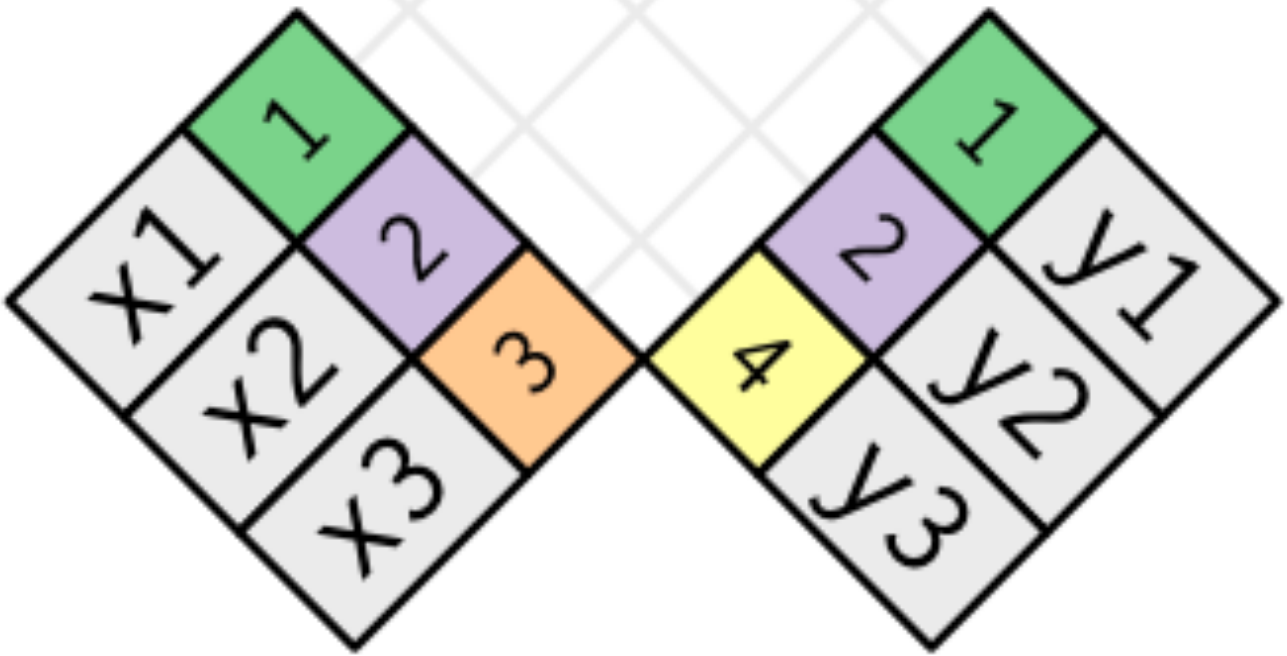
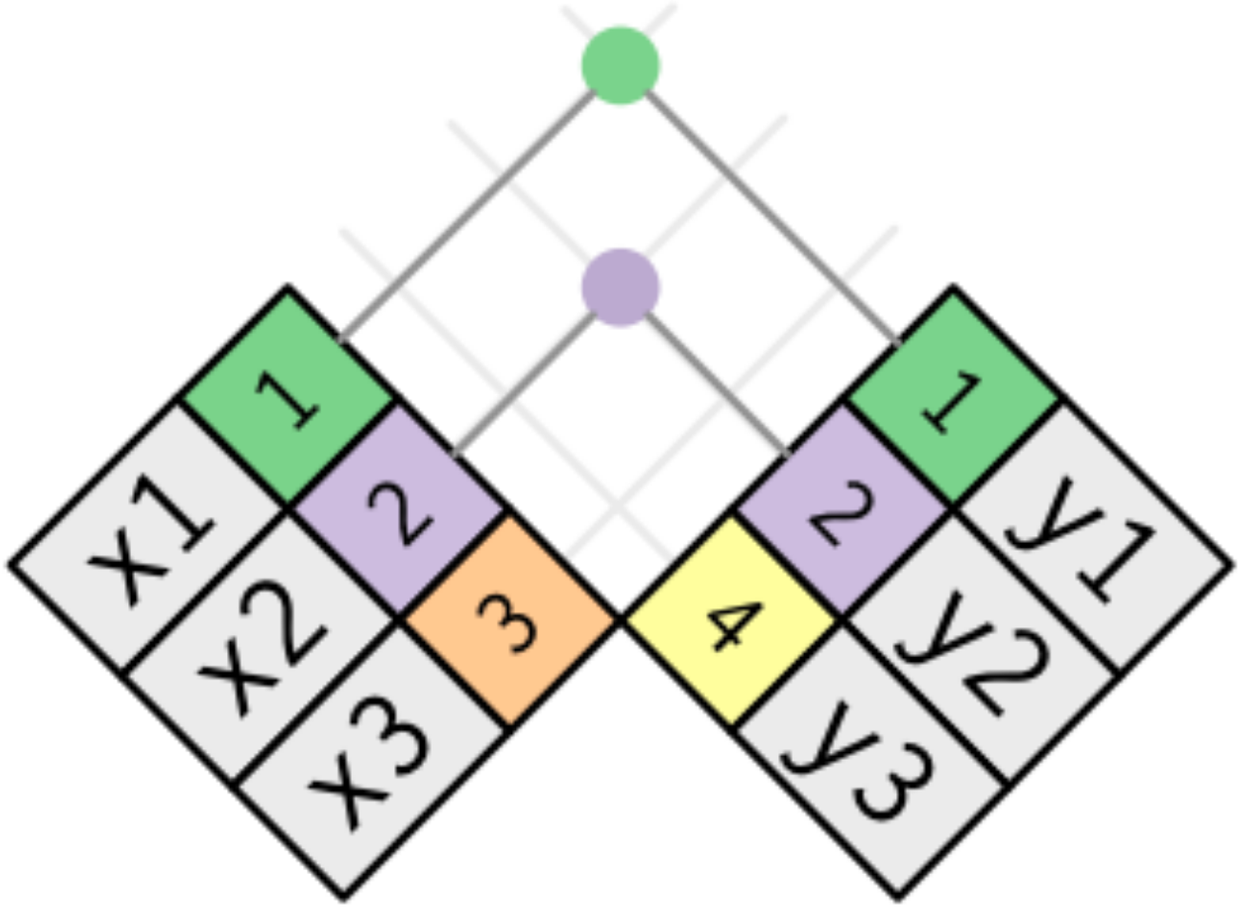
There are several types of join operations

```r
x <- tribble(
  ~key, ~val_x,
     1, "x1",
     2, "x2",
     3, "x3"
)
y <- tribble(
  ~key, ~val_y,
     1, "y1",
     2, "y2",
     4, "y3"
)
```


x1
x2
x3
1
2
3
4
y1
y2
y3
1
2



key	val_x	val_y
1	x1	y1
2	x2	y2

Dots indicate matches during the join

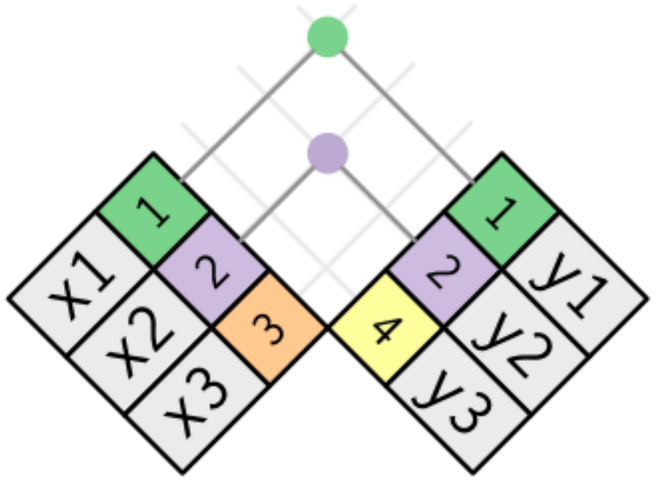
The join shown here is called an “**inner join**”: Inner join matches observations when their keys are equal

```
x %>%
  inner_join(y, by = "key")
#> # A tibble: 2 x 3
#>     key val_x val_y
#>   <dbl> <chr> <chr>
#> 1     1 x1    y1
#> 2     2 x2    y2
```

Inner joins keep observations in **both** tables

There are several types of join operations

```
x <- tribble(
  ~key, ~val_x,
     1, "x1",
     2, "x2",
     3, "x3"
)
y <- tribble(
  ~key, ~val_y,
     1, "y1",
     2, "y2",
     4, "y3"
)
```



key	val_x	val_y
1	x1	y1
2	x2	y2

Dots indicate matches during the join

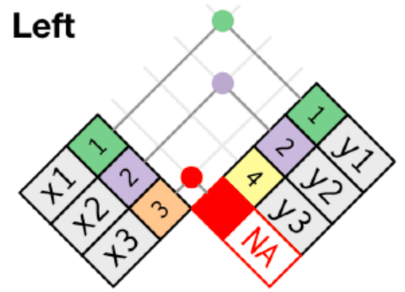
The join shown here is called an “**inner join**”: Inner join matches observations when their keys are equal

Inner joins keep observations in **both** tables

```
x %>%
  inner_join(y, by = "key")
#> # A tibble: 2 x 3
#>     key val_x val_y
#>   <dbl> <chr> <chr>
#> 1     1 x1    y1
#> 2     2 x2    y2
```

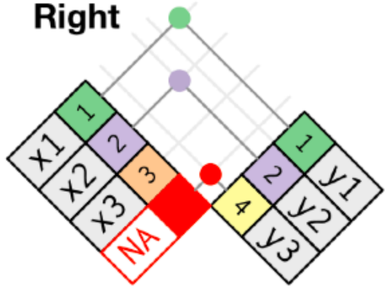
Outer joins versus inner joins

Left



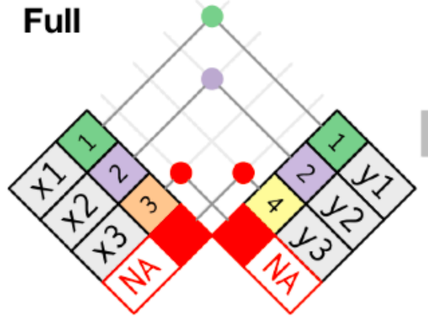
key	val_x	val_y
1	x1	y1
2	x2	y2
3	x3	NA

Right



key	val_x	val_y
1	x1	y1
2	x2	y2
4	NA	y3

Full



key	val_x	val_y
1	x1	y1
2	x2	y2
3	x3	NA
4	NA	y3