coerce an object to a data.table/tidytable</i>
---------------------------	---

---

### Description

A tidytable object is simply a `data.table` with nice printing features.

Note that all tidytable functions automatically convert `data.frames` & `data.tables` to tidytables in the background. As such this function will rarely need to be used by the user.

### Usage

```
as_tidytable(x, ..., .name_repair = "unique", .keep_rownames = FALSE)
```

### Arguments

<code>x</code>	An R object
<code>...</code>	Additional arguments to be passed to or from other methods.
<code>.name_repair</code>	Treatment of duplicate names. See <code>?vctrs::vec_as_names</code> for options/details.
<code>.keep_rownames</code>	Default is <code>FALSE</code> . If <code>TRUE</code> , adds the input object's names as a separate column named <code>"rn"</code> . <code>.keep_rownames = "id"</code> names the column <code>"id"</code> instead.

### Examples

```
df <- data.frame(x = -2:2, y = c(rep("a", 3), rep("b", 2)))

df %>%
  as_tidytable()
```

---

<code>between</code>	<i>Do the values from x fall between the left and right bounds?</i>
----------------------	---

---

### Description

`between()` utilizes `data.table::between()` in the background

### Usage

```
between(x, left, right)
```

### Arguments

<code>x</code>	A numeric vector
<code>left, right</code>	Boundary values

**Examples**

```
df <- data.table(  
  x = 1:5,  
  y = 1:5  
)  
  
# Typically used in a filter()  
df %>%  
  filter(between(x, 2, 4))  
  
df %>%  
  filter(x %>% between(2, 4))  
  
# Can also use the %between% operator  
df %>%  
  filter(x %between% c(2, 4))
```

---

**bind\_cols***Bind data.tables by row and column*

---

**Description**

Bind multiple data.tables into one row-wise or col-wise.

**Usage**

```
bind_cols(..., .name_repair = "unique")  
  
bind_rows(..., .id = NULL)
```

**Arguments**

...	data.tables or data.frames to bind
.name_repair	Treatment of duplicate names. See ?vctrs::vec_as_names for options/details.
.id	If TRUE, an integer column is made as a group id

**Examples**

```
# Binding data together by row  
df1 <- data.table(x = 1:3, y = 10:12)  
df2 <- data.table(x = 4:6, y = 13:15)  
  
df1 %>%  
  bind_rows(df2)  
  
# Can pass a list of data.tables  
df_list <- list(df1, df2)
```

```

bind_rows(df_list)

# Binding data together by column
df1 <- data.table(a = 1:3, b = 4:6)
df2 <- data.table(c = 7:9)

df1 %>%
  bind_cols(df2)

# Can pass a list of data frames
bind_cols(list(df1, df2))

```

---

case	data.table::fcase() with vectorized default
------	---

---

## Description

This function allows you to use multiple if/else statements in one call.

It is called like `data.table::fcase()`, but allows the user to use a vector as the default argument.

## Usage

```
case(..., default = NA, ptype = NULL, size = NULL)
```

## Arguments

...	Sequence of condition/value designations
default	Default value. Set to NA by default.
ptype	Optional ptype to specify the output type.
size	Optional size to specify the output size.

## Examples

```

df <- tidytable(x = 1:10)

df %>%
  mutate(case_x = case(x < 5, 1,
                      x < 7, 2,
                      default = 3))

```



---

case_match	<i>Vectorized switch()</i>
------------	----------------------------

---

**Description**

Allows the user to succinctly create a new vector based off conditions of a single vector.

**Usage**

```
case_match(.x, ..., .default = NA, .ptype = NULL)
```

**Arguments**

.x	A vector
...	A sequence of two-sided formulas. The left hand side gives the old values, the right hand side gives the new value.
.default	The default value if all conditions evaluate to FALSE.
.ptype	Optional ptype to specify the output type.

**Examples**

```
df <- tidytable(x = c("a", "b", "c", "d"))

df %>%
  mutate(
    case_x = case_match(x,
                       c("a", "b") ~ "new_1",
                       "c" ~ "new_2",
                       .default = x)
  )
```

---

case_when	<i>Case when</i>
-----------	------------------

---

**Description**

This function allows you to use multiple if/else statements in one call.

It is called like `dplyr::case_when()`, but utilizes `data.table::fifelse()` in the background for improved performance.

**Usage**

```
case_when(..., .default = NA, .ptype = NULL, .size = NULL)
```

**Arguments**

...	A sequence of two-sided formulas. The left hand side gives the conditions, the right hand side gives the values.
.default	The default value if all conditions evaluate to FALSE.
.ptype	Optional ptype to specify the output type.
.size	Optional size to specify the output size.

**Examples**

```
df <- tidytable(x = 1:10)

df %>%
  mutate(case_x = case_when(x < 5 ~ 1,
                             x < 7 ~ 2,
                             TRUE ~ 3))
```

---

coalesce	<i>Coalesce missing values</i>
----------	--------------------------------

---

**Description**

Fill in missing values in a vector by pulling successively from other vectors.

**Usage**

```
coalesce(..., .ptype = NULL, .size = NULL)
```

**Arguments**

...	Input vectors. Supports dynamic dots.
.ptype	Optional ptype to override output type
.size	Optional size to override output size

**Examples**

```
# Use a single value to replace all missing values
x <- c(1:3, NA, NA)
coalesce(x, 0)

# Or match together a complete vector from missing pieces
y <- c(1, 2, NA, NA, 5)
z <- c(NA, NA, 3, 4, 5)
coalesce(y, z)

# Supply lists with dynamic dots
vecs <- list(
  c(1, 2, NA, NA, 5),
```

```

  c(NA, NA, 3, 4, 5)
)
coalesce(!!!vecs)

```

---

complete

*Complete a data.table with missing combinations of data*


---

### Description

Turns implicit missing values into explicit missing values.

### Usage

```
complete(.df, ..., fill = list(), .by = NULL)
```

### Arguments

.df	A data.frame or data.table
...	Columns to expand
fill	A named list of values to fill NAs with.
.by	Columns to group by

### Examples

```

df <- data.table(x = 1:2, y = 1:2, z = 3:4)

df %>%
  complete(x, y)

df %>%
  complete(x, y, fill = list(z = 10))

```

---

consecutive\_id

*Generate a unique id for consecutive values*


---

### Description

Generate a unique id for runs of consecutive values

### Usage

```
consecutive_id(...)
```

### Arguments

...	Vectors of values
-----	-------------------

## Examples

```
x <- c(1, 1, 2, 2, 1, 1)
consecutive_id(x)
```

---

context

*Context functions*

---

## Description

These functions give information about the "current" group.

- `cur_data()` gives the current data for the current group
- `cur_column()` gives the name of the current column (for use in `across()` only)
- `cur_group_id()` gives a group identification number
- `cur_group_rows()` gives the row indices for each group

Can be used inside `summarize()`, `mutate()`, & `filter()`

## Usage

```
cur_column()
```

```
cur_data()
```

```
cur_group_id()
```

```
cur_group_rows()
```

## Examples

```
df <- data.table(
  x = 1:5,
  y = c("a", "a", "a", "b", "b")
)

df %>%
  mutate(
    across(c(x, y), ~ paste(cur_column(), .x))
  )

df %>%
  summarize(data = list(cur_data()),
            .by = y)

df %>%
  mutate(group_id = cur_group_id(),
         .by = y)
```

```
df %>%
  mutate(group_rows = cur_group_rows(),
         .by = y)
```

---

count	<i>Count observations by group</i>
-------	------------------------------------

---

## Description

Returns row counts of the dataset.

`tally()` returns counts by group on a grouped tidytable.

`count()` returns counts by group on a grouped tidytable, or column names can be specified to return counts by group.

## Usage

```
count(.df, ..., wt = NULL, sort = FALSE, name = NULL)
```

```
tally(.df, wt = NULL, sort = FALSE, name = NULL)
```

## Arguments

<code>.df</code>	A data.frame or data.table
<code>...</code>	Columns to group by in <code>count()</code> . tidyselect compatible.
<code>wt</code>	Frequency weights. tidyselect compatible. Can be NULL or a variable: <ul style="list-style-type: none"> <li>• If NULL (the default), counts the number of rows in each group.</li> <li>• If a variable, computes <code>sum(wt)</code> for each group.</li> </ul>
<code>sort</code>	If TRUE, will show the largest groups at the top.
<code>name</code>	The name of the new column in the output. If omitted, it will default to <code>n</code> .

## Examples

```
df <- data.table(
  x = c("a", "a", "b"),
  y = c("a", "a", "b"),
  z = 1:3
)
```

```
df %>%
  count()
```

```
df %>%
  count(x)
```

```
df %>%
```

```
count(where(is.character))

df %>%
  count(x, wt = z, name = "x_sum")

df %>%
  count(x, sort = TRUE)

df %>%
  tally()

df %>%
  group_by(x) %>%
  tally()
```

---

crossing

*Create a data.table from all unique combinations of inputs*

---

## Description

crossing() is similar to expand\_grid() but de-duplicates and sorts its inputs.

## Usage

```
crossing(..., .name_repair = "check_unique")
```

## Arguments

... Variables to get unique combinations of

.name\_repair Treatment of problematic names. See `?vctrs::vec_as_names` for options/details

## Examples

```
x <- 1:2
y <- 1:2

crossing(x, y)

crossing(stuff = x, y)
```

---

cross_join	<i>Cross join</i>
------------	-------------------

---

**Description**

Cross join each row of x to every row in y.

**Usage**

```
cross_join(x, y, ..., suffix = c(".x", ".y"))
```

**Arguments**

x	A data.frame or data.table
y	A data.frame or data.table
...	Other parameters passed on to methods
suffix	Append created for duplicated column names when using full_join()

**Examples**

```
df1 <- tidytable(x = 1:3)
df2 <- tidytable(y = 4:6)

cross_join(df1, df2)
```

---

c_across	<i>Combine values from multiple columns</i>
----------	---

---

**Description**

c\_across() works inside of mutate\_rowwise(). It uses tidyselect so you can easily select multiple variables.

**Usage**

```
c_across(cols = everything())
```

**Arguments**

cols	Columns to transform.
------	-----------------------

**Examples**

```
df <- data.table(x = runif(6), y = runif(6), z = runif(6))

df %>%
  mutate_rowwise(row_mean = mean(c_across(x:z)))
```

---

desc	<i>Descending order</i>
------	-------------------------

---

**Description**

Arrange in descending order. Can be used inside of arrange()

**Usage**

```
desc(x)
```

**Arguments**

x                    Variable to arrange in descending order

**Examples**

```
df <- data.table(
  a = 1:3,
  b = 4:6,
  c = c("a", "a", "b")
)

df %>%
  arrange(c, desc(a))
```

---

distinct	<i>Select distinct/unique rows</i>
----------	------------------------------------

---

**Description**

Retain only unique/distinct rows from an input df.

**Usage**

```
distinct(.df, ..., .keep_all = FALSE)
```

**Arguments**

.df                    A data.frame or data.table

...                    Columns to select before determining uniqueness. If omitted, will use all columns. tidyselect compatible.

.keep\_all             Only relevant if columns are provided to ... arg. This keeps all columns, but only keeps the first row of each distinct values of columns provided to ... arg.



**Examples**

```
df <- tidytable(  
  x = 1:3,  
  y = 4:6,  
  z = c("a", "a", "b")  
)  
  
df %>%  
  distinct()  
  
df %>%  
  distinct(z)
```

---

drop\_na

*Drop rows containing missing values*

---

**Description**

Drop rows containing missing values

**Usage**

```
drop_na(.df, ...)
```

**Arguments**

.df	A data.frame or data.table
...	Optional: A selection of columns. If empty, all variables are selected. tidyselect compatible.

**Examples**

```
df <- data.table(  
  x = c(1, 2, NA),  
  y = c("a", NA, "b")  
)  
  
df %>%  
  drop_na()  
  
df %>%  
  drop_na(x)  
  
df %>%  
  drop_na(where(is.numeric))
```

---

dt	<i>Pipeable data.table call</i>
----	---------------------------------

---

## Description

Pipeable data.table call.

This function does not use data.table's modify-by-reference.

Has experimental support for tidy evaluation for custom functions.

## Usage

```
dt(.df, i, j, ...)
```

## Arguments

.df	A data.frame or data.table
i	i position of a data.table call. See ?data.table::data.table
j	j position of a data.table call. See ?data.table::data.table
...	Other arguments passed to data.table call. See ?data.table::data.table

## Examples

```
df <- tidytable(  
  x = 1:3,  
  y = 4:6,  
  z = c("a", "a", "b")  
)  
  
df %>%  
  dt(, double_x := x * 2) %>%  
  dt(order(-double_x))  
  
# Experimental support for tidy evaluation for custom functions  
add_one <- function(data, col) {  
  data %>%  
    dt(, new_col := {{ col }} + 1)  
}  
  
df %>%  
  add_one(x)
```

---

enframe	<i>Convert a vector to a data.table/tidyttable</i>
---------	--

---

**Description**

Converts named and unnamed vectors to a data.table/tidyttable.

**Usage**

```
enframe(x, name = "name", value = "value")
```

**Arguments**

x	A vector
name	Name of the column that stores the names. If name = NULL, a one-column tidyttable will be returned.
value	Name of the column that stores the values.

**Examples**

```
vec <- 1:3
names(vec) <- letters[1:3]

enframe(vec)
```

---

expand	<i>Expand a data.table to use all combinations of values</i>
--------	--

---

**Description**

Generates all combinations of variables found in a dataset.

expand() is useful in conjunction with joins:

- use with right\_join() to convert implicit missing values to explicit missing values
- use with anti\_join() to find out which combinations are missing

nesting() is a helper that only finds combinations already present in the dataset.

**Usage**

```
expand(.df, ..., .name_repair = "check_unique", .by = NULL)

nesting(..., .name_repair = "check_unique")
```

**Arguments**

`.df` A data.frame or data.table  
`...` Columns to get combinations of  
`.name_repair` Treatment of duplicate names. See `?vctrs::vec_as_names` for options/details  
`.by` Columns to group by

**Examples**

```
df <- tidytable(x = c(1, 1, 2), y = c(1, 1, 2))

df %>%
  expand(x, y)

df %>%
  expand(nesting(x, y))
```

---

 expand\_grid

*Create a data.table from all combinations of inputs*


---

**Description**

Create a data.table from all combinations of inputs

**Usage**

```
expand_grid(..., .name_repair = "check_unique")
```

**Arguments**

`...` Variables to get combinations of  
`.name_repair` Treatment of problematic names. See `?vctrs::vec_as_names` for options/details

**Examples**

```
x <- 1:2
y <- 1:2

expand_grid(x, y)

expand_grid(stuff = x, y)
```

---

 extract

*Extract a character column into multiple columns using regex*


---

## Description

*Superseded*

`extract()` has been superseded by `separate_wider_regex()`.

Given a regular expression with capturing groups, `extract()` turns each group into a new column. If the groups don't match, or the input is `NA`, the output will be `NA`. When you pass same name in the `into` argument it will merge the groups together. Whilst passing `NA` in the `into` arg will drop the group from the resulting `tidytable`

## Usage

```
extract(
  .df,
  col,
  into,
  regex = "[[:alnum:]]+",
  remove = TRUE,
  convert = FALSE,
  ...
)
```

## Arguments

<code>.df</code>	A <code>data.table</code> or <code>data.frame</code>
<code>col</code>	Column to extract from
<code>into</code>	New column names to split into. A character vector.
<code>regex</code>	A regular expression to extract the desired values. There should be one group (defined by <code>()</code> ) for each element of <code>into</code>
<code>remove</code>	If <code>TRUE</code> , remove the input column from the output <code>data.table</code>
<code>convert</code>	If <code>TRUE</code> , runs <code>type.convert()</code> on the resulting column. Useful if the resulting column should be type integer/double.
<code>...</code>	Additional arguments passed on to methods.

## Examples

```
df <- data.table(x = c(NA, "a-b-1", "a-d-3", "b-c-2", "d-e-7"))
df %>% extract(x, "A")
df %>% extract(x, c("A", "B"), "[[:alnum:]]+)-([[:alnum:]]+)")

# If no match, NA:
df %>% extract(x, c("A", "B"), "[a-d]+)-([a-d]+)")
# drop columns by passing NA
```

```
df %>% extract(x, c("A", NA, "B"), "[a-d]+-([a-d]+)-(\\d+)")
# merge groups by passing same name
df %>% extract(x, c("A", "B", "A"), "[a-d]+-([a-d]+)-(\\d+)")
```

---

fill

*Fill in missing values with previous or next value*


---

### Description

Fills missing values in the selected columns using the next or previous entry. Can be done by group.  
Supports tidyselect

### Usage

```
fill(.df, ..., .direction = c("down", "up", "downup", "updown"), .by = NULL)
```

### Arguments

.df	A data.frame or data.table
...	A selection of columns. tidyselect compatible.
.direction	Direction in which to fill missing values. Currently "down" (the default), "up", "downup" (first down then up), or "updown" (first up and then down)
.by	Columns to group by when filling should be done by group

### Examples

```
df <- data.table(
  a = c(1, NA, 3, 4, 5),
  b = c(NA, 2, NA, NA, 5),
  groups = c("a", "a", "a", "b", "b")
)

df %>%
  fill(a, b)

df %>%
  fill(a, b, .by = groups)

df %>%
  fill(a, b, .direction = "downup", .by = groups)
```

---

filter	<i>Filter rows on one or more conditions</i>
--------	--

---

**Description**

Filters a dataset to choose rows where conditions are true.

**Usage**

```
filter(.df, ..., .by = NULL)
```

**Arguments**

.df	A data.frame or data.table
...	Conditions to filter by
.by	Columns to group by if filtering with a summary function

**Examples**

```
df <- tidytable(  
  a = 1:3,  
  b = 4:6,  
  c = c("a", "a", "b")  
)  
  
df %>%  
  filter(a >= 2, b >= 4)  
  
df %>%  
  filter(b <= mean(b), .by = c)
```

---

first	<i>Extract the first, last, or nth value from a vector</i>
-------	--

---

**Description**

Extract the first, last, or nth value from a vector.

Note: These are simple wrappers around `vecr::vec_slice()`.

**Usage**

```
first(x, default = NULL, na_rm = FALSE)
```

```
last(x, default = NULL, na_rm = FALSE)
```

```
nth(x, n, default = NULL, na_rm = FALSE)
```

**Arguments**

x	A vector
default	The default value if the value doesn't exist.
na_rm	If TRUE ignores missing values.
n	For nth(), a number specifying the position to grab.

**Examples**

```
vec <- letters  
  
first(vec)  
last(vec)  
nth(vec, 4)
```

---

fread	<i>Read/write files</i>
-------	-------------------------

---

**Description**

fread() is a simple wrapper around data.table::fread() that returns a tidytable instead of a data.table.

**Usage**

```
fread(...)
```

**Arguments**

... Arguments passed on to data.table::fread

**Examples**

```
fake_csv <- "A,B  
1,2  
3,4"  
  
fread(fake_csv)
```



---

get_dummies	<i>Convert character and factor columns to dummy variables</i>
-------------	--

---

## Description

Convert character and factor columns to dummy variables

## Usage

```
get_dummies(  
  .df,  
  cols = where(~is.character(.x) | is.factor(.x)),  
  prefix = TRUE,  
  prefix_sep = "_",  
  drop_first = FALSE,  
  dummify_na = TRUE  
)
```

## Arguments

.df	A data.frame or data.table
cols	A single column or a vector of unquoted columns to dummify. Defaults to all character & factor columns using <code>c(where(is.character), where(is.factor))</code> . tidyselect compatible.
prefix	TRUE/FALSE - If TRUE, a prefix will be added to new column names
prefix_sep	Separator for new column names
drop_first	TRUE/FALSE - If TRUE, the first dummy column will be dropped
dummify_na	TRUE/FALSE - If TRUE, NAs will also get dummy columns

## Examples

```
df <- tidytable(  
  chr = c("a", "b", NA),  
  fct = as.factor(c("a", NA, "c")),  
  num = 1:3  
)  
  
# Automatically does all character/factor columns  
df %>%  
  get_dummies()  
  
df %>%  
  get_dummies(cols = chr)  
  
df %>%  
  get_dummies(cols = c(chr, fct), drop_first = TRUE)
```

```
df %>%
  get_dummies(prefix_sep = ".", dummify_na = FALSE)
```

---

 group\_by

*Grouping*


---

### Description

- group\_by() adds a grouping structure to a tidytable. Can use tidyselect syntax.
- ungroup() removes grouping.

### Usage

```
group_by(.df, ..., .add = FALSE)
```

```
ungroup(.df, ...)
```

### Arguments

.df	A data.frame or data.table
...	Columns to group by
.add	Should grouping cols specified be added to the current grouping

### Examples

```
df <- data.table(
  a = 1:3,
  b = 4:6,
  c = c("a", "a", "b"),
  d = c("a", "a", "b")
)

df %>%
  group_by(c, d) %>%
  summarize(mean_a = mean(a)) %>%
  ungroup()

# Can also use tidyselect
df %>%
  group_by(where(is.character)) %>%
  summarize(mean_a = mean(a)) %>%
  ungroup()
```

---

`group_cols`*Selection helper for grouping columns*

---

**Description**

Selection helper for grouping columns

**Usage**

```
group_cols()
```

**Examples**

```
df <- tidytable(  
  x = c("a", "b", "c"),  
  y = 1:3,  
  z = 1:3  
)  
  
df %>%  
  group_by(x) %>%  
  select(group_cols(), y)
```

---

`group_split`*Split data frame by groups*

---

**Description**

Split data frame by groups. Returns a list.

**Usage**

```
group_split(.df, ..., .keep = TRUE, .named = FALSE)
```

**Arguments**

<code>.df</code>	A data.frame or data.table
<code>...</code>	Columns to group and split by. tidyselect compatible.
<code>.keep</code>	Should the grouping columns be kept
<code>.named</code>	<i>experimental</i> : Should the list be named with labels that identify the group

**Examples**

```
df <- tidytable(  
  a = 1:3,  
  b = 1:3,  
  c = c("a", "a", "b"),  
  d = c("a", "a", "b")  
)  
  
df %>%  
  group_split(c, d)  
  
df %>%  
  group_split(c, d, .keep = FALSE)  
  
df %>%  
  group_split(c, d, .named = TRUE)
```

---

group\_vars

*Get the grouping variables*

---

**Description**

Get the grouping variables

**Usage**

```
group_vars(x)
```

**Arguments**

x                    A grouped tidytable

**Examples**

```
df <- data.table(  
  a = 1:3,  
  b = 4:6,  
  c = c("a", "a", "b"),  
  d = c("a", "a", "b")  
)  
  
df %>%  
  group_by(c, d) %>%  
  group_vars()
```

---

if_all	<i>Create conditions on a selection of columns</i>
--------	--

---

**Description**

Helpers to apply a filter across a selection of columns.

**Usage**

```
if_all(.cols = everything(), .fns = NULL, ...)
```

```
if_any(.cols = everything(), .fns = NULL, ...)
```

**Arguments**

.cols	Selection of columns
.fns	Function to create filter conditions
...	Other arguments passed to the function

**Examples**

```
iris %>%
  filter(if_any(ends_with("Width"), ~ .x > 4))
```

```
iris %>%
  filter(if_all(ends_with("Width"), ~ .x > 2))
```

---

if_else	<i>Fast if_else</i>
---------	---------------------

---

**Description**

Fast version of `base::ifelse()`.

**Usage**

```
if_else(condition, true, false, missing = NA, ..., ptype = NULL, size = NULL)
```

**Arguments**

condition	Conditions to test on
true	Values to return if conditions evaluate to TRUE
false	Values to return if conditions evaluate to FALSE
missing	Value to return if an element of test is NA
...	These dots are for future extensions and must be empty.
ptype	Optional ptype to override output type
size	Optional size to override output size

## Examples

```
x <- 1:5
if_else(x < 3, 1, 0)

# Can also be used inside of mutate()
df <- data.table(x = x)

df %>%
  mutate(new_col = if_else(x < 3, 1, 0))
```

---

inv_gc	<i>Run invisible garbage collection</i>
--------	---

---

## Description

Run garbage collection without the `gc()` output. Can also be run in the middle of a long pipe chain. Useful for large datasets or when using parallel processing.

## Usage

```
inv_gc(x)
```

## Arguments

`x` Optional. If missing runs `gc()` silently. Else returns the same object unaltered.

## Examples

```
# Can be run with no input
inv_gc()

df <- tidytable(col1 = 1, col2 = 2)

# Or can be used in the middle of a pipe chain (object is unaltered)
df %>%
  filter(col1 < 2, col2 < 4) %>%
  inv_gc() %>%
  select(col1)
```

---

is_grouped_df	<i>Check if the tidytable is grouped</i>
---------------	--

---

**Description**

Check if the tidytable is grouped

**Usage**

```
is_grouped_df(x)
```

**Arguments**

x                    An object

**Examples**

```
df <- data.table(  
  a = 1:3,  
  b = c("a", "a", "b")  
)  
  
df %>%  
  group_by(b) %>%  
  is_grouped_df()
```

---

is_tidytable	<i>Test if the object is a tidytable</i>
--------------	--

---

**Description**

This function returns TRUE for tidytables or subclasses of tidytables, and FALSE for all other objects.

**Usage**

```
is_tidytable(x)
```

**Arguments**

x                    An object

**Examples**

```
df <- data.frame(x = 1:3, y = 1:3)

is_tidytable(df)

df <- tidytable(x = 1:3, y = 1:3)

is_tidytable(df)
```

---

**lag***Get lagging or leading values*

---

**Description**

Find the "previous" or "next" values in a vector. Useful for comparing values behind or ahead of the current values.

**Usage**

```
lag(x, n = 1L, default = NA)

lead(x, n = 1L, default = NA)
```

**Arguments**

x	a vector of values
n	a positive integer of length 1, giving the number of positions to lead or lag by
default	value used for non-existent rows. Defaults to NA.

**Examples**

```
x <- 1:5

lag(x, 1)
lead(x, 1)

# Also works inside of `mutate()`
df <- tidytable(x = 1:5)

df %>%
  mutate(lag_x = lag(x))
```



---

left_join	<i>Join two data.tables together</i>
-----------	--------------------------------------

---

**Description**

Join two data.tables together

**Usage**

```
left_join(x, y, by = NULL, suffix = c(".x", ".y"), ..., keep = FALSE)
```

```
right_join(x, y, by = NULL, suffix = c(".x", ".y"), ..., keep = FALSE)
```

```
inner_join(x, y, by = NULL, suffix = c(".x", ".y"), ..., keep = FALSE)
```

```
full_join(x, y, by = NULL, suffix = c(".x", ".y"), ..., keep = FALSE)
```

```
anti_join(x, y, by = NULL)
```

```
semi_join(x, y, by = NULL)
```

**Arguments**

x	A data.frame or data.table
y	A data.frame or data.table
by	A character vector of variables to join by. If NULL, the default, the join will do a natural join, using all variables with common names across the two tables.
suffix	Append created for duplicated column names when using full_join()
...	Other parameters passed on to methods
keep	Should the join keys from both x and y be preserved in the output?

**Examples**

```
df1 <- data.table(x = c("a", "a", "b", "c"), y = 1:4)
df2 <- data.table(x = c("a", "b"), z = 5:6)
```

```
df1 %>% left_join(df2)
df1 %>% inner_join(df2)
df1 %>% right_join(df2)
df1 %>% full_join(df2)
df1 %>% anti_join(df2)
```

---

`map`*Apply a function to each element of a vector or list*

---

**Description**

The map functions transform their input by applying a function to each element and returning a list/vector/data.table.

- `map()` returns a list
- `_lgl()`, `_int()`, `_dbl()`, `_chr()`, `_df` variants return their specified type
- `_dfr` & `_dfc` Return all data frame results combined utilizing row or column binding

**Usage**

```
map(.x, .f, ...)  
map_lgl(.x, .f, ...)  
map_int(.x, .f, ...)  
map_dbl(.x, .f, ...)  
map_chr(.x, .f, ...)  
map_dfc(.x, .f, ...)  
map_dfr(.x, .f, ..., .id = NULL)  
map_df(.x, .f, ..., .id = NULL)  
walk(.x, .f, ...)  
map_vec(.x, .f, ..., .ptype = NULL)  
map2(.x, .y, .f, ...)  
map2_lgl(.x, .y, .f, ...)  
map2_int(.x, .y, .f, ...)  
map2_dbl(.x, .y, .f, ...)  
map2_chr(.x, .y, .f, ...)  
map2_dfc(.x, .y, .f, ...)  
map2_dfr(.x, .y, .f, ..., .id = NULL)
```

```
map2_df(.x, .y, .f, ..., .id = NULL)
map2_vec(.x, .y, .f, ..., .ptype = NULL)
pmap(.l, .f, ...)
pmap_lgl(.l, .f, ...)
pmap_int(.l, .f, ...)
pmap_dbl(.l, .f, ...)
pmap_chr(.l, .f, ...)
pmap_dfc(.l, .f, ...)
pmap_dfr(.l, .f, ..., .id = NULL)
pmap_df(.l, .f, ..., .id = NULL)
pmap_vec(.l, .f, ..., .ptype = NULL)
```

### Arguments

<code>.x</code>	A list or vector
<code>.f</code>	A function
<code>...</code>	Other arguments to pass to a function
<code>.id</code>	Whether <code>map_dfr()</code> should add an id column to the finished dataset
<code>.ptype</code>	ptype for resulting vector in <code>map_vec()</code>
<code>.y</code>	A list or vector
<code>.l</code>	A list to use in <code>pmap</code>

### Examples

```
map(c(1,2,3), ~ .x + 1)
map_dbl(c(1,2,3), ~ .x + 1)
map_chr(c(1,2,3), as.character)
```

---

`mutate`*Add/modify/delete columns*

---

## Description

With `mutate()` you can do 3 things:

- Add new columns
- Modify existing columns
- Delete columns

## Usage

```
mutate(  
  .df,  
  ...,  
  .by = NULL,  
  .keep = c("all", "used", "unused", "none"),  
  .before = NULL,  
  .after = NULL  
)
```

## Arguments

<code>.df</code>	A data.frame or data.table
<code>...</code>	Columns to add/modify
<code>.by</code>	Columns to group by
<code>.keep</code>	<i>experimental</i> : This is an experimental argument that allows you to control which columns from <code>.df</code> are retained in the output: <ul style="list-style-type: none"><li>• "all", the default, retains all variables.</li><li>• "used" keeps any variables used to make new variables; it's useful for checking your work as it displays inputs and outputs side-by-side.</li><li>• "unused" keeps only existing variables <b>not</b> used to make new variables.</li><li>• "none", only keeps grouping keys (like <code>transmute()</code>).</li></ul>
<code>.before</code> , <code>.after</code>	Optionally indicate where new columns should be placed. Defaults to the right side of the data frame.

## Examples

```
df <- data.table(  
  a = 1:3,  
  b = 4:6,  
  c = c("a", "a", "b")  
)
```

```
df %>%
  mutate(double_a = a * 2,
         a_plus_b = a + b)

df %>%
  mutate(double_a = a * 2,
         avg_a = mean(a),
         .by = c)

df %>%
  mutate(double_a = a * 2, .keep = "used")

df %>%
  mutate(double_a = a * 2, .after = a)
```

---

mutate_rowwise	<i>Add/modify columns by row</i>
----------------	----------------------------------

---

## Description

Allows you to mutate "by row". this is most useful when a vectorized function doesn't exist.

## Usage

```
mutate_rowwise(
  .df,
  ...,
  .keep = c("all", "used", "unused", "none"),
  .before = NULL,
  .after = NULL
)
```

## Arguments

<code>.df</code>	A <code>data.table</code> or <code>data.frame</code>
<code>...</code>	Columns to add/modify
<code>.keep</code>	<i>experimental</i> : This is an experimental argument that allows you to control which columns from <code>.df</code> are retained in the output: <ul style="list-style-type: none"> <li>• "all", the default, retains all variables.</li> <li>• "used" keeps any variables used to make new variables; it's useful for checking your work as it displays inputs and outputs side-by-side.</li> <li>• "unused" keeps only existing variables <b>not</b> used to make new variables.</li> <li>• "none", only keeps grouping keys (like <code>transmute()</code>).</li> </ul>
<code>.before</code> , <code>.after</code>	Optionally indicate where new columns should be placed. Defaults to the right side of the data frame.

**Examples**

```
df <- data.table(x = 1:3, y = 1:3 * 2, z = 1:3 * 3)

# Compute the mean of x, y, z in each row
df %>%
  mutate_rowwise(row_mean = mean(c(x, y, z)))

# Use c_across() to more easily select many variables
df %>%
  mutate_rowwise(row_mean = mean(c_across(x:z)))
```

---

n	<i>Number of observations in each group</i>
---	---

---

**Description**

Helper function that can be used to find counts by group.  
 Can be used inside `summarize()`, `mutate()`, & `filter()`

**Usage**

```
n()
```

**Examples**

```
df <- data.table(
  x = 1:3,
  y = 4:6,
  z = c("a", "a", "b")
)

df %>%
  summarize(count = n(), .by = z)
```

---

na_if	<i>Convert values to NA</i>
-------	-----------------------------

---

**Description**

Convert values to NA.

**Usage**

```
na_if(x, y)
```

**Arguments**

x                    A vector  
 y                    Value to replace with NA

**Examples**

```
vec <- 1:3
na_if(vec, 3)
```

---

nest	<i>Nest columns into a list-column</i>
------	--

---

**Description**

Nest columns into a list-column

**Usage**

```
nest(.df, ..., .by = NULL, .key = NULL, .names_sep = NULL)
```

**Arguments**

.df                    A data.table or data.frame  
 ...                   Columns to be nested.  
 .by                   Columns to nest by  
 .key                   New column name if .by is used  
 .names\_sep           If NULL, the names will be left alone. If a string, the names of the columns will be created by pasting together the inner column names and the outer column names.

**Examples**

```
df <- data.table(
  a = 1:3,
  b = 1:3,
  c = c("a", "a", "b"),
  d = c("a", "a", "b")
)

df %>%
  nest(data = c(a, b))

df %>%
  nest(data = where(is.numeric))

df %>%
  nest(.by = c(c, d))
```

---

nest_by	<i>Nest data.tables</i>
---------	-------------------------

---

### Description

Nest data.tables by group.

Note: `nest_by()` *does not* return a rowwise tidytable.

### Usage

```
nest_by(.df, ..., .key = "data", .keep = FALSE)
```

### Arguments

<code>.df</code>	A data.frame or data.table
<code>...</code>	Columns to group by. If empty nests the entire data.table. tidyselect compatible.
<code>.key</code>	Name of the new column created by nesting.
<code>.keep</code>	Should the grouping columns be kept in the list column.

### Examples

```
df <- data.table(  
  a = 1:5,  
  b = 6:10,  
  c = c(rep("a", 3), rep("b", 2)),  
  d = c(rep("a", 3), rep("b", 2))  
)  
  
df %>%  
  nest_by()  
  
df %>%  
  nest_by(c, d)  
  
df %>%  
  nest_by(where(is.character))  
  
df %>%  
  nest_by(c, d, .keep = TRUE)
```



---

nest_join	<i>Nest join</i>
-----------	------------------

---

**Description**

Join the data from y as a list column onto x.

**Usage**

```
nest_join(x, y, by = NULL, keep = FALSE, name = NULL, ...)
```

**Arguments**

x	A data.frame or data.table
y	A data.frame or data.table
by	A character vector of variables to join by. If NULL, the default, the join will do a natural join, using all variables with common names across the two tables.
keep	Should the join keys from both x and y be preserved in the output?
name	The name of the list-column created by the join. If NULL the name of y is used.
...	Other parameters passed on to methods

**Examples**

```
df1 <- tidytable(x = 1:3)
df2 <- tidytable(x = c(2, 3, 3), y = c("a", "b", "c"))

out <- nest_join(df1, df2)
out
out$df2
```

---

new_tidytable	<i>Create a tidytable from a list</i>
---------------	---------------------------------------

---

**Description**

Create a tidytable from a list

**Usage**

```
new_tidytable(x = list())
```

**Arguments**

x	A named list of equal-length vectors. The lengths are not checked; it is the responsibility of the caller to make sure they are equal.
---	--

**Examples**

```
l <- list(x = 1:3, y = c("a", "a", "b"))
new_tidytable(l)
```

---

n_distinct	<i>Count the number of unique values in a vector</i>
------------	--

---

**Description**

This is a faster version of `length(unique(x))` that calls `data.table::uniqueN()`.

**Usage**

```
n_distinct(..., na.rm = FALSE)
```

**Arguments**

...	vectors of values
na.rm	If TRUE missing values don't count

**Examples**

```
x <- sample(1:10, 1e5, rep = TRUE)
n_distinct(x)
```

---

pick	<i>Selection version of across()</i>
------	--------------------------------------

---

**Description**

Select a subset of columns from within functions like `mutate()`, `summarize()`, or `filter()`.

**Usage**

```
pick(...)
```

**Arguments**

...	Columns to select. Tidymodel compatible.
-----	--

## Examples

```
df <- tidytable(  
  x = 1:3,  
  y = 4:6,  
  z = c("a", "a", "b")  
)  
  
df %>%  
  mutate(row_sum = rowSums(pick(x, y)))
```

---

pivot\_longer

*Pivot data from wide to long*

---

## Description

`pivot_longer()` "lengthens" the data, increasing the number of rows and decreasing the number of columns.

## Usage

```
pivot_longer(  
  .df,  
  cols = everything(),  
  names_to = "name",  
  values_to = "value",  
  names_prefix = NULL,  
  names_sep = NULL,  
  names_pattern = NULL,  
  names_ptypes = NULL,  
  names_transform = NULL,  
  names_repair = "check_unique",  
  values_drop_na = FALSE,  
  values_ptypes = NULL,  
  values_transform = NULL,  
  fast_pivot = FALSE,  
  ...  
)
```

## Arguments

<code>.df</code>	A data.table or data.frame
<code>cols</code>	Columns to pivot. tidyselect compatible.
<code>names_to</code>	Name of the new "names" column. Must be a string.
<code>values_to</code>	Name of the new "values" column. Must be a string.
<code>names_prefix</code>	Remove matching text from the start of selected columns using regex.

names_sep	If names_to contains multiple values, names_sep takes the same specification as separate().
names_pattern	If names_to contains multiple values, names_pattern takes the same specification as extract(), a regular expression containing matching groups.
names_ptypes, values_ptypes	A list of column name-prototype pairs. See “?vctrs::‘theory-faq-coercion’” for more info on vctrs coercion.
names_transform, values_transform	A list of column name-function pairs. Use these arguments if you need to change the types of specific columns.
names_repair	Treatment of duplicate names. See ?vctrs::vec_as_names for options/details.
values_drop_na	If TRUE, rows will be dropped that contain NAs.
fast_pivot	<i>experimental</i> : Fast pivoting. If TRUE, the names_to column will be returned as a factor, otherwise it will be a character column. Defaults to FALSE to match tidyverse semantics.
...	Additional arguments to passed on to methods.

### Examples

```
df <- data.table(
  x = 1:3,
  y = 4:6,
  z = c("a", "b", "c")
)

df %>%
  pivot_longer(cols = c(x, y))

df %>%
  pivot_longer(cols = -z, names_to = "stuff", values_to = "things")
```

---

pivot\_wider

*Pivot data from long to wide*

---

### Description

"Widens" data, increasing the number of columns and decreasing the number of rows.

### Usage

```
pivot_wider(
  .df,
  names_from = name,
  values_from = value,
  id_cols = NULL,
  names_sep = "_",
```

```

names_prefix = "",
names_glue = NULL,
names_sort = FALSE,
names_repair = "unique",
values_fill = NULL,
values_fn = NULL,
unused_fn = NULL
)

```

## Arguments

<code>.df</code>	A <code>data.frame</code> or <code>data.table</code>
<code>names_from</code>	A pair of arguments describing which column (or columns) to get the name of the output column <code>name_from</code> , and which column (or columns) to get the cell values from <code>values_from</code> . <code>tidyselect</code> compatible.
<code>values_from</code>	A pair of arguments describing which column (or columns) to get the name of the output column <code>name_from</code> , and which column (or columns) to get the cell values from <code>values_from</code> . <code>tidyselect</code> compatible.
<code>id_cols</code>	A set of columns that uniquely identifies each observation. Defaults to all columns in the data table except for the columns specified in <code>names_from</code> and <code>values_from</code> . Typically used when you have additional variables that is directly related. <code>tidyselect</code> compatible.
<code>names_sep</code>	the separator between the names of the columns
<code>names_prefix</code>	prefix to add to the names of the new columns
<code>names_glue</code>	Instead of using <code>names_sep</code> and <code>names_prefix</code> , you can supply a glue specification that uses the <code>names_from</code> columns (and special <code>.value</code> ) to create custom column names
<code>names_sort</code>	Should the resulting new columns be sorted.
<code>names_repair</code>	Treatment of duplicate names. See <code>?vctrs::vec_as_names</code> for options/details.
<code>values_fill</code>	If values are missing, what value should be filled in
<code>values_fn</code>	Should the data be aggregated before casting? If the formula doesn't identify a single observation for each cell, then aggregation defaults to <code>length</code> with a message.
<code>unused_fn</code>	Aggregation function to be applied to unused columns. Default is to ignore unused columns.

## Examples

```

df <- tidytable(
  id = 1,
  names = c("a", "b", "c"),
  vals = 1:3
)

df %>%
  pivot_wider(names_from = names, values_from = vals)

```

```
df %>%
  pivot_wider(
    names_from = names, values_from = vals, names_prefix = "new_"
  )
```

---

pull

*Pull out a single variable*

---

### Description

Pull a single variable from a `data.table` as a vector.

### Usage

```
pull(.df, var = -1, name = NULL)
```

### Arguments

<code>.df</code>	A <code>data.frame</code> or <code>data.table</code>
<code>var</code>	The column to pull from the <code>data.table</code> as: <ul style="list-style-type: none"><li>• a variable name</li><li>• a positive integer giving the column position</li><li>• a negative integer giving the column position counting from the right</li></ul>
<code>name</code>	Optional - specifies the column to be used as names for the vector.

### Examples

```
df <- data.table(
  x = 1:3,
  y = 1:3
)

# Grab column by name
df %>%
  pull(y)

# Grab column by position
df %>%
  pull(1)

# Defaults to last column
df %>%
  pull()
```

---

reframe	<i>Reframe a data frame</i>
---------	-----------------------------

---

**Description**

Reframe a data frame. Note this is a simple alias for `summarize()` that always returns an ungrouped tidytable.

**Usage**

```
reframe(.df, ..., .by = NULL)
```

**Arguments**

<code>.df</code>	A data.frame or data.table
<code>...</code>	Aggregations to perform
<code>.by</code>	Columns to group by

**Examples**

```
mtcars %>%  
  reframe(qs = quantile(displ, c(0.25, 0.75)),  
         prob = c(0.25, 0.75),  
         .by = cyl)
```

---

relocate	<i>Relocate a column to a new position</i>
----------	--

---

**Description**

Move a column or columns to a new position

**Usage**

```
relocate(.df, ..., .before = NULL, .after = NULL)
```

**Arguments**

<code>.df</code>	A data.frame or data.table
<code>...</code>	A selection of columns to move. tidyselect compatible.
<code>.before</code>	Column to move selection before
<code>.after</code>	Column to move selection after

**Examples**

```
df <- data.table(  
  a = 1:3,  
  b = 1:3,  
  c = c("a", "a", "b"),  
  d = c("a", "a", "b")  
)  
  
df %>%  
  relocate(c, .before = b)  
  
df %>%  
  relocate(a, b, .after = c)  
  
df %>%  
  relocate(where(is.numeric), .after = c)
```

---

rename

*Rename variables by name*

---

**Description**

Rename variables from a data.table.

**Usage**

```
rename(.df, ...)
```

**Arguments**

.df            A data.frame or data.table  
...            new\_name = old\_name pairs to rename columns

**Examples**

```
df <- data.table(x = 1:3, y = 4:6)  
  
df %>%  
  rename(new_x = x,  
         new_y = y)
```



---

rename_with	<i>Rename multiple columns</i>
-------------	--------------------------------

---

**Description**

Rename multiple columns with the same transformation

**Usage**

```
rename_with(.df, .fn = NULL, .cols = everything(), ...)
```

**Arguments**

.df	A data.table or data.frame
.fn	Function to transform the names with.
.cols	Columns to rename. Defaults to all columns. tidyselect compatible.
...	Other parameters to pass to the function

**Examples**

```
df <- data.table(  
  x = 1,  
  y = 2,  
  double_x = 2,  
  double_y = 4  
)  
  
df %>%  
  rename_with(toupper)  
  
df %>%  
  rename_with(~ toupper(.x))  
  
df %>%  
  rename_with(~ toupper(.x), .cols = c(x, double_x))
```

---

replace_na	<i>Replace missing values</i>
------------	-------------------------------

---

**Description**

Replace NAs with specified values

**Usage**

```
replace_na(.x, replace)
```

**Arguments**

`.x` A data.frame/data.table or a vector

`replace` If `.x` is a data frame, a `list()` of replacement values for specified columns. If `.x` is a vector, a single replacement value.

**Examples**

```
df <- data.table(
  x = c(1, 2, NA),
  y = c(NA, 1, 2)
)

# Using replace_na() inside mutate()
df %>%
  mutate(x = replace_na(x, 5))

# Using replace_na() on a data frame
df %>%
  replace_na(list(x = 5, y = 0))
```

---

rowwise *Convert to a rowwise tidytable*

---

**Description**

Convert to a rowwise tidytable.

**Usage**

```
rowwise(.df)
```

**Arguments**

`.df` A data.frame or data.table

**Examples**

```
df <- tidytable(x = 1:3, y = 1:3 * 2, z = 1:3 * 3)

# Compute the mean of x, y, z in each row
df %>%
  rowwise() %>%
  mutate(row_mean = mean(c(x, y, z)))

# Use c_across() to more easily select many variables
df %>%
  rowwise() %>%
  mutate(row_mean = mean(c_across(x:z))) %>%
  ungroup()
```

---

row_number	<i>Ranking functions</i>
------------	--------------------------

---

## Description

Ranking functions:

- `row_number()`: Gives other row number if empty. Equivalent to `frank(ties.method = "first")` if provided a vector.
- `min_rank()`: Equivalent to `frank(ties.method = "min")`
- `dense_rank()`: Equivalent to `frank(ties.method = "dense")`
- `percent_rank()`: Ranks by percentage from 0 to 1
- `cume_dist()`: Cumulative distribution

## Usage

```
row_number(x)
min_rank(x)
dense_rank(x)
percent_rank(x)
cume_dist(x)
```

## Arguments

x                    A vector to rank

## Examples

```
df <- data.table(x = rep(1, 3), y = c("a", "a", "b"))
df %>%
  mutate(row = row_number())
```

---

select	<i>Select or drop columns</i>
--------	-------------------------------

---

### Description

Select or drop columns from a `data.table`

### Usage

```
select(.df, ...)
```

### Arguments

<code>.df</code>	A <code>data.frame</code> or <code>data.table</code>
<code>...</code>	Columns to select or drop. Use named arguments, e.g. <code>new_name = old_name</code> , to rename selected variables. <code>tidyselect</code> compatible.

### Examples

```
df <- data.table(  
  x1 = 1:3,  
  x2 = 1:3,  
  y = c("a", "b", "c"),  
  z = c("a", "b", "c")  
)  
  
df %>%  
  select(x1, y)  
  
df %>%  
  select(x1:y)  
  
df %>%  
  select(-y, -z)  
  
df %>%  
  select(starts_with("x"), z)  
  
df %>%  
  select(where(is.character), x1)  
  
df %>%  
  select(new = x1, y)
```

---

separate	<i>Separate a character column into multiple columns</i>
----------	--

---

## Description

### *Superseded*

`separate()` has been superseded by `separate_wider_delim()`.

Separates a single column into multiple columns using a user supplied separator or regex.

If a separator is not supplied one will be automatically detected.

Note: Using automatic detection or regex will be slower than simple separators such as "," or ".".

## Usage

```
separate(
  .df,
  col,
  into,
  sep = "[^[:alnum:]]+",
  remove = TRUE,
  convert = FALSE,
  ...
)
```

## Arguments

<code>.df</code>	A data frame
<code>col</code>	The column to split into multiple columns
<code>into</code>	New column names to split into. A character vector. Use NA to omit the variable in the output.
<code>sep</code>	Separator to split on. Can be specified or detected automatically
<code>remove</code>	If TRUE, remove the input column from the output data.table
<code>convert</code>	TRUE calls <code>type.convert()</code> with <code>as.is = TRUE</code> on new columns
<code>...</code>	Arguments passed on to methods

## Examples

```
df <- data.table(x = c("a", "a.b", "a.b", NA))

# "sep" can be automatically detected (slower)
df %>%
  separate(x, into = c("c1", "c2"))

# Faster if "sep" is provided
df %>%
  separate(x, into = c("c1", "c2"), sep = ".")
```

---

separate\_longer\_delim *Split a string into rows*

---

### Description

If a column contains observations with multiple delimited values, separate them each into their own row.

### Usage

```
separate_longer_delim(.df, cols, delim, ...)
```

### Arguments

.df	A data.frame or data.table
cols	Columns to separate
delim	Separator delimiting collapsed values
...	These dots are for future extensions and must be empty.

### Examples

```
df <- data.table(
  x = 1:3,
  y = c("a", "d,e,f", "g,h"),
  z = c("1", "2,3,4", "5,6")
)

df %>%
  separate_longer_delim(c(y, z), ",")
```

---

separate\_rows *Separate a collapsed column into multiple rows*

---

### Description

*Superseded*

separate\_rows() has been superseded by separate\_longer\_delim().

If a column contains observations with multiple delimited values, separate them each into their own row.

### Usage

```
separate_rows(.df, ..., sep = "[^[:alnum:]]+", convert = FALSE)
```

**Arguments**

<code>.df</code>	A <code>data.frame</code> or <code>data.table</code>
<code>...</code>	Columns to separate across multiple rows. <code>tidyselect</code> compatible
<code>sep</code>	Separator delimiting collapsed values
<code>convert</code>	If <code>TRUE</code> , runs <code>type.convert()</code> on the resulting column. Useful if the resulting column should be type <code>integer</code> / <code>double</code> .

**Examples**

```
df <- data.table(
  x = 1:3,
  y = c("a", "d,e,f", "g,h"),
  z = c("1", "2,3,4", "5,6")
)

separate_rows(df, y, z)

separate_rows(df, y, z, convert = TRUE)
```

---

`separate_wider_delim` *Separate a character column into multiple columns*

---

**Description**

Separates a single column into multiple columns

**Usage**

```
separate_wider_delim(
  .df,
  cols,
  delim,
  ...,
  names = NULL,
  names_sep = NULL,
  names_repair = "check_unique",
  too_few = c("align_start", "error"),
  too_many = c("drop", "error"),
  cols_remove = TRUE
)
```

**Arguments**

<code>.df</code>	A data frame
<code>cols</code>	Columns to separate
<code>delim</code>	Delimiter to separate on

...	These dots are for future extensions and must be empty.
names	New column names to separate into
names_sep	Names separator
names_repair	Treatment of duplicate names. See <code>?vctrs::vec_as_names</code> for options/details.
too_few	What to do when too few column names are supplied
too_many	What to do when too many column names are supplied
cols_remove	Should old columns be removed

### Examples

```
df <- tidytable(x = c("a", "a_b", "a_b", NA))

df %>%
  separate_wider_delim(x, delim = "_", names = c("left", "right"))

df %>%
  separate_wider_delim(x, delim = "_", names_sep = "")
```

---

separate_wider_regex	<i>Separate a character column into multiple columns using regex patterns</i>
----------------------	---

---

### Description

Separate a character column into multiple columns using regex patterns

### Usage

```
separate_wider_regex(
  .df,
  cols,
  patterns,
  ...,
  names_sep = NULL,
  names_repair = "check_unique",
  too_few = "error",
  cols_remove = TRUE
)
```

### Arguments

.df	A data frame
cols	Columns to separate
patterns	patterns
...	These dots are for future extensions and must be empty.



names_sep	Names separator
names_repair	Treatment of duplicate names. See <code>?vctrs::vec_as_names</code> for options/details.
too_few	What to do when too few column names are supplied
cols_remove	Should old columns be removed

**Examples**

```
df <- tidytable(id = 1:3, x = c("m-123", "f-455", "f-123"))

df %>%
  separate_wider_regex(x, c(gender = ".", ".", unit = "\\d+"))
```

---

slice_head	<i>Choose rows in a data.table</i>
------------	------------------------------------

---

**Description**

Choose rows in a `data.table`. Grouped `data.tables` grab rows within each group.

**Usage**

```
slice_head(.df, n = 5, ..., .by = NULL, by = NULL)

slice_tail(.df, n = 5, ..., .by = NULL, by = NULL)

slice_max(.df, order_by, n = 1, ..., with_ties = TRUE, .by = NULL, by = NULL)

slice_min(.df, order_by, n = 1, ..., with_ties = TRUE, .by = NULL, by = NULL)

slice(.df, ..., .by = NULL)

slice_sample(
  .df,
  n,
  prop,
  weight_by = NULL,
  replace = FALSE,
  .by = NULL,
  by = NULL
)
```

**Arguments**

.df	A <code>data.frame</code> or <code>data.table</code>
n	Number of rows to grab
...	Integer row values

<code>.by, by</code>	Columns to group by
<code>order_by</code>	Variable to arrange by
<code>with_ties</code>	Should ties be kept together. The default TRUE may return can return multiple rows if they are equal. Use FALSE to ignore ties.
<code>prop</code>	The proportion of rows to select
<code>weight_by</code>	Sampling weights
<code>replace</code>	Should sampling be performed with (TRUE) or without (FALSE, default) replacement

### Examples

```
df <- data.table(
  x = 1:4,
  y = 5:8,
  z = c("a", "a", "a", "b")
)

df %>%
  slice(1:3)

df %>%
  slice(1, 3)

df %>%
  slice(1:2, .by = z)

df %>%
  slice_head(1, .by = z)

df %>%
  slice_tail(1, .by = z)

df %>%
  slice_max(order_by = x, .by = z)

df %>%
  slice_min(order_by = y, .by = z)
```

---

summarize

*Aggregate data using summary statistics*


---

### Description

Aggregate data using summary statistics such as mean or median. Can be calculated by group.

**Usage**

```
summarize(
  .df,
  ...,
  .by = NULL,
  .sort = TRUE,
  .groups = "drop_last",
  .unpack = FALSE
)
```

```
summarise(
  .df,
  ...,
  .by = NULL,
  .sort = TRUE,
  .groups = "drop_last",
  .unpack = FALSE
)
```

**Arguments**

<code>.df</code>	A data.frame or data.table
<code>...</code>	Aggregations to perform
<code>.by</code>	Columns to group by. <ul style="list-style-type: none"> <li>• A single column can be passed with <code>.by = d</code>.</li> <li>• Multiple columns can be passed with <code>.by = c(c, d)</code></li> <li>• <code>tidyselect</code> can be used:           <ul style="list-style-type: none"> <li>– Single predicate: <code>.by = where(is.character)</code></li> <li>– Multiple predicates: <code>.by = c(where(is.character), where(is.factor))</code></li> <li>– A combination of predicates and column names: <code>.by = c(where(is.character), b)</code></li> </ul> </li> </ul>
<code>.sort</code>	<i>experimental</i> : Default TRUE. If FALSE the original order of the grouping variables will be preserved.
<code>.groups</code>	Grouping structure of the result <ul style="list-style-type: none"> <li>• "drop_last": Drop the last level of grouping</li> <li>• "drop": Drop all groups</li> <li>• "keep": Keep all groups</li> </ul>
<code>.unpack</code>	<i>experimental</i> : Default FALSE. Should unnamed data frame inputs be unpacked. The user must opt in to this option as it can lead to a reduction in performance.

**Examples**

```
df <- data.table(
  a = 1:3,
  b = 4:6,
```

```

c = c("a", "a", "b"),
d = c("a", "a", "b")
)

df %>%
  summarize(avg_a = mean(a),
            max_b = max(b),
            .by = c)

df %>%
  summarize(avg_a = mean(a),
            .by = c(c, d))

```

---

tidytable	<i>Build a data.table/tidytable</i>
-----------	-------------------------------------

---

### Description

Constructs a data.table, but one with nice printing features.

### Usage

```
tidytable(..., .name_repair = "unique")
```

### Arguments

... A set of name-value pairs  
.name\_repair Treatment of duplicate names. See `?vctrs::vec_as_names` for options/details.

### Examples

```
tidytable(x = 1:3, y = c("a", "a", "b"))
```

---

top_n	<i>Select top (or bottom) n rows (by value)</i>
-------	---

---

### Description

Select the top or bottom entries in each group, ordered by wt.

### Usage

```
top_n(.df, n = 5, wt = NULL, .by = NULL)
```

**Arguments**

<code>.df</code>	A data.frame or data.table
<code>n</code>	Number of rows to return
<code>wt</code>	Optional. The variable to use for ordering. If NULL uses the last column in the data.table.
<code>.by</code>	Columns to group by

**Examples**

```
df <- data.table(  
  x = 1:5,  
  y = 6:10,  
  z = c(rep("a", 3), rep("b", 2))  
)  
  
df %>%  
  top_n(2, wt = y)  
  
df %>%  
  top_n(2, wt = y, .by = z)
```

---

`transmute`*Add new variables and drop all others*

---

**Description**

Unlike `mutate()`, `transmute()` keeps only the variables that you create

**Usage**

```
transmute(.df, ..., .by = NULL)
```

**Arguments**

<code>.df</code>	A data.frame or data.table
<code>...</code>	Columns to create/modify
<code>.by</code>	Columns to group by

**Examples**

```
df <- data.table(  
  a = 1:3,  
  b = 4:6,  
  c = c("a", "a", "b")  
)  
  
df %>%  
  transmute(double_a = a * 2)
```

---

tribble	<i>Rowwise tidytable creation</i>
---------	-----------------------------------

---

**Description**

Create a tidytable using a rowwise setup.

**Usage**

```
tribble(...)
```

**Arguments**

... Column names as formulas, values below. See example.

**Examples**

```
tribble(  
  ~ x, ~ y,  
  "a", 1,  
  "b", 2,  
  "c", 3  
)
```

---

uncount	<i>Uncount a data.table</i>
---------	-----------------------------

---

**Description**

Uncount a data.table

**Usage**

```
uncount(.df, weights, .remove = TRUE, .id = NULL)
```

**Arguments**

.df	A data.frame or data.table
weights	A column containing the weights to uncount by
.remove	If TRUE removes the selected weights column
.id	A string name for a new column containing a unique identifier for the newly uncounted rows.

**Examples**

```
df <- data.table(x = c("a", "b"), n = c(1, 2))

uncount(df, n)

uncount(df, n, .id = "id")
```

---

unite	<i>Unite multiple columns by pasting strings together</i>
-------	---

---

**Description**

Convenience function to paste together multiple columns into one.

**Usage**

```
unite(df, col = ".united", ..., sep = "_", remove = TRUE, na.rm = FALSE)
```

**Arguments**

.df	A data.frame or data.table
col	Name of the new column, as a string.
...	Selection of columns. If empty all variables are selected. tidyselect compatible.
sep	Separator to use between values
remove	If TRUE, removes input columns from the data.table.
na.rm	If TRUE, NA values will be not be part of the concatenation

**Examples**

```
df <- tidytable(
  a = c("a", "a", "a"),
  b = c("b", "b", "b"),
  c = c("c", "c", NA)
)

df %>%
  unite("new_col", b, c)

df %>%
  unite("new_col", where(is.character))

df %>%
  unite("new_col", b, c, remove = FALSE)

df %>%
  unite("new_col", b, c, na.rm = TRUE)
```

```
df %>%
  unite()
```

---

unnest

*Unnest list-columns*


---

## Description

Unnest list-columns.

## Usage

```
unnest(
  .df,
  ...,
  keep_empty = FALSE,
  .drop = TRUE,
  names_sep = NULL,
  names_repair = "unique"
)
```

## Arguments

<code>.df</code>	A data.table
<code>...</code>	Columns to unnest. If empty, unnests all list columns. tidyselect compatible.
<code>keep_empty</code>	Return NA for any NULL elements of the list column
<code>.drop</code>	Should list columns that were not unnested be dropped
<code>names_sep</code>	If NULL, the default, the inner column names will become the new outer column names. If a string, the name of the outer column will be appended to the beginning of the inner column names, with <code>names_sep</code> used as a separator.
<code>names_repair</code>	Treatment of duplicate names. See <code>?vctrs::vec_as_names</code> for options/details.

## Examples

```
df1 <- tidytable(x = 1:3, y = 1:3)
df2 <- tidytable(x = 1:2, y = 1:2)
nested_df <-
  data.table(
    a = c("a", "b"),
    frame_list = list(df1, df2),
    vec_list = list(4:6, 7:8)
  )

nested_df %>%
  unnest(frame_list)
```



```
nested_df %>%
  unnest(frame_list, names_sep = "_")

nested_df %>%
  unnest(frame_list, vec_list)
```

unnest\_longer

*Unnest a list-column of vectors into regular columns***Description**

Turns each element of a list-column into a row.

**Usage**

```
unnest_longer(
  .df,
  col,
  values_to = NULL,
  indices_to = NULL,
  indices_include = NULL,
  keep_empty = FALSE,
  names_repair = "check_unique",
  simplify = NULL,
  ptype = NULL,
  transform = NULL
)
```

**Arguments**

<code>.df</code>	A data.table or data.frame
<code>col</code>	Column to unnest
<code>values_to</code>	Name of column to store values
<code>indices_to</code>	Name of column to store indices
<code>indices_include</code>	Should an index column be included? Defaults to TRUE when col has inner names.
<code>keep_empty</code>	Return NA for any NULL elements of the list column
<code>names_repair</code>	Treatment of duplicate names. See <code>?vctrs::vec_as_names</code> for options/details.
<code>simplify</code>	Currently not supported. Errors if not NULL.
<code>ptype</code>	Optionally a named list of ptypes declaring the desired output type of each component.
<code>transform</code>	Optionally a named list of transformation functions applied to each component.

**Examples**

```
df <- tidytable(
  x = 1:3,
  y = list(0, 1:3, 4:5)
)

df %>% unnest_longer(y)
```

unnest\_wider

*Unnest a list-column of vectors into a wide data frame***Description**

Unnest a list-column of vectors into a wide data frame

**Usage**

```
unnest_wider(
  .df,
  col,
  names_sep = NULL,
  simplify = NULL,
  names_repair = "check_unique",
  ptype = NULL,
  transform = NULL
)
```

**Arguments**

<code>.df</code>	A <code>data.table</code> or <code>data.frame</code>
<code>col</code>	Column to unnest
<code>names_sep</code>	If <code>NULL</code> , the default, the names will be left as they are. If a string, the inner and outer names will be pasted together with <code>names_sep</code> as the separator.
<code>simplify</code>	Currently not supported. Errors if not <code>NULL</code> .
<code>names_repair</code>	Treatment of duplicate names. See <code>?vctrs::vec_as_names</code> for options/details.
<code>ptype</code>	Optionally a named list of ptypes declaring the desired output type of each component.
<code>transform</code>	Optionally a named list of transformation functions applied to each component.

**Examples**

```
df <- tidytable(
  x = 1:3,
  y = list(0, 1:3, 4:5)
)
```

```
# Automatically creates names
df %>% unnest_wider(y)

# But you can provide names_sep for increased naming control
df %>% unnest_wider(y, names_sep = "_")
```

---

`%in%` *Fast %in% and %notin% operators*

---

### Description

Check whether values in a vector are in or not in another vector.

Built using `data.table::%chin%` and `vctrs::vec_in()` for performance.

### Usage

```
x %in% y
```

```
x %notin% y
```

### Arguments

<code>x</code>	A vector of values to check if they exist in <code>y</code>
<code>y</code>	A vector of values to check if <code>x</code> values exist in

### Details

Falls back to `base::%in%` when `x` and `y` don't share a common type. This means that the behaviour of `base::%in%` is preserved (e.g. `"1" %in% c(1, 2)` is `TRUE`) but loses the speedup provided by `vctrs::vec_in()`.

### Examples

```
df <- tidytable(x = 1:4, y = 1:4)
```

```
df %>%
  filter(x %in% c(2, 4))
```

```
df %>%
  filter(x %notin% c(2, 4))
```

# Index

`%notin% (%in%)`, 67  
`%in%`, 67

`across`, 3  
`add_count`, 4  
`add_tally (add_count)`, 4  
`anti_join (left_join)`, 33  
`arrange`, 5  
`as_tidytable`, 6

`between`, 6  
`bind_cols`, 7  
`bind_rows (bind_cols)`, 7

`c_across`, 15  
`case`, 8  
`case_match`, 9  
`case_when`, 9  
`coalesce`, 10  
`complete`, 11  
`consecutive_id`, 11  
`context`, 12  
`count`, 13  
`cross_join`, 15  
`crossing`, 14  
`cume_dist (row_number)`, 51  
`cur_column (context)`, 12  
`cur_data (context)`, 12  
`cur_group_id (context)`, 12  
`cur_group_rows (context)`, 12

`dense_rank (row_number)`, 51  
`desc`, 16  
`distinct`, 16  
`drop_na`, 17  
`dt`, 18

`enframe`, 19  
`expand`, 19  
`expand_grid`, 20  
`extract`, 21

`fill`, 22  
`filter`, 23  
`first`, 23  
`fread`, 24  
`full_join (left_join)`, 33

`get_dummies`, 25  
`group_by`, 26  
`group_cols`, 27  
`group_split`, 27  
`group_vars`, 28

`if_all`, 29  
`if_any (if_all)`, 29  
`if_else`, 29  
`inner_join (left_join)`, 33  
`inv_gc`, 30  
`is_grouped_df`, 31  
`is_tidytable`, 31

`lag`, 32  
`last (first)`, 23  
`lead (lag)`, 32  
`left_join`, 33

`map`, 34  
`map2 (map)`, 34  
`map2_chr (map)`, 34  
`map2_dbl (map)`, 34  
`map2_df (map)`, 34  
`map2_dfc (map)`, 34  
`map2_dfr (map)`, 34  
`map2_int (map)`, 34  
`map2_lgl (map)`, 34  
`map2_vec (map)`, 34  
`map_chr (map)`, 34  
`map_dbl (map)`, 34  
`map_df (map)`, 34  
`map_dfc (map)`, 34  
`map_dfr (map)`, 34

map\_int (map), 34  
map\_lgl (map), 34  
map\_vec (map), 34  
min\_rank (row\_number), 51  
mutate, 36  
mutate\_rowwise, 37

n, 38  
n\_distinct, 42  
na\_if, 38  
nest, 39  
nest\_by, 40  
nest\_join, 41  
nesting (expand), 19  
new\_tidytable, 41  
nth (first), 23

percent\_rank (row\_number), 51  
pick, 42  
pivot\_longer, 43  
pivot\_wider, 44  
pmap (map), 34  
pmap\_chr (map), 34  
pmap\_dbl (map), 34  
pmap\_df (map), 34  
pmap\_dfc (map), 34  
pmap\_dfr (map), 34  
pmap\_int (map), 34  
pmap\_lgl (map), 34  
pmap\_vec (map), 34  
pull, 46

reframe, 47  
relocate, 47  
rename, 48  
rename\_with, 49  
replace\_na, 49  
right\_join (left\_join), 33  
row\_number, 51  
rowwise, 50

select, 52  
semi\_join (left\_join), 33  
separate, 53  
separate\_longer\_delim, 54  
separate\_rows, 54  
separate\_wider\_delim, 55  
separate\_wider\_regex, 56  
slice (slice\_head), 57  
slice\_head, 57  
slice\_max (slice\_head), 57  
slice\_min (slice\_head), 57  
slice\_sample (slice\_head), 57  
slice\_tail (slice\_head), 57  
summarise (summarize), 58  
summarize, 58

tally (count), 13  
tidytable, 60  
top\_n, 60  
transmute, 61  
transmute(), 36, 37  
tribble, 62

uncount, 62  
ungroup (group\_by), 26  
unite, 63  
unnest, 64  
unnest\_longer, 65  
unnest\_wider, 66

walk (map), 34