

## Assignment 1 (for Lecture 1) Solutions

April 6, 2017

- Q1. Find two unambiguous (but natural sounding) sentences equivalent to the sentence *The man saw the woman with a telescope*, the first where the man has the telescope, the second where the woman has the telescope.
- A1. The man saw the woman with his telescope. The man saw the woman holding the telescope.
- Q2. For each of the three ambiguous newspaper headlines I stated in the lecture, rewrite it in a way that avoids the amusing second meaning, while retaining the brevity of a typical headline:
- (a) Sisters reunited after ten years in checkout line at Safeway.
  - (b) Large hole appears in High Street. City authorities are looking into it.
  - (c) Mayor says bus passengers should be belted.
- A2.
- (a) Sisters reunited at a checkout line in Safeway after ten years apart.
  - (b) Large hole appears in High Street. City authorities are looking into the cause of it.
  - (c) Mayor says bus passengers should wear seat belts.
- Q3. The following notice was posted on the wall of a hospital emergency room.
- NO HEAD INJURY IS TOO TRIVIAL TO IGNORE.
- A3.
- ALL HEAD INJURIES SHOULD NOT BE IGNORED
- Q4. You often see the following notice posted in elevators:

IN CASE OF FIRE, DO NOT USE ELEVATOR

A4. Don't use the elevator otherwise there might be a fire. If there is a fire, don't use the elevator.

Q5. Official documents often contain one or more pages that are empty apart from one sentence at the bottom:

*This page intentionally left blank.*

A5. If the sentence were true, then the page would've been truly blank, yet it is not. The purpose of making such a statement is to indicate that the lack of content on the page is not due to some printing error. A more true sentence would read:

*This page intentionally lacks content.*

Q6. Find (and provide citations for) three examples of published sentences whose literal meaning is (clearly) not what the writer intended. [This is much easier than you might think. Ambiguity is very common.]

A6. "GOP Lawmakers Grill IRS Chief Over Lost Emails."<sup>1</sup> "Girl Hit By Car In Hospital."<sup>2</sup> "Robber Jailed For Shooting Dead Witness."<sup>3</sup>

Q7. Comment on the sentence "The temperature is hot today." You hear people say things like this all the time, and everyone understands what is meant. But using language in this sloppy way in mathematics would be disastrous.

A7. The temperature is "hot today"? "Hot today" is not a number.

Q8. How would you show that not every number of the form  $N = (p_1 \cdot p_2 \cdot p_3 \cdot \dots \cdot p_n) + 1$  is prime, where  $p_1, p_2, p_3, \dots, p_n, \dots$  is the list of all prime numbers?

A8. Take for example  $n = 6$ . Then  $N = (p_1 \cdot p_2 \cdot p_3 \cdot p_4 \cdot p_5 \cdot p_6) + 1 = (2 \times 3 \times 5 \times 7 \times 11 \times 13) + 1 = 30031 = 59 \times 509$  is *not* prime.

JUST FOR FUN

Q1. Provide a context and a sentence within that context, where the word *and* occurs five times in succession, with no other word between those five occurrences. (You are allowed to use punctuation.)

A1. And And and And And. (*And And* is a name)

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<sup>1</sup>The Wall Street Journal

<sup>2</sup>Edinburgh Evening News

<sup>3</sup>Daily Telegraph

- Q2. Provide a context and a sentence within that context, where the words *and*, *or*, *and*, *or*, *and* occur in that order, with no other word between them. (Again, you can use punctuation.)
- A2. And Or and Or And. (*And Or* and *Or And* are names)