

I. Mitchell Norc is a naturalist who's interested in animal behavior in the wild. Mitchell has heard someone suggest that muskrats tend to walk single file. So, he is going to check it out for himself by sampling. (Note: He shouldn't sample single muskrats, however. He should sample muskrats walking in a group of muskrats.) Other than the randomness problem, why shouldn't Mitchell agree with Dr. Coors who says not to bother with the study because he already has a refutation of the main hypothesis. Coors has 'solid' evidence that the 4 muskrats who live on his sister's farm don't walk single file. His evidence is her videotape which shows them walking in no particular order. Norc agrees that Coor's videotape is a documentary that isn't doctored.

II. Here's a report about a statistical study by 2 psychologists:

Brian Cutler, a psychologist at Florida International University, and Steven Penrod, a psychologist at the University of Wisconsin, showed 175 men and women a 100-second videotape depicting a staged robbery from a liquor store. Each person was then asked to identify the robber from a videotaped police lineup.

Some people saw the suspects in the usual 6-person lineup, while others saw the suspects one at a time.

Of those who saw the standard lineup, 39% identified an innocent person as the criminal. But for those who saw the suspects one-by-one, the rate of mistaken identifications was 19%.

Suppose this experiment had been repeated successfully by independent researchers, and that the tested individuals were randomly assigned to viewing the suspects serially versus all at once. Would it then be reasonable to draw the following conclusion? Why or why not?

False identifications in police lineups would be reduced by almost 50% if witnesses viewed the possible suspects one at a time instead of all at once.

III. Which is the strongest and which is the weakest argument from the following?

a. 20% of a random sample of our university's students want library fines to be lower; so 20% of our university's students want library fine to be lower.

b. 20% of a sample of our university's students want library fines to be lower; so, 20% of our university's students want library fines to be lower.

c. 20% of a random sample of our university's students want library fines to be lower; so, about 20% of our university's students want library fines to be lower.

d. 20% of a sample of our university's students want library fines to be lower; so, about 20% of our university's students want library fines to be lower.

IV. For the following statistical report, (a) identify the sample, (b) identify the target, (c) discuss the quality of the sampling method, and (d) find other problems either with the study or with your knowledge of the study. [there are no typos in this one]

Voluntary tests of 25,000 drivers throughout the U.S. showed that 25% of them use some drug and that 85% use no drugs at all while driving. The conclusion was that 25% of U.S. drivers do use drugs. A remarkable conclusion. The tests were taken at random times of the day at randomly selected freeway restaurants.

V. Here's an argument from the past to the future:

The Kings have played the Lakers in basketball 3 times this year, and each time the difference in their 2 scores has been under 6 points. So, their next game against each other should have a point spread of under 6 points.

The past performance of the Kings is analogous to their future performance. Below, various modifications of that argument are suggested or additional information is supplied. In each case, determine whether the alteration **A: produces a stronger or weaker argument, or has no effect on its strength, and B: explain why.** (All the modifications are to be considered separately. That is, modification b is in place of a, not in addition to a.) (Also, remember, "weaken" doesn't mean disprove, nor does "strengthen" mean prove.)

- a. Change "3 times" to "13 times."
- b. Change the conclusion to "their next game should have a difference in points of exactly 6 points."
- c. The Lakers lost to the Pistons yesterday but beat the Knicks last week.
- d. Although there is a home court advantage, the 3 games were alternated between the 2 teams' home courts.
- e. For the last 3 games against the Lakers, a starting player for the Kings has been Miller, but he was hurt in a skiing accident today and won't be starting against the Lakers.
- f. The Lakers have played the Kings only once.
- g. In all previous games between the 2, the announcer of the game from the local TV station has drunk a beer during the game, but next time he won't drink.
- h. In 2 of the 3 previous games between the Kings and the Lakers, the difference in their 2 scores was under 6 points, but in one it was over 6.
- i. In all previous games between the two, the Kings' starting center was high on cocaine, but next time the center won't be.
- j. During the past 3 games you've bet on the results and won, but this time you're not going to bet.

VI. Each of the following have something wrong with them--identify the fallacy committed.

- a. Doctors are all alike. They really don't know any more than you or I do. This is the third case of faulty diagnosis I've heard of in the last month
- b. 72% of those interviewed at a luncheon sponsored by the Chico Chamber of Commerce favored local tax incentives to attract new businesses, so the Chamber announces that most Chicoans favor such tax incentives.
- c. How can you tell your children not to take money from others when the government they live under does it all the time?
- d. Why should we sentimentalize over a few hundred thousand native Americans who were ruined when our great civilization was being built? It may be that they suffered injustices, but, after all, you can't make an omelet without breaking a few eggs.
- e. I'm convinced that Vitamin C really works. Every member of my family used to have at least one good winter cold every year. Last fall each of us started taking 1,000 mg. of Vitamin C a day and there hasn't been even a sniffle at our house in over 9 months.
- f. "We had a mock election on campus today, and the Democratic candidate won. So I'm pretty confident that she'll win the election in November, especially as over 8,000 students voted. That seems to be a big enough sample. Don't you agree?"
- g. It's been concluded from a recent study involving over 100,000 people in Florida that 43% of the American people now spend at least 2 hours a day in some form of recreational activity.