Chapter 2  - Notes from students in class.

6a) The following sentence appeared on a restaurant menu: “Please note that every alternative may not be available at this time”. Describe the unintended meaning. Rewrite the sentence to state the intended meaning clearly.

Unintended meanings:
- All of the alternative menu items may not be available, therefore there could be no alternative items available at this time.
- Every possible alternative will be available later.
- Every offered alternative will be available later.
- No alternatives are available.
- All the things on the menu may not be available.
- Every alternative the restaurant has may not be available.
- No options are available.
- Nothing on the menu is available.

Rewrite:
- Please note that some alternatives may not be available at this time.
- Not every option is available currently
- Please note that not every alternative may be available at this time.
- Please note that not every alternative may be available at this time.
- Every offered alternative will be available later.
- Please note that alternative items are subject to availability.

6b) Give an example of an English sentence that has different meanings depending on inflection, pronunciation, or context.

- Everyone is wrong some of the time
- I lie here often.
- Do you have the king?
- You broke my heart.
- I fell on my can.
- A man walked into a bar.

8) From outside mathematics, give an example of statements A, B, C such that A and B together imply C, but such that neither A nor B alone implies C.

A: I love you.  B: You love me.  C: We love each other.
A: Dog is hungry.  B: Food is put out.  C: Dog is eating.
A: Person x is a natural born US Citizen.  B: Person x is 38 years old  C: Person x can be president of the US
A: If it is below 32 degrees.  B: there is precipitation.  C: It will snow.
A: Pat works in an elementary school.  B: Pat has many students.  C: Pat is an elementary school teacher.
A: She is a good teacher. B: She is a good mathematician. C: She is a good math teacher.

9) The negation of the statement “no slow learners attend this school is:
   
c) Some slow learners attend this school.

32) A fraternity has a rule for new members: each must always tell the truth or always lie. They know who does which. If I meet three of them on the street and they make the statements below, which ones (if any) should I believe?
   
   A) Says: All three of us are liars.
   B) Says: Exactly two of us are liars
   C) Says: The other two are liars.

Believe B:
A is clearly lying. So there must be at least one telling the truth.
If C is telling the truth then there are two liars. They must be A and B. But then B’s statement that there are exactly two liars would be true. Contradiction.
So C is lying.
We now know A and C are lying and since at least one is telling the truth, it must be B.
In fact that makes sense since B’s truth is that there are exactly two liars.