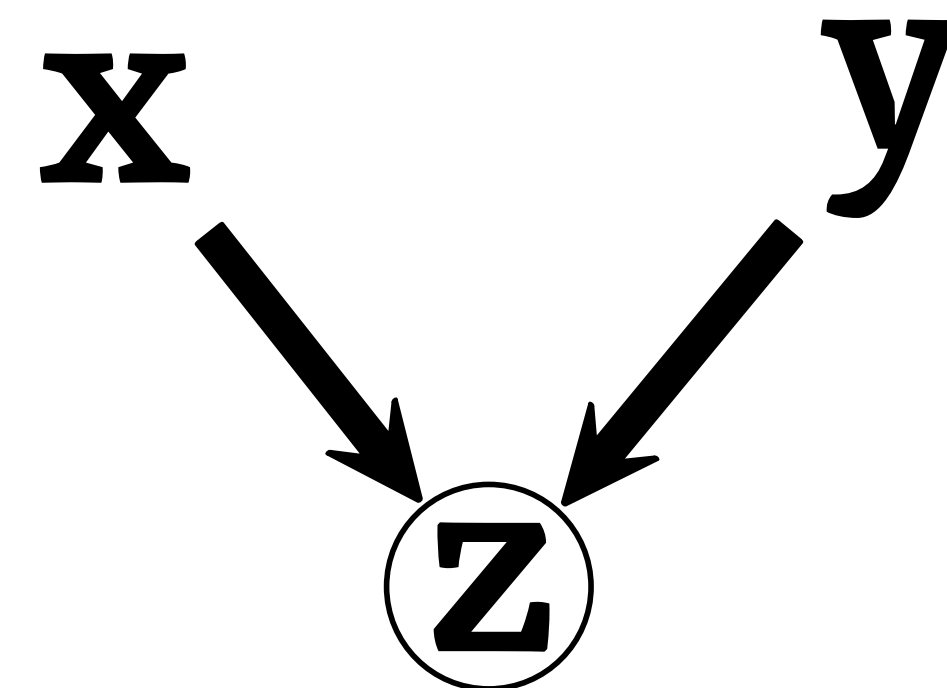


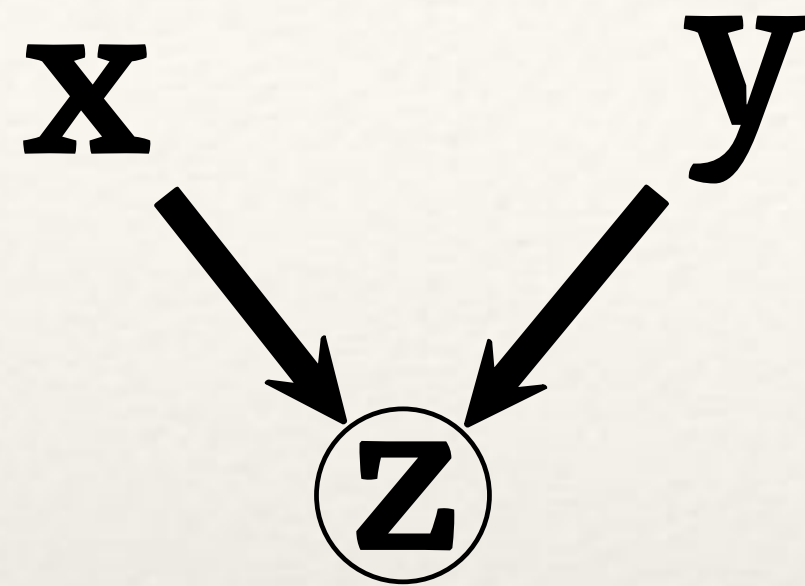
NO EFFECT OF X ON Y, BUT BOTH AFFECT Z

```
set.seed(1)
N = 100
x = rnorm(N) # x ~ normal(0, 1)
y = rnorm(N) # y ~ normal(0, 1)
z = rnorm(N, 1 + x + y) # z ~ normal(1 + x + y, 1) -> collider

m1 = ulam(alist(
  y ~ normal(a + bx*x, sigma),
  a ~ normal(0, 0.3),
  bx ~ normal(0, 0.3),
  sigma ~ exponential(1),
  data = list(y = y, x = x),
  iter = 1000, chains = 4, cores = 4)
```



EFFECT OF X ON Y WITHOUT THE COLLIDER



```
m1 = ulam(alist(  
  y ~ normal(a + bx*x, sigma),  
  a ~ normal(0, 0.3),  
  bx ~ normal(0, 0.3),  
  sigma ~ exponential(1)),  
  data = list(y = y, x = x),  
  iter = 1000, chains = 4, cores = 4)
```

