

# Synthesis

$$\hat{E}[Y | S, A] \stackrel{?}{=} \hat{E}[Y | S, \text{do}(A)]$$

**No Control**  $A \in \emptyset$

Equal in the special case that you have no actions you can take.

**Not true if:** we have any variables in the model that we will change.

**No Confounding**  $A \perp S$

(Roughly) equal in the special case that  $A$  is independent of  $S$ .

**Not true if:** we use  $S$  to select  $A$ . We'll need to correct for this selection using  $P(A | S)$ .