

# Reshaping

Country	1999	2000
A	1.7m	1.8m
B	2.5m	2.4m
C	100k	150k

longer (cols = 1 (1999, 2000))  
 names.to = "year"  
 values.to = "pop"  
 values.drop.na = FALSE

Country	year	pop
A	1999	1.7m
A	2000	1.8m
B	1999	2.5m
B	2000	2.4m
C	1999	100k
C	2000	150k

Pivot\_wider (names.from = year)  
 values.from = pop

Country	1999	2000
A	1.7	1.8
B	2.5	2.4
C	100	150

left\_data > join(right)

left	right
x 1 2	y a b
z 10 20	

left\_join():

x	y	z
1	a	NA
2	b	10

inner\_join():

x	y	z
2	b	10

Semi\_join(): like inner but only data from left

Roll\_join():

x	y	z
1	a	NA
2	b	10
3	NA	20

Anti\_join():

x	y
1	a

Summarize(sum(y))

# Joins

x	y
1	a
2	b

Mutate(z=x\*y)

x	y	z
1	a	1
2	b	2

Select(y, z) or select(-x)

y	z
a	1
b	2

Filter(z == 17)

arrange(desc(y))

y	z
b	2
a	1

# Wrangling