



Quiz

Critical Thinking (Concordia University)

Question 1:

What is the main problem with the sample argument below? Explain.

(10 Points)

Liberals believe that the government should pay for anything that anyone could want. They believe that hard working people should pay a devastatingly high tax rate to pay for all of this. In short, liberals believe there should be no reward for hard work.

This passage says that if liberal want the gov. to pay anything that anyone wants then hardworking people should pay high taxes.

This false dichotomy since we only think that the solution for the gov. to pay for anything is to rise the tax for hardworking people.

Total 47 words.

Grade: 7 / 10

Comments: The problem here is a straw man - liberals do not make these claims.

Question 2:

The very democratic leaning MSNBC used to have a show called “The ED Show” that would feature polls of its viewers on a variety of questions. A typical poll result might read “94% of respondents thought voter suppression, and not fear of voter fraud, is behind the republican push for voter ID laws.”

(10 Points)

What is the main problem with such polls?

The sample is biased since the voter are probably democratic. So answering the question about the republican is not fair to the result of the poll.

Total 26 words.

Grade: 10 / 10

Comments
: Good.

Question 3:

The Brockville police chief announced today that the rate of violent crime in the city has grown from 14.1 (violent crimes per 1000 people) in 2008 to 14.4 in 2009. The violent crime rate was only 13.8 in 2007. The chief warns that unless we take a tougher stance on crime, in twenty years the rate of violent crime could be higher than the rate of 19.2 that Detroit has now.

(10 Points)

What does this passage illustrate?

This is a case of conditional probability.

The police chief is just comparing the percentage number of the rate of violence from 2 different states. From all we know the number of people in Detroit might be smaller than the one of Brockville.

Also it is linear projection to assume that because the rate was a certain percentage that in 20 years it will increase to 19.2.

Total 67 words.

Grade: 9 / 10

Comments: Conditional probability does not play a role here - it is linear projection.

Question 4:

(10 Points)

If you flip a fair coin three times what is the probability of getting heads all three times? (You can give your answer as a fraction.) If you get heads the first three times what are the chances that you will get heads on the next two throws? What might lead someone to misjudge this?

Explain.

$1/2 = \text{Head}$
 $1/2 = \text{Tail}$

$\text{Head} * \text{Head} * \text{Head} = 0.125$
 $\text{Head} * \text{Head} = 0.25$

People might think that we would could just add up the 2 cases that were mentioned just mentioned above which would be wrong.

Total 35 words.

Grade: 10 / 10

Comments
: Good.

Question 5:

(10 Points)

If a poll has a 2% margin of error 19 times out of 20, and the poll puts politician A ahead of politician B by five percentage points, can say with 95% confidence that A is more popular than B in the target population? What if the difference is only 1.5%?

Explain.

In the first case the politician A will be ahead of 2% of the 5 percent. Therefore he will always be ahead

In the second case the politician will only be 1.5% difference, which might be 1.5% ahead or 1.5% behind.

Total 41 words.

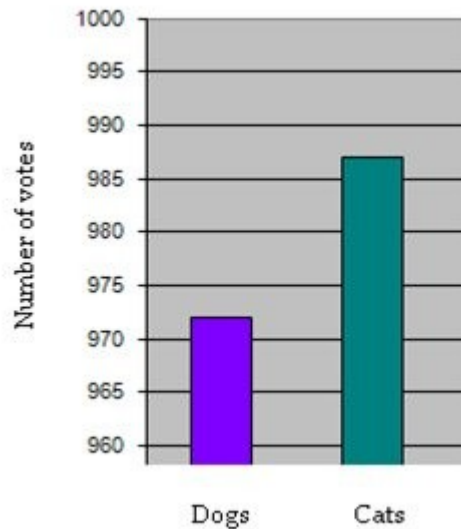
Grade: 8 / 10

Comments: This seems correct, but the explanation is rather spare.

Question 6:

Suppose you come across this in the paper, what would you think of the piece?

(10 Points)



Survey shows cats are more popular than dogs. A recent survey of almost 2000 people found that cats are a more popular than dogs. The survey asked “which do you prefer cats or dogs?” Cats won out in the end. Perhaps dogs are no longer “man’s best friend”.

We do not know how the sample of the survey was performed. From all we know the surveyed people might of all own cats. For my taste, the sample is way to small with the idea in mind that a lot of people have cat and dogs as pet in the world.

Total 52 words.

Grade: 6 / 10

Comments : The problem with the graph is that it implies a much larger difference in the numbers than is really the case. The bar for dogs

seems to be half the size of the bar for cats, but the difference is actually only 15 out of almost 2000.

Question 7:

The store was doing really well until Jack started working there. You wouldn't notice anything watching him work, but he must be doing something wrong since sales have been steadily declining since he has been here.

(10 Points)

What fallacy is involved in the above passage? Explain.

This Post hoc ergo propter hoc. Before the was doing well when Jack wasn't here, therefore Jack is the reason the store is not doing well.

Total 26 words.

Grade: 10 / 10

Comments
: Good.

Question 8:

If 30% of the women in Professor Smith's course get an A, and 20% of the men in Professor Smith's course get an A, does this mean that 25% of her students got an A?

(10 Points)

Explain your answer.

The number of women and the number of men might not be a 100 women and a 100 men. So we can not combine these 2 percentage together even though when said out loud it sound logical. The calculation would have to be done differently if the number to know how much people got an A in Professor Smith's class.

Total 60 words.

Grade: 10 / 10

Comments
: Good.

Question 9:

Per capita GDP is a measure of the mean income for a country. Why might this not tell you what the income of the typical citizen is?

(10 Points)

The mean is pretty much the average. The average can be misleading sometimes. This phrase does not tell us how far the people are from the mean (the standard deviation). For all we know half the people can be very poor and the half very rich which would make an

accurate average.

It does not reflect the majority of the population.

Total 61 words.

Grade: 10 / 10

Comments
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Good.

Question 10:

What goes wrong in the following passage? Explain.

(10 Points)

Everyone admits that there are laws of nature. Now you cannot have a law unless someone writes the law. Only God could have written the laws of nature. So there must be a God.

What is wrong with this passage is that it falls in the category of evidential fallacy. It assumes that "Everyone admits that there are laws of nature". The "everyone" that believes in this can all be wrong.

All the premises are just assumptions that helps support the conclusion. This is evidential fallacies.

It is also genetic fallacies since we go back to the origin of the argument.

Total 67 words.

Grade: 7 / 10

Comments
:
This is a case of equivocation, as the meaning of the word "law" changes from sentence to sentence.

The problem with a genetic fallacy is not the origin of the argument but the origin or basic quality of an element of the argument. For example, we might assume that a newer phone is better than an older phone simply because it is newer, without actually comparing features.