

NAME: _____

Philosophy 1104: Critical Thinking

Solutions to the Other Practice Quiz #5

TIME: 60 minutes

1. The following passages each argue for some policy on the basis of its costs and benefits. Identify any problems or weaknesses with the analysis given, or questions you have about it.

- (i) People who do skydiving are obviously crazy. I mean, what's the benefit? Just a few minutes of exhilaration. Compare that to the potential cost, where your parachute fails somehow and you end up as flat as a pancake! It happens to about 50 people every year. Is it really worth dying just to get a few minutes of pleasure?

The speaker needs to calculate the *expected* (or average) cost of skydiving, not its maximum possible cost, and compare that to the expected benefit. [2 marks]

[N.B. In USA there's about 1 death per 100,000 jumps. Say 40 years lost per death. So each jump costs about 3.5 life-hours. Is it worth it? C.f. Attempting to climb Everest has a death rate of 10%, for a cost of about 3.5 life years.]

- (ii) Cyclists ought to be regulated, just like motorists. It's really a no-brainer. By making cyclists take a road test, and get a licence, we won't have these idiots riding on the wrong side of the road, running red lights, and so on. They'll know that if they do that then they'll lose their cyclist's licence and their licence plate with it! Lives will be saved.

This is a benefit-benefit analysis. ("Cheerleading") There is no calculation of the costs of such regulation. [2 marks]

- (iii) Local residents are opposed to building the new airport in south Greenwich, citing concerns about noise. A thorough cost-benefit analysis clearly shows, however, that the economic benefits of the airport far outweigh the economic costs. Proximity to an airport is very convenient, and property values will rise rather than fall. The airport will provide jobs for local people as well as tax revenue, to be spent on local amenities.

I wonder if non-economic costs, such as the noise mentioned, were included in the analysis? The stress on economic costs and benefits suggests otherwise.
[2 marks]

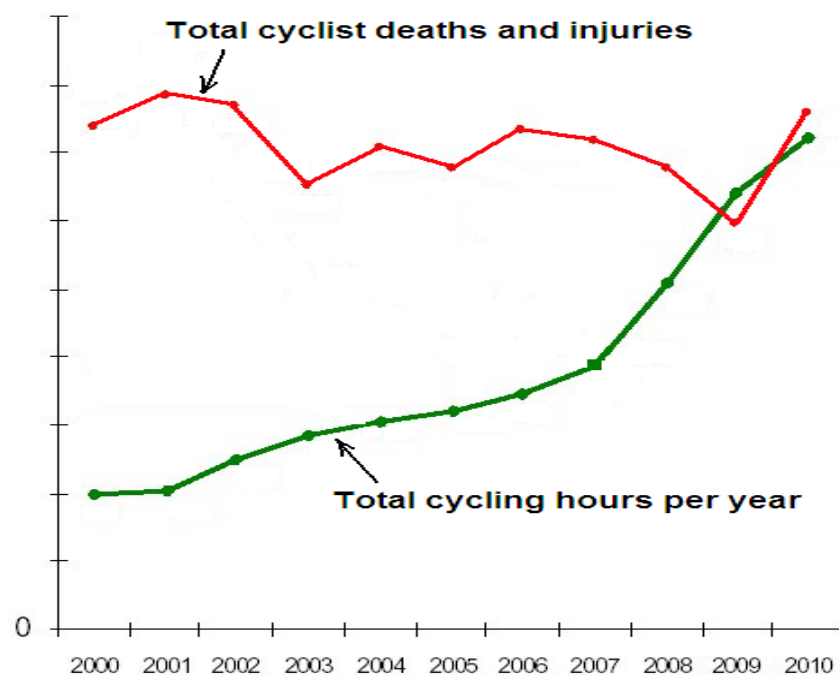
2. The following graph shows the *total* amount of cycling, and also the *total* number of cyclist deaths and injuries, in New York City from 2000 to 2010.

- (i) What relationship does this graph show between the general popularity of cycling and the risk of death and injury per hour of cycling?

The per-hour risk of cycling has decreased a lot, by about 70%. [2 marks]

- (ii) Using Mill's methods, what seems (superficially at least) to be a reasonable *causal* conclusion to draw from these data? Briefly explain your answer.

Superficially one would use Mill's method of concomitant variations, and conclude that there is "safety in numbers". The more cycling there is, the safer it becomes. (Perhaps because drivers are more aware and of and considerate towards cyclists?) [2 marks]



- (iii) Is there any alternative causal hypothesis that might explain this graph? Suggest any you can think of, and identify any additional variables that you might examine to distinguish between these alternative accounts.

There might be some other factor that changed steadily between 2000-2010. E.g. maybe the use of bike helmets steadily increased? Or drunk driving steadily decreased? These graphs might be included as well. [3 marks]

3. After an office party, a number of people were off sick, with symptoms of food poisoning. Rachel, one of those who feel ok, is trying to find the cause. She asked everyone what they ate at the party, and displayed the information on this table. [N.B. This question is a *modified version* of the one discussed in class.]

	Got Sick?	Spinach dip	Samosas	Cheese plate	Smoked salmon	Veggie plate	Liver nuggets	Sliced lard
Rachel			✓		✓		✓	✓
Chris	✓	✓		✓	✓	✓	✓	
Donna	✓	✓			✓	✓		✓
Janet		✓		✓		✓	✓	
Kenton		✓		✓			✓	✓
Gurpreet	✓	✓	✓	✓		✓	✓	

Using Mill's methods, what can you conclude in this case? Briefly explain your reasoning. (Assume that just one dish was the cause of the illness.)

The method of agreement suggests either the spinach dip or the veggie plate, as these were eaten by all of the sick people. Of these, the method of difference suggests the veggie plate, since Kenton ate the spinach (but not the veggie plate) and didn't get sick. [3 marks]

4. A careful study of smoking at Langara college linked smoking with academic success. The GPA of each student was categorised as 'high' or 'low', and each student was also classes as a smoker or a non-smoker. The results are shown in the table below.

	Smoker	Non-smoker
High GPA	25	160
Low GPA	41	142

- (i) What is meant by the claim that smoking is positively correlated with having a low GPA? Show that such a correlation exists here.

It means that $F(\text{smoker} \mid \text{Low GPA}) > F(\text{smoker} \mid \text{high GPA})$. (In other words, smoking is more common among students with low GPA than high GPA.) Here this is true, since $F(\text{smoker} \mid \text{Low GPA}) = 41/183$, and $F(\text{smoker} \mid \text{high GPA}) = 25/185$. [2 marks]

- (ii) What typical causal patterns are used to explain an observed correlation between two factors A and B?

A caused B, B caused A, or some third factor X caused A and caused B. [2 marks]

- (iii) Write down what you see as the two or three best explanations of the *specific* correlation observed in this case, between smoking and GPA. (Use different causal patterns.)

It could be that smoking makes people stupid. More likely though, maybe the stress of a low GPA causes people to smoke. Or it could be some third factor, like having to work 3 jobs, causes both smoking and low GPA. [3 marks]

5. Evaluate the following arguments from analogy, pointing out the most relevant difference(s).

- (i) What is taught at colleges and universities should depend entirely on what the students want to learn. After all, the student is the customer, and the instructor is the producer, or service provider. No one knows better than the customer what they want to buy. The idea of producers and service providers telling their customers what they should get is ridiculous! Imagine a hairdresser who refuses to give you the hairstyle you ask for!!

One difference is that public colleges and universities are funded mostly by the government, so maybe the government should have some say about the content. [3 marks]

- (ii) Why should miners and factory workers complain about being forced to work 12 hour shifts? Junior doctors (i.e. hospital ‘residents’) are often required to work over 100 hours a week, in shifts of up to 30 hours. Lawyers are also notorious for working 70 hours a week. I thought miners were supposed to be tough!

Two wrongs don’t make a right! (Maybe lawyers and doctors shouldn’t work those hours either?) Also, maybe mining + factory work are more dangerous, when working long shifts? [3 marks]

- (iii) People are suggesting that we turn a section of Main Street into a permanent car-free zone, but this would harm the businesses there. Cars are basically the life blood of any city, transporting people and their vital dollars to the stores that need them. Think about what happens to a limb that loses its blood supply – it *dies*.

One difference is that shoppers, unlike oxygen etc., have other ways to get around, e.g. buses, walking, etc. [3 marks]

6. For each of the following, comment on the use of statistics, pointing out any flaws.

- (i) Professor Smith seems to be the kind of teacher that you either love or hate. I looked him up on ratemyprofessor.com, and hardly anyone thought he was just average. The comments were either praising him to the hills or shooting him down in flames.

It's a self-selected sample. People who take the trouble to go to this website probably have a strong opinion to express, either positive or negative. [3 marks]

- (ii) The recent cafeteria renovations are a huge hit with Langara students. A recent poll asked: "Do you approve of the new Langara cafeteria, with its increased choice, healthy-eating options, and comfortable seating? (Yes/No)", and the response was an outstanding 86% who answered "Yes".

It's a leading question, mentioning all the good things about the renovation. [3 marks]

- (iii) In our study we took an open-minded approach to the causes of the recent rise in diagnoses of childhood autism. We obtained rates of childhood autism from 200 cities in Canada and the United States, and compared these rates with over 400 other factors. The results are startling. Very strong correlations are seen between autism and the use of electric pencil sharpeners, as well as with consumption of black coffee by the child's father.

They looked at so many factors that some accidental correlations are likely to be found. And these ones look rather unconnected to autism, so one would suspect this. [3 marks]

- (iv) I'm very careful with my health. For example, I put these drops on my tongue every day, as studies show that they reduce the chance of tongue cancer by up to 40%.

How likely is tongue cancer to begin with? The absolute reduction in risk might be very small here. [3 marks]

- (v) My mom got all freaked out when I told her I'm going to be swimming with sharks next week during my scuba diving trip. I told her not to worry, as it's actually safer than driving a car. Only 4 people a year get killed by sharks in the US, compared to the thousands that die on the roads!

A lot more people drive cars than swim with sharks. So the individual risk of swimming with sharks may be much higher than driving.

[3 marks]

- (vi) People in Toronto often criticise the winter weather in Vancouver, saying that the constant grey skies and drizzle from October to March must be awful. But actually the weather isn't that bad. A survey of over 3,000 Vancouverites found that most people find the rain soothing, and would prefer it to Toronto's freezing temperatures and heavy snow.

The civic pride of Vancouverites is a source of bias here. *Of course* they will say that Vancouver's weather is better than that of (their rival) Toronto.

[3 marks]

N.B. (from a few years ago, when *X-Files* star David Duchovny dissed Vancouver's weather)

"Vancouver is a very nice place if you like 400 inches of rainfall a day," said Duchovny to host O'Brien.

"It is kind of like a tropical rain forest without the tropics. More like an Ice Age rain forest."

This provoked comments like:

--"Get rid of the ungrateful bum. He is way too wussy for Vancouver. The rain might muss his hair."