

CCC8001 Logic and Critical Thinking  
Course Instructor: Dr. Michael Johnson  
Homework #2  
Due Friday 14 March

Your Name: \_\_\_\_\_

Student ID# \_\_\_\_\_

### Instructions

Please read the instructions for this assignment carefully.

Each of the 3 questions on this homework contains a link to a news report about an observational study. Please read each of the news reports. After you have read a news report, answer the question by:

- a. Telling me which variables (“A” and “B”) the researchers found to be correlated.
- b. Providing an explanation for the correlation (“A caused B,” or “B caused A,” or “A and B were both caused by C”). This explanation can be the one the researchers give in the news report, if one is given. Make sure to explain your explanation—tell me why it makes sense that A caused B, or that B caused A, or whatever you say.
- c. Providing an alternate explanation for the correlation. For example, if you say in (b) that the researchers thought that “A causes B,” you might say in (c) that a better explanation might be that a third factor C causes both A and B. Again, please explain your explanation—why does your alternate explanation make sense.

## Example Problem

Study: <http://www.theguardian.com/science/2013/oct/08/aircraft-noise-pollution-heart-disease-stroke>

a. Which two variables, A and B, are correlated, according to the study?

A = *Living near an airport*

B = *Heart disease*

b. What is one explanation (maybe the researchers' explanation) for the correlation [circle one]:

i. A causes B

ii. B causes A

iii. A common cause C is responsible for both A and B

c. Is the choice you circled in (b) the researchers' explanation? [circle one]

Yes / No

d. If you picked (iii) in (b), what is the common cause C that is responsible for A and B?

C =

e. Please explain why your choice in (b) makes sense. Explain to me why I should believe your explanation of the correlation between A and B.

*According to the article, living near an airport exposes people to lots of noise from the airplanes. This airplane noise can raise their blood pressure, or disturb their sleep, which, over a period of time, can cause them to develop heart disease.*

## ALTERNATE EXPLANATION for Example Problem

f. What is another explanation for the correlation [circle one, but not one you already picked in (b)]:

i. A causes B

ii. B causes A

iii. A common cause C is responsible for both A and B

g. Is the choice you circled in (f) the researchers' explanation? [circle one]

Yes / No

h. If you picked (iii) in (f), what is the common cause C that is responsible for A and B? [Skip if you didn't pick (iii).]

C = *Working at the airport*

i. Please explain why your choice in (f) makes sense. Explain to me why I should believe your alternate explanation of the correlation between A and B.

*People who work at the airport have stressful jobs. They work long hours, and have to deal with angry or frustrated travelers every day. This stress can lead them to have heart problems later in life. Furthermore, people who work at the airport usually live near the airport, to shorten their commute. So it's not true that living near the airport causes heart disease, but instead working at the airport causes both living near the airport and heart disease.*

## Problem #1:

Study: <http://www.livescience.com/43507-stress-causes-headaches.html>

1.a. Which two variables, A and B, are correlated, according to the study?

A =

B =

1.b. What is one explanation (maybe the researchers' explanation) for the correlation [circle one]:

i. A causes B

ii. B causes A

iii. A common cause C is responsible for both A and B

1.c. Is the choice you circled in (1.b) the researchers' explanation? [circle one]

Yes / No

1.d. If you picked (iii) in (1.b), what is the common cause C that is responsible for A and B?

C =

1.e. Please explain why your choice in (2.b) makes sense. Explain to me why I should believe your explanation of the correlation between A and B.

## ALTERNATE EXPLANATION for Problem #1

1.f. What is another explanation for the correlation [circle one, but not one you already picked in (1.b)]:

i. A causes B

ii. B causes A

iii. A common cause C is responsible for both A and B

1.g. Is the choice you circled in (1.f) the researchers' explanation? [circle one]

Yes / No

1.h. If you picked (iii) in (1.f), what is the common cause C that is responsible for A and B? [Skip if you didn't pick (iii).]

C =

1.i. Please explain why your choice in (1.f) makes sense. Explain to me why I should believe your alternate explanation of the correlation between A and B.

## Problem #2:

Study: <http://www.dailymail.co.uk/health/article-2573675/How-Facebook-trigger-eating-disorder-Too-time-site-makes-body-conscious-food-obsessed.html>

2.a. Which two variables, A and B, are correlated, according to the study?

A =

B =

2.b. What is one explanation (maybe the researchers' explanation) for the correlation [circle one]:

i. A causes B

ii. B causes A

iii. A common cause C is responsible for both A and B

2.c. Is the choice you circled in (2.b) the researchers' explanation? [circle one]

Yes / No

2.d. If you picked (iii) in (2.b), what is the common cause C that is responsible for A and B?

C =

2.e. Please explain why your choice in (2.b) makes sense. Explain to me why I should believe your explanation of the correlation between A and B.

## ALTERNATE EXPLANATION for Problem #2

2.f. What is another explanation for the correlation [circle one, but not one you already picked in (2.b)]:

i. A causes B

ii. B causes A

iii. A common cause C is responsible for both A and B

2.g. Is the choice you circled in (2.f) the researchers' explanation? [circle one]

Yes / No

2.h. If you picked (iii) in (2.f), what is the common cause C that is responsible for A and B?  
[Skip if you didn't pick (iii).]

C =

2.i. Please explain why your choice in (2.f) makes sense. Explain to me why I should believe your alternate explanation of the correlation between A and B.

## Problem #3

Study: <http://www.stylecaster.com/wealthy-women-better-sex/>

3.a. Which two variables, A and B, are correlated, according to the study?

A =

B =

3.b. What is one explanation (maybe the researchers' explanation) for the correlation [circle one]:

i. A causes B

ii. B causes A

iii. A common cause C is responsible for both A and B

3.c. Is the choice you circled in (3.b) the researchers' explanation? [circle one]

Yes / No

3.d. If you picked (iii) in (3.b), what is the common cause C that is responsible for A and B?

C =

3.e. Please explain why your choice in (3.b) makes sense. Explain to me why I should believe your explanation of the correlation between A and B.



## ALTERNATE EXPLANATION for Problem #3

3.f. What is another explanation for the correlation [circle one, but not one you already picked in (3.b)]:

i. A causes B

ii. B causes A

iii. A common cause C is responsible for both A and B

3.g. Is the choice you circled in (3.f) the researchers' explanation? [circle one]

Yes / No

3.h. If you picked (iii) in (3.f), what is the common cause C that is responsible for A and B? [Skip if you didn't pick (iii).]

C =

3.i. Please explain why your choice in (3.f) makes sense. Explain to me why I should believe your alternate explanation of the correlation between A and B.