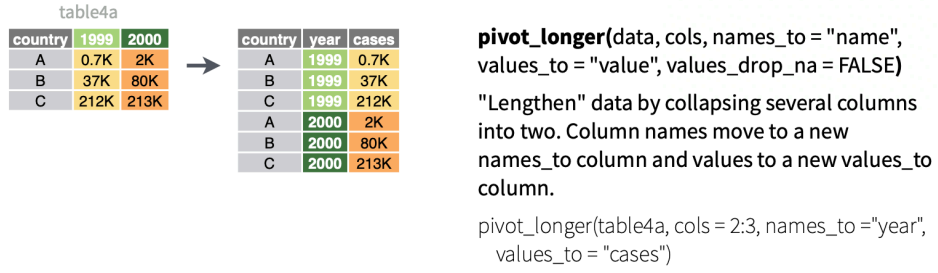
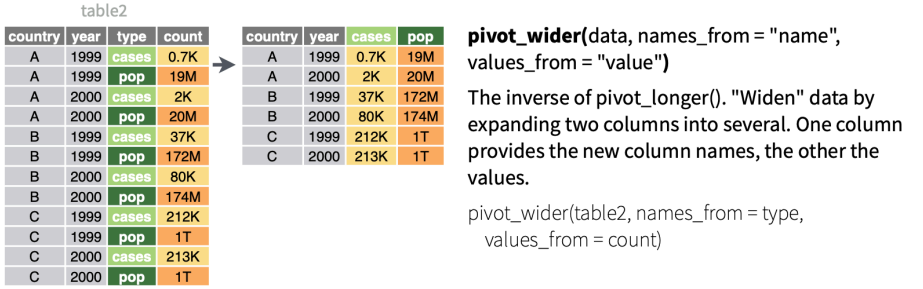
## Wrangling

| verb | action |
|---|---|
| arrange | **arrange** the *rows* according to some *column* |
| filter | **filter** out or obtain a subset of the *rows* |
| select | **select** a subset of *columns* |
| mutate | **mutate** or create a *column* |
| summarize | calculate a numerical **summary** of a *column* |
| group_by | **group** the *rows* by a specified *column* |

## Reshaping




## Joining Data

The most common mutating joins are:

- left_join() Keeps *all* observations from the left, but discards any observations in the right that do not have a match in the left.[1]
- inner_join() Keeps *only* the observations from the left with a match in the right.

- full_join() Keeps *all* observations from the left *and* the right. (This is less common than left_join() and inner_join()).
- semi_join() Discards any observations in the left table that *do not* have a match in the right table. If there are multiple matches of right cases to a left case, it keeps just one copy of the left case.
- anti_join() Discards any observations in the left table that *do* have a match in the right table.

## Factors

- functions for changing the **order** of factor levels
    - fct_relevel() = *manually* reorder levels
    - fct_reorder() = reorder levels according to values of another *variable*
    - fct_infreq() = order levels from highest to lowest frequency
    - fct_rev() = reverse the current order
- functions for changing the **labels** or values of factor levels
    - fct_recode() = *manually* change levels
    - fct_lump() = *group together* least common levels

## Strings

| **function** | **arguments** | **returns** |
|---|---|---|
| str_replace() | x, pattern, replacement | a modified string |
| str_replace_all() | x, pattern, replacement | a modified string |
| str_to_lower() | x | a modified string |
| str_sub() | x, start, end | a modified string |
| str_length() | x | a number |
| str_detect() | x, pattern | TRUE/FALSE |