Practice with sufficient adjustment sets
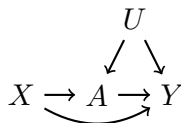
DAG 1

$$X \rightarrow A \rightarrow Y$$
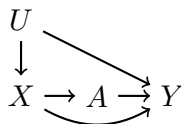
- write down all backdoor paths between A and Y
  - recall a backdoor path has the form
    $A \leftarrow$ possibly other nodes and edges $\rightarrow Y$
- suppose we condition on nothing
  - which backdoor paths are unblocked, if any?
  - is the causal effect of A on Y identified?
- suppose we condition on X
  - which backdoor paths are unblocked, if any?
  - is the causal effect of A on Y identified?

DAG 2

$$U$$
$$\swarrow \quad \searrow$$
$$X \to A \to Y$$

▶ write down all backdoor paths between A and Y
  ▶ recall a backdoor path has the form
    $A \leftarrow$ possibly other nodes and edges $\to Y$

▶ suppose we condition on nothing
  ▶ which backdoor paths are unblocked, if any?
  ▶ is the causal effect of A on Y identified?

▶ suppose we condition on X
  ▶ which backdoor paths are unblocked, if any?
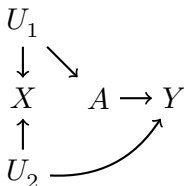 ▶ is the causal effect of A on Y identified?

DAG 3

$$U$$
$$\downarrow$$
$$X \rightarrow A \rightarrow Y$$

▶ write down all backdoor paths between A and Y
  ▶ recall a backdoor path has the form
    $A \leftarrow$ possibly other nodes and edges $\rightarrow Y$
▶ suppose we condition on nothing
  ▶ which backdoor paths are unblocked, if any?
  ▶ is the causal effect of A on Y identified?
▶ suppose we condition on X
  ▶ which backdoor paths are unblocked, if any?
  ▶ is the causal effect of A on Y identified?

DAG 4

▶ write down all backdoor paths between A and Y
  ▶ recall a backdoor path has the form
    $A \leftarrow$ possibly other nodes and edges $\rightarrow Y$
▶ suppose we condition on nothing
  ▶ which backdoor paths are unblocked, if any?
  ▶ is the causal effect of A on Y identified?
▶ suppose we condition on X
  ▶ which backdoor paths are unblocked, if any?
  ▶ is the causal effect of A on Y identified?