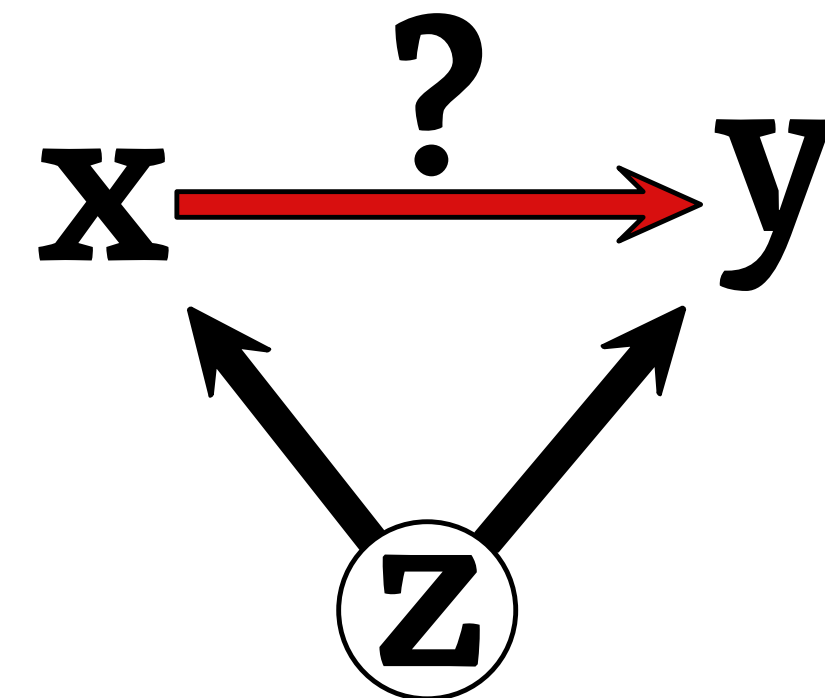# SIMULATING THE EFFECT OF A FORK

- Every DAG implies a causal relation between variables.

- We can use distributions to simulate the generative model implied by this DAG:

$$y \sim Normal(\alpha_y + \beta_{yx}x + \beta_{yz}z, \sigma_y)$$

$$x \sim Normal(\alpha_x + \beta_{xz}z, \sigma_x)$$

$$z \sim Normal(\alpha_z, \sigma_z)$$

SIMULATING THE EFFECT OF A FORK

Math

$$y \sim Normal(\alpha_y + \beta_{yx}x + \beta_{yz}z, \sigma_y)$$

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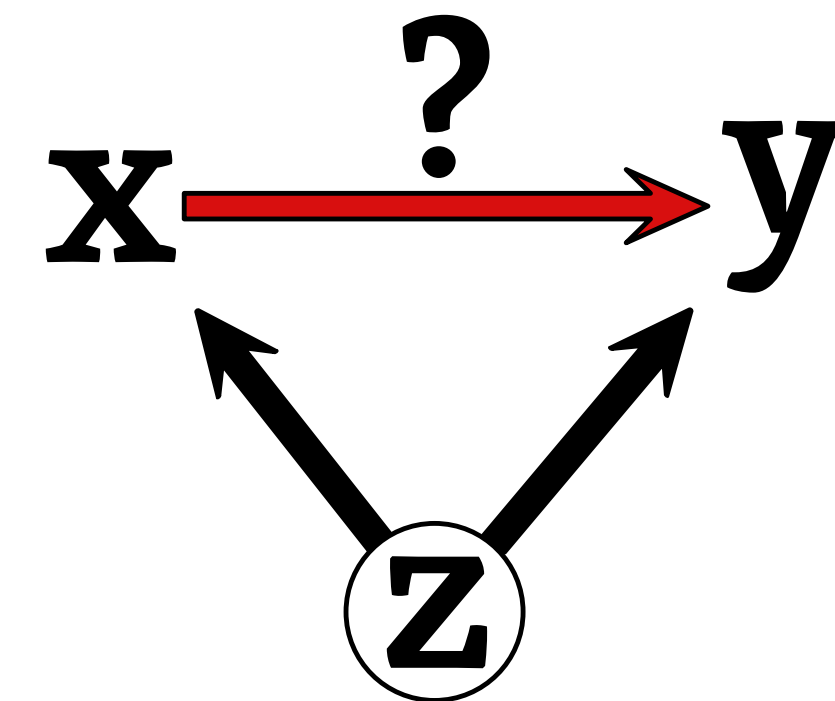
$$z \sim Normal(\alpha_z, \sigma_z)$$

R Code

```
N = 100
z = rnorm(N)              # z ~ normal(0, 1)
x = rnorm(N, 1 + z)       # x ~ normal(1 + z, 1)
y = rnorm(N, 1 + x + z)   # y ~ normal(1 + x + z, 1)
```