SPECIFYING RELATIONSHIPS: ANSWERS AND DISCUSSION

Note. Some students regressed and did not identify and name variables in an appropriate fashion (i.e., they forget the lessons of Problem Set #3A), which often meant that their answers could not be evaluated since pos/neg depends on the names). Also some students were insufficiently explicit in specifying the independent vs. dependent variable.

INDEPENDENT VARIABLE ➔ DEPENDENT VARIABLE

** word or phrase (if any) that indicates direction of causality, i.e., which (independent) variable influences the other (dependent) variable, and may also indicate direction of association, e.g., positive or negative. Remember: the positive vs. negative distinction does not apply (NA) if the two variables do not have “matching values.”

1. AMOUNT OF SENIORITY ➔ DEGREE OF PRAGMATISM
   ** not explicit, and one could argue the reverse

2. AMOUNT OF EDUCATION ➔ LEVEL OF RELIGIOSITY
   ** “undermines” (negative causal effect)

3. CAPITAL PUNISHMENT? (Y/N) ➔ MURDER RATE
   or
   REL. FREQUENCY OF CAPITAL PUNISHMENT ➔ MURDER RATE
   ** “deters” (negative causal effect)

4. COMPETITIVENESS ➔ RESPONSIVENESS OF MEMBER
   ** “makes” (positive causal effect)

5. LEVEL OF PRESIDENT'S APPROVAL RATING ➔ LEVEL OF PRESIDENT'S REELECTION VOTE
   ** “boosts” (positive causal effect)

6. AMOUNT OF STUDYING ➔ LEVEL OF GPA
   ** “makes for” (positive causal effect)
7. Closeness of Election \( + \) > Level of Turnout
   or
   Margin of Victory \( - \) > Level of Turnout
   ** “stimulates” (“closeness” has positive causal effect; “margin of victory” is the reverse of “closeness”)**

8. Level of Badness \( - \) > Re-election Rate of Incumbent Candidates of Economic Times
   ** “punished” (negative causal effect)**

9. Goodness of Sleep Habits \( + \) > Level of Success
   ** “makes” (positive causal effect)**

10. Eat Apple a Day? (Y/N) \( - \) > Number of Doctor Visits
    or
    Goodness of Diet \( + \) > Level of Health
    ** “keeps away” (negative causal effect; “number of doctor visits” is a negative indicator of “level of health”)**

11. Amount of Education \( + \) > Level of Success
    ** “if, then” (positive causal effect)**

12. Ideology of Government \( \text{NA} \) > Rate of Inflation
    or
    Degree of Leftism \( + \) > Rate of Inflation
    or
    Degree of Conservatism \( - \) > Rate of Inflation
    ** “bring about” (Ideology is not LO / HI)**

13. Level of Political Interest \( + \) > Vote? (Y/N)
    ** implicit and plausible positive causal effect**
14. DIRECTION OF IDEOLOGY    __NA__ > VOTE CHOICE
    __or__
DEGREE OF LIBERALISM   __+__ > DEGREE OF DEM VOTING
    __or__
DEGREE OF LIBERALISM   __-__ > DEGREE OF REP VOTING
    __or__
DEGREE OF CONSERVATISM __+__ > DEGREE OF DEM VOTING
    __or__
DEGREE OF CONSERVATISM __-__ > DEGREE OF REP VOTING
    ** implicit and plausible

15. LEVEL OF DISSATISFACTION __+__ > PROPENSITY TO VOTE
WITH ECONOMY AGAINST INCUMBENTS
    ** “leads to” (positive causal effect)

16. TYPE OF ELECTORAL SYSTEM (Maj., Prop.) __NA__ > TYPE OF PARTY SYSTEM
    (two-party, multi-party)
    __or__
DEGREE OF PROPORTIONALITY __+__ > NUMBER OF POLITICAL PARTIES
    ** “results in,” “produces” (nominal variables)

17. TIME/YEAR    __-__ > STRENGTH OF PARTY ID
    ** "weakened" — cause and effect not explicit, but presumably nothing can affect the passage of time

18. LEGISLATIVE SIZE    __-__ > LEGISLATIVE EFFECTIVENESS
    ** “reduces” (negative causal effect)

19. IMPOSITION OF TERM LIMITS (Y/N) __-__ > LEGISLATIVE EFFECTIVENESS
    ** “reduces” (negative causal effect)

20. SAMPLE SIZE    __-__ > MARGIN OF SAMPLING ERROR
    ** margin of error is a consequences of sample size, not *vice versa*
21. FATHER’S HEIGHT       +       >       SON’S HEIGHT

**“produce” [through genetic inheritance] (positive causal effect)**

*Note 1.* Ordinarily, if the direction of association is to be characterized as positive or negative, *both* variables must be named in such a way that a range of values from LO to HI is suggested. (In any case, the values of the two variable must be comparable or “matching” or “in the same currency.”) If a dichotomous variable has “yes / no” values, “no” is usually considered LO and “yes” HI; e.g. #3, 10, and 13.

*Note 2.* Remember that a positive or negative sign will change if you change the “polarity” of one variable, e.g., different versions of #12 & 14.

*Note 3.* Some people said (or implied) that, if the two variables did not have “matching values,” there was no relationship or association between the two variables. This is a misstatement: there may be a very substantial association between such variables — the point is that the *direction of this association* cannot be summarized in *positive vs. negative terms* but must rather be explicitly specified (as in #14, there is a strong association between IDEOLOGY and VOTING CHOICE — namely, liberals vote mostly Democratic and conservatives mostly Republican).