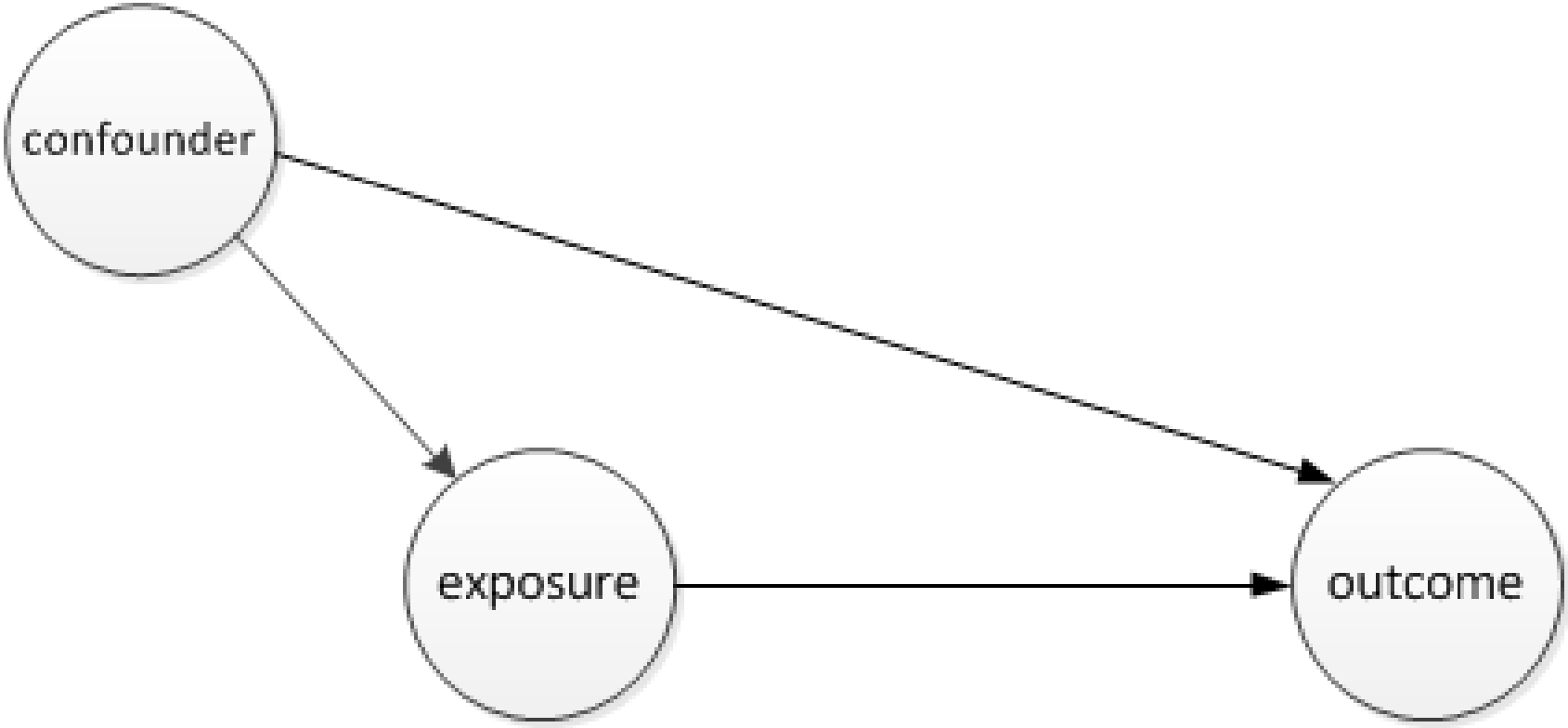
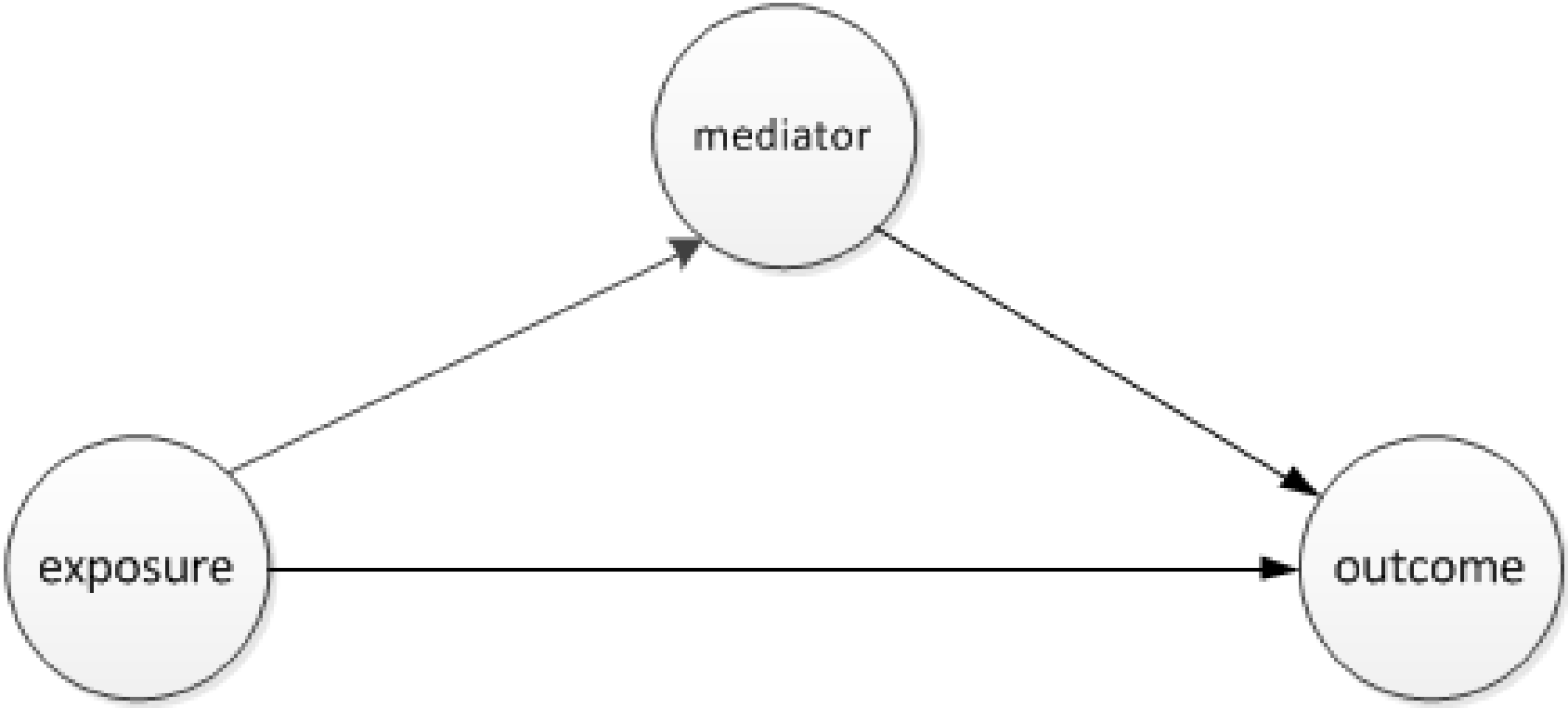
Can data simulation shed light on the race/causal analysis conundrum?

Intro simulation

Two data generating processes...

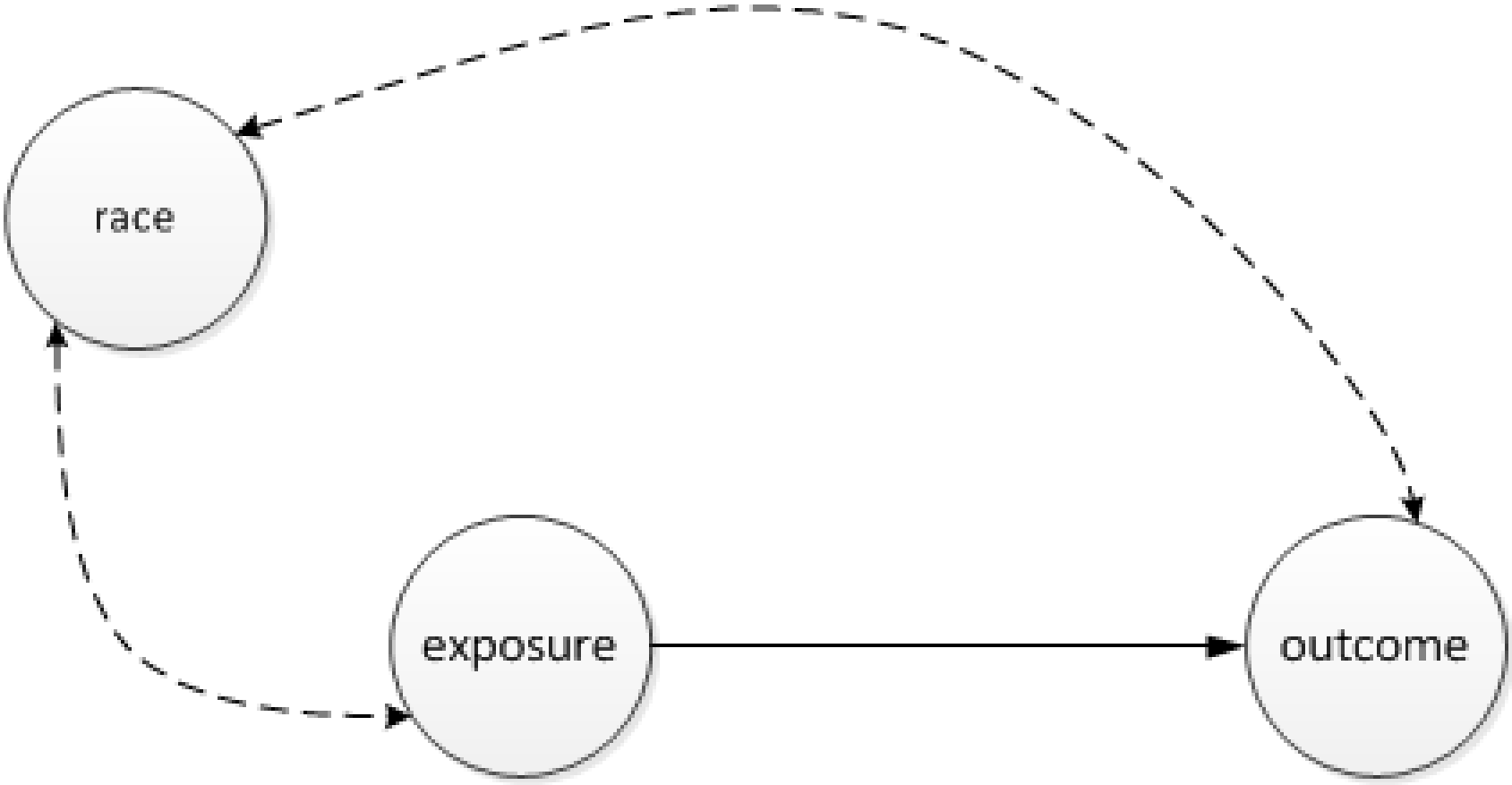
one set of estimates


confounder
exposure
outcome

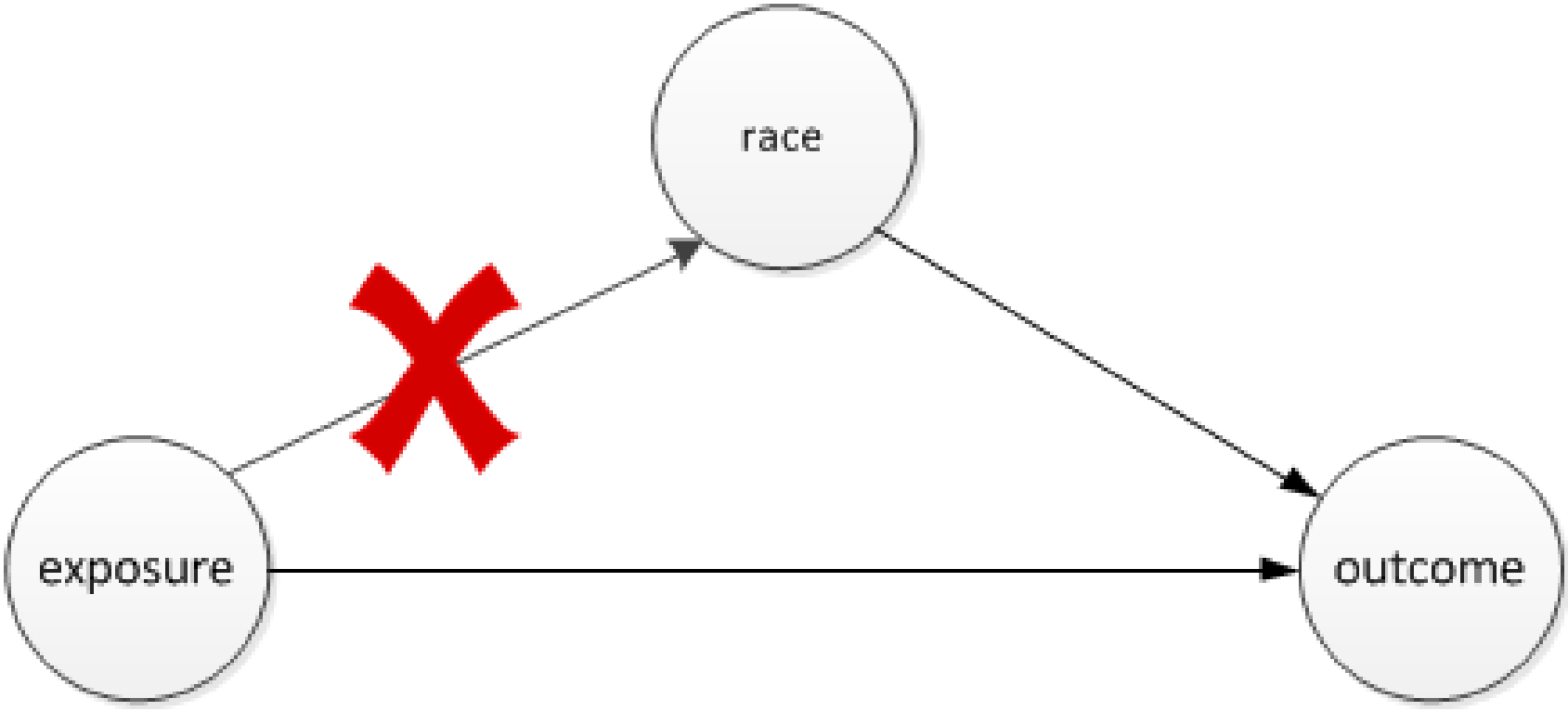

mediator
exposure
outcome

Simulation

Conundrum #1



Race as confounder seems reasonable . . .



but not race as mediator.

Potential outcomes and causes

$$E(Y^1 - Y^0)$$

$$E(Y^1 - Y^0) = E(Y^1) - E(Y^0)$$

$$E(Y^0) \stackrel{?}{=} E(Y^0|A=0)$$

$$E(Y^1) \stackrel{?}{=} E(Y^1|A=1)$$

$$E(Y^0) = E(Y|A = 0)$$

$$E(Y^1) = E(Y|A = 1)$$

$$E(Y^0) \neq E(Y^0|A=0)$$

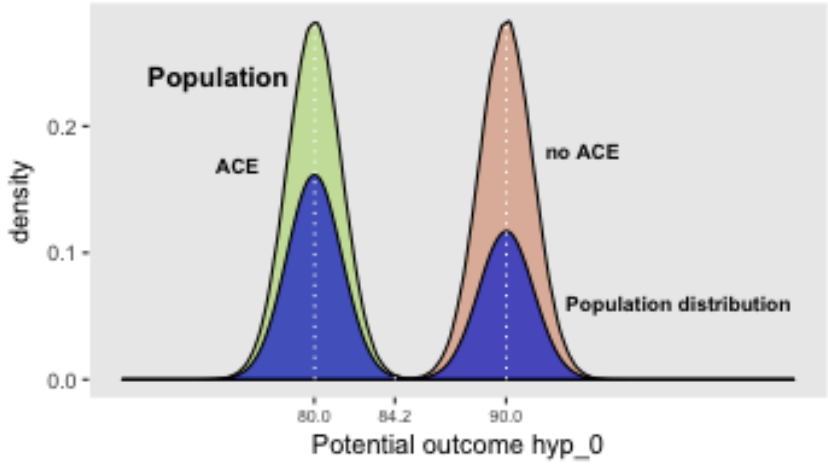
$$E(Y^1) \neq E(Y^1|A=1)$$

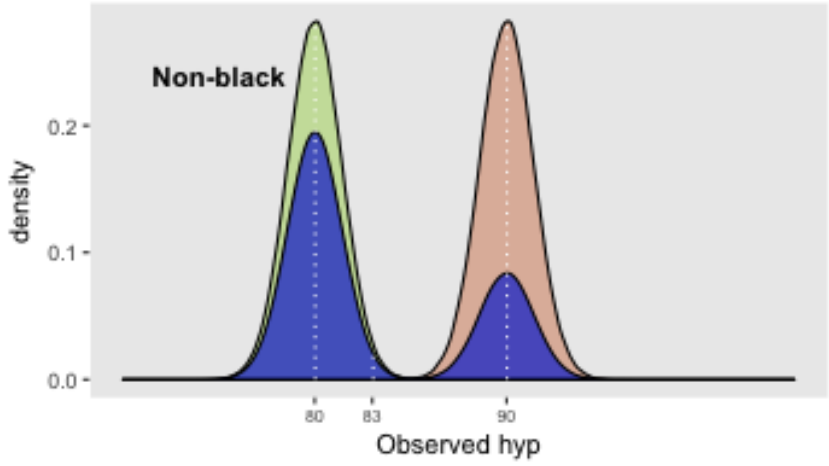
$$E(Y^0|L = l) = E(Y|A = 0 \text{ and } L = l)$$

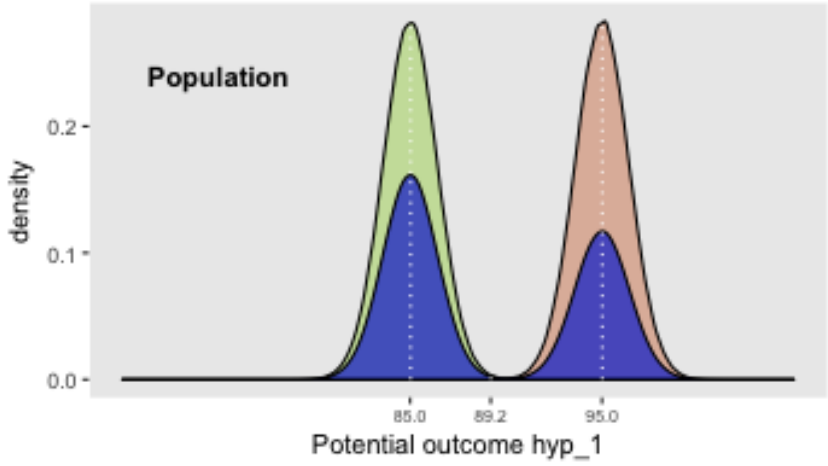
$$E(Y^1|L = l) = E(Y|A = 1 \text{ and } L = l)$$

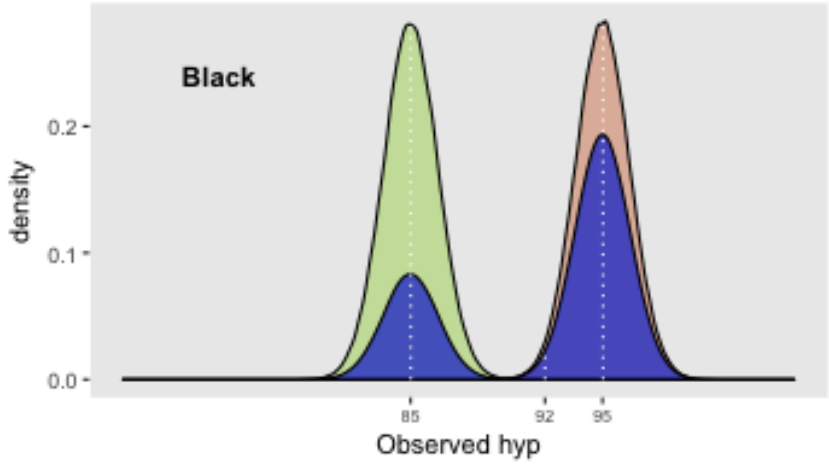
Simulation

Conundrum #2


Population
ACE
no ACE
Population distribution
density
0.2
0.1
0.0
80.0
84.2
90.0
Potential outcome hyp_0


Non-black
density
0.2
0.1
0.0
80
83
90
Observed hyp


Population
density
0.2
0.1
0.0
85.0
89.2
95.0
Potential outcome hyp_1


Black
density
0.2
0.1
0.0
85
92
95
Observed hyp

Hypothetical data set