

## Philosophy 12: Introduction to Causal Reasoning

### Study questions for Lecture 2: “Variable Causation”

1. When we specify a background set of variables, we *must* include:
  - (a) All of the potential causal factors we know about
  - (b) All of the potential causal factors
  - (c) All of the actual causal factors
  - (d) None of the above
2. Assume that you are investigating the causes of increased giving to charity. Which of the following are plausible causal factors?
  - (a) Changes in total personal income
  - (b) Changes in the economy as a whole
  - (c) Gender of the giver
  - (d) Average height of office buildings in New York City
  - (e) Average height of Americans
  - (f) Amount of advertising done by charities
3. Assume you have the following set of three variables with values: INCOME [High, Medium, Low]; EDUCATION [High School, College, Graduate School]; and HAPPINESS [High, Low]. How many causal assignments are there for the effect HAPPINESS relative to this variable set?
  - (a) 6
  - (b) 3
  - (c) 9
  - (d) 10

Questions 4 through 6 reference the example in the lecture notes regarding the fruit fly named “Jeff.” Before trying these questions, make sure that you reread that example.

4. Is it likely that the insecticide is the sole causal factor for Jeff’s death?
  - (a) Yes
  - (b) No
5. Should the pesticide company be satisfied with simply knowing whether the insecticide is one member of a set of conditions that are jointly sufficient to bring about Jeff’s death? (This is a tricky question, so think carefully about what it means to be a member of a jointly sufficient set of conditions.)
  - (a) Yes
  - (b) No
6. Should the company be interested in knowing whether the insecticide is a necessary member of a set of causal factors that are jointly sufficient to bring about Jeff’s death?
  - (a) Yes
  - (b) No
7. Based on your general knowledge about the world, is it likely that the population consisting of all 1993 Ford Escorts exhibit response structure uniformity with respect to whether their gas tanks explode in rear-end collisions (because of a structural defect)?
  - (a) Yes
  - (b) No

8. Is it likely that the population of all 1993 Ford Escorts exhibit response structure uniformity with respect to exposure to the sun causing their upholstery to crack?
- (a) Yes
  - (b) No