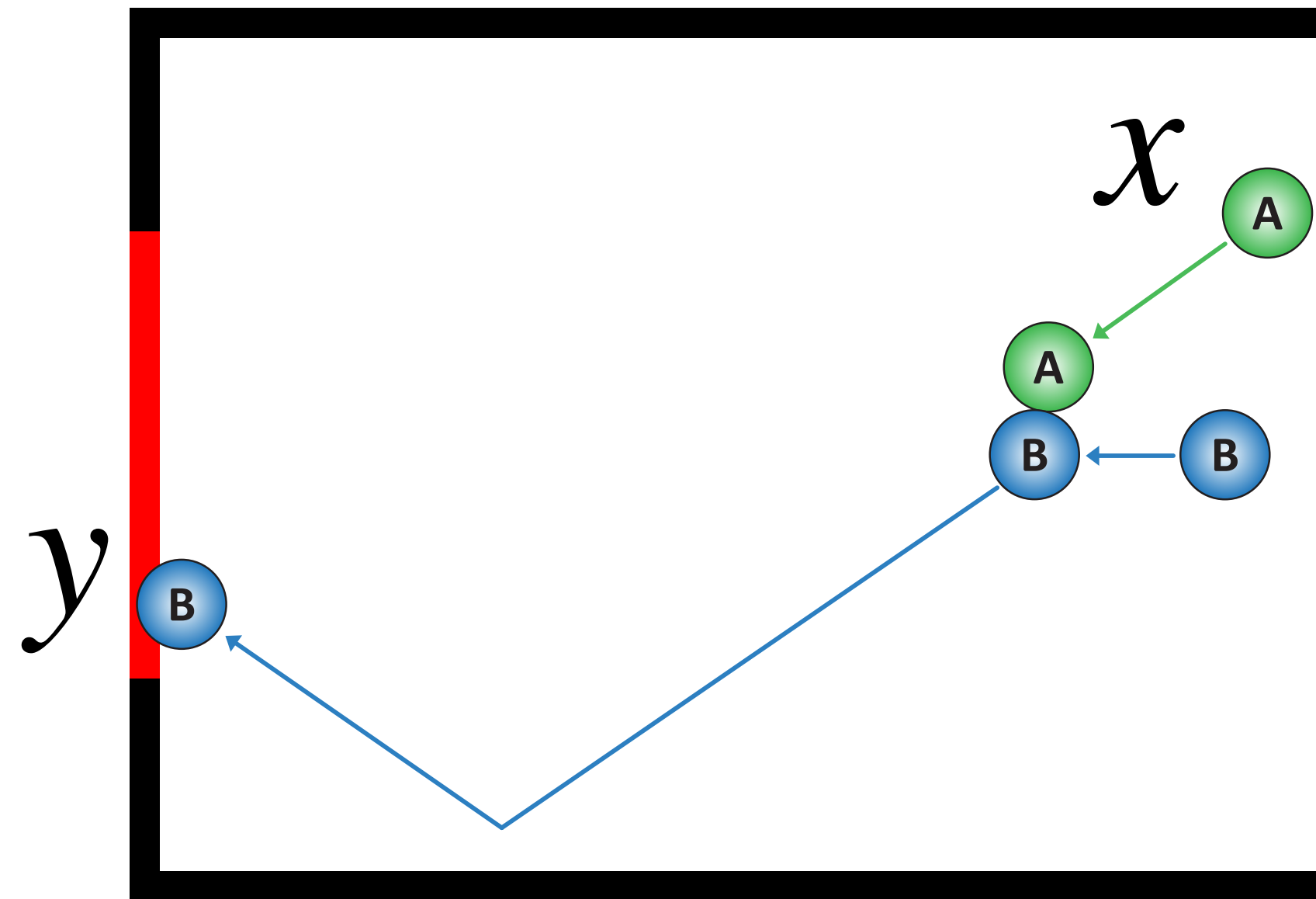
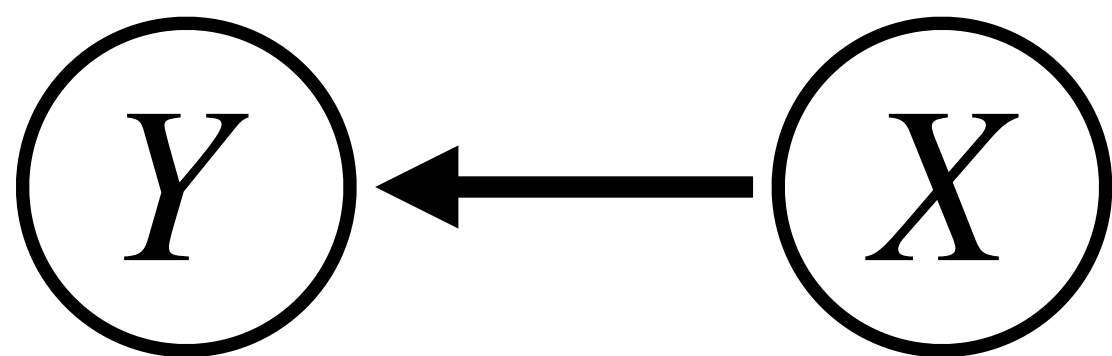


A One-cause scenario



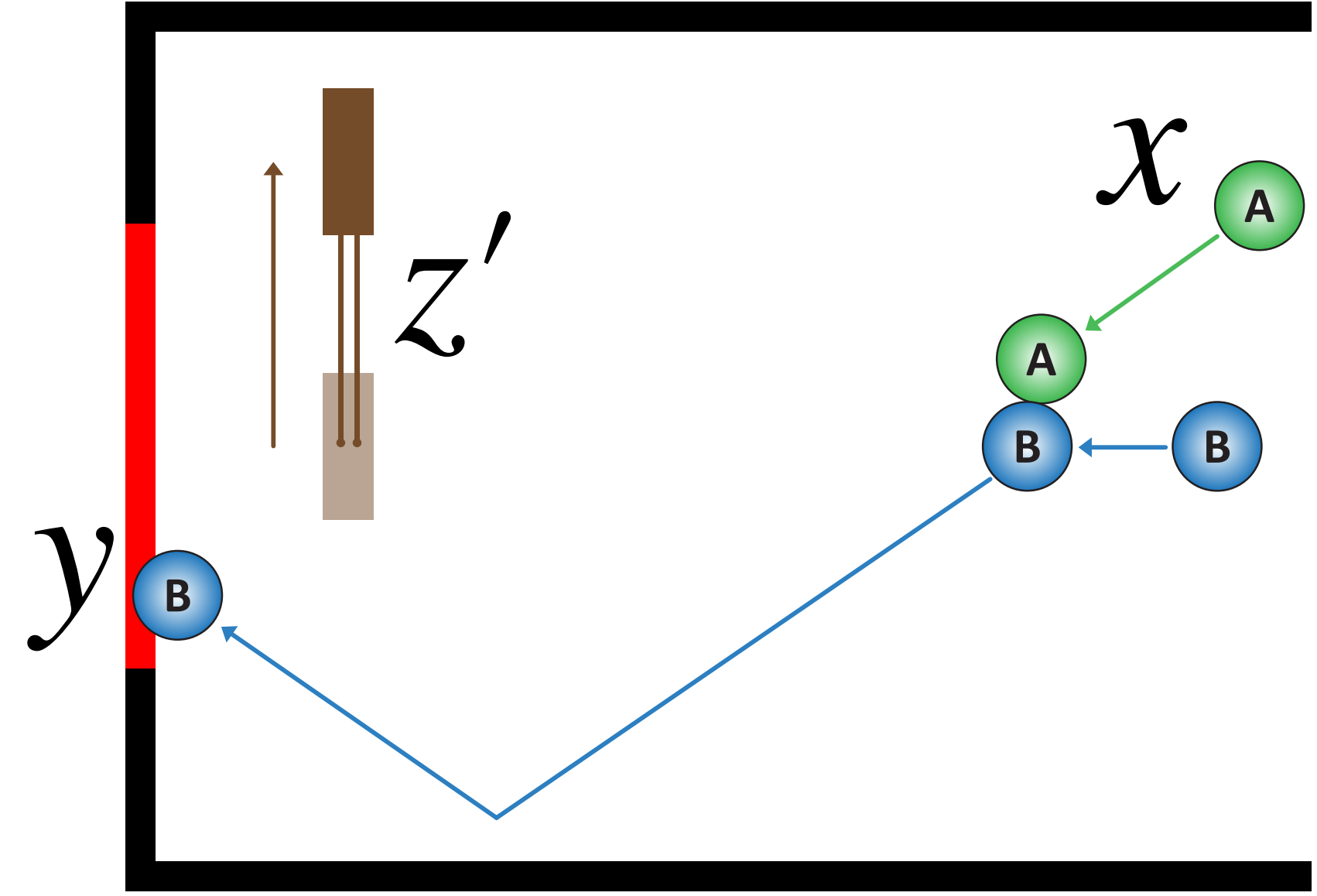
$$Y = X$$



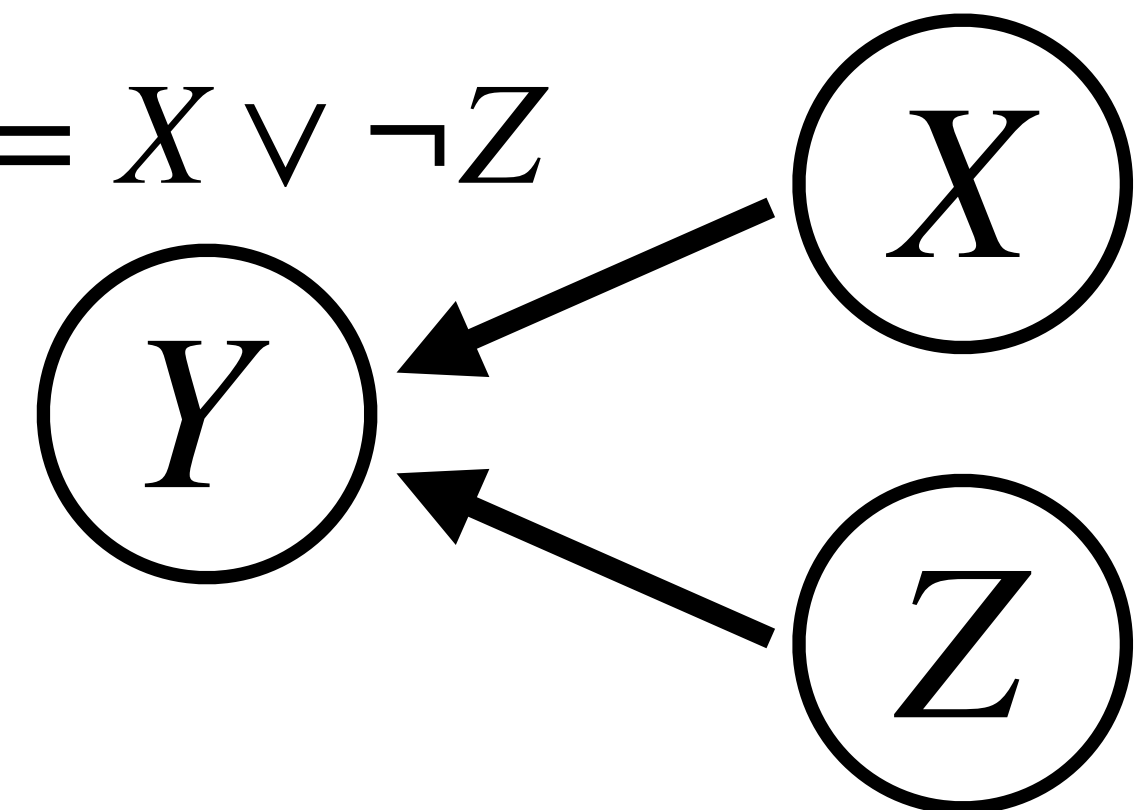
Hypothetical = Counterfactual

$$p(y \mid \mathbf{do}(x')) = p(y_{x'} \mid x, y)$$

B Two-cause scenario



$$Y = X \vee \neg Z$$



Hypothetical \neq Counterfactual

$$p(y \mid \mathbf{do}(x')) \neq p(y_{x'} \mid x, y)$$