

Philosophy 12: Introduction to Causal Reasoning

Problems with causal discovery answer key

1. Answer: C
2. Answer: A
3. Answer: B
4. Answer: D
5. Answer: B One causal assignment results in malaria. How many people have that assignment according to the information you have been given?
6. Answer: A and C Remember that from a response structure, we can determine whether any of the causal factors should have direct arrows to the effect. Recall also that when there is a direct arrow from one variable to another, those two variables will be associated. The reason B is not correct is that having the gene for sickle cell *decreases* the chances of getting malaria, thus there is a negative association, not a positive association.
7. Answer: D HAPPINESS is associated with INCOME because they have a common cause.
8. Answer: C According to the graph, EDUCATION is associated with INCOME. This means that at least one value of EDUCATION is associated with a value of INCOME. But EDUCATION and INCOME are both binary variables, so if any value of EDUCATION is associated with any value of INCOME, then *all* of the values of EDUCATION are associated with all of the values of INCOME. If it were the case that $\text{Fr}(\text{EDUCATION} = \text{High School}) = \text{Fr}(\text{EDUCATION} = \text{High School} \mid \text{INCOME} = \text{High})$, then EDUCATION = High School would be independent of INCOME = High, and this cannot be the case.
9. Answer: D Causal connection of any type produces association. In all of the other graphs, X and Y are causally connected, and thus this graph cannot be eliminated from the evidence at your disposal.