

Practice Question 1

Causal Inference

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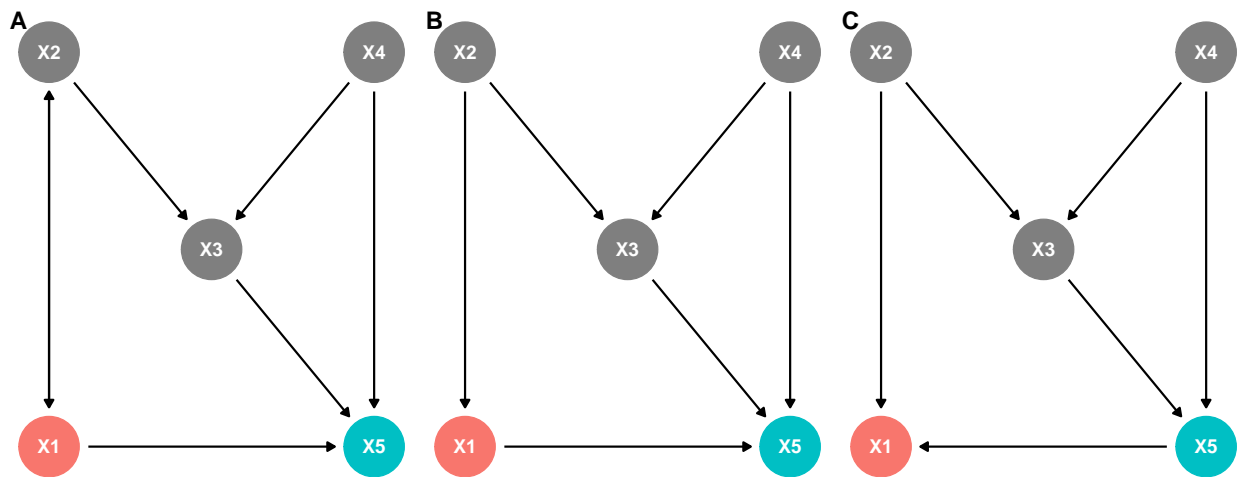


Figure 1: Directed Acyclic Graph (Exposure X1, Outcome X5)

A. Directed Acyclic Graph

We are interested in the causal relationship between x1 (exposure) and x5 (outcome).

In figure 1, which diagram represents a directed acyclic graph?

- A) A
- B) B
- C) C

B. Continued

Why are the other options not DAG?

C. Causal Paths

What is the number of path(s) in the DAG of figure 1?

- A) 0
- B) 1
- C) 2

- D) 3
- E) 4

D. Closed Paths

How many of those path(s) are closed?

- A) 0
- B) 1
- C) 2
- D) 3
- E) 4

E. Valid Adjustment Sets

Which set(s) adhere to the back-door criterion? (Multiple options are possible)

- A) \emptyset
- B) $\{X_2\}$
- C) $\{X_3\}$
- D) $\{X_4\}$
- E) $\{X_2, X_3\}$
- F) $\{X_2, X_4\}$
- G) $\{X_3, X_4\}$
- H) $\{X_2, X_3, X_4\}$