

Independencies Revisited

测验, 3 个问题

✓ 恭喜！您通过了！

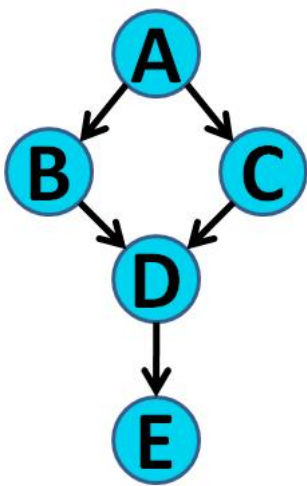
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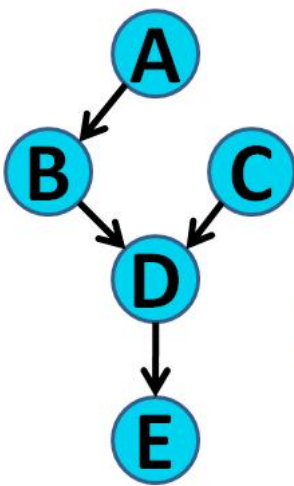
1 / 1
分数

1.

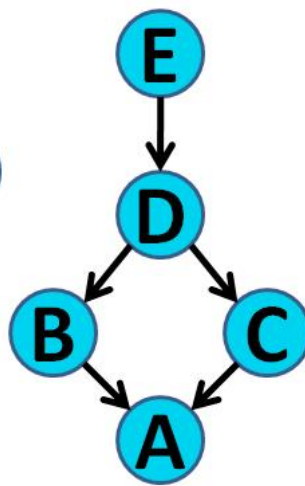
I-Maps. Graph G (shown below) is a perfect I-map for distribution P , i.e. $\mathcal{I}(G) = \mathcal{I}(P)$. Which of the other graphs is an I-map (not necessarily a perfect map) for P ?



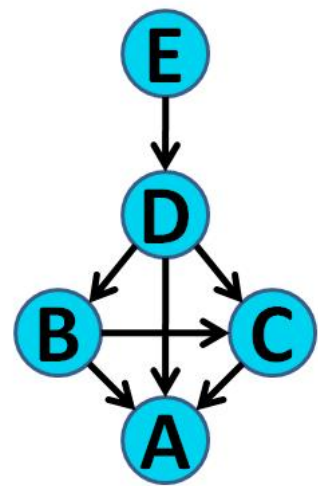
G



I



II



III

☒ III



正确

I isn't because it has the extra independence $(A \perp C)$.

II has the extra independence relation $(B \perp C \mid D)$ (among others).

III has no extra independencies. In fact, it has fewer independencies, but the definition of I-map allows for this.

☐ None of the above

☐ II

☐ I and III

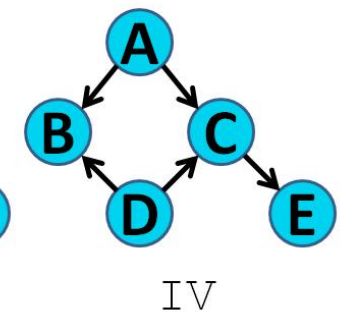
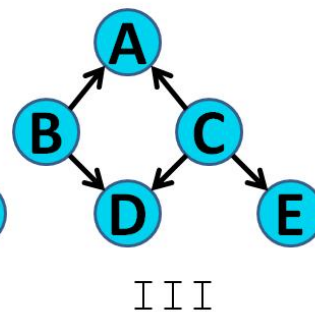
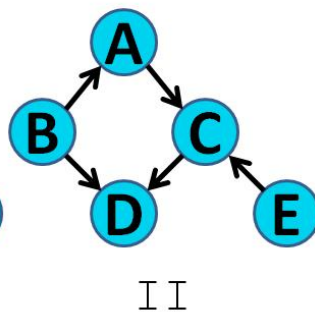
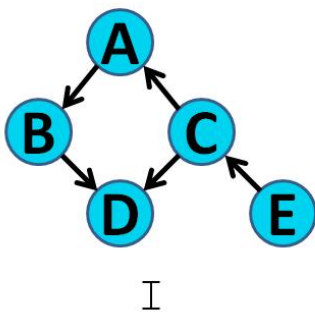
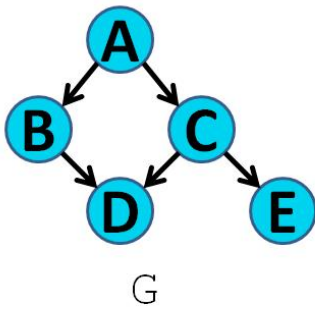
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1 / 1
分数

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2.

I-Equivalence. In the figure below, graph G is I-equivalent to which other graph(s)?



☒ I

正确

II, III, and IV all have extra independencies.

☐ II

☐ IV

☐ None of the above

1 / 1
分数

3.

***I-Equivalence.** Let Bayesian network G be a simple directed chain $X_1 \rightarrow X_2 \rightarrow \dots \rightarrow X_n$ for some number n . How many Bayesian networks are I-equivalent to G including G itself?

☒ n

正确

The chain $X_1 \leftarrow \dots \leftarrow X_i \rightarrow \dots \rightarrow X_n$ is I-equivalent, where i can be 2 through n (when $i = n$, all arrows point left). Thus, there are $n - 1$ I-equivalent networks like this. Including the original network makes n .

☐ $2n - 1$

0

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