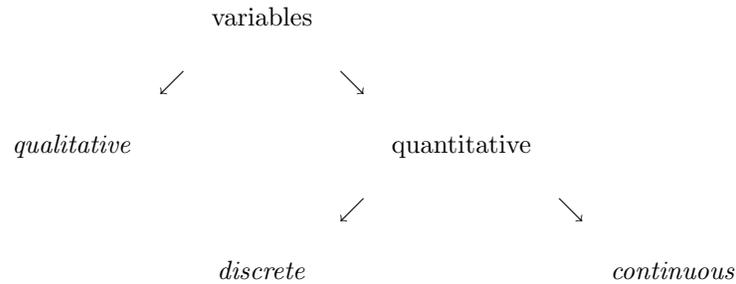


Friday September 6, 2002

1. (2 pts.) What is a variable?

*Any property or quantity that is an attribute of persons, things or events that we can measure repeatedly or for different individuals or on different occasions. Examples: temperature (varies with time and place), height (varies from person to person), sex (varies from person to person) and so on. Every variable has a reference class, which consists of those things where we can measure it (or have decided to measure it).*

2. (2 pts.) Fill in the following chart showing the kinds of variable:



3. (3 pts.) *A psychologist seeks to determine if lack of sleep slows thinking. She conducts tests on two groups of subjects. One group sleeps 8 hours the night before the test, the other group sleeps 4 hours. Otherwise, the groups are similar. The test consists of a puzzle, and the psychologist times how long it takes different subjects to solve it. What variables are important in this experiment? How are they measured? Be as specific as possible.*

*The most important variables are amount of sleep, which can have the value either 4 hours or 8 hours and the amount of time required to solve the puzzle, which is a continuous quantitative variable measured in units of time (possibly by a stopwatch). The reference class consists of the people who participated in the experiment; the experimenter records the values of both variables for each subject. There are other variables that might be considered, but the question says that the groups are essentially the same, so other variables are not relevant.*

4. (3 pts.) In a certain town, police need to fill out incident reports. The incident report includes a check list as follows:

**Part I:** Check all that apply.

- There were injuries to persons.
- There was damage to property.
- There was evidence of a crime.

Viewing “response on Part I” as a variable, what are the possible values?

*There are either 7 or 8 possible values, depending upon whether you interpret the question to imply that at least one circle must be checked. (You might think that the police will not fill out the report if no circles on Part I need to be checked.) If you assume that the report can be filed with no checks in Part I, the possible responses are: 1) no injuries, property damage or evidence of crime, 2) injuries only, 3) property damage only, 4) evidence of crime only, 5) injuries and property damage, 6) injuries and evidence of crime, 7) property damage and evidence of crime, 8) injuries, property damage and evidence of crime.*

Source: The text of this quiz is original. —JJM