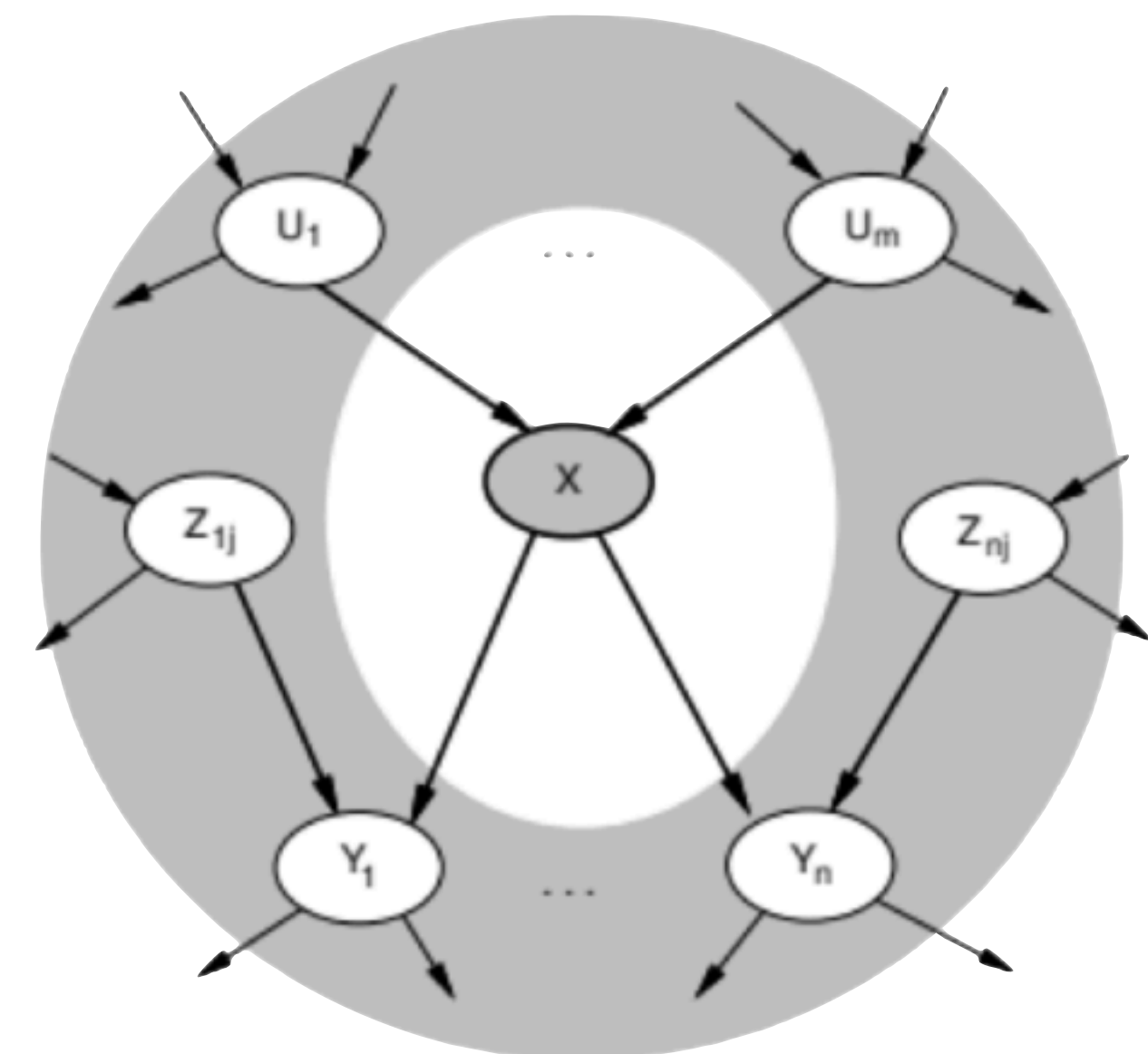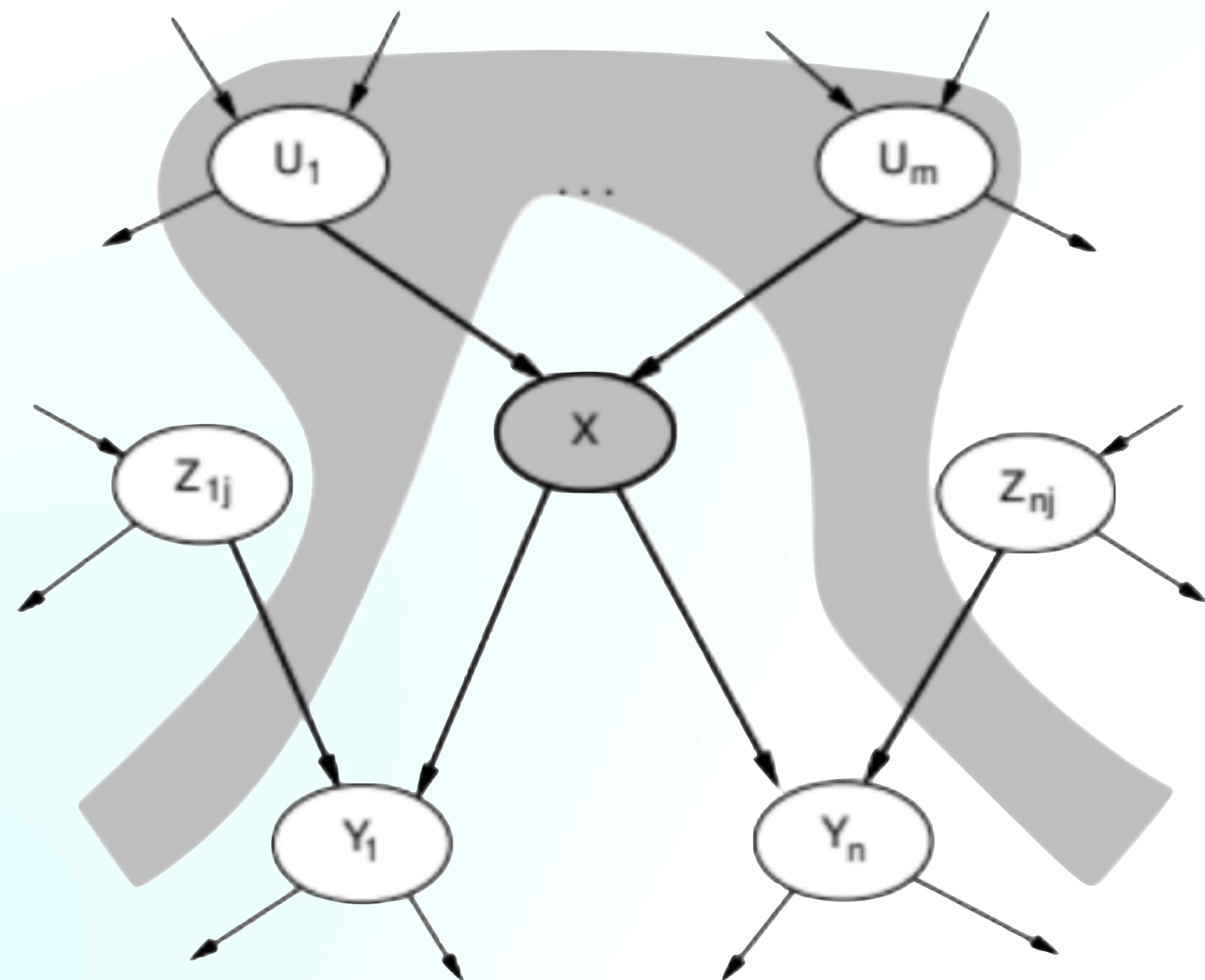# Independence (local topological semantics)

- Notations: $A \perp B \mid C$ OR $I(A; B \mid C)$: $\Pr(A, B \mid C) = \Pr(A \mid C) \times \Pr(B \mid C)$

- Local semantics: $A \perp \{\text{non-descendant}(A)\} \mid \text{parents}(A)$

- Markov blanket: $A \perp \text{not MB}(A) \mid \text{MB}(A)$ MB: parent, children, child's parents

Inference

- $A \to C \leftarrow B : \Pr(A = 0) = 0.4, \Pr(B = 0) = 0.5$

- $\Pr(A, B \mid C)$?

- $\Pr(A \mid C), \Pr(B \mid C)$?

A	B	Pr(C | A, B)
0	0	0.3
0	1	0.25
1	0	0.35
1	1	0.1