NAME: _____

Philosophy 1104: Critical Thinking

Answers to 3rd Practice Quiz #5

[Total: 50 marks]

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) Why some people don't want bike paths in Vancouver is beyond me. For cyclists they're great, of course, as you don't have to deal with cars. For drivers they're great, as you no longer have bikes in your driving lane. And bus riders enjoy buses that are less crowded! Everybody wins!

This is a benefit-benefit analysis (cheerleading). The costs of bike paths, e.g. loss of parking for retail businesses, are not considered. [2 marks]

(ii) Cigarette smoking is actually *good* for society, when you look at the actual numbers. Of course it's true that smokers tend to die young. But, happily for the rest of us, they tend to die quickly, from aggressive cancers, soon after they retire. So we don't have to pay for their pensions, or their health care, for very long. This saves us a lot of money!

Money is not the only issue. This analysis ignores non-economic costs, like children not having the care of grandparents. [2 marks]

(iii) The merry-go-round in that playground is a huge danger, and must be removed. In the past few years there have been numerous injuries to children using it, not just cuts and bruises but broken bones and even one concussion. Let's not wait until a child is permanently maimed on that thing. A kid could even be killed, potentially. What's the worst thing that can happen, if we remove it?

This is worst-case ('maximin') reasoning, and ignores the fact that deaths and serious injuries are highly improbable, as well as the benefits of the merry-go-round. [2 marks]

2. The following graphs show the number of motorcycle deaths in the USA, per 10,000 motorcycles legally registered, from 1960 to 1980. The left graph also shades the time periods during which some states passed laws making motorcycle helmets compulsory (in the late 1960s), and when some of those states later repealed those laws (late 1970s).

The graph on the left shows the *total* deaths, adding all the US states together. The graph on the right separates the states that repealed their helmet laws ("repeal states") from those ("nonrepeal states") that did not.

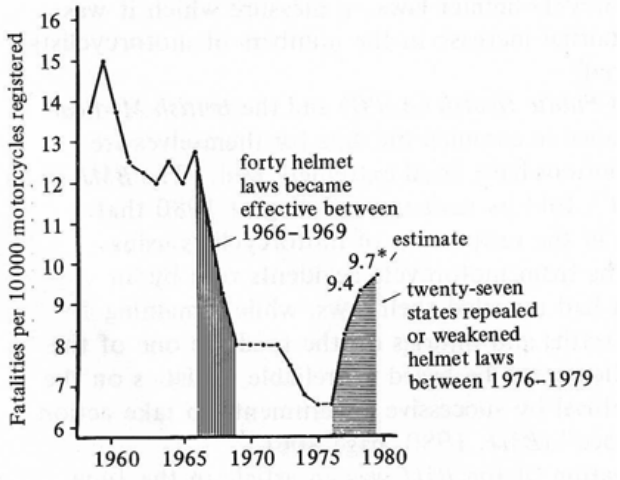
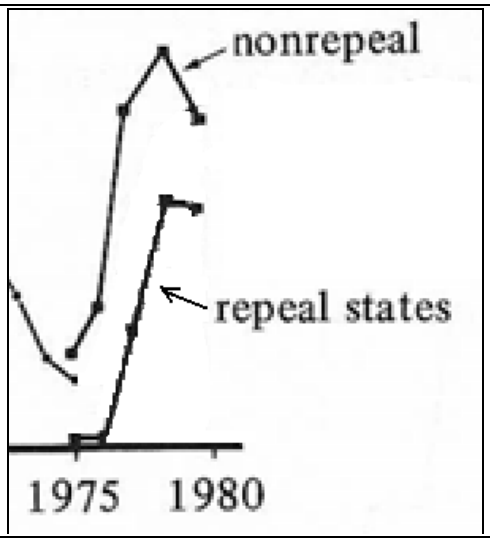


Figure 1. Fatalities per 10000 motorcycles registered



(i) Does the graph on the left show any correlation the risk of death on a motorcycle in the USA, and the presence of helmet laws? If it does, then what type of correlation is it?

Yes, it shows a negative correlation between fatalities and helmet laws. [2 marks]

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

It seems unlikely that (e.g.) a drop in fatalities caused helmet laws to be passed. So most likely the helmet laws caused fatalities to drop, and repealing the laws caused injuries to rise again. [2 marks]

(iii) Now consider the right-hand graph, in addition to the left. Does this additional information affect your conclusion in part (ii)? Explain you answer.

Yes, it somewhat undermines this conclusion. It shows that, while states that repealed helmet laws saw increases in fatalities, states that kept their laws saw similar increases. This suggests that some other factor caused the increase in 1976-1979. [3 marks]

3. Riding a bike in the USA is very dangerous, compared to most other countries, as measured by the fatality rate, as shown in the table below.

	Netherlands	**USA**	**Sweden**	**Germany**	**UK**
% helmet use	almost zero	high	medium	very low	high
% trips by bike	high	very low	medium	medium	very low
fatality rate	very low	high	fairly low	fairly low	medium

Using Mill's methods, what can you conclude from these data, about the *cause* of cycling being dangerous in the US? Briefly explain your reasoning.

Only two factors are shown here. We see that countries with higher helmet use tend to have higher fatality rates, and countries with more cycle use tend to have lower fatality rates. Mill's methods therefore suggest that *either* helmets *or* low cycle use is the problem in the USA. (*Bonus*: Comparison of Sweden and Germany, using Mill's method of difference, suggests that %trips is the cause.) [3 marks]

4. A careful study of spanking of children compared spanking during childhood with criminality as an adult. Each child in the study was categorised as frequently spanked (more than once per week) or not. Years later, when the (former) children reached the age of 30, it was determined whether or not each one had a criminal record. The results are shown in the table below.

	Criminal Record	No Criminal Record
Frequently spanked	25	160
Not Frequently spanked	14	642

(i) What is meant by the claim that frequent spanking is positively correlated with having a criminal record? Show that such a correlation exists here.

It means (e.g.) that (past) frequent spanking is more common among those with criminal records. And it is. 25/39 vs. 160/802. [2 marks]

(ii) What typical causal patterns are used to explain an observed correlation between two factors A and B? (e.g. A causes B, etc.)

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

(iii) Write down what you see as the two or three best explanations of the specific correlation observed in this case. (Use different causal patterns.)

Spanking causes criminality: Perhaps spanked children become angry, bitter, etc.

(Criminality causes spanking? No. The cause cannot happen after the effect.)

It may be that low socio-economic status causes both spanking and criminality. [3 marks]

5. How good are the following arguments from analogy? Point out any flaw in the argument, such as a relevant difference between the cases.

(i) I don't know why some people think cycle helmet laws discourage cycling. Do car seat belt laws discourage driving?

Not too good an analogy, as seat belts don't muss hair, or make people sweaty. And they don't have to be carried around when the vehicle is parked. [3 marks]

(ii) Anti-choice activists say that a pregnant woman has to protect the life of the fetus inside her, since it is a human life, and no one else can protect it. But suppose a musical society abducted you during the night, and connected your blood vessels to those of a famous musician who was very sick, and would otherwise have died. You thus have become his life-support system, and it will be months before the musician can survive independently of you. Even though disconnecting him sooner than that will kill him, it seems clear that you have a perfect right to do so.

The cases seem to match in the required ways, i.e. both involve (temporarily) dependent human beings. But perhaps additional factors are morally relevant, e.g. pregnancy is natural (unlike the connection to the musician) and pregnancy is (somewhat) voluntary in most cases. [3 marks]

(iii) I'm glad that environmental tobacco smoke is now recognised as the health hazard that it is. It's obviously immoral to force people around you to breathe in toxic smoke, without their consent. But the same obviously goes for car exhaust fumes, which kill and sicken thousands of Canadians every year. I don't own a car, so why should I have to breathe in other people's toxic waste? Driving in cities should be banned.

The analogy doesn't look too bad. But driving is a lot more *necessary* than smoking, so perhaps we're just stuck with it for now? [3 marks]

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

(i) Oddly enough, when teaching assistants add up marks incorrectly, they almost always arrive at a number that is *lower* than the true value. I've learned this fact over many years of teaching. In that time, perhaps a hundred students have shown me assignments with incorrect addition, and in every case but one the TA's sum was too low.

Biased sampling method. Students with errors in their favour are less likely ask for the error to be corrected. [3 marks]

(ii) The City of Vancouver claims that its Burrard Bridge cycle lane trial is a success, in terms of increasing the number of cyclists using the bridge. But the numbers I've seen don't bear this out. In June 2009, one month before the trial started, there were 3200 cyclists per day using the bridge. But 6 months into the trial, that number dropped to 1570.

This analysis ignores weather as a causal factor. Six months after June is December, when cycling is less popular. [3 marks]

(iii) Google has been criticised for adding too much advertising to its web services. But its own research shows that the level of advertising is tolerable for most users. Their survey question: "Do you not think that there is too much advertising on Google sites? (yes/no)" obtained a resounding 74% of *yes*, indicating that they do not think there's too much. (N.B. this is a fictional example. Google, as we all know, is not evil!)

The question is confusing, being stated in the negative. 'Yes' might mean "yes, there is too much". [3 marks]

(iv) Don't use sunscreen. The data I've seen for the USA show that in states where people use a lot of sunscreen there are actually *more* cases of skin cancer than in states where sunscreen is rarely used.

Sunscreen is used more in sunnier states. So the correlation between sunscreen use and skin cancer is probably due to the common cause of more sunshine. (I.e. intervention selection bias.) [3 marks]

(v) Don't lecture me about the dangers of rock-climbing, while you're sunbathing. Only about 20 people a year die of rock climbing in the USA, while about 2 *million* new cases of skin cancer are diagnosed, mostly due to sun exposure, and at least 3,000 of these cases will be fatal.

Not many people rock-climb, compared to the number of sunbathers. So the comparison of absolute numbers is misleading. [3 marks]

(vi) Despite gloomy predictions, shoppers in Canada aren't cutting back on spending to any significant degree. A detailed study of over 3,000 households in West Vancouver found that the drop in spending this year was barely 0.5%, a number deemed not statistically significant.

West Van is a wealthy area, and so might have a different experience of the recession from Canadians as a whole. [3 marks]