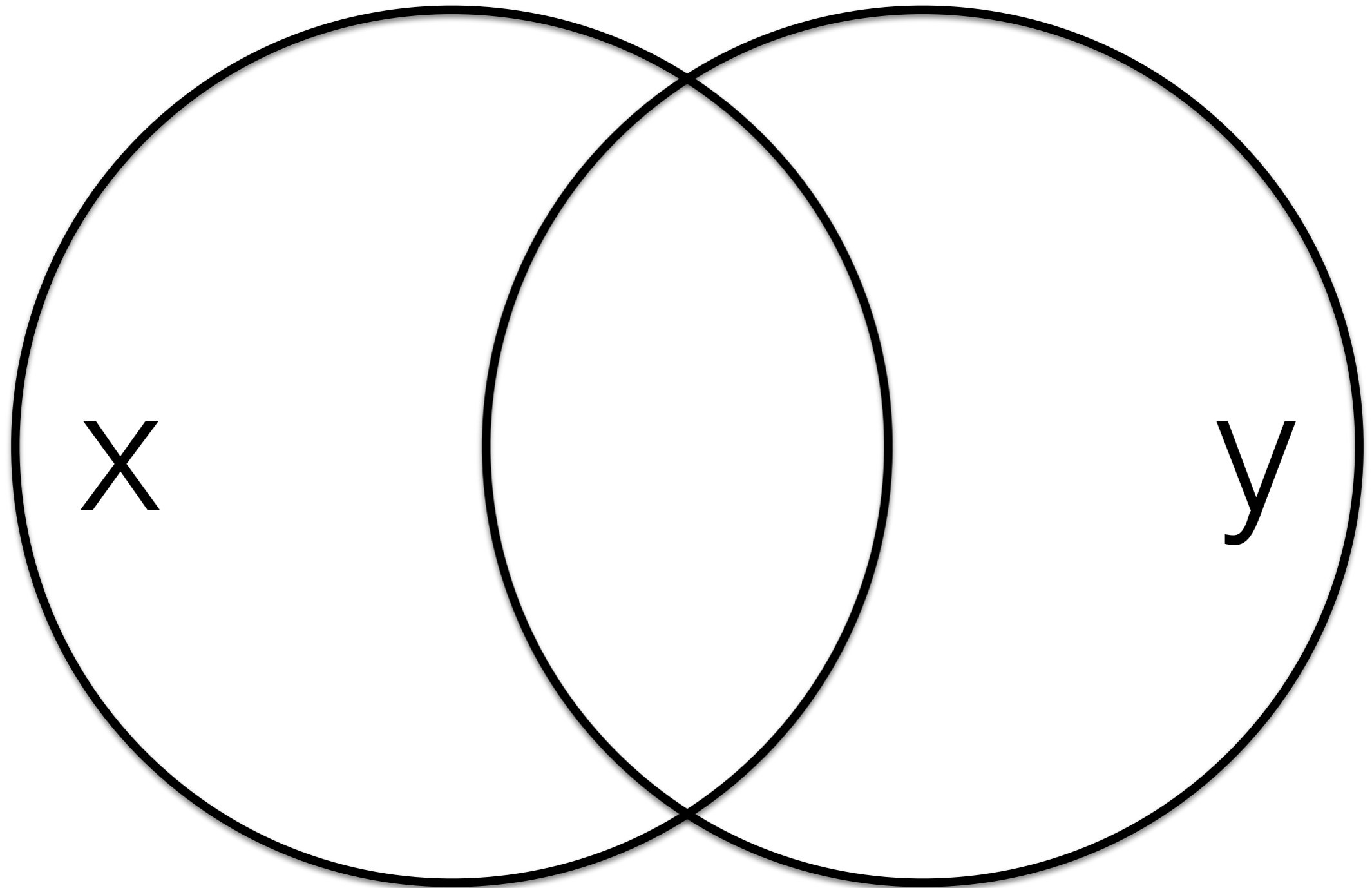


Data Relations

id	sex	age
1	m	19
2	m	22
3	NA	NA
4	f	19
5	f	18

id	score
2	10
3	18
4	21
4	23
5	9
5	11
6	11
6	12
7	3

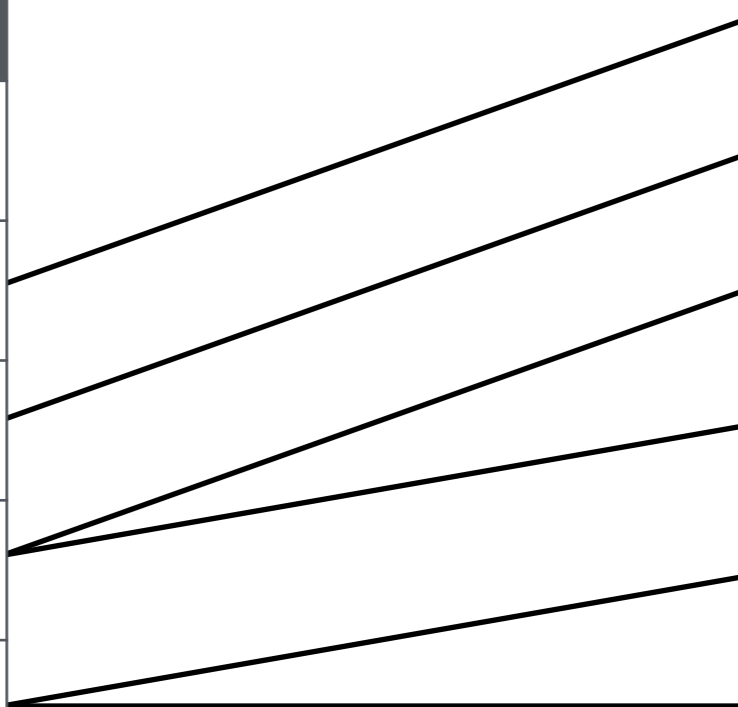
*_join(x, y)



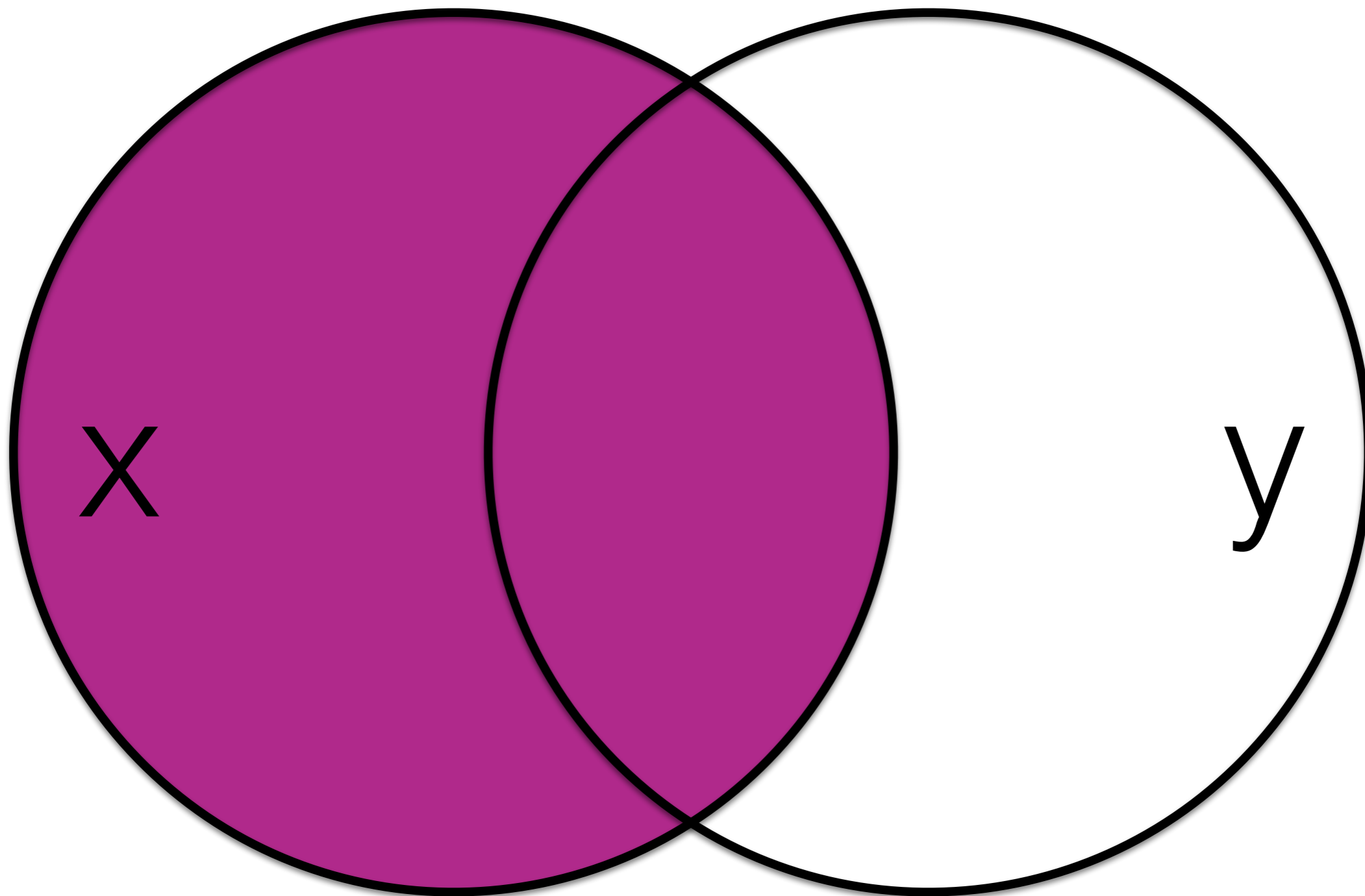
*_join(subject, exp, "id")

id	sex	age
1	m	19
2	m	22
3	NA	NA
4	f	19
5	f	18

id	score
2	10
3	18
4	21
4	23
5	9
5	11
6	11
6	12
7	3



left_join(x, y)



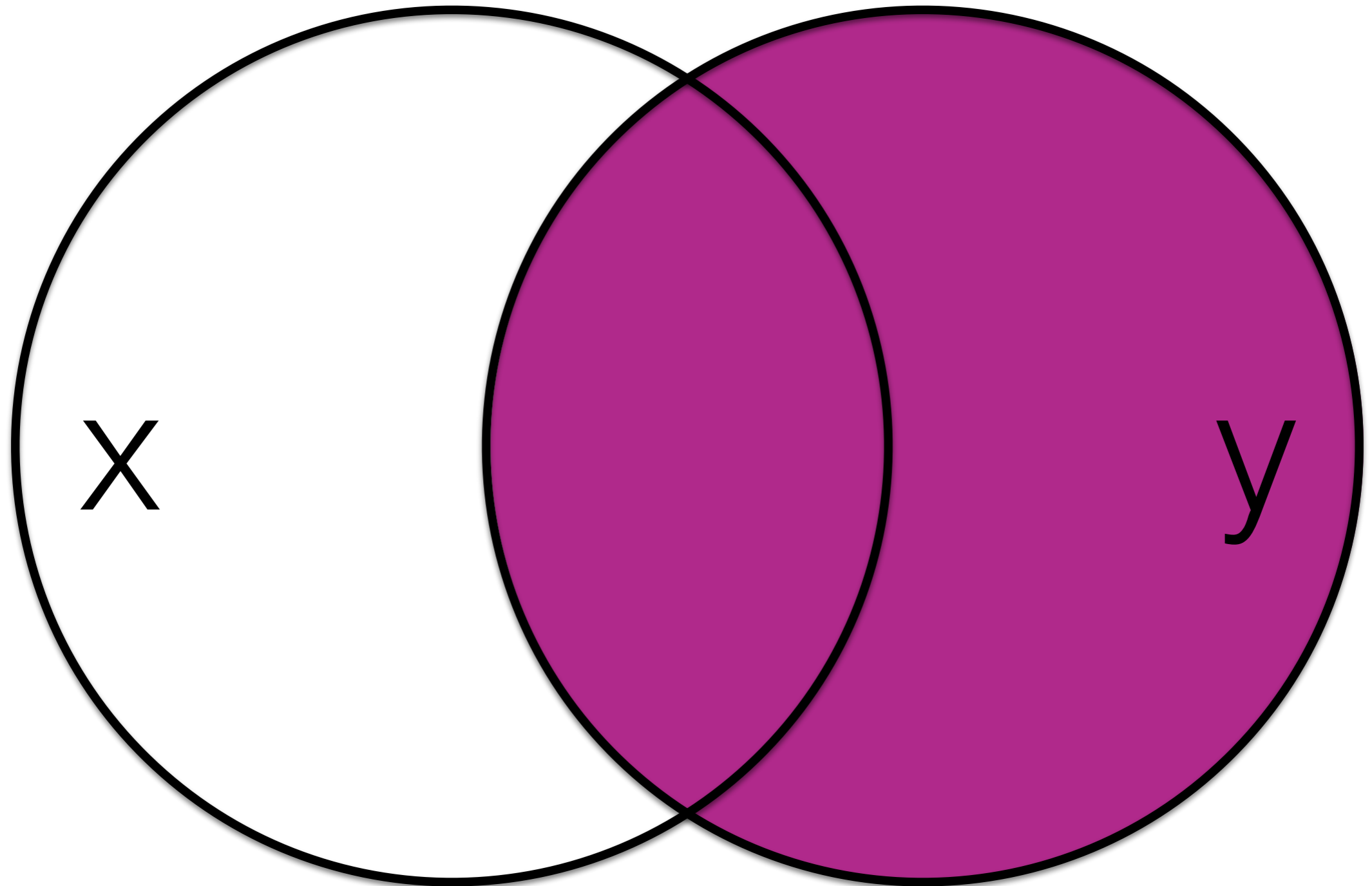
left_join(subject, exp)

id	sex	age
1	m	19
2	m	22
3	NA	NA
4	f	19
5	f	18

id	score
2	10
3	18
4	21
4	23
5	9
5	11
6	11
6	12
7	3

id	sex	age	score
1	m	19	NA
2	m	22	10
3	NA	NA	18
4	f	19	21
4	f	19	23
5	f	18	9
5	f	18	11

left_join(y, x)



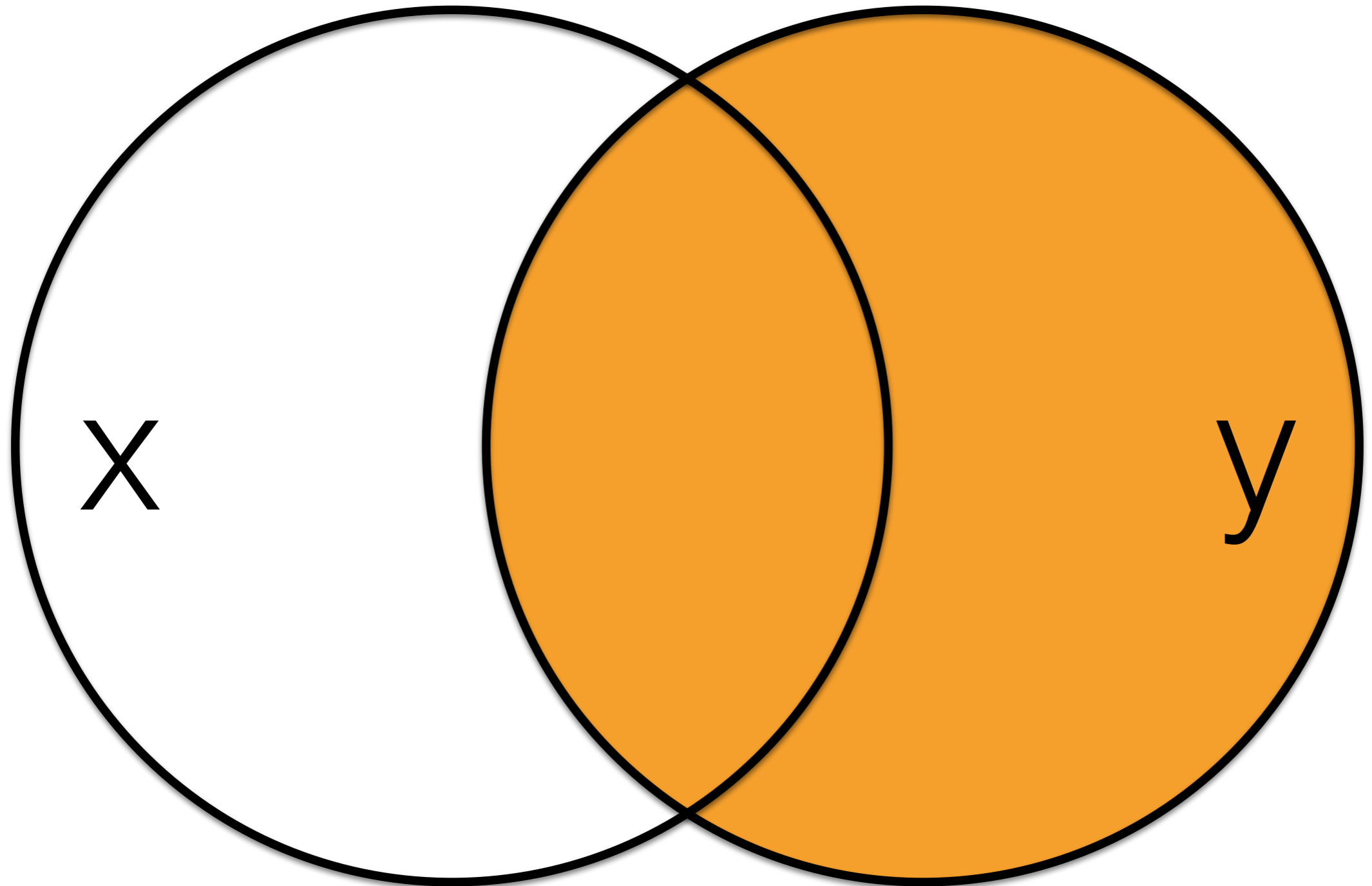
left_join(exp, subject)

id	score
2	10
3	18
4	21
4	23
5	9
5	11
6	11
6	12
7	3

id	sex	age
1	m	19
2	m	22
3	NA	NA
4	f	19
5	f	18

id	score	sex	age
2	10	m	22
3	18	NA	NA
4	21	f	19
4	23	f	19
5	9	f	18
5	11	f	18
6	11	NA	NA
6	12	NA	NA
7	3	NA	NA

right_join(x, y)



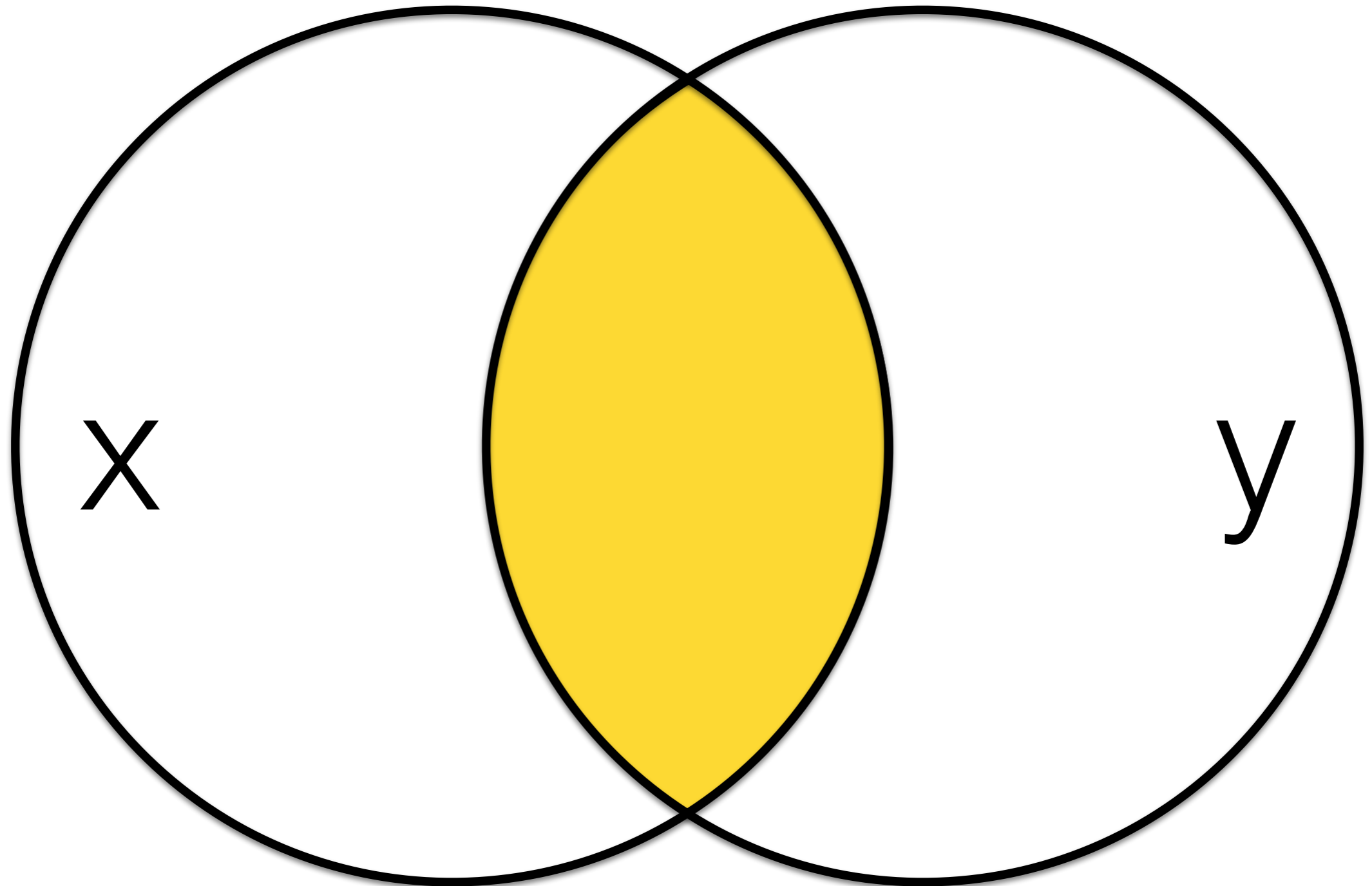
right_join(x, y)

id	sex	age
1	m	19
2	m	22
3	NA	NA
4	f	19
5	f	18

id	score
2	10
3	18
4	21
4	23
5	9
5	11
6	11
6	12
7	3

id	sex	age	score
2	m	22	10
3	NA	NA	18
4	f	19	21
4	f	19	23
5	f	18	9
5	f	18	11
6	NA	NA	11
6	NA	NA	12
7	NA	NA	3

`inner_join(x, y)`



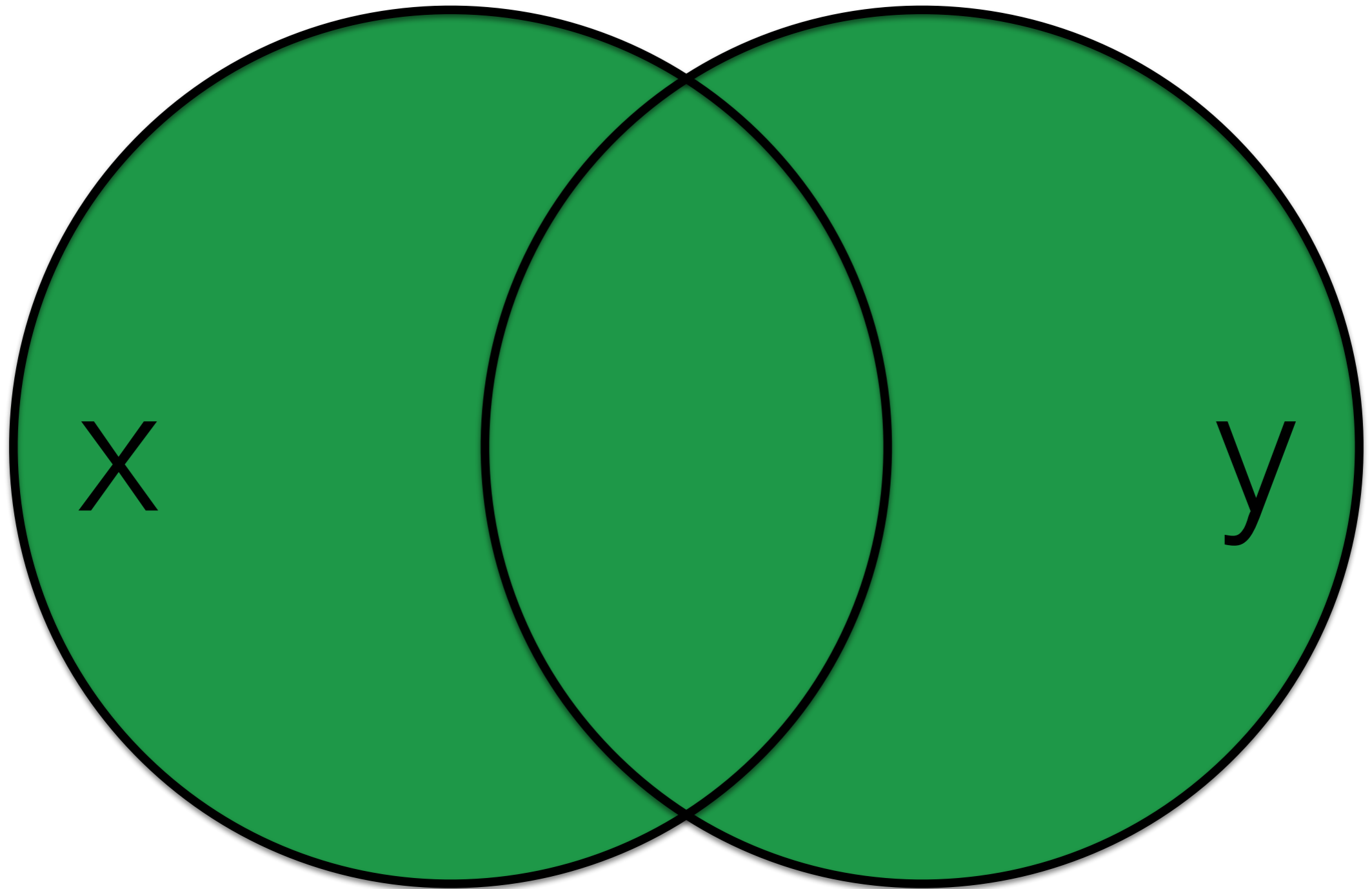
inner_join(subject, exp)

id	sex	age
1	m	19
2	m	22
3	NA	NA
4	f	19
5	f	18

id	score
2	10
3	18
4	21
4	23
5	9
5	11
6	11
6	12
7	3

id	sex	age	score
2	m	22	10
3	NA	NA	18
4	f	19	21
4	f	19	23
5	f	18	9
5	f	18	11

`full_join(x, y)`



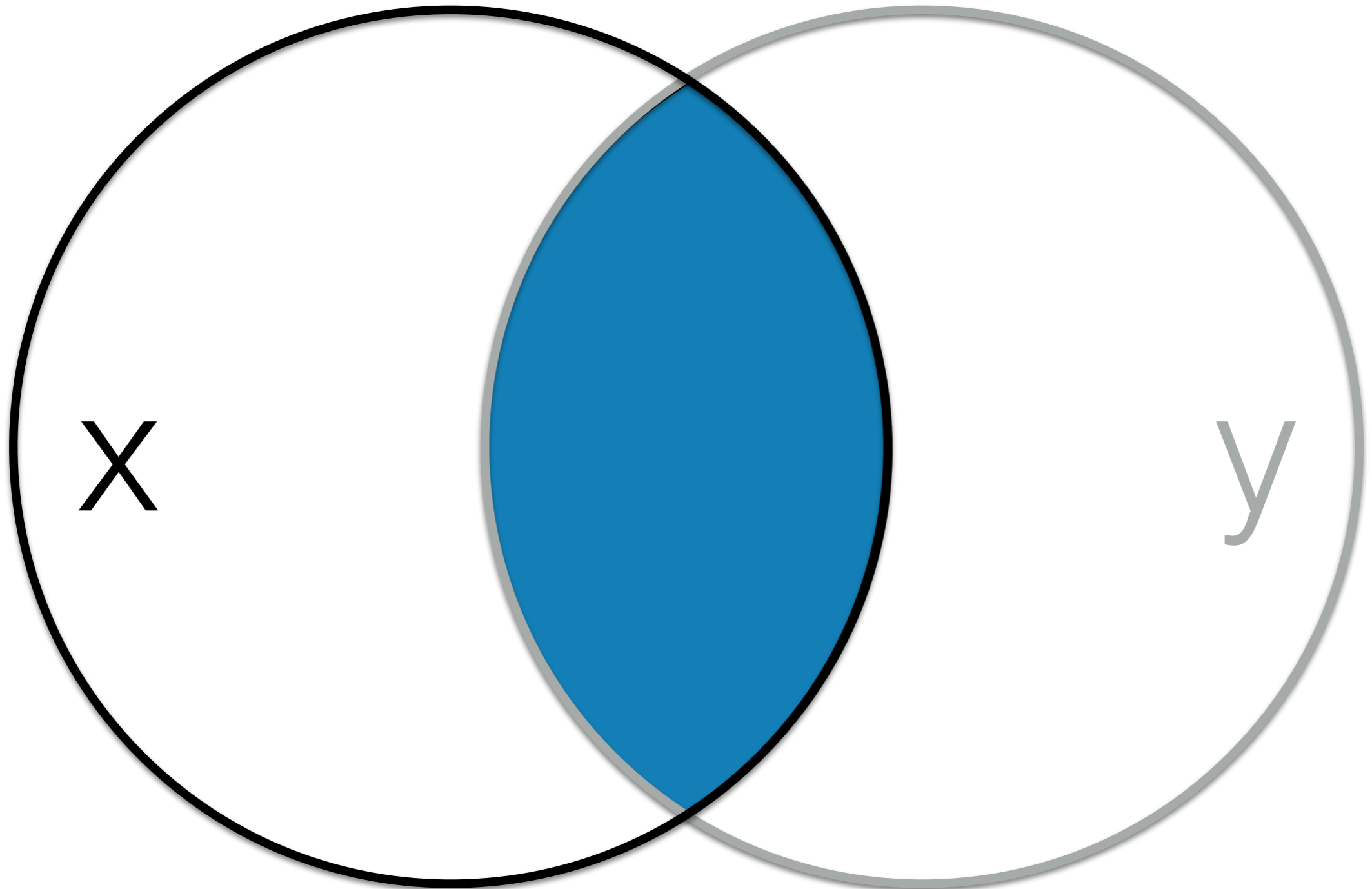
full_join(subject, exp)

id	sex	age
1	m	19
2	m	22
3	NA	NA
4	f	19
5	f	18

id	score
2	10
3	18
4	21
4	23
5	9
5	11
6	11
6	12
7	3

id	sex	age	score
1	m	19	NA
2	m	22	10
3	NA	NA	18
4	f	19	21
4	f	19	23
5	f	18	9
5	f	18	11
6	NA	NA	11
6	NA	NA	12
7	NA	NA	3

semi_join(x, y)



*only columns from x ; no duplicate rows, even if >1 match in y

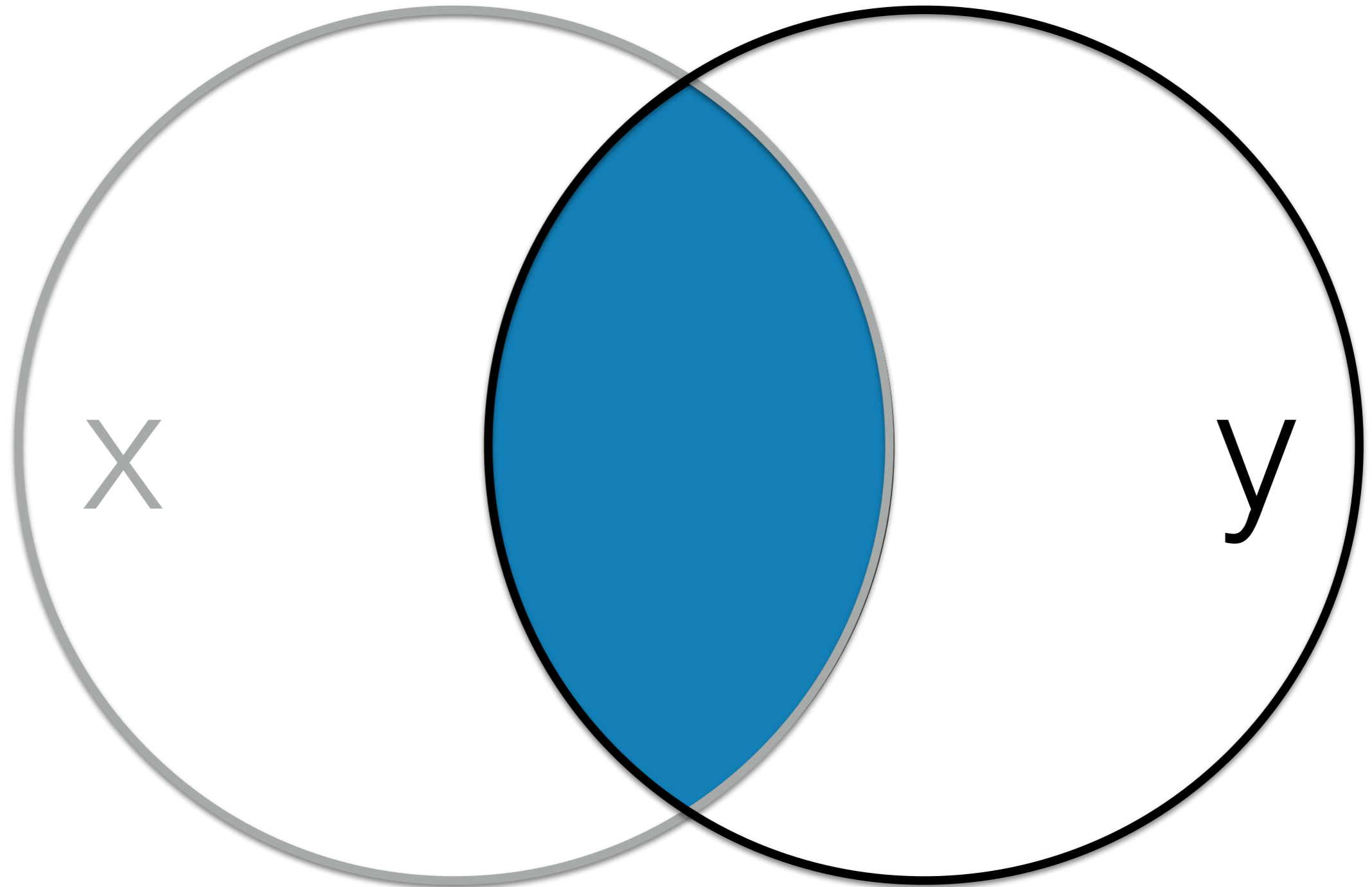
semi_join(subject, exp)

id	sex	age
1	m	19
2	m	22
3	NA	NA
4	f	19
5	f	18

id	score
2	10
3	18
4	21
4	23
5	9
5	11
6	11
6	12
7	3

id	sex	age
2	m	22
3	NA	NA
4	f	19
5	f	18

semi_join(y, x)



*only columns from y; no duplicate rows, even if >1 match in x

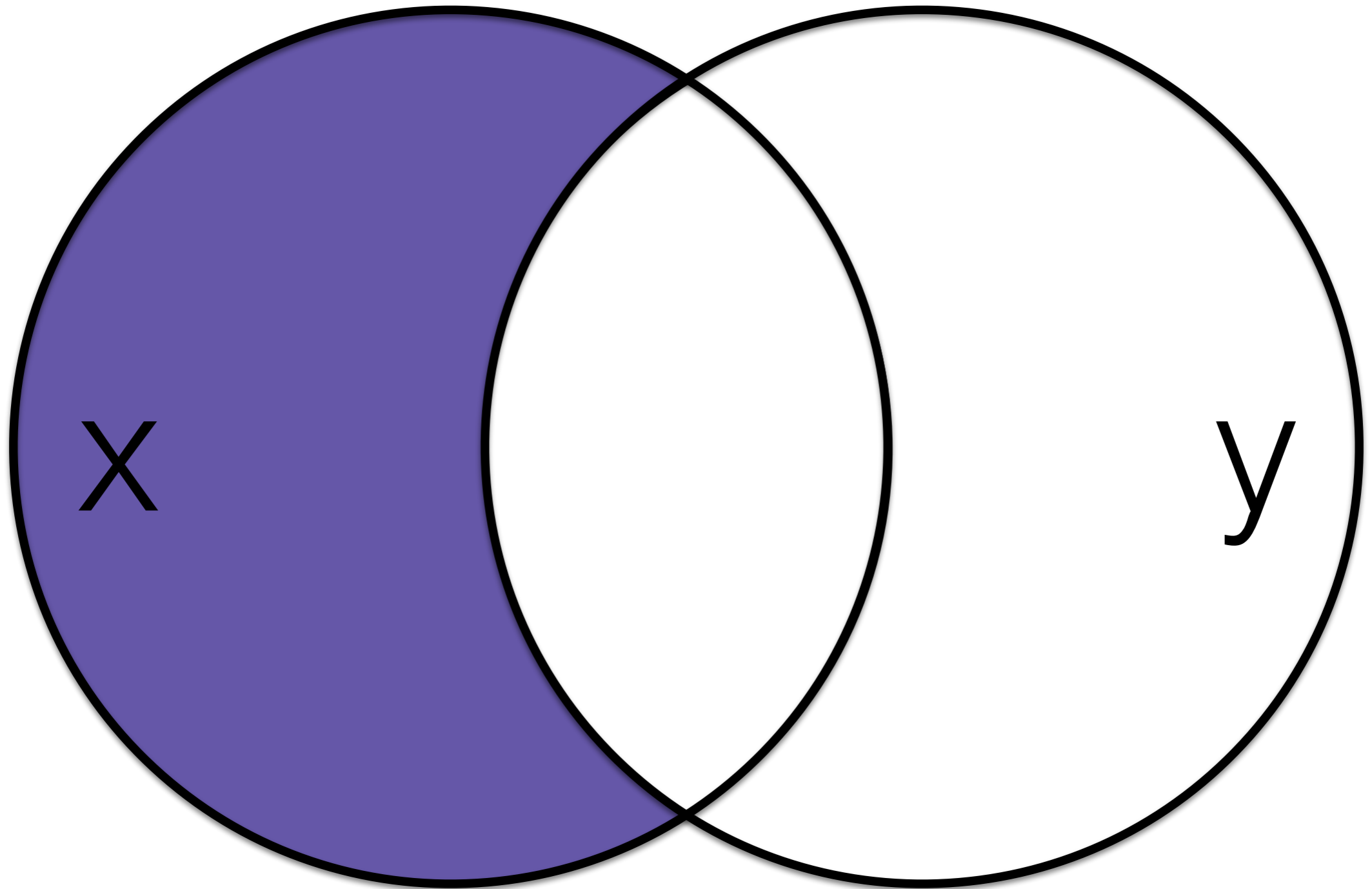
semi_join(exp, subject)

id	score
2	10
3	18
4	21
4	23
5	9
5	11
6	11
6	12
7	3

id	sex	age
1	m	19
2	m	22
3	NA	NA
4	f	19
5	f	18

id	score
2	10
3	18
4	21
4	23
5	9
5	11

anti_join(x, y)



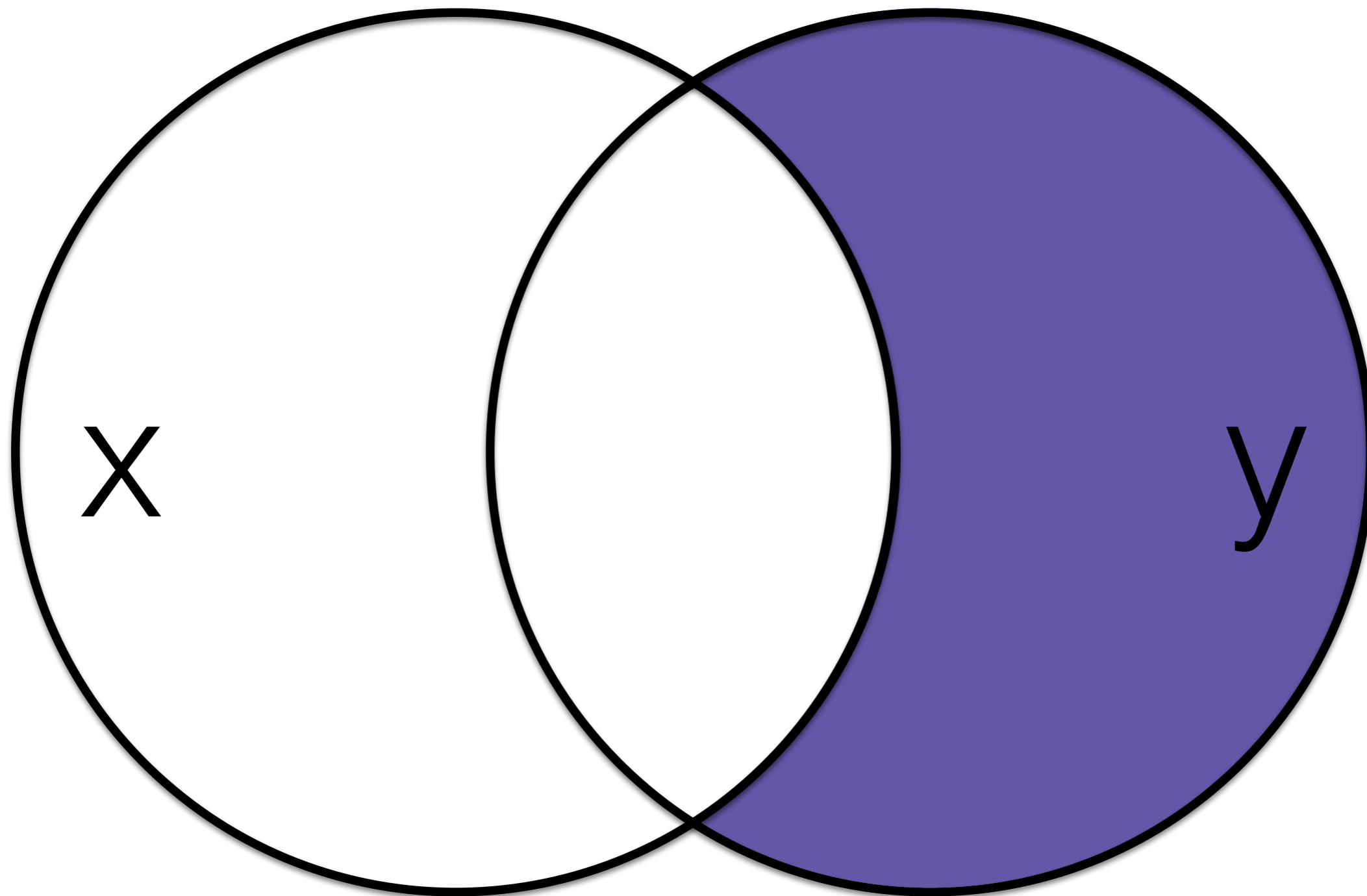
anti_join(subject, exp)

id	sex	age
1	m	19
2	m	22
3	NA	NA
4	f	19
5	f	18

id	score
2	10
3	18
4	21
4	23
5	9
5	11
6	11
6	12
7	3

id	sex	age
1	m	19

anti_join(y, x)



anti_join(exp, subject)

id	score
2	10
3	18
4	21
4	23
5	9
5	11
6	11
6	12
7	3

id	sex	age
1	m	19
2	m	22
3	NA	NA
4	f	19
5	f	18

id	score
6	11
6	12
7	3

`bind_rows(subject, new_subjects)`

id	sex	age
1	m	19
2	m	22
3	NA	NA
4	f	19
5	f	18

+

id	sex	age
6	m	19
7	m	16
8	f	20
9	f	19

=

id	sex	age
1	m	19
2	m	22
3	NA	NA
4	f	19
5	f	18
6	m	19
7	m	16
8	f	20
9	f	19

bind_cols(subject, new_info)

id	sex	age
1	m	19
2	m	22
3	NA	NA
4	f	19
5	f	18

+

colour
red
orange
yellow
green
blue

=

id	sex	age	colour
1	m	19	red
2	m	22	orange
3	NA	NA	yellow
4	f	19	green
5	f	18	blue

intersect(subject, new_subjects)

id	sex	age
1	m	19
2	m	22
3	NA	NA
4	f	19
5	f	18

id	sex	age
4	f	19
5	f	18
6	m	19
7	m	16
8	f	20
9	f	19

=

id	sex	age
4	f	19
5	f	18

union(subject, new_subjects)

id	sex	age
1	m	19
2	m	22
3	NA	NA
4	f	19
5	f	18

id	sex	age
4	f	19
5	f	18
6	m	19
7	m	16
8	f	20
9	f	19

=

id	sex	age
1	m	19
2	m	22
3	NA	NA
4	f	19
5	f	18
6	m	19
7	m	16
8	f	20
9	f	19

setdiff(subject, new_subjects)

id	sex	age
1	m	19
2	m	22
3	NA	NA
4	f	19
5	f	18

id	sex	age
4	f	19
5	f	18
6	m	19
7	m	16
8	f	20
9	f	19

=

id	sex	age
1	m	19
2	m	22
3	NA	NA

setdiff(new_subjects, subject)

id	sex	age
4	f	19
5	f	18
6	m	19
7	m	16
8	f	20
9	f	19

id	sex	age
1	m	19
2	m	22
3	NA	NA
4	f	19
5	f	18

=

id	sex	age
6	m	19
7	m	16
8	f	20
9	f	19